THE FOUR ROMAN CAMPS AT CAWTHORN, IN THE NORTH RIDING OF YORKSHIRE

By I. A. RICHMOND

The excavation of Cawthorn camps by the Roman Antiquities Committee of the Yorkshire Archaeological Society was made possible by Mrs. M. E. Mitchelson, of Pickering, who owns the site and generously refrained from shooting over it from 1923 to 1929. We also thank Mr. Payne, of Elleron Lodge, who lent us accommodation on the exposed moor. The moving spirit of the investigation was Dr. J. L. Kirk, F.S.A., whose local knowledge and enthusiasm lay behind all our efforts. General and financial propaganda was undertaken by Mr. William Newbold and Prof. H. A. Ormerod, secretaries of the Committee, and Lieut-Col. E. Kitson Clark, F.S.A., Hon. Treasurer. Generous grants were made by the Haverfield Trustees of the University of Oxford, the University of Leeds and the Leeds Philosophical Society. Trial trenches were dug in 1923 by Mr. F. G. Simpson, Hon. F.S.A. Scot., who first perceived the unique value of the site. Then the late Mr. H. G. Evelyn White, Lecturer in Ancient History at Leeds University, superintended a first season's work, assisted by the writer, by Leeds University engineering students, who laid down a surveyor's grid, and by Mr. F. Manby, photographer to the Agricultural Department. After this, the writer worked for five seasons; and among colleagues in the field, he wishes to thank F. G. Simpson, for invaluable advice, timely photography and spade-work on the *tribunal*; Dr. J. L. Kirk, for trenches in camp D; S. N. Miller, for friendly devil's advocacy; R. G. Collingwood, for inspiration and for help in the drawings; T. W. Woodhead, for reports on wood remains; and E. Hitchen and C. Bird, for conspicuous devotion as workmen.

THE SITE

In the Parish of Middleton, near Pickering, at the top of the long slope which forms the northern edge of Rydale, lies the farmstead of Cawthorn, giving its name to four Roman camps (Fig. 1).[1] Nowadays, the main roads that lead north from Rydale do not pass this way: but folk who travelled thence to Eskdale in ancient times would use this slope, avoiding the narrow Seven valley and Fylingdale; and a rapid

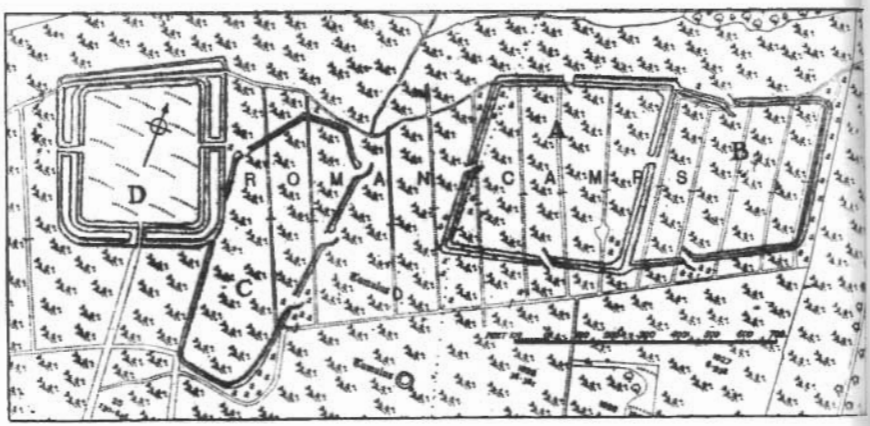

FIG. 1. GENERAL PLAN OF THE CAWTHORN CAMPS

reconnoitre would show that the easiest route on the slope passed through Cawthorn, aiming for the western shoulder of Wheeldale (Fig. 2). Cawthorn, moreover, is a natural halting-point: for the gentle rise from the south is here broken by a great east-to-west fault, well-known to northern geologists, which creates

[1] The camps were first planned by Drake (*Eboracum*, 1736, p. 36), who shows an imaginary Wade's Causeway leaving the North Gate of C, and a way to the river, out of the north-east angle of D. He also shows Porter Gate at the north-east angle of C, and in B marks vestiges of barracks where the turf mounds are most prominent to-day. General Ray (*Military Antiquities of the Romans in North Britain*, Pl. xi) produce an excellent plan of the camps, connecting them with Dealgin Ross and the Ninth Legion (see Roy, p. 65), in 1755 (see Macdonald, *Archaeologia*, lxviii, p. 172 for this date). Young, *History of Whitby*, vol. ii (1817), p. 699 makes Wade's Causeway form the *via principalis* of D, an unfounded guess. The best modern plans are those of the *Ordnance Map* and *Victoria County History*, *Yorks.*, vol. ii, pp. 14–15, which also includes some sections.

A. CAWTHORN SITE, SHOWING ESCARPMENT. A IS ON THE CREST OF THE HILL IN FRONT OF THE FIR WOOD.

Yorks. Arch. Journ.

B. DITCH AT N. JUNCTION OF A AND B.

PLATE II.

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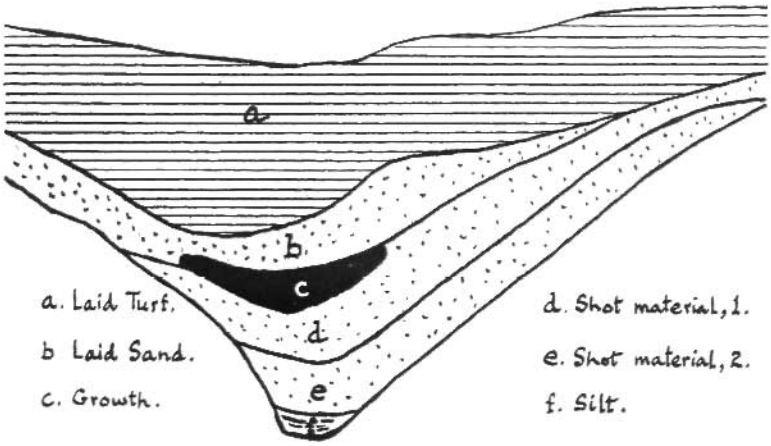
A. A'S DITCH AT N. JUNCTION OF A AND B.



B. KEY TO ABOVE.

a northward-facing cliff, 150 ft. high (Pl. 1 A). These are the facts which explain the position of the camps.

It is, however, usually assumed that their position is also determined by the Roman road, known as Wade's Causeway,[1] which ran from Malton to a

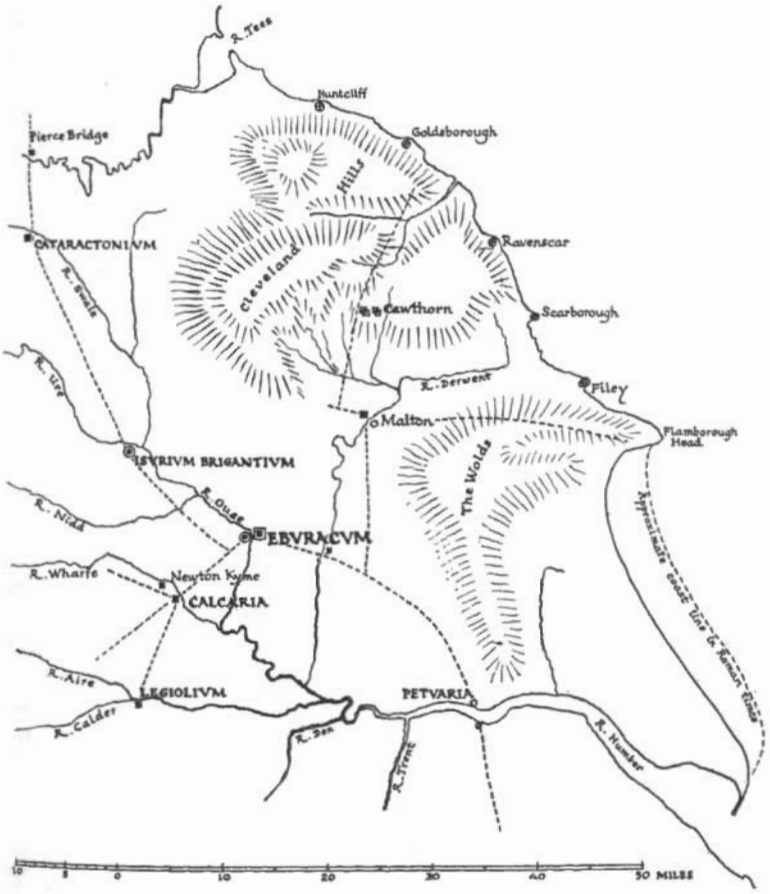


FIG. 2. MAP OF THE CAWTHORN DISTRICT IN ROMAN TIMES

destination, still obscure, near Dunsley Bay. But this is far from certain (see Fig. 2). In the first place, the course of the road near the camps is unknown. Even

[1] The name has no connection with General Wade, being older than his days of road-making fame, see n. 1; it represents a much older piece of folk-lore. The supposed inscription found on this route at July Park is not Roman, as Mr. R. G. Collingwood assures me.

two centuries ago,[1] when it was clear from Great Barugh, near Malton, to Middleton, there was a gap between Middleton and the north side of Sutherland Beck, below the Cawthorn escarpment ; and excavation has failed to add anything to our knowledge. Secondly, the history of the road is quite uncertain. It was clearly not an important highway, for it seems never to have been heavily metalled. Thus, it could be regarded either as a first-century line of penetration, analogous to the *pontes longi*[2] of Germany, or (perhaps less probably) as a fourth-century cavalry-road, connecting Malton with the northern Theodosian signal-stations (Fig. 2). Anyhow, it is clear that neither the road nor the camps throw light upon each other, and no proof has yet been obtained that they are in any way connected, except in so far as they lie upon the same natural route.

Tactically, the site has one serious drawback, despite its splendid outlook. The water-supply is bad. The two steep tracks which lead to the Sutherland Beck are entirely unsuited to vehicular traffic ; and the Saintoft Beck lies half a mile away to the south. Both streams are well out of range of the camps, and the geological formation of the escarpment, which is the rim of an anticline, precludes the digging of wells. Permanent occupation of the site is thus excluded. Temporary occupation could, however, be undertaken with safety in peace-time or with risk in war. And there were, in fact, two distinct occupations of the plateau, each presenting, as will be seen, the same odd characteristics.

THE FIRST OCCUPATION

(1) Its Extent

Field-observation long ago, and air-photography in 1925, revealed that the four entrenchments (A, B, C and D) were not contemporary. It was obvious that D overlay C, and therefore was the more recent work. On B, however, simple observation

[1] See Drake, *Eboracum*, p. 36.

[2] Tacitus, *Annals*, i, 63 : *angustus is trames . . . a L. Domitio aggeratus.*

threw no light, and it was alternatively regarded as a separate entrenchment or as an addition, or annexe, to A. Anticipating the detailed account, it may be said here that excavation proved B to include the whole

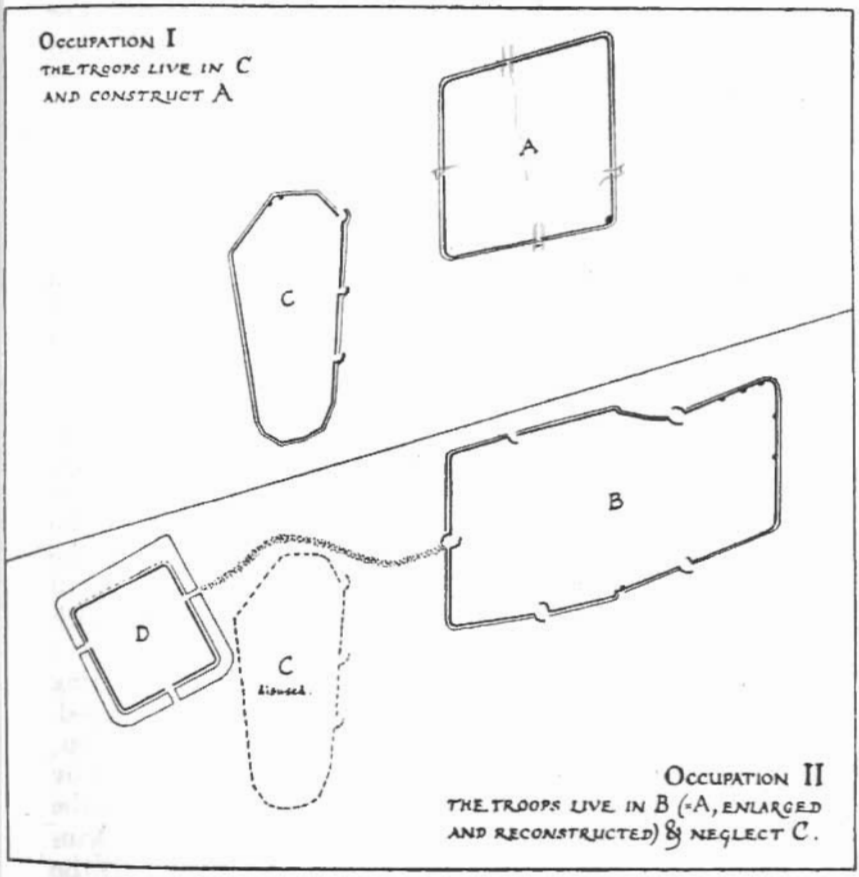


FIG. 3. DIAGRAM SHOWING THE RELATIONSHIP OF THE CAMPS

area of A; three sides of A's rampart having been refurbished, and the fourth side levelled and thrown back into the ditch, while B's new rampart passed across the filled ditch at two points (see Fig. 3; Pls. i B, ii). So it becomes evident that A and C are respectively earlier than B and D. Further, B and D are connected in purpose and time, since a lightly-metalled road joins

the two, avoiding the north end of C on its way. No road connects A with C, yet C is unquestionably related to an occupation of the plateau upon which A stands, since all its three gates are on that side, a most exceptional arrangement ;[1] and, further, it cannot be connected with B, since it is older than D, which linked with B by a road. The general relationship is thus clear ; B goes with D, and C with A. The significance of this twin arrangement will be discussed later.

(2) EARTH-WORK A

(*a*) The Ditch. The earth-work is completely surrounded by a great ditch (Pls. ii and xx), 15 ft. wide by 7 ft. deep, including a channel at the bottom 1 ft. square. The ditch is uninterrupted in front of all four gates, but at the east gate, amid a belt of rather harder rock, it is dug only to half[2] depth (Fig. 5) ; nor was this half-scale ditch considered unfinished, since it was provided with the regulation channel at the base. Under normal conditions, in the soft rock, the cutting of the ditch is good and the sides are smooth ; but, owing to the orientation of the camp, the cutting happens everywhere to be diagonal to the bedding of the rock, and, where the harder belts of rock occur, the surface is necessarily not wholly smooth (see Pl. i B). It is, nevertheless, remarkable what a degree of smoothness has been achieved, considering the difficulty of the work and the simple tools employed. The only bad piece of work discovered on the circuit, apart from a slight error in general lay-out, caused by sighting without the *groma*, was the curve at the north-east angle (see folding plan), of which the symmetry was spoilt, by carrying the deeper part of the east ditch too far northwards, a discrepancy which would be explicable if two gangs had been working

[1] The only parallels for the concentration of camp gates upon special objects come from siege-works, and even these are not unsupplied with a gate for retreat, just because serious war is in question.

[2] This seems a better explanation than the assumption that the presence of a small *tutulus* at the point gave sufficient security. For the *tutulus* does not cover the whole length of ditch, and the arrangement is not adopted in connection with the other *tutuli*. Nor is the difference to be explained in the same way as that at Raedykes (*P.S.A. Scot.*, l, p. 344) where the cause is contours.

Yorks. Arch. Journ.

A. *Tutulus* OF A COVERED BY TURF *clavicula* OF B AT S. GATE OF A.

Yorks. Arch. Journ.

B. *Tutulus* AT E. GATE OF A.

UNFINISHED *tutulus*. W. GATE OF A.

towards the angle, and the eastern sector had been pushed on too far. Some slight changes of alinement in the course of the ditch also suggest that we have to do with working-parties which literature describes[1] in connexion with camp-building. At all the gates except the north, where the escarpment provides a sufficient obstacle, the ditch is fronted by a second ditch, placed so as to cover exactly the gateway opening. Following tradition,[2] the name *tutulus* has been adopted for this obstacle, though it must be observed that the connexion with shortness is wrong, and that the name came not from *titulus* but from the same root as *tueor*, since the little ditch was a safety-device (see page 43),

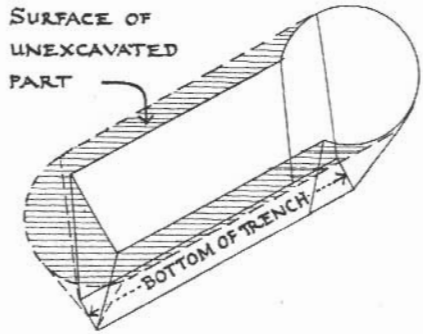


FIG. 4. DIAGRAM OF UNFINISHED *tutulus*

like the flaminical hat called by the same name. The *tutuli* at the east (Pl. iii B) and south (Pl. iii A) gates were beautifully cut. Neither contained much silt, and both had clearly been filled up again very soon, leaving on the surface no trace of their presence. The west *tutulus* was incomplete (Pl. iv), and its half-finished shape demonstrates how such small ditches were dug. The form arrived at was clearly evolved by widening (Fig. 4) the top of a narrow trench, dug to the depth and length required for the bottom of the completed ditch, and wide enough for a man to work in. The trench from which the process started could be rapidly

[1] Caesar, *B.G.* i, 42. See also Cichorius, *Trajan's Column*, Taf. xlvi, for a scene where two soldiers wrangle over their prowess in basketing earth.

[2] *De munitionibus castrorum*, c. 50.

cut with the pick, and the rest of the work could be done with an excavating tool, of the type discovered at Newstead,[1] the earth being carried away in baskets.[2] This method, however, suits small ditches only, and large ditches may have been dug in another way (see p. 72). Finally, the fact that one *tutulus* was unfinished supports the implication of the small amount of silt in the east and south *tutuli*. The gateway defences of A had a short life.

(*b*) The Berm. No space separated the outer edge of the rampart from the lip of the ditch, for the rampart was not heavy enough to crush the lip.

(*c*) The Rampart. The rampart (Fig. 5) is formed of the upcast from the ditch, which varies from rough lumps of rock, or 'brash,' to roughish sand, that sets sharp and firm. Such material could not stand alone safely, and was therefore reinforced with wood. This reinforcement was not the temporary form, of brushwood,[3] but was a solid erection, of permanent type.[4] The first element therein (Fig. 5) was a line of small vertical post-holes, on the lip of the ditch, spaced roughly ten feet apart on the straight, and five feet on curves. Only slight remains of timber were found in them, consisting of scraps of birch from the north-west and south-east angles. The holes were filled with fine silted rampart-material, very soft and and usually dark-coloured—less often, if the filling had been rapid, hardly discoloured at all. They held, it is clear, a rather small upright post; and their spacing would suggest that this held in turn a strut, thus taking directly the whole weight it had to bear, rather than some frontal line of bratticing which would give attackers a hold. Certainly, the holes are too slight for the posts to have held a front line of upright boarding, with the whole weight of the rampart behind it, and birch would not have been chosen for such work. The real front line of the rampart must therefore be

[1] Newstead; *A Roman frontier post*, Pl. lxi, Fig. 9.

[2] Vegetius, ii, 25; Cichorius, *Trajan's Column*. Taff. xv, xxx, xlii, xlvi.

[3] cf. p. 33, n. 4.

[4] I am particularly indebted, in writing the following section, to Mr. S. N. Miller's detailed discussion with me of the nature of this rampart.

sought six feet further back, where was found the second element. This was a continuous line of wooden uprights. They were fixed below ground, for about twenty feet on either side of each gate, in a continuous palisade-trench, filled with big wedging stones, like

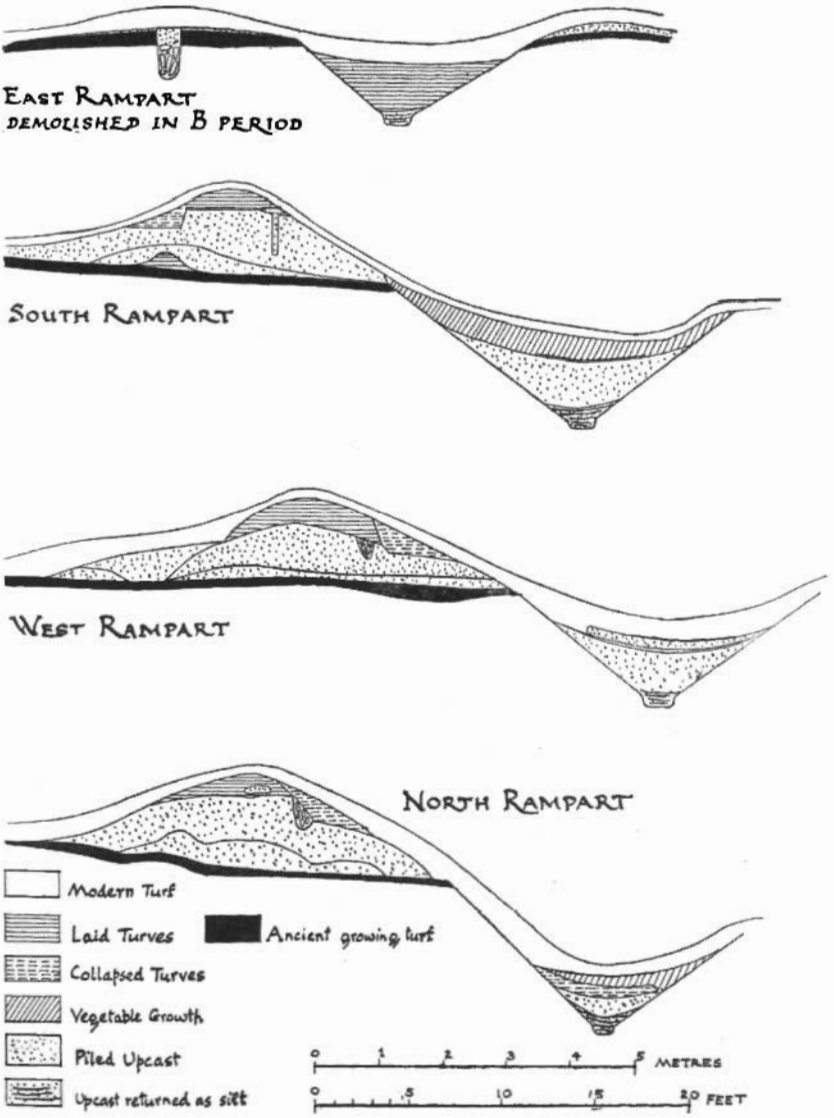


FIG. 5. SECTIONS OF THE DEFENCES OF A

the better-known and larger example of the German *limes*. The feature was particularly easy to follow, since the trench was cut below the rampart, through the original turf-covered ground surface, which was bleached white, by chemical action described elsewhere (see p. 54). At the east gate (see Pl. vii), the ground being rocky, the trench contained a post-hole at every ten feet ; but, after the second post-hole northwards, it sloped up and disappeared, suggesting that, as it got further away from its firmly-fixed termination, it had been planted rather higher up in the rampart-mass : while on the south side of the gate it stopped abruptly at the corresponding point, as if it had stepped up all at once. The east rampart, being almost completely demolished, did not provide quite everywhere evidence for the continuation of the trench at higher level, yet it was possible in most places, by cross-trenching, to detect the heel of the trench, with some of the filling (see Pls. xiv A and xv B) ; and all these points lined out with great accuracy. The best details of all came from the firm sand of the south rampart, which preserved not only a continuous line of trench (Pl. v A), but complete evidence about what the trench held. For the rampart-mass had here been firm enough to retain the impression of the boarding against which it had been piled, giving thus, from the south gate to the south-west angle, a slot so uniform and so continuous that it was possible to form a perfectly accurate estimate of the timber which it had contained. The fact emerged that the timbers were flat on both front and back, and from two to three inches thick. In other words, a continuous line of flat boarding was inserted in the rampart at this point. Boarding of this kind is unsuitable for a support ; and its unbroken continuity shows that it must have been the front palisade of the rampart. Further, it was not hammered into a completed rampart, but the rampart, as the layers of material clearly showed (see Fig. 5), was heaped on either side of it. Elsewhere, in the west and north ramparts, the traces were less perfect. The slot became a wider thing in stony upcast, and was also much discoloured, where the stones had jammed

A B

A. ' CLOSE-UP ' OF A'S SOUTH RAMPART, SHOWING PALISADE-SLOT. A AND B MARK THE TWO SIDES OF THE SLOT.

To face page 26.

PLATE V.

B. OVEN AI.

Yorks. Arch. Journ.

A. OVEN A3.

B. OVEN A2, VIEWED FROM RAMPART-TOP.

and it had not filled up solid: but only at one point, in the south rampart just west of the south-east angle, was it not to be found at all: and there the stones composing the rampart were so large and so tumbled, that no impression could be expect to survive. At the angles, the trench swung round in an easy curve, parallel to that of the rampart and ditch, and only at the south-east angle does it seem to have been interrupted. Further, two points which bear upon the length of life of this timber-work are clear. The wood was withdrawn from this slot, and did not decay therein; for, had the decay taken place, there would have been found either traces of the wood, or great discolouration of the sides of the hole and a much less well-consolidated filling. Secondly, to fill a vacant hole so tight as on the south side, the upper part of the rampart must have been loose and not long consolidated by time. In other words, the wood was not only purposely withdrawn, but dismantled fairly soon after it had been put in for the first time. The question, when this was done, will be discussed later, in connexion with the second occupation (see p. 48).

The two elements so far described, frontal post-holes and palisade-trench, ran all round the earthwork (see plan, Pl. xx). They were sought in many places, and, as explained, the frontal post-holes never failed to appear, while the palisade slot was only missing at one point. The third element was a line of rearward post-holes, stout and deep, set roughly five feet apart at the rear of the rampart, some six feet behind the palisade line. These were found between the east and south gates, with a break at the south-east *ballistarium*. Like the other holes, these contained no timber, but a mass of discoloured packing stones on edge, just like those of the palisade-trench: and in rockier ground, where they had been particularly difficult to cut small, they became veritable pits. The closer interval and size of these post-holes compared with the frontal line, and the relatively small mass of collapsed rampart behind them, combine to suggest that they held strong uprights, supporting a vertical back for the rampart. But all attempts

failed to find these posts in any other sector than that already described. They did not exist elsewhere on the circuit ; and thus it would seem that the rampart, like the west *tutulus*, was never completed.

What was the final, and what the intermediate, form of this rampart ? The strong line of posts at the rear, six feet behind the palisade-trench, demands a vertical back ; and this is also warranted by the relatively small amount of debris behind the line of the post-holes. Granted this back, it is not in doubt that above it must have lain the rampart-walk. Six feet further forward, comes the continuous line of upright, thin planks. This cannot be an intermediate support for the rampart-walk : it must be a continuous front. And the only point which remains in doubt is whether it had a parapet only, or merlons as well. Finally, the frontal post-holes will carry struts for the palisade, in the manner of Remagen[1] and Alteburg,[2] but without their complicated underground ties, of which there was not the slightest trace. There may have been a low brattice, to prevent debris from trickling into the ditch, but this seems doubtful, since the posts appear too far apart to hold such a structure safely.

The intermediate form has no vertical back ; and it is hardly possible to assume that the rampart was finished in this guise, for a reason which is as follows. To provide a steady rampart, upon which it would be possible to walk behind the palisade, it would be necessary to have at least twice as much material behind the palisade as now : and to get so much earth, even from so large a ditch as here, it would be necessary to have the palisade on the front line, in order to pack every bit of earth behind it, as at Munningen.[3] But this was not done : and it is, therefore, evident that the stage reached was that when earth was heaped on each side of the palisade, holding it tight, but leaving sufficient room to fix the rearward posts of the rampart-walk, and fill in the casing thus formed, so as to create a

[1] Remagen, *Bonner Jahrbuch*, 114–115 (1906), p. 229, pls. vii–x.

[2] Alteburg, *Bonner Jahrbuch*, 114–115 (1906), p. 249, pls. xii–xv.

[3] Munningen, *O.R.L.* 68a, pp. 3–4, pl. i, ii.

horizontal top to the rampart. Thus the stages in construction are as follows:

(1) *Lignatio:* the preparation of wood (*sudes*) for the palisade, composed of timber quite different from the stakes (*valli*) which the ordinary legionary carried.[1]

(2) (*a*) Ditch-digging; with which is contemporary

(*b*) The making of the *agger*, heaped up on either side of the palisade,

(3) The completion of the rampart, by constructing a permanent high-level rampart-walk behind it.

The whole rampart was brought as far as stage 2*b*, and only a small sector was brought to stage 3. This fact emphasises a point of importance. Not only is the whole order quite inevitable, but the character of the work is quite different from a temporary camp, or *aestivalia*, where ditch or rampart must be completed as soon as possible, and cannot be delayed by the preparation of wood, which in this case must have been a lengthy business, occupying some days. And since there is no sign that A replaced a slighter fortification, that grew into A, it follows that its builders must have lived elsewhere while making it.

(*d*) The Gates. The position of A's gateways is curious (folding plan, Pl. xx). Only the north and south gates are opposite each other, and these are almost central, leaving only a slightly larger part of the camp to the west: also, the north gate is a small postern. Yet, if the ordinary rules of castrametation obtain here, the north and south gates must be the *portae principales*, since only they provide a straight run through for the *via principalis* and allow sufficient space for the *praetorium* and *retentura*. The next question, seeing that the camp is not *tertiata*, is the position of *portae praetoria* and *decumana*. If general principles of castrametation count for anything, the east gate,[2] facing the enemy, should be the *porta praetoria*. But it is not central, and in this respect

[1] These would be the *quadrifidas sudes* of Vergil, *Georg.* ii, 25.

[2] Vegetius, i, 23.

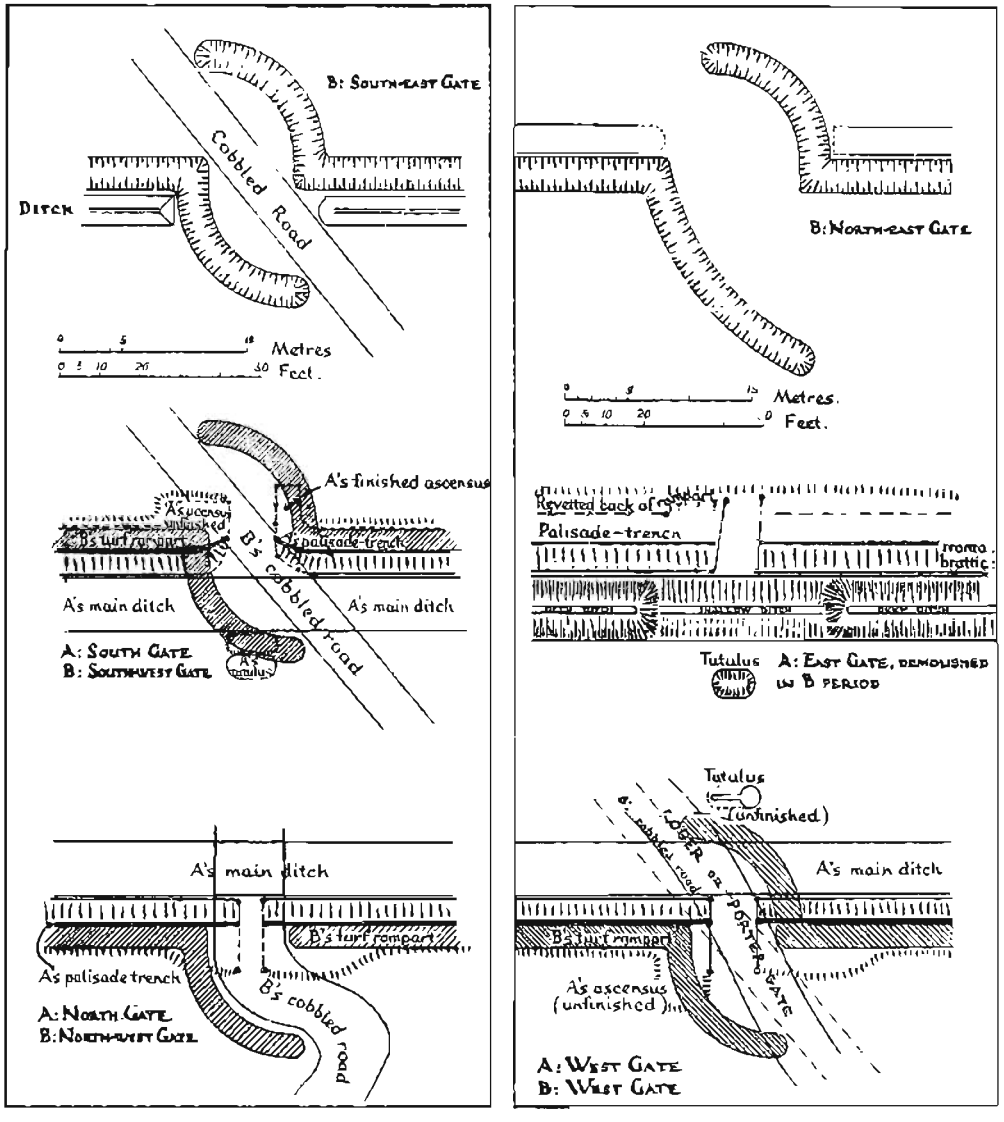
breaks the normal rule. Yet the displacement has parallels, for example, the early fort at Ambleside;[1] and here the device gives additional room for deploying between the gate and the escarpment. To choose the west gate for *porta praetoria* only introduces further difficulties. It is not on the offensive side of the camp; only the back of the entrenchment would then have a *ballistarium*; the back rampart would be completed before the front; and the *porta praetoria* would have an unfinished *tutulus*. Accordingly, it seems easier to accept the abnormal position of the east gate, and to identify it as *porta praetoria*, than to satisfy the augural requirements, leaving the tactical difficulties unexplained.

The names of the gates, however, matter less than their form, and about this much evidence came to light (Pl. vii). When the *tutuli* were discovered, it became clear that the early gates of A must have been much narrower than the wide openings between the *claviculae*, for *tutuli* are intended to cover at least the whole gateway opening.[2] Again, the openings, to tally in character with the rampart, must have had straight, boarded sides.

The first verification of these inferences was obtained by finding that the ends of the palisade-trench coincided with those of the *tutuli*. Post-holes were then sought and found to the front of the palisade, terminating the frontal line of post-holes, but very much larger than these, and confirming the view that the latter had not a great weight to support. This indicated a line of boarding on each side of the gate, at right-angles to the rampart and supporting its butt-ends. But it was clear that this boarding could not have stopped at the palisade, but must have continued backwards, to the rear of the rampart. Further search then revealed, twelve feet further back, another pair of great post-holes, defining the length and width of the entry, between boarded sides. At the north, east and west gates (Pl. vii) the plan thus outlined was rectilinear; at the south gate (Pl. vii)

[1] *C. & W. A. & A. Trans.*, Ser. 2, xxxi, p. 5.

[2] *De mun. castr.*, c. 49.



GATES OF A AND B.

the frontal post-holes curved inwards, forming a recessed entrance like the stone gateways of Plumpton Wall[1] (*Voreda*), but only the east side was completed. All the gates had a uniform width, except the north, which was a narrow six-foot postern. There was no indication of doors.

The twelve-foot extension of the entrance behind the palisade raises a further question. Clearly, it implies a special treatment of the back of the rampart at this point, since the normal depth of the rampart behind the palisade is about six feet. Again, if the rampart possessed the vertical back which the rearward post-holes imply, there must have been staircases or ramps (the *ascensus*[2] of literature) leading thereto; and, wherever else these may have been situated, there must have been at least one at each gate. No sign of these was visible on the surface. But, on peeling off the turf, a great mass of rampart-material could be seen extending inwards at right-angles to the rampart (Pl. vii), under the inner *claviculae* of the south and west gates. This mass was not related to the *claviculae* above it, but was obviously going to be used to make an ascent. At the east side of the north gate (see Pl. vii), a like mass seemed to lie parallel with the rampart, and similar parallel mounds could be seen at the west and north sides, respectively, of the south and west gates. The east gate, being demolished, provided no evidence. It was not to be expected, however, that, where the vertical rampart back did not exist, the ramps or stairs could have been fully constructed. Accordingly, only on the east side of the south gate was it possible to trace, by the aid of post-holes, the plan of an *ascensus*. This was (Pl. viii) a rectangular extension of the back of the rampart,[3] six feet square, which would provide for a rise of about six feet, with the usual nine-inch treaders and ten-inch risers of Roman staircases: and

[1] Plumpton Wall, *C. & W. A. & A. Trans.*, Ser. 2, xiii, p. 179, also Haltwhistle Burn, *Arch. Ael.* 3rd ser., vol v, p. 224: in civil fortifications the device appears at Colchester and Silchester, but is very rare.

[2] *De mun. castr.*, c. 58.

[3] The material for this work would, no doubt, be derived from the ditch in front of the Gate, from which the upcast would not be needed for the rampart: hence the need for digging a ditch here.

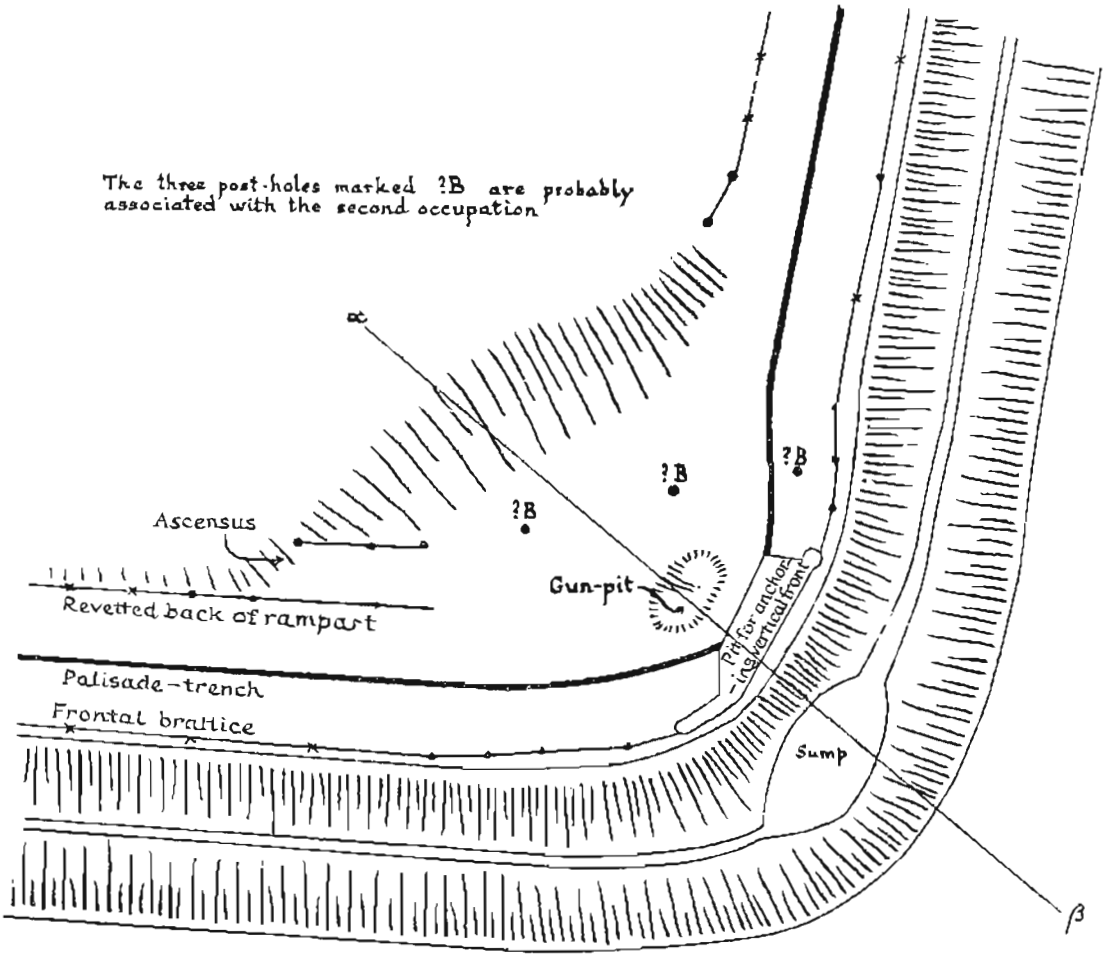
the relative shortness of the projection, compared with the ramps of Saalburg II[1] which measure as much as six, seven or eight metres in length, suggests that stairs rather than a slope were employed. Similar stairs were no doubt planned at the west gate: but the mounds (see Pl. vii) at the other sides of the west and south gates, and at the east side of the north gate, show that it was intended also to build the alternative type of ramp, parallel with the rampart, whence the *duplices ascensus*, or twin ramps,[2] of literature were derived. One such single ramp was discovered at the south-east *ballistarium* (see Pl. viii and p. 34), but the absence of post-holes elsewhere prevented the identification of more.

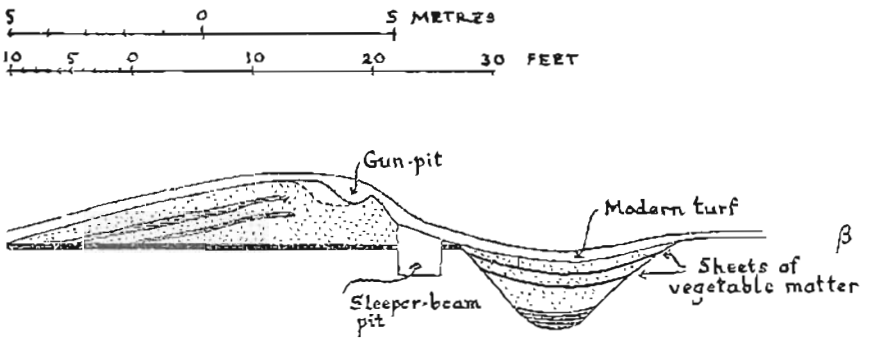
This lack of detail may be regretted, but there are compensations. For the gates thus provide the same evidence for unfinished work as the ditch and rampart. And there is a further important point. The shape of the mounds at the unfinished gates clearly indicates that the south and west gates were going to be provided each with two different types of *ascensus*, the sloping ramp parallel to the rampart and the staircase at right-angles to it. But this difference, as between one side and another, is quite contrary to the normal Roman arrangement, which provides identical staircase arrangements at each gate, in order to avoid confusion: and it becomes of importance later, in considering the purpose of the camp.

One more question remains. Was there a tower, or an overhead gangway, above these entrances? The size and depth of the post-holes proves clearly that there was no tower. Again, a gangway would require support in the centre of a twelve-foot opening, and holes for any such support were not to be found; and if there were a gangway, there would be no need for ascents on each side of the gate. These remarks apply to the south, west and east gates. The six-foot postern at the north gate appears to have had only one *ascensus*, and may therefore have been bridged by a gangway a continuation of the rampart-walk: but this

[1] Saalburg II, *Saalburg Jahrbuch*, iv, 1913, i, p. 14, Abb. 4, 5, 6, 9.

[2] *De mun. castr., loc. cit., duplices ascensus.*





BALLISTARIUM OF A, PLAN AND SECTION.

is by no means certain, since the post-holes at the end of the palisade, which should have held one of the main supports of the gangway, were not at all deep. It seems wiser to restore all the gates in the same manner, as long narrow passages, the *angustiae portarum*,[1] with high boarded sides, sloping down with the rampart from the palisade towards the front, but keeping uniform in height from the palisade backwards, to the base of the stairs. So those who were mounting the stairs would have cover, while the defenders of the gate could stand shoulder to shoulder against the high sides, like Caesar's hero, Baculus.[2] Such a gate could also be rapidly closed[3] with a sham wall or with a spiked barricade (*ericius*).

(*e*) The *Ballistarium*. One of the prominent features of A is the great mound at the south-east angle (Pl. viii). When trenched in 1924 it was found to be built up with alternate layers of turf and very stony upcast, like the alternate clay and brush-wood layers of the Birrenswark ramparts.[4] This composition, meant to give resiliency to the platform upon which the powerful spring-gun recoiled, indicated at once the real purpose of the mound. On top of it was a small gun-pit, much defaced by a large tree root, but, nevertheless, recognisable. In front of the mound the place of the frontal post-holes was taken by a great pit, whose edges were cut to a very definite shape, indicative of a series of beams to which the palisade and its struts had been fastened underground[5] (see Pl. viii and Fig. 6).

No system of post-holes was discovered, to suggest that the back of the mound was retained. On each side of it (Fig. 8) the rearward line of posts belonging to the east and south ramparts ceased when they reached the mound, and the mound itself seems to have sloped downwards at the angle of rest. It was not ascended by climbing this slope, however, since

[1] Livy, xxxiv, 46, xl, 25; Tacitus, *Agricola*, 26.

[2] Caesar, *B.G.*, vi, 38.

[3] Caesar, *B.G.*, v, 51 (wall of sods); *B.G.*, iii, 67 (spikes).

[4] Birrenswark, *P.S.A. Scot.*, 1898–99, p. 224.

[5] Caesar, *B.G.*. vii, 73, 2, *huc demissi et ab infimo revincti*: also Spartian, *vit. Hadr.* xii, 6, *stipitibus . . . funditus iactis.*

the post-holes for a parallel *ascensus* were found at the west side of the mound. Three of these ran along the back of the south rampart, denoting a ramp twelve feet long, rising at a gradient of about one in four. This gives a fairly intelligible gun-platform. But three other post-holes in the body of the rampart were hardly explicable on the assumption that they belonged to the *ballistarium*. They look more like posts connected with propping B's rampart over this awkward hump. The machine used on the mound was a fairly large

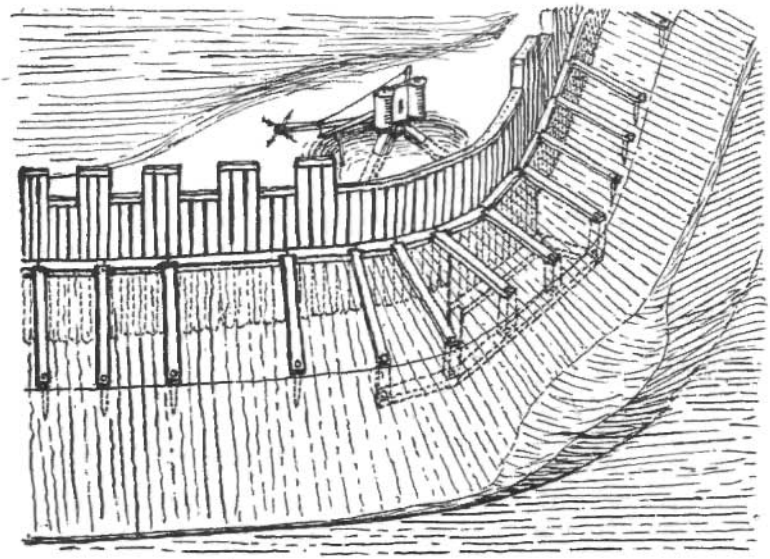


FIG. 6. BALLISTARIUM OF A, RESTORED

one: but the curious sheathing at the front, combined with the absence of any substantial sheltering tower, gives the same impression of temporary occupation as at the gates.

(*f*) Internal structures. The only structures inside A, apart from pits, which can be assigned to the first occupation are earth-ovens. All others, roads, *tribunal*, stone ovens, cook-hole, latrine and 'dug-outs,' go unquestionably to B, as will be explained when B is described. The earth-ovens divide into three distinct groups, those of the west rampart, that of the south-east quarter, and those of the centre.

(i) The ovens of the west rampart.

This group consisted of three ovens (Fig. 7 and Pls. V B and VI), carved in the back of the rampart, below ground-level, and disposed in a row, some 26 feet apart. Each oven was round and shallow, with a flat

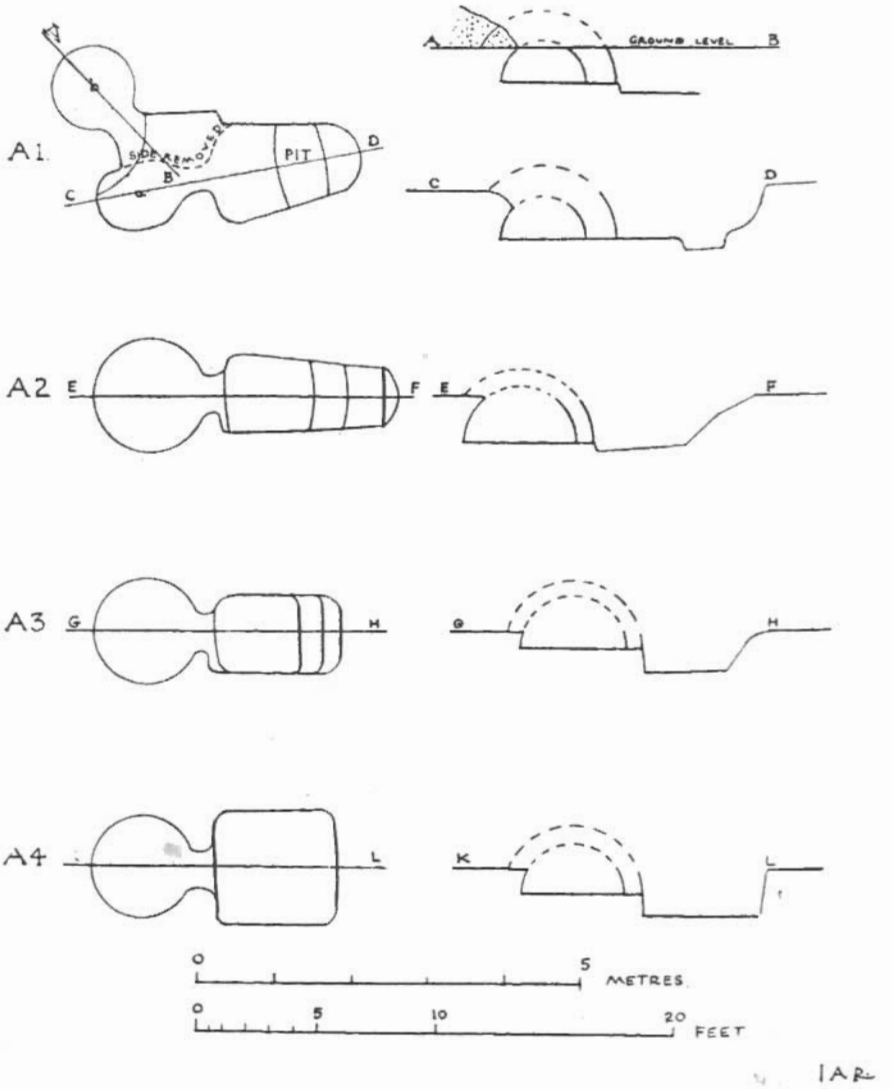


FIG. 7. OVENS IN A, PLANS AND SECTIONS

floor of natural earth; and in front of it was a great stoke-hole. The southernmost stoke-hole had no step, the other two had one step cut in the back of each. From the distribution of the ashes, it was clear that those using the ovens had stood at one end of the stoke-hole, and had raked out the ashes into it. The oven doors were about one foot wide, with a special notch in one side, as if for inserting a portable door, and there was, as usual in these structures, no flue to create a through draught. It is also evident that they were not used for long, since the burning within them had not baked the floors very heavily; nor, indeed, can such structures have been strong enough to endure much usage.

Some light was shed upon the structure of this type of oven, and its history at Cawthorn, by the northernmost oven (Fig. 7 A I, Pl. V B). This was quadrilateral, with rounded angles, a shape ill-adapted to carry a domical roof: and the roof, composed of layers of burnt earth (perhaps turf and clay, but the burning had disguised their nature) had collapsed. About one half of this ruined oven had been left as it was, with remains of the fuel, oak-scrub, inside it: the rest had been cut away, and a new oven had been dug, opening out from the north side of the old one. This oven was complete and had never been fired. But it went deeper into the rampart, and therefore its sides and back were carved deeper into solid earth than the others. It was thus possible to roof the structure entirely with large turves, and a great unburnt mass of these was found, covering the virgin floor and choking the oven. The history of the structure thus becomes plain. After short usage, the first oven collapsed, and a second was built, leading out of it and using the same stoke-hole; but this one was never fired. No clearer proof could be afforded of a brief occupation.

Ovens of this type are not common. The position is perfectly normal, and the early north rampart of the fort at Malton[1] has yielded very similar earth-ovens, now collapsed. But no example of the elaborate stoke-hole has yet come to light. It may be thought

[1] *Roman Fort at Malton*, p. 40; Fig. 49, T5.

that at Cawthorn three factors led to the making of the stoke-hole. In the first place, the site is very exposed and windy, and it would be much easier to deal with the rakings from the oven in the shelter of a stoke-hole than in the open. Secondly, it was necessary to cut the oven as much underground as possible, in order to have solid sides of the kind that the loose rampart-material could not provide. Thirdly, it was difficult to rake out such low and frail structures without destroying them, unless it were possible to rake horizontally, on a level with the floor. These needs could only be met by digging the stoke-holes which we see. It must be noted, however, that these ovens will not fit a rampart with a wooden back, such as was built in the south-east angle of A. They would come too close underneath the wood-work, and would certainly set it on fire. Yet it is quite clear that these ovens belong to the first occupation of A, since the *intravallum* road of B was laid on top of their filled stoke-holes. It is thus evident not only that no wooden back was fitted to the rampart here, but that it was not intended to fit one. Yet the rampart as constructed is useless without such a revetment. In other words, by the time the ovens were constructed it was known that the rampart was going to be left incomplete. This implication will be discussed afresh when the purpose of A is considered.

(ii) The south-east quarter. One oven of the type which has just been described was found in the south-east quarter of the camp (Fig. 7, A4). As might be expected, it lay away from the wooden back of the rampart. There are no constructional peculiarities to record: but the position (see folding plan) is quite abnormal, if the encampment is considered to have been designed upon permanent lines.

(iii) The central ovens. While the exploration of pits in the interior of A was in progress, a depression in the ground near a rather prominent hummock of firm sand was examined. Starting with a long trench, this presently led into a perfect oven, cut in the soil, with an intact roof of ordinary soil. It was also clear, from the plan (Fig. 8), that at least one other oven,

whose outline is completed in broken lines, had been cut through in making this one : and there was another incomplete one to the right. There were thus at least three successive ovens, of which none had been fired, nor was there any stoke-hole.

Two interpretations of this complex are possible. Whichever is chosen, it is clear that the work was incomplete, since the stoke-hole was not dug, and its place was occupied by a narrow trench, from which it would be quite impossible to operate the oven when fired. But the fact that the ovens were dug in succes-

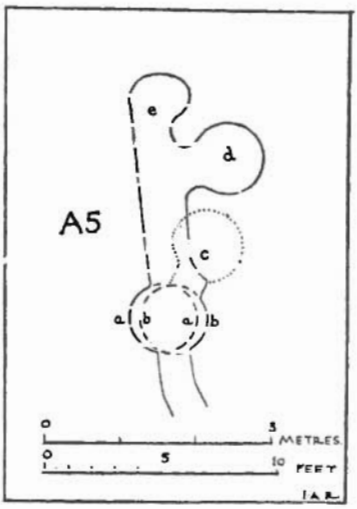


FIG. 8. PLAN OF OVENS NEAR CENTRE OF A

sion may mean either that three attempts were made to dig an oven for use, and that the operation only succeeded after two failures while the stoke-hole was not yet dug : or that a series of ovens was constructed for practice, and scrapped deliberately, one after the other. The latter hypothesis seems the more attractive. For the position of these ovens fits in with no normal plan, either temporary or permanent. Rather, it may be thought that the hummock has been selected because it seemed a good place for practice, while the ovens were not fired because they were not meant to

be used. This view will be considered afresh when the purpose of the camp is discussed (see p. 46).

(*g*) The Pits. Two great pits, lined with some sort of vegetable matter, perhaps moss, were discovered behind the south rampart, on the *intravallum*, west of the south gate. The purpose of these is obscure. They contained neither rubbish nor the remains of sewage, and would seem to have been used for storage, since the western one was provided with a step for getting down into it. But the position is a damp one, and it is difficult to see what they could have held except water. Three points suggest that this interpretation is right. The vegetable matter with which they were lined may indicate some sort of proofing to retain water in them. Their gently curving sides suggest that they were not ordinary storage pits. If there were baggage-animals in the train of the little army, as might be expected,[1] some such pools would be useful for their watering, upon so completely dry a site.

So much for A, its defences and internal structures. Its first occupation yielded no relics, and its relation to the second occupation is discussed on a later page. The discussion of its purpose is also postponed, since it is intimately connected with that of earthwork C, now to be described.

(3) Earthwork C

C is a remarkable camp, whose coffin-like shape (plan, Pl. xxi) has attracted attention ever since it was first planned by General Roy.[2] It has been explained as a cattle-compound, or, again, as a camp of auxiliary troops, less well versed in castrametation than the legionaries: and its close connexion with A has always been assumed. Whatever the value of these explanations, there can be no doubt that the last assumption is correct, since all the gates that the camp possesses (see Fig. 3) face A, and have wide passages, facilitating ready access thereto. Our new evidence, however, carries a little further than this.

[1] For baggage-animals, see *De mun. castr.*, 5. They were essential for transporting the tents.

[2] *Military Antiquities of the Romans in North Britain*, Pl. xi.

For, when it is proved that B and D belong together, and that C is considerably older than D, just as A is considerably older than B, the inevitability of the connexion between A and C is greatly strengthened. For the position of C, in the low ground between the two plateaux occupied respectively by D and A (or B), would never have been chosen unless A (or B) was already there or was planned to be put there. Now B, which goes with D, was certainly not there. Thus, only A remains, though the question whether it was there or not must wait until C has been described.

The excavations did not extend to the interior of C. For it was always plain, from surface indications, that this camp had contained pits and temporary erections of turf, just like those of B. Thus, as time was limited in the last season, when A and B had been thoroughly examined, the interior of C remained unexplored.

The defences, however, were examined in some detail. They consisted of a turf rampart and a ditch.

(*a*) The ditch. The beautifully cut ditch (Fig. 9) was of small dimensions, with the regulation channel at the base. It was carried all round the camp (see folding plan), including the *claviculae* at the gates. But it was not finished on the short north-eastern sector, north of the northernmost gate, where a great pit interrupted its course. Between this gate and the central east gate there were also three more pits. These pits were not later than the ditch, for the latter died into them, and was not cut through by them: and the finding of a fragment of rough native pottery in association with one of them suggested that they were earlier. But their purpose remains obscure, though it appears not impossible that they may have been quarry-pits connected with the *tumuli* (see Fig. 1) which exist in and about C. Yet, whatever their purpose, it seems highly likely that they influenced the lay-out of the north-east end of C, and partly account for its odd shape. The upcast from the ditch was spread in a very low mound outside it.

(*b*) The Rampart. Immediately behind the ditch, separated from it by no berm, came a small rampart

A. W. RAMPART OF C, IN SECTION.

B. OUTER DITCH OF D, CUTTING THROUGH W. DITCH OF C (HIGHER AND TO RIGHT), AT THEIR S. MEETING.

A. B'S SOUTH DITCH ENDING AGAINST THE WEST SIDE OF THE SOUTH *porta quintana.*

PLATE X.

B. B-PERIOD COOK-HOLE WITH STONE FIRE-BACK. A METRE ROD STANDS IN THE PIT.

To face page 41.

built in turf and very well preserved (Pl. ix A). There were no post-holes in connexion with it, and it was clearly neither wide enough nor high enough to carry a rampart-walk. In fact, it is a simple breast-work originally about five feet high, which weather has not denuded much. It is also clear that there was no sort of breast-work on the top of it, such as might have given to the defenders the shelter of parapet and merlons. For such a structure, had it existed, would certainly have been embedded in the rampart, and the turves,

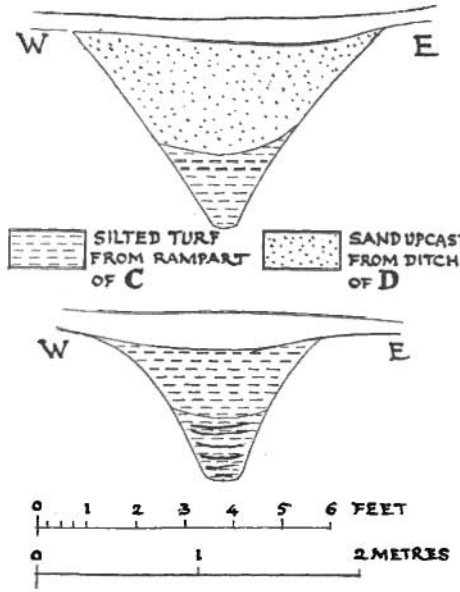


FIG. 9. DITCH OF C, SECTIONS

with their particularly plain black lines (see Pl. ix A), representing the grass-faces, were quite unbroken. Thus it is possible to be quite sure that the rampart was very like its present remains in the original form, though rather larger in bulk, and sharper in outline.

The rampart and ditch of C are thus remarkably different from those of A. They could be built and completed with great rapidity, and they are exactly the kind of structures prescribed by literature[1] for

[1] *De mun. castr.*, 49 (ditch), 50 (rampart).

aestivalia, granting the fact that the upcast from the ditch is too loose to make a rampart, and also too small in quantity. The temporary character of the work would thus be explicable if the builders were there for a short time only, on the march or resting for a night or two. But it is evident that this was not so, since the enclosure is covered with temporary structures which imply a rather longer stay. The explanation must therefore be that the builders had other work to do, and were anxious to spend as little time as possible over the defences of the earthwork in which they lived. The odd shape and position of the camp, the fact that its occupants decided to live in it while their other duties were in progress, and the very slight nature of the defences, indicate beyond doubt that there was no fear of an enemy or of surprises: whatever the work in hand, it was to be carried out in peace and tranquillity.

(*c*) The Gates. The arrangement of the gates (see folding-plan, Pl. xxi) is quite abnormal and unparalleled. There are only three, and all of these are on the east side of the camp, equidistant from one another, and from the angles. The arrangement thus breaks all the basic rules of castrametation, and indicates that the occupants of the camp were concentrating all their attention towards the east. But that attention cannot have been concerned with war-like operations, since, in addition to the points already mentioned, it is clear that no commander in wartime would have laid out his camp without *portae principales* or, more especially, without a *porta decumana*, which is essential on this site in order to cover the D-plateau.

The gates themselves are all three of exactly the same pattern and dimensions. The opening is wide, 38 feet across, and direct entry thereto is precluded by an external *clavicula*, running out, as regularly, on the right-hand side of defenders of the gate. The ditch also follows round the *clavicula*, and terminates, as discovered in the northernmost gate, in a bevelled square end (cf. Pl. x A), neatly finishing the whole work. There was no trace whatever of any wooden structure closing the entrance, although post-

holes were sought: and, indeed, it is clear that the presence of the *clavicula* renders useless such a barrier, which would leave the *clavicula* outside the gate and thus provide an approaching enemy with cover. The external *clavicula* is a more effective barrier[1] than the *tutulus*: for the latter bars the main line of entry, but does not prevent an oblique rush from the left by a force provided with shields. The real merit of the *clavicula* is to hinder this variety of attack, by leaving only an enfiladed entry from the right. Thus, it improves upon the *tutulus* by being, in effect, a *tutulus* linked with the rampart on its vulnerable side. The internal *clavicula* is designed on the same principle, and both can be combined, as in B. In time of danger, the entrance is closed, as at Dealgin Ross,[2] with a barrier.

The following conclusions about C, therefore, follow. The camp was rapidly constructed, with the minimum amount of labour, and with the minimum regard for defensive advantages. It contained a rather small body of troops, whose duties were somehow connected with the ground east of the camp. The troops were there for some time, since they rigged up temporary buildings, of the type which will be studied more closely in B. But they can hardly have been engaged in active campaigning, since they neglected the elementary precautions which a Roman army on campaign habitually took. It cannot be they did not know these precautions, or that they were unskilled, for their work, so far as it went, was highly efficient. Rather, they ran up their bivouac as quickly as possible, and began the work which they had come to do.

What was this work? The conclusion now becomes irresistible, that it must have been the occupation of the plateau upon which A stands. No other sup-

[1] Compare its use by Caesar at Mauchamp (Napoleon, *Atlas*, Pl. 9) and by Flavius Silva at Masada (Hawkes, *Antiquity*, June, 1929, Pls. i–ix, p. 198) in situations exactly supporting this view.

[2] *Military Antiquities*, Pl. xi; it seems doubtful whether digging would now reveal these peculiar gateways satisfactorily. The combination of inner *clavicula* and *tutulus*, as at Featherwood and at Glenwhelt Leases, would be another method, but this is rare; and a doubt may be expressed whether, as von Domaszewski and Collingwood suggest, the two things are meant to be used together, as described in *De mun. castr.* 50, 55.

position will account for the awkward position and the abnormal lay-out of C. For, if the work was further afield, then the army should either have occupied the A plateau, if A was not there, or have re-occupied A, if A was there already, or have occupied the D-plateau. Now A was indeed re-occupied, but the earthwork of that re-occupation was B, and B has nothing to do with C, but is closely connected with D, which is some years later than C. Thus, neither a re-occupation of A, nor an occupation of D is possible, and it follows that the occupants of C came to undertake the original building of A. They did not occupy the splendid position on the A-plateau, because they were intending to build A there. And it must be emphasised once more, at the risk of reiteration, that they came in peace.

How will this view of the case suit the evidence collected in A ? In the first place, it will be observed that the explanation adopted for C is just what is needed for A. It has already been pointed out that A was unfinished when it was abandoned, and that considerable time had been involved in getting it even so far built. In other words, the troops who were building A must have lived somewhere else convenient while they were at work. Thus, the conclusion that they lived in C now becomes really cogent, since it is demanded by the peculiarities both of A and of C, and fits both sets alike. In brief, C was laid out in relation to A—not *vice-versa :* C was finished—A was not ; C was intensively occupied—A was not ; C was rapidly constructed—A took some time to build. Thus, while our evidence supports the close connexion which had always been held to exist between A and C, it reverses the generally accepted relation between the two. For, hitherto, it has always been supposed that C was some sort of annexe to A. This remains true, but in the sense that the dwelling of a building-staff is the annexe of the building under construction.

(5) The Purpose of A

The facts thus elicited have an important bearing upon the purpose of A, but they result in an apparent

contradiction. It is quite evident that C was built under peaceful conditions, as its plan and defensive arrangements show. But A is very strong; it has all the air of a permanent erection, and its ditch and rampart would rank with those of most Flavian forts. If it had been completed and equipped with permanent buildings, it would have been a regulation fort. Thus, it might readily be thought that A was a permanent fort, for some reason never finished, and that C was the bivouac of those who came to build it. Gellygaer[1] provides a useful parallel of fort and bivouac side by side.

It is just at this point where the contradictions begin. In the first place, the site is not such as the Romans were wont to choose for the erection of a permanent fort, where the water-supply was always a prime concern; and here no water was obtainable, even if an attempt had been made to get it by digging wells. The position is also exposed to an abnormal degree: and, even supposing that permanent occupation was required in the Cawthorn district, which is by no means clear, there are several sites quite close which would have provided far better conditions. Finally, granting all this, why was the work not completed, when it started amid conditions of peace? It might be argued that the work started in peace and that opposition developed. But it was not the Roman way to yield before such opposition to permanent schemes anywhere, and it is quite out of the question so near the legionary fortress of York.

Another line of explanation would be that C was built in peace for some other work than A: that war-conditions then developed, and that the occupants of C entrenched themselves strongly in A, the crisis passing before A was finished. But this implies that A was not envisaged when C was built, whereas the very plan and position of C prove that operations on the adjacent plateau were intended from the moment when C was first laid out. Again, inside A, the occupants were spending valuable time in building

[1] Gellygaer: Collingwood, *Archaeology of Roman Britain*, Fig. 6.

ovens, when, on this hypothesis, they ought to have been devoting their whole attention to the defences. Finally, the defences of A, though very strong, are the result of long and deliberate work: they could not be erected rapidly, as this view demands.

What explanation, then, will fit a permanent work, built in time of peace upon a site quite unsuitable for such a work, and then left unfinished? There is just one possibility that remains unexplored, namely, the view already advanced to explain the central group of ovens in A, that the whole work was done for the sake of practice. In other words, that the camps were built for training during manoeuvres, and were then abandoned.

It is clear that this view explains C better than any yet advanced; its odd lay-out; the calculated concentration of its occupants upon the special work in hand upon the A-plateau; and the semi-permanent character of the buildings inside it. But how will it fit A? This may be demonstrated by recapitulating the different problems. The defences become completely comprehensible. Any amount of time may be spent on their erection, since as much practice as possible is wanted for all kinds of work, *lignatio*, ditch-digging, and the erection of a wooden palisade and rampart-walk. Only one angle need be completed, however, since this is enough for practice. For the number of troops involved, on this hypothesis, cannot have been very large. All were contained in C, which would hold at the most two cohorts. Again, the plan of the gates (see Pl. vii), with different types of ramp, explains itself: as much practice as possible is obtained by building gates of mixed plan, quite unsuited to serious campaigning, but useful in manoeuvres for teaching both methods of ramp-building or entry-revetment at once. The *ballistarium* (see Pl. viii) also fits as a practice platform, unprovided with a permanent tower, perhaps for first lessons in using the machine. Finally, the ovens turn out to be practice-ovens (see Fig. 8), which can well be built in abnormal positions (see folding-plan, Pl. xx), and are not always kept after being used, but demolished one

after the other, as in the central mound (see Fig. 8), or begun again, after a collapse, as in the west rampart (see Fig. 7, Pl. V B).

A further implication must now be mentioned about the character of the troops involved. The validity of this conclusion is quite independent of the manoeuvre theory, but it must be mentioned here because it goes far to strengthen that view. The camps are early in date. This is suggested by the *claviculae* of C and by the fact that A is not *tertiata*; and it is conclusively proved by the pottery associated with the B-occupation, described on a later page (p. 76, Fig. 20), to belong to between A.D. 90 and 120. The fact that A has a *ballistarium* then becomes of great importance, since *ballistae* as field-equipment were not yet being issued to auxiliary cohorts, but were entirely the equipment of legionaries. Legionaries are thus involved at Cawthorn, both in C and A. And with legions, so near their own quarters as Cawthorn is to York, there can be no question of changed plans or abandoned purposes. The occupation falls into place, in its first phase at least, as the manoeuvring-bivouac of the York legion, where one or two of its cohorts, perhaps those containing new recruits, learnt to build entrenchments, and to use the *ballista*. On this exposed site they also underwent that hardening process which was the glory of an efficient Roman legion.[1]

(6) THE EVACUATION OF A

Evidence already cited in connexion with the timbering of the rampart of A suggested that the occupation of this entrenchment was not long; and the character of the ovens and their use also hinted at the same conclusion. Much more positive evidence upon this point was given by the content of the ditch. Wherever the ditch was examined, the lower half thereof (see Pl. ii) was filled with a mass of rampart material, disposed so as to show that it had been shot down into the ditch and had not drifted thither with the action of weathering. Below it, there was very

[1] See n. 1, p. 77, for references to these activities in the Roman Army.

little natural silt, barely what would fill the channel at the bottom of the ditch. This evidence, then, would suggest that very soon after the ditch had been dug, it was half-filled with material from a demolished rampart; and the inference is that the demolition occurred when the wood was being removed from the rampart at the time when A was dismantled.

It might be suggested, however, that this dismantling took place not when A was evacuated, but when it was occupied for a second time, and refurbished in different form. But this notion was disproved at two points. When the northern junction of A and B was examined, it was found (see Pl. ii) that B's turf rampart had not been built directly upon the returned mass of rampart material lying in A's ditch. It was laid down upon a mass of fine marl filling, and below this, sandwiched between it and the returned rampart material, there was a thick layer of vegetable matter. Part of this was undoubtedly laid turf. but the last two inches looked like growth in the lowest part of the ditch. A clearer discovery was made at the north gate (see Pl. vii), where the ditch had been filled up to carry the causeway of the B-period occupation. The lower half of the ditch was filled with the usual mass of returned material. Above this came a thick blue-grey band of vegetable matter, and on top of it again lay a further mass of returned material, forming the causeway of the second period. Here there was no suspicion of the admixture of turf, and no mistaking the line of growth. In other words, the occupation of B was separated from that of A by such time as is required for a band of vegetable matter two to three inches thick to grow in the hollow of A's half-filled ditch; and the fact becomes clear that the filling was done at the close of the occupation of A, and that the growth took place between this operation and the construction of B.

Exactly the same type of evidence was yielded by a couple of sections (Pl. ii) in the east side of A, where the whole of the rampart had been demolished in the second period and thrown back into the ditch, so far as the latter would hold it. The two returned masses

were separated from each other by a band of vegetable matter, from two to three inches thick.

It is not at all easy to estimate how long such growth may have taken to form. But the following facts which bear upon the point may be recorded. Some of our own ditch sections were left open for two years. At the end of one winter, in damp positions, a thick growth of moss had established itself right up the side of the ditch, and the bottom channel was well filled. In two winters the growth had greatly increased, and strong coarse grass had established itself, in vigorous tufts. Thus, it would seem that about six to ten years, and not more, should be allowed for the production of conditions which would give the strong line of vegetable matter on this particular site.

A check upon this calculation is provided by the relation of C and D. At the southern junction (Pl. ix B) of the ditch-system of these two camps a detailed examination proved that D's outer ditch had been laid out so as to intersect C's ditch, and to cut right through it, regardless of its presence. At the point of junction C's ditch was therefore covered up with the yellow sandy upcast from D's ditch, and all the deposit which had got into C's ditch up to that moment was thus safely sealed. C's rampart, which was also in the way, was not returned into C's ditch, but spread in a broad mass as the glacis of the new ditch of D. Now the filling of C's ditch was very distinctive (Fig. 9), being composed of the wash-down from C's turf rampart: and it filled the whole of the channel of C's ditch and about one quarter of the ditch above that level, almost as high as filling of this class reached in any ordinary section. Immediately above it came the equally distinctive yellow sand upcast from D's ditch. Here there was no vegetable growth separating the two masses. In other words, by the time D's ditch was made, weathering had not yet finished its work on C, and was still depositing enough material from the rampart into the ditch, to prevent settled growth taking place there. In this case, a time-limit is a little easier to judge. When a turf-rampart is first built, weathering con-

solidates it, and in the process deprives it of a great deal of loose material. This denudation goes on for two or three seasons. But by that time growth is beginning to counteract the weathering action, and steadily reduces it. This has an immediate effect upon the conditions in the ditch into which the turf-rampart is silting. For as soon as the rate of deposit becomes small, vigorous growth can begin in the ditch; and, once growth is established, the character of the ditch filling completely changes, as other sections of C's ditch demonstrated to perfection. Thus, it is evident that D's ditch was dug about the time when C had almost ceased to weather markedly, but before growth had become established in its ditch. In this case, a time-limit distinctly less than a decade seems demanded; on the other hand, it cannot have been less than six years. And so, since C goes with A and D with B, there is substantial agreement between the time-limits, suggested by different conditions, in the two groups. If, in either case, the interval between the two occupations is suggested to be about a decade, the error one way or the other will not be a large one. Closer than this it is quite impossible to get, on present evidence.

THE SECOND OCCUPATION

(1) Its Extent

From the facts already considered, it is possible to see what the Romans found on the spot when they occupied the Cawthorn site for a second time. The defences of C must have been in excellent order. The rampart somewhat weather-beaten, but well consolidated; the ditch about half-full with silt, but not yet obscured by growth; the interior still exhibiting in good order the turf mounds and pits of the previous occupation. It would not have been impossible to refurbish such an entrenchment, and use it again, after a very few hours. A, on the other hand, would have required a far greater time for its reconstruction. A much greater mass of material was filling its ditch, upon which growth had already started,

and its rampart would have needed a drastic reconstruction. Without a complete rebuilding, involving a great expenditure of timber, it would have been impossible to restore this camp to its original form.

On the other hand, it was not difficult to refurbish A so that it might form a bivouac. The ditch was quite deep enough for this, even in half-filled condition, and the rampart could be made to serve by constructing a new crest. And this was, in fact, what was done. For the new force was too large to occupy C without extending it, and the position of C was not well suited to an extension, especially if work were planned upon the D-plateau. They therefore re-occupied A, but A also was too small for their needs, and was enlarged (folding-plan, Pl. xx) by demolishing the eastern side, and extending towards the east until the camp became a large bivouac, twelve acres in area. On the Scottish scale, which seems to allow thirty acres to the marching legion, this would be big enough to take four cohorts.

After this force had thus dug itself in, it began to turn its attention to the opposite D-plateau, just as the occupants of C had turned their attention to the A-plateau upon a former occasion. And they built there the earthwork D, connecting themselves with it by a lightly-metalled road (see Fig. 3). This earthwork, like A, has all the features of a permanent fort of small size[1] ($3\frac{1}{2}$ acres). As has been seen (Pl. ix B), its south-east angle impinges upon C, and it is clearly the earthwork which the occupants of B came to build. But they left it unfinished, just as A had been left unfinished at the close of the previous occupation.

(2) EARTHWORK B

(*a*) The Ditch. The west side, and one half of the north and south sides, were already surrounded by the half-filled ditch of A. This was made to serve without alteration as the ditch of the new earthwork. The eastern half of the enclosure was then surrounded by a new ditch (Pls. i B, x A, xi; Fig. 10) 8′ 9″ wide by 3′ 9″

[1] A distinction noted long ago by Young, *History of Whitby*, vol. ii, p. 698.

deep, with a deep little channel, 9″ by 1′ 0″, at the bottom. This was a much more formidable obstacle than the dimensions suggest, for it was very difficult to get out of it unaided, and an incautious or unexpected descent into it would certainly lead to a twisted or broken ankle, if to nothing worse. It is, in fact, a very skilfully designed obstacle, dug with the minimum amount of labour and providing the maximum amount of hindrance for its size. At the gates, which had both external and internal *claviculae*, the ditch was interrupted. It did not continue round the external *clavicula*, but stopped at its inner end (see Pl. xi A) with a neatly bevelled rectangular termination. It began

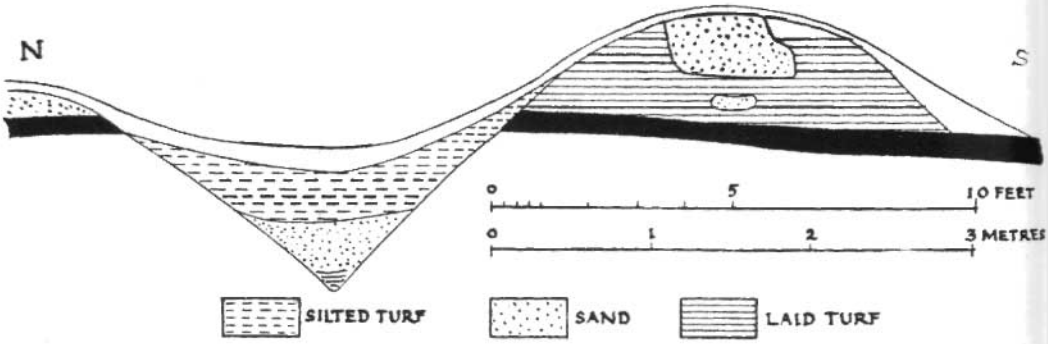


FIG. 10. N. DEFENCES OF B

again in the same line, at the end of the inner *clavicula*, but with a round bath-like end, better suited to draining the water from the gateway opening. At the angles (see folding plan) it swung round in an easy, open curve, parallel with the rampart.

The only points where peculiarities presented themselves (see Pl. i B; plan, Pl. xx) were the junctions with the old north-east and south-east angles of A. Here it would have been very difficult, from the engineer officer's point of view, to obliterate entirely the curved angles of A, and to continue its ditch towards the east in exactly the same line as its north and south fronts take. It was easier to recede slightly, and to make a right-angled junction with the east side, where the curve of the angles was just beginning.

In this way also the rampart could be carried more easily, and with greater likelihood of stability, across A's filled-in ditch. The only disadvantage was that this arrangement of the junction created a slight re-entrant in the line of the rampart; but this did not matter on the north side, where there was very little room between the camp and the edge of the escarpment; and on the south side, as will be seen, the fault was compensated by the provision of a *ballistarium*. The *ballistarium*, however, was also needed in order to meet a further difficulty. At the southern junction it would have been unwise to link the old and the new ditch-systems, since the point of junction is a low one, and the gathering ground of a considerable area. To have united the two ditch-systems here, would have resulted in the presence of a standing pool of water. The new ditch was therefore finished in a squarely-bevelled end just short of the side of the old one; and there was thus left a gap which had to be guarded by some special feature, like a *ballistarium*.

(*b*) The Berm. There was no space between the ditch and rampart.

(*c*) The Rampart. This followed everywhere the same general type, a breastwork of turf, placed just behind the ditch, in exactly the same manner as the rampart of C. But in detail, its construction varied in at least three ways.

In the first manner the rampart was continued along the half-demolished rampart of A as a turf capping (Fig. 5). The remains indicate that it was not built to the usual height or width, but was designed to give the older rampart a new, well-defined crest. At the gates (Pl. vii), as will be described in detail later, the new turf-work was made to form new *claviculae*, the turf-work became a complete rampart. At the north-west angle it was also being laid on top of a wash-out in A's old complete rampart.

The normal form measured 8′ 9″ wide at the base. It was composed entirely of turves, laid face downwards, and cut, in many cases, with feathered edges.

The turves were all very thick in live vegetation when they were cut, and this abundance of organic matter has left an extremely fine definition. The thick vegetation faces had carbonised, and the acid set up in the process had very effectively bleached the earth and root matter forming the sod proper, so as to render it extremely white, very sandy in consistency, yet firm and ice-cold to the touch. These observations cover the main bulk of the rampart. But towards the outer edge, where much damp had had opportunity to penetrate, the carbonisation had been superseded by oxidisation, the black carbonised matter being substituted by a very thin layer of oxide—ferric oxide at Cawthorn, since the local soil bears iron. This process was very marked indeed where the rampart had sunk down over the ditch of A at the north junction (see Pl. ii). The distinctive black lines had entirely disappeared, and their place was taken by thin red ones, not always so continuous or definite. Two years later a wet position produced similar results at High House,[1] on the Turf Wall that runs behind Hadrian's Wall. But Cawthorn provided the first case where it was possible to note the phenomenon in detail and to explain it adequately.

The third form which the rampart took was a composite one (Fig. 10), of turves and ditch-upcast. Two cheeks of turf were built up, on the back and front of the rampart, and a base of turves on which it might stand. The space between the two cheeks was then filled in with upcast, rather like filling a faced wall with grouting. This feature also was noted on the Turf Wall, but in rather less definite form, in the section cut at Appletree for the Hadrian's Wall Pilgrimage of 1930. At Cawthorn, so far as is known, it only occurs at the north-east angle of B.

(*d*) Gates. There were five gates in all (Pl. vii), two on the north and south sides, and one on the west side. The east side had no gate, and it is therefore clear that it represents the back of the camp. The three front gates, *porta praetoria* (west), *porta principalis*

[1] *J.R.S.* xxi, Pl. iii.

dextra (north) and *porta principalis sinistra* (south), are built on the site of A's gates: only the two rearward gates, the *portae quintana dextra* (north) and *quintana sinistra* (south) are new. They may be examined first, since they give a clue to the type.

The southern *quintana* gate was completely excavated (Pl. xi). It was found to be very accurately set out, with a radius of 21 ft. to the centre of the rampart, the centre being the inner tip of the opposite rampart for the inner *clavicula*, and the outer tip for the outer *clavicula*. The tips of the *claviculae* themselves seem to have been rounded off, but weathering made it impossible to be quite sure whether they had not originally approached a square plan more closely. The ditch associated with the inner *clavicula* ended in a round bath-like curve; that which ran up to the outer *clavicula*, without following round it, had a square bevelled end. No trace was found of any device to close the opening. The road passing through it was planned obliquely, but had been much damaged by rain-storms. It did not extend beyond the limits of the gate, towards the exterior. Traces of burning raised the question whether the gate had at any time been assailed with burning missiles. The burning is in isolated patches, and when first recognised it suggested some such explanation. But further examination revealed such patches, varying in heaviness and extent all over the camp, and never occurring in association with unquestionably Roman wood-work. They are therefore better explained by an entirely modern cause, the burning of sticks and brushwood when the site was finally cleared of litter in 1923.

The *porta quintana dextra* was of the same type as that just described, and it guarded the one possible descent from the camp to the Sutherland Beck. In order to place it better in relation to this break in the escarpment the line of the north side was slightly recessed at this point, and the inner *clavicula* formed a much elongated shallow curve (see Pls. vii and xx).

The *porta principalis dextra* differed from all the rest in having no outer *clavicula*, because of its prox-

imity to the edge of the escarpment, just as its forerunner, in A, had possessed no *tutulus*. The inner *clavicula* was identified and found to be of the usual radius (twenty-one feet), but it was not examined in detail. Like all the others, it was built in solid turf. The road through this gateway was well marked, and it has already been noted that it crossed A's half-filled ditch by a new causeway (see Pl. vii).

The *porta principalis sinistra* was also examined in detail. The remarkable feature here is the small amount of trouble taken to disguise the presence of an earlier gate. The butt-ends of A's much narrower opening were left projecting, and the new road-way built across their ruined tips. A's ditch was filled up to carry the road and the outer *clavicula*, and the outer *clavicula* was also laid out over A's filled-in *tutulus* (see Pl. iii A). In order to attach the outer *clavicula* to the front of A's ruined rampart, a series of three steps was cut in the earthwork, into which the turf-work was bonded. But this was the only feature in the adaptation showing forethought. The ditch-filling and the road-bottoming was not rammed, and it presently sank, leaving the deep hollows that gave the clue to the history of the gate.

The *porta praetoria* was damaged by the medieval pack-horse track known as Roger Gate or Porter Gate, which passed through the camp in an oblique direction (see plan, Pl. xx). Both the tips of the *claviculae* were eroded by the hollowing out and gradual widening of the track. The chief feature was the very marked return of A's rampart under the internal *clavicula*, marking the site of an earlier *ascensus* (see Pl. vii). If the *tutulus* of A's gate had been finished, the outer *clavicula* would have overlapped it ; actually, it only ran along the edge of the narrow, filled-in trench.

At both these gates it is quite evident that the filling-in of the earlier *tutuli*, in contradistinction to the filling-in of the main ditch, took place after a short interval of time. The deposit of silt at the bottom of each of them was so small as to form the very thinnest line, just sufficient to distinguish the filling from virgin soil. This is important, since it hints that on the abandon-

A. S. QUINTAN GATE OF B, FROM THE N.E.

Yorks. Arch. Journ.

B. S. QUINTAN GATE OF B ; LOOKING S.E. FROM INTERIOR.

A. B'S TURF-BUILT *ballistarium* WEST OF N.E. ANGLE.

B. B-PERIOD TURF MOUND, WITH TWO-FOOT SCALE.

ment of A some intentional demolition or obliteration took place.

(*e*) The *Ballistaria*. At six points in the *retentura* of B the back of the rampart was observed to be thickened, by the addition of mounds of built turf. So far as could be ascertained, these mounds (Pl. xii A) were semicircular, with a diameter of eight feet. Neither their form (Fig. 11) nor their disposition (see plan, Pl. xx) suggests that they were *ascensus*, which

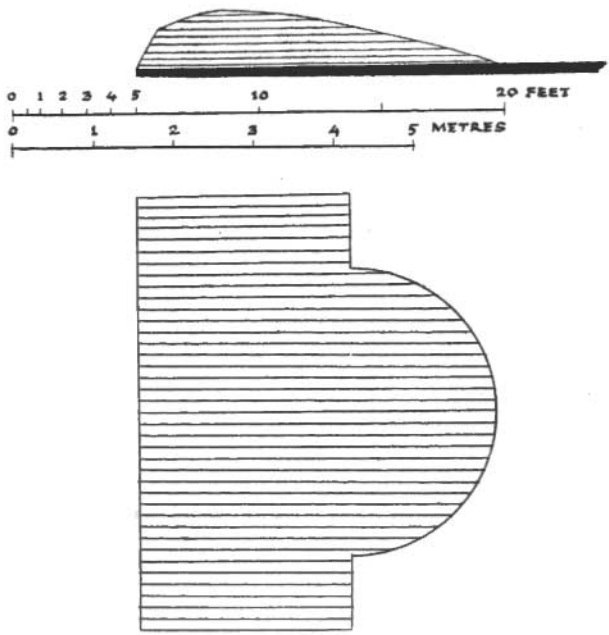


FIG. 11. TYPICAL BALLISTARIUM IN B, SECTION AND PLAN

this type of rampart does not require. They must therefore be *ballistaria*, or *tribunalia*, which ancient literature describes[1] as built of turf, designed to take a small type of *ballista*. The distribution of the northern set of three is of especial interest. They guard the space between the north rampart of the camp and the escarpment, and, at first sight, it looks as if they might be useful in repelling a rush of attackers towards the

[1] Ammianus Marcellinus xxiii, 4, 5.

north gate. But the field which they have to cover is so small that they would not be effective except in dealing with a crowd; and a crowd large enough to rush the camp by this means could attack with much greater effect elsewhere. It may therefore be concluded that the *ballistae* were placed here in order to practise shooting into or across the valley below, rather than to deal with any objective in the immediate foreground.

The other three *ballistaria* occur in the east and south rampart. Two divide the eastern rampart into three equal sectors, and the third is situated at the south junction of the ditches of A and B. The last-named is the one example which can be said to have a sound defensive object. But the disposition as a whole does not support the view that they belong to a carefully considered defensive scheme. The very facts that no gate is provided at the back of the camp, and that the scale of the defences is in no way commensurate with a defence that demands the use of artillery, suggest very strongly that the *ballistae* were there for practice rather than for serious duty.

(*f*) Internal Structures. These were numerous, but all, as will be seen, were of temporary character. They consist of four classes, turf structures, ovens, dug-outs and pits.

(1) Turf structures, including the *tribunal*. The earliest notices of the site refer[1] to the presence inside B of prominent mounds, suggestive of buildings. These are conspicuous to-day during the winter, not only in B, but in parts of A, and in C. That they were composed of turf was always evident in B, where rabbits have greatly disturbed them and scattered the characteristic grey soil; but most of them are too small and too saturated with moisture to exhibit the regular carbonised lines indicative of built turves. Many were examined before it was possible to secure a good example, but eventually this (Pl. xii B) came to light in the *retentura* of A. It was also impossible to make an accurate and satisfactory plan of these mounds, since most were worn down, especially at their butt-

[1] See Drake, *Eboracum*, 1736, p. 36: also Roy, Pl. xi.

ends or angles, and, when the laid turf was not there to serve as a guide, it was impossible to trace their course by trenching. Nevertheless, a diagram (Fig. 12) is appended of the best preserved mounds in B, in order to show that these were once related to tents or to rough buildings of the type that appear in not

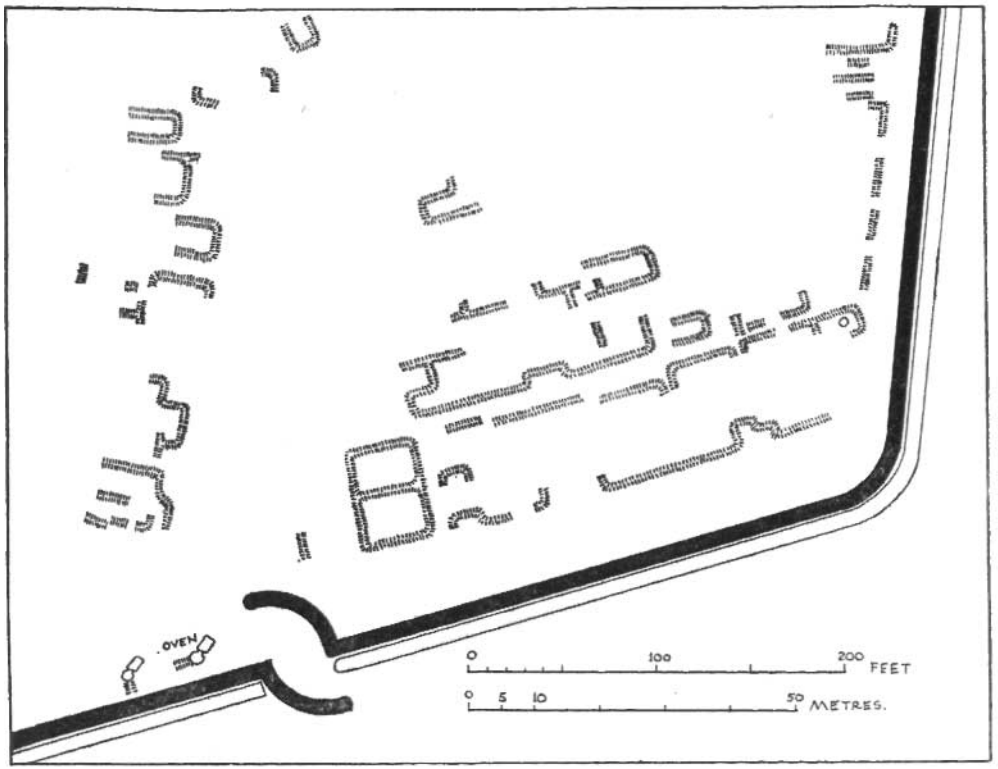


FIG. 12. TURF MOUNDS IN B

dissimilar stone mounds at Masada,[1] in Palestine (Fig. 13.) Most of the Masada mounds also defy precise interpretation owing to their scattered condition, although it is quite evident that all once were disposed in orderly and comprehensible fashion, visible in some. But, while on the one hand it is clear that at Masada buildings were involved, it is not clear that at

[1] Hawkes, *Antiquity*, June, 1929, Fig. 2, p. 207; Pls. v, vi, viii, ix.

Cawthorn these turf mounds ever formed the walls of buildings. Their size and shape make this extremely doubtful. In some places the lines are too isolated, in others too close, to form part of a building-system. Twice at least (see Fig. 12) they form a square or an oblong too large to stand without the support of wooden posts. Yet everywhere post-holes or sleeper-

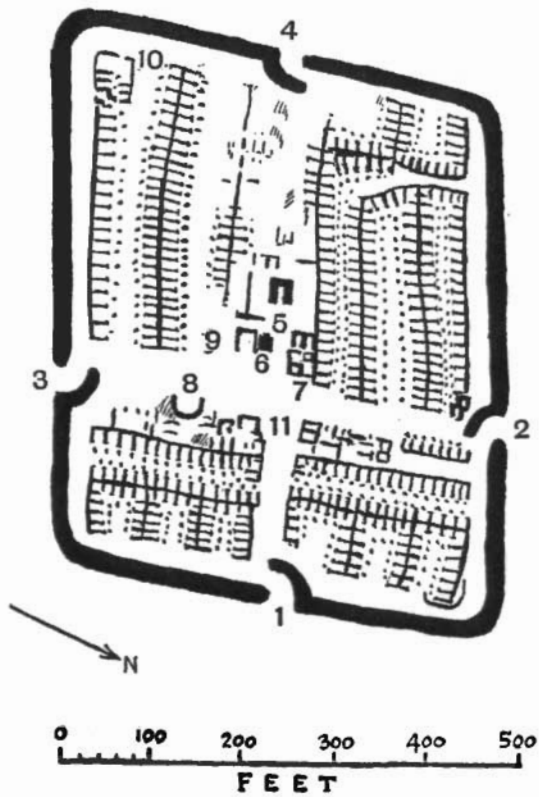


FIG. 13. ROMAN CAMP AT MASADA, PALESTINE
(Reproduced by permission from *Antiquity*, iii.)

trenches failed to appear in connexion with the turf-mounds, although they were not absent, as will be seen, in connexion with the 'dug-outs.' Thus it seems clear that these lines of turf have to be considered much rather as screens against wind, or as dams against wet, than as the walls of regular buildings,

and that they were arranged round tents or camp-fires, or even inside tents, serving as benches or tables.[1] Even on this view they do not all now become coherent; but the south-east group clearly marks two lines of tents, back to back, with a pair of centurion's tents next to the gate. Fortunately, there can be no question of their Roman date. They occur only inside the camps, and they are carefully orientated with them. One was connected with a stone oven (see Fig. 12), of indisputably Roman character; others border the Roman streets; finally, one of them (Fig. 14) screened a pit and supported a fire-back with which was connected a characteristic group of Roman potsherds. This important group is shown in Pl. X B, and it is

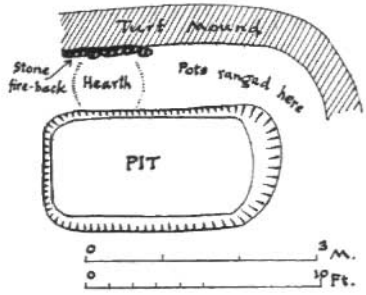


FIG. 14. COOK-HOLE OF B-PERIOD

evident that the object of the oval pit is exactly the same as that of the sunk stoke-holes of the A's ovens, namely, to avoid the wind on an exposed site. The turf screen serves the same purpose, and, in order that the fire may be laid up against it without spreading by smouldering, it is faced with a little stone hearth-back, as is done to-day in the Orkneys. The pottery, which was the most important group that the site produced, is described elsewhere.

The other structure of turf which calls for especial notice, is the *tribunal*. It has long been known that a prominent mound existed in the centre of A, at the junction of the *viae praetoria* and *principalis*. This

[1] Cf. Caesar, *B.C.* iii, 95, *recentibus caespitibus tabernacula constrata.*

had been recognised as a tumulus by Bateman in 1860, and was then examined for an interment. But the examination did not find the circular interment-pit immediately, since the mound (Pl. xiii B ; Fig. 15) had been altered in shape by the addition of built turves on its northern side, which disguised the position

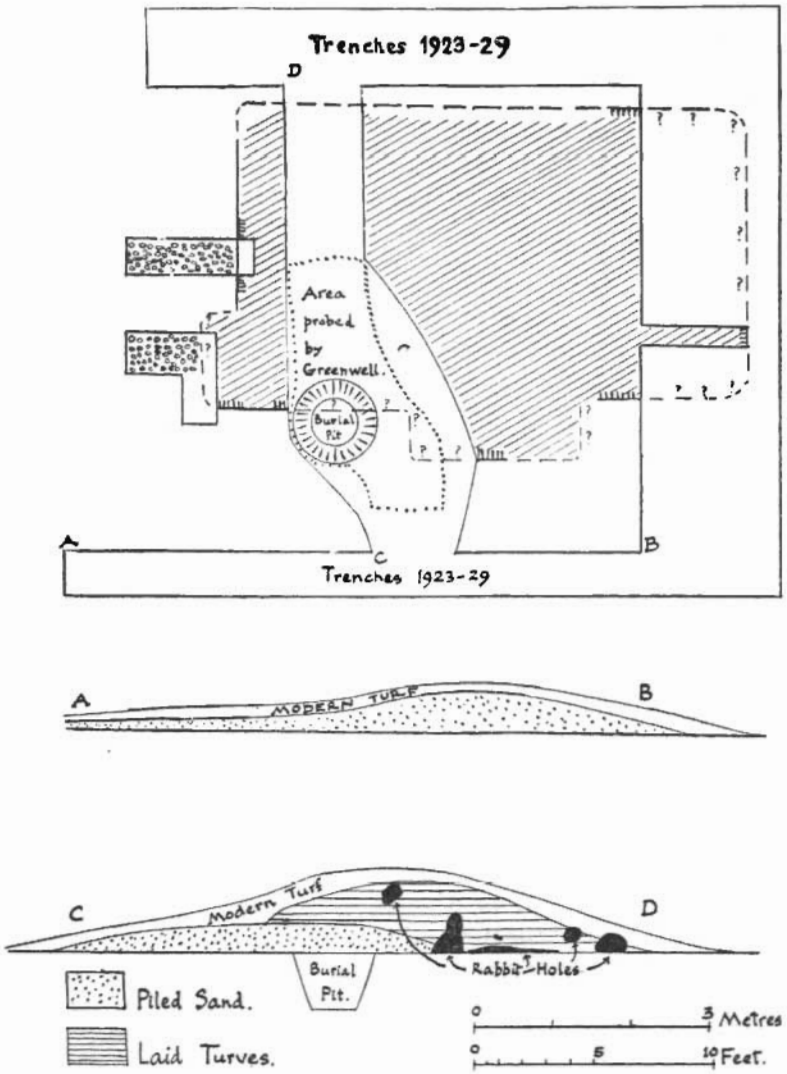


FIG. 15. TRIBUNAL, B-PERIOD

of the true centre. This digging, and the fortuitous work of rabbits, had done much to harm the mound, which was left alone after a preliminary examination by Mr. F. G. Simpson and Dr. J. L. Kirk in 1923, until 1929, when Mr. F. G. Simpson completed the work for the writer. Even then the presence of a hive of wild bees somewhat delayed operations. Eventually, there emerged a platform (Fig. 15), 12 by 22 feet in size, with two small expansions, like the type of *tribunal* shown on Trajan's Column.[1] There can be no doubt that this platform is in fact a *tribunal*, for its position in relation to the B-period street plan (see folding-plan) shows that it can be nothing else. The turf-work also connects it with B, but the conclusive proof of its connexion with B as against A is its relation to the general plan. It would not fit with the *praetorium* of the A-period, supposing that there was any such erection inside A at all. On the other hand, it fits nicely into the space that may be presumed in front of the commander's quarters of B, and borders upon the *via principalis*. It is also on the left-hand side, where tradition[2] insists that it should be: *parte laeva tribunal statuitur, ut, augurio accepto, insuper ascendat, et exercitum felici auspicio adloquatur.*

(2) The ovens. The ovens of B are illustrated as a group in Fig. 16. It will be seen that all, with the exception of nos. 4 and 5, were situated behind the rampart and were arranged in groups of two. All were rather carefully built in stone, with low bee-hive domes, probably turf-covered, over the top. They show signs of considerable but not lengthy use. All except the nos. 7 and 8, at the north-east angle of A, have a pit in front of them for use as a stoke-hole, but these pits are not carefully constructed, like the stoke-holes of A. No. 5 (Pl. xiii A) is situated among a group of turf mounds, and, as falling between the *viae quintana* and *principalis*, may be considered to form part of some officers' quarter. This would explain their exceptional

[1] Cichorius, scenes x, lxxvii, civ, cxxxvii. The *tribunal* at Masada has a projecting ascent at the back (Fig. 13),; see von Domaszewski, *Die Provincia Arabia*, iii, p. 227, Fig. 1108, and Hawkes, *Antiquity*, 1929, pp. 206–7.

[2] *De mun. castr.*, 11.

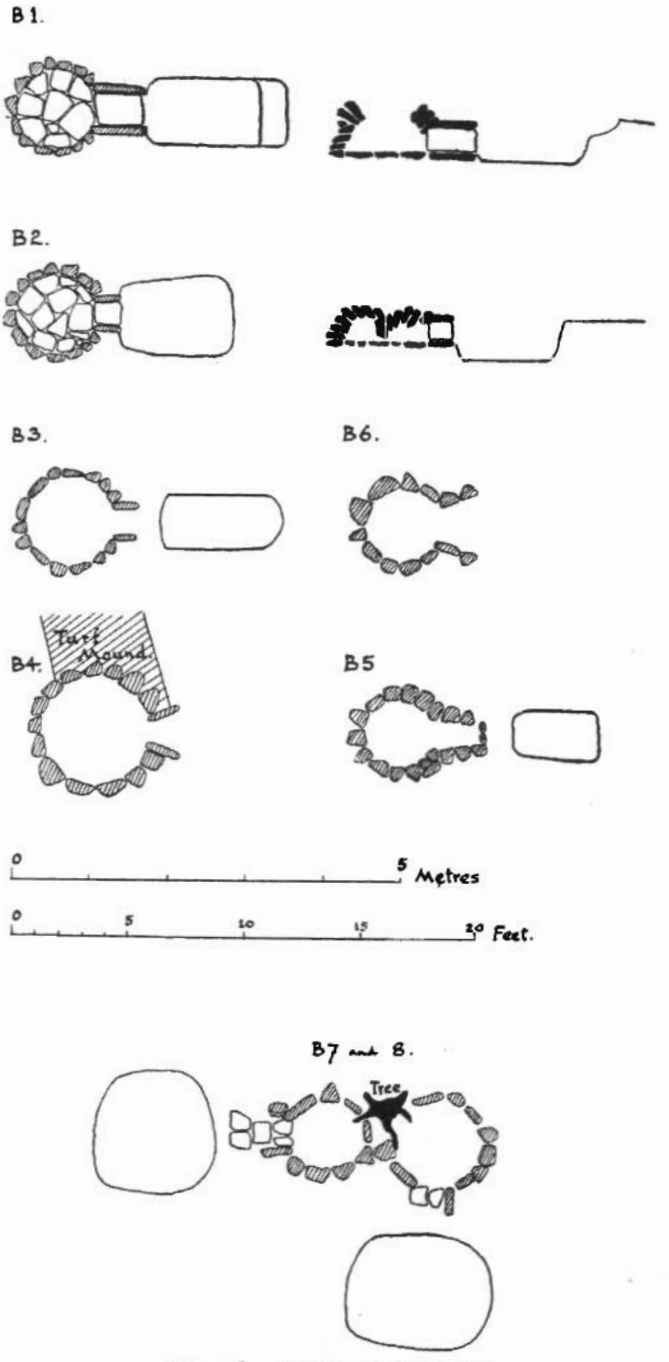


FIG. 16. OVENS OF B-PERIOD

Yorks. Arch. Journ.

A. STONE OVEN B5, AMONG TURF MOUNDS IN B.

B. B'S *tribunal*. THE BURIAL-PIT OF THE TUMULUS IS IN THE FOREGROUND, THE LAYERS OF THE TURF-BUILT *tribunal* APPEAR IN SECTION.

A. B-PERIOD DUG-OUT 2. THE OLD SURFACE LINE BELOW A'S DEMOLISHED RAMPART APPEARS BELOW THE POST-HOLES. THE INCISION TO THE LEFT OF THE FURTHEST POST-HOLE IS A'S PALISADE-TRENCH.

Yorks. Arch. Journ.

B. N. INNER DITCHES OF D, SHOWING MID-RIB.

position. Finally, two pairs of ovens, nos. 3 and 4 (Fig. 12) and 7 and 8 (Fig. 16), are set in different positions, at right angles to one another. The explanation suggested by Mr. F. G. Simpson for a similar pair at the Goldsborough signal-station[1] may be adopted here: on an exposed site high wind might render one or the other unworkable, but hardly both at once. It will be noted that no oven was found in the *retentura*, so that it is likely that at least another pair is to be postulated. No. 9–10 is of exceptional interest (see Pl. xvi A). It started life with a southward-facing flue, giving on to a large rectangular pit of the 'dug-out' class (see Fig. 17). This was an awkward arrangement, since it must have meant that the 'dug-out' was filled with a cloud of ashes every time the oven was used, quite apart from the danger to its temporary roof. After some little use the oven was therefore rebuilt, and made to face east. This does not imply that the group was used for a long time, but it demonstrates that the occupation was long enough for some discomforts to be noted and rectified.

(3) 'Dug-outs.' Five of these pits were identified (Fig. 17), in the area of the *praetorium*. All were of the same general type, an oblong pit with ridge-pole set above it on the long axis, and held by a post-hole at each end, while in the two back angles were cut slots for holding the struts of a wigwam roof. Owing to the angle of these strut-holes or slots, the type can be restored without difficulty (Fig. 17, 1).

No. 2 (Pl. xiv A) had a sloping back-end, with a post-hole at the base of the slope.

Nos. 3 and 4, which were rather smaller in size, had an additional feature (Pl. xv). The front end was continued forward for half its width, in order to form a convenient entrance to the narrow space, and the front post for the ridge-pole was situated at the junction between the pit and the rudimentary passage thus formed. Only small pits required this feature.

[1] Personal information from Mr. F. G. Simpson. The report will appear in a subsequent number of this *Journal*.

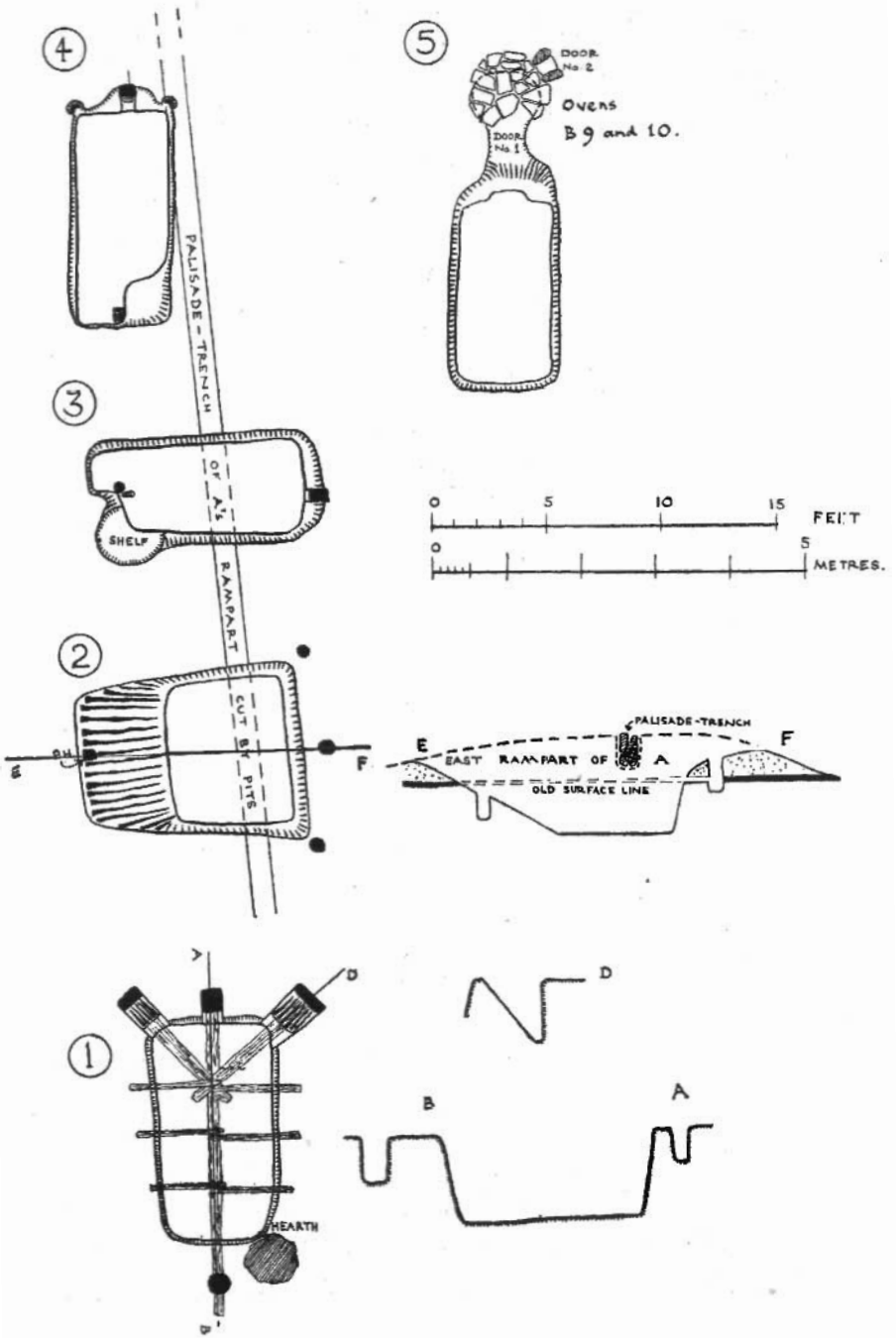


FIG. 17. "DUG-OUTS" OF B-PERIOD

A. B-PERIOD DUG-OUT 3. THE THIN WHITE LINE LEVEL WITH THE TOP OF THE POST-HOLE IS THE OLD SURFACE LINE BELOW A'S DEMOLISHED RAMPART.

To face page 66.

PLATE XV.

B. B-PERIOD DUG-OUT 4. THE LARGE STONES TO LEFT OF THE MAN'S HEAD ARE FROM A'S PALISADE-TRENCH.

A. B-PERIOD DUG-OUT 5, WITH SUPERIMPOSED OVENS B 9 AND 10, TO NORTH. A METRE ROD IS IN THE PIT.

PLATE XVI.

B. B-PERIOD DUG-OUT I.

To face page 67.

No. 5 (Pl. xvi A) associated with oven no. 9–10, possessed no post-hole or slot.

No. 1 (Pl. xvi B) had very finely developed post-holes and slots, and was the largest and most solid of all the 'dug-outs.' It was situated not far away from the *tribunal*, and, owing to its specially solid construction, it seems most likely to have been the 'dug-out' of the officer commanding the little army. Close to the entrance there was a hearth, near which was found part of a red carinated bowl, and further fragments of the same occurred in the bottom of the pit. This is important, since it proves the Roman date of the pit.

The fact that these pits belong to the second occupation is proved by the position (see Fig. 17 and plan, Pl. xx) of nos. 2, 3 and 4, which are cut in the demolished rampart of A, and destroy its palisade-trench.[1] Also, No. 5, as has been seen, is associated with one of the distinctive stone ovens belonging to B. It is noteworthy that all these pits are situated in the praetorian area. For it clearly implies that they are officers' 'dug-outs.' Both the *praetentura* and the *retentura* were well searched for similar features, which were well-marked depressions on the surface: and it can be stated with some confidence that they do not occur outside the zone described. Further, we feel equally sure that there are no more pits of the kind within the *praetorium* area. Thus, it follows that there were in camp five officials of sufficient importance to have 'dug-outs.' Three of them were grouped together, two had separate quarters, of which one must be connected with the *praetorium* itself. The significance of this will be discussed later.

We know of no precise parallel to these remarkable pits. Rectangular storage pits are not uncommon upon Roman sites, as at Newstead,[2] Slack[3] and Old Kilpatrick,[4] but they are not provided with wigwam roofs, nor do they occur in association with

[1] This might seem to invite an inrush of water, which most of the occupants of the plateau were trying to avoid. But it will be remembered that this dug-out was cut in a high-standing piece of the mound formed by the demolished rampart of A.

[2] Newstead, pp. 117-18, pits vi, ix.

[3] Slack, *Y.A.J.*, xxvi, p. 23-25.

[4] *Old Kilpatrick*, pp. 18, 19.

occupations so ephemeral as this. The Cawthorn pits are more like the shallow and larger pre-Agricolan pits, used as sleeping-quarters, between the *viae principalis* and *quintana* at Margidunum.[1] It is also clear that they are connected with a military occupation, as their precise alinement and the association of no. 5 with an oven proves. There can thus be no doubt that we have here a unique class of dwelling-pit, a Roman military 'dug-out,' or half-underground shelter, built to serve as officers' sleeping-quarters on an exposed site. The idea of luxury-quarters is not strange in a Roman army occupying a site for some time, and it is illustrated several times in Roman literature.[2] In actuality, it occurs at Numantia[3] and at Masada.[4] But the form which it takes at Cawthorn is unique, and may therefore be welcomed as particularly interesting.

(4) Pits. During the search for dug-outs and ovens many pits were identified, but few were of interest, and fewer still contained objects. The pottery from the cook-hole shelf and a fragment of glass from no. B2 are the notable exception. Most of them appeared to be storage-pits, or pits for the collection of water. No. B4 was linked up with a drainage channel. No. B6 was dug so close in behind B's rampart that it may be suspected to have served as a latrine. No. B1 was supplied with a step.

No. B5 merits a more detailed description. It was oblong (Pl. xvii A and Fig. 18), five feet wide, nine feet long and five feet deep. Its long sides were not vertical, but sloped sharply down for one foot, leaving a trench at the base nine feet long by three feet wide and four feet deep. Opposite the sides of the narrow portion, at each short end of the pit, were two post-holes. The purpose of this pit can hardly be in doubt. It must certainly be a latrine-pit,[5] and it is noteworthy

[1] *Margidunum* (Nottingham Art Museum publication) p. 19, Pls. i, vii, xxii.

[2] Caesar, *B.C.*, iii, 96, Livy, xli, 2. *Vita Hadriani*, 10.

[3] *Numantia*, i, p. 369; iv, Taf. 6, xxv.

[4] Hawkes, *Antiquity*, June, 1929, p. 207.

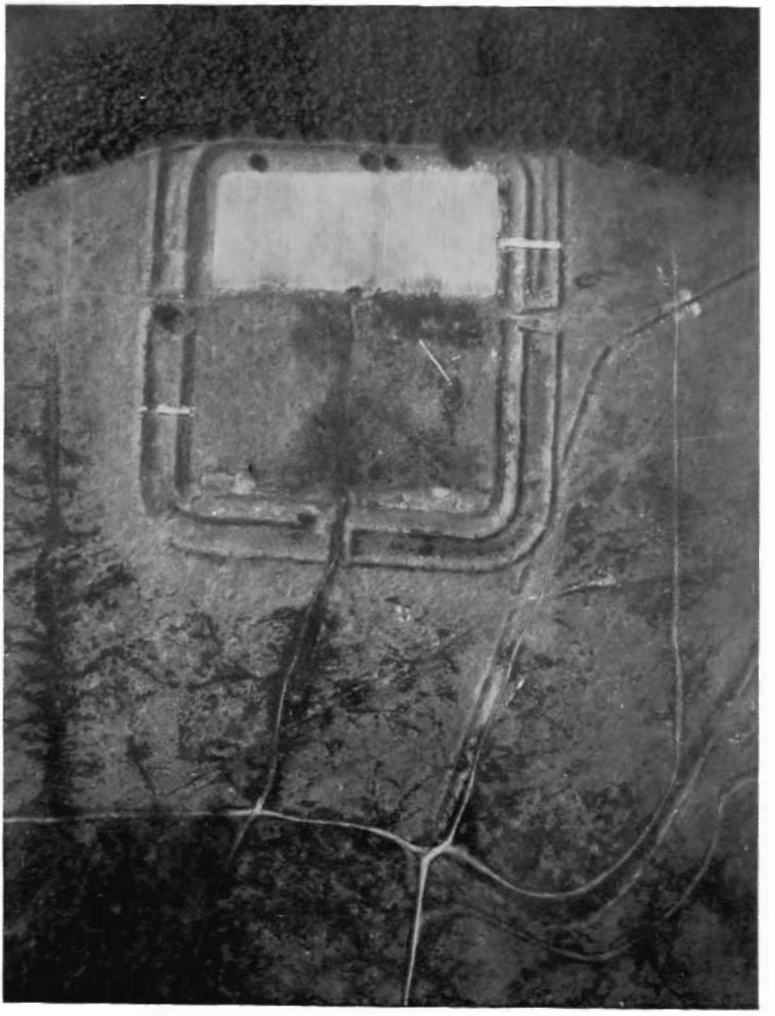
[5] Latrine-pits are not, so far as we know, mentioned in Roman literature: but the ordinary latrine, as existing at Housesteads, Ostia or the Palatine, is a simple oblong pit, with a drain in the base of it, and seating ranged above it. It probably derives from the temporary form.

A. B-PERIOD LATRINE-PIT : THE CANES MARK THE SITE OF POST-HOLES : A METRE ROD IS IN THE PIT.

To face page 68.

PLATE XVII.

B. D'S OUTER EAST DITCH, *fossa punica.*



AIR-PHOTOGRAPH OF THE JUNCTION OF C AND D.

that the type corresponds closely to that dug by the modern army in the field. It was well filled with turf, not silted but packed; thus it would seem that the pit had been systematically filled up before being abandoned. This also would conform to the best practice. The size of the trench, however, and its position in the praetorian area would suggest that it was not meant to accommodate more than a few officers: and although search was made for the men's trenches, in the hope of locating rubbish therein, it did not meet with success.

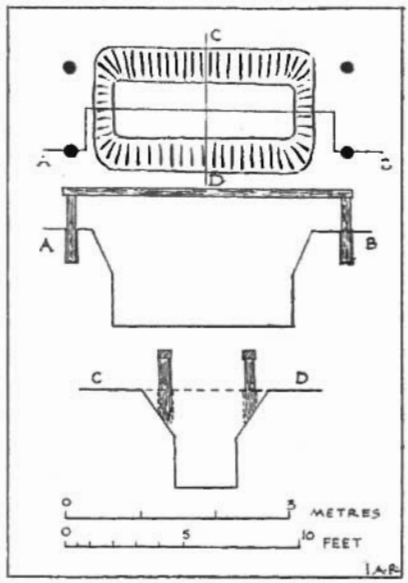


FIG. 18. LATRINE-PIT, B-PERIOD

(*g*) Streets. The *viae praetoria, principalis, quintana* and the *intravallum* were clear. The lines of other streets are less well defined, but at least two are clear. The effect of this upon the planning of the camp (see folding-plan) is to make its main lines certain, but its details highly uncertain. At the south *porta principalis* the street was laid upon a foundation of laid turf, giving a camber.

(3) Earthwork D

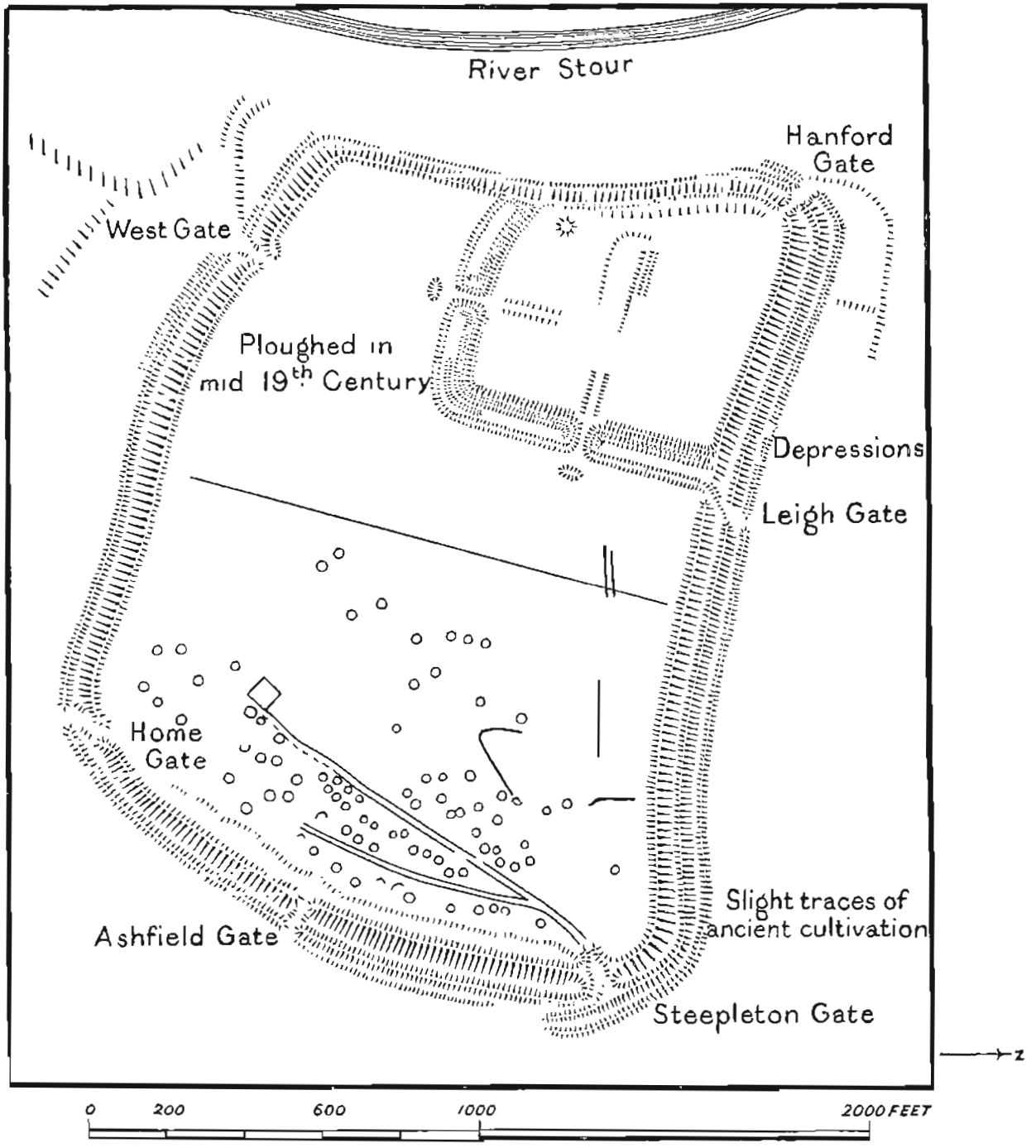
The westernmost camp (see plan, Pl. xxi, Pl. xviii), which goes by the name of D, is the most distinctive and best preserved of the four. In type, it very closely resembles the Roman camp (Pl. xix) on Hod Hill,[1] Dorset, being protected by two sets of ditches, separated by a wide platform or ravelin and backed by a strong rampart. Its size is just over three and a half acres. The proportions are not tertiate, and there is no north gate. A well-marked mound crosses the earthwork on the site of the *via principalis*, and it becomes clear that the south gate is the *porta praetoria*, while the east and west gates are the *portae principales sinistra* and *dextra* respectively.[2] Neither the gates nor the rampart were examined in detail, but the defences were cut at three points by sections (Fig. 19), and the following facts were revealed.

The rampart is composed of turf, and is twenty feet wide at the base. But the turves do not seem to have been laid, since they do not exhibit the regular lines, either in perfect or debased form. There is no berm. The ditch system is divided by a platform, thirty-one feet wide, into two sets, inner and outer, linked by ditches returning sharply at right-angles on each side of the gateway openings. At the edge of the escarpment, the platform is reduced to twenty-seven feet in width, in order to make the outer ditch larger and wider.

The inner ditch system differs markedly in character. On the north side, section A produced a double ditch (Pl. xiv B), sixteen feet wide, each ditch being seven feet wide by three and a half feet deep. Section B produced one central lock-spit. Section C produced only a shallow depression. On the east side, section D produced a similar shallow depression, with a little heap of upcast therefrom. On the west side, section F gave the same result as section D. But a further section on the east side, E, gave the same result as

[1] Crawford and Keiller, *Wessex from the Air*, Pl. i.

[2] This depends upon accepting the view that right and left were reckoned as if looking out from the *praetorium*, which seems most probable.



PLAN OF THE PREHISTORIC AND ROMAN EARTHWORKS ON HOD HILL, DORSET, FROM AN AIR-PHOTOGRAPH.
(Reproduced by permission from O. G. S. Crawford and A. Keiller, *Wessex from the Air.*)

section A. It thus becomes evident that the scheme was carried forward much further in some sections than in others.

The platform exhibits the same lack of uniformity.

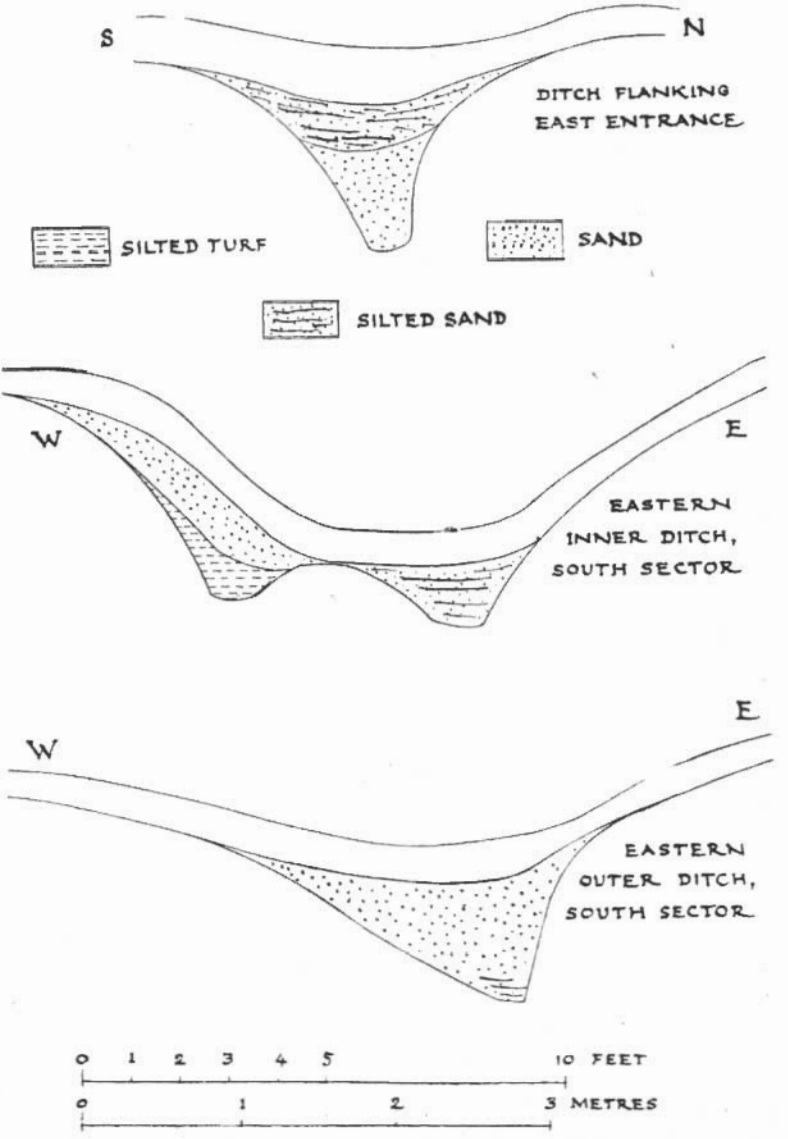


FIG. 19. DITCHES OF D

Section D produced only two mounds of upcast: section E produced a regular well-formed mound, level from back to front: section F gave the same result; while the northern half of the west side exhibits the plainest traces (see Pl. xviii) of heaps of earth which have not been levelled or disposed.

The outer ditch was traced on the north, east and west sides. Section A produced a fine rock-cut Punic ditch,[1] with vertical inner side, making the escarpment even more difficult to climb. Sections D and F contained shallow depressions. Section E yielded a finished Punic ditch, with vertical outer side (Pl. xvii B). The difference between the two completed sections is to be explained by their situation, since reversing the normal arrangement of the ditch makes it much more formidable and much less likely to collapse on the edge of an escarpment. But the depressions of sections D and F are obvious examples of unfinished work.

It thus becomes clear that the defensive system of D was never finished. Its ditches remained incomplete, the platform between them was only perfected at one point, and, elsewhere, the scattered heaps show that the work was not even tidied before it was abandoned. This raises the question whether even the double ditch is complete as we now see it. If it was designed as two contiguous ditches, then the ditches were dug in an uncommon way, and could have been rendered twice as effective by digging them deeper at the bottom, in the regulation manner that appears in C and B. On the other hand, it is possible, as Mr. R. G. Collingwood suggested to me, that the intention was not to dig two small ditches, but one large one, and that the two small excavations which are now visible represent the half-way stage in digging a great ditch, working from each side and finally working out the central rib left. This would explain why the work started in some places as a shallow excavation, without

[1] It may be noted that *De mun. castr.* (c. 49) does not say which side should be vertical; but, since it is treating of an ordinary camp ditch, we may assume the outer side, where pressure from the rampart would not cause the vertical side to cave in.

any sign of the central rib, which would have to be preserved, if two ditches were designed, from the very first. Finally, one great ditch rather than two small ones is demanded by the device of the ravelin, or defensive platform, now to be examined.

It has been suggested that such platforms[1] were, in fact, designed as a first defence, from which the defenders would retire only upon being hard pressed. But the fatal weakness of this view is the fact that no provision is made for retirement: it is more difficult for defenders to leave the platform than for the enemy to reach it, since the enemy land upon it by leaping one ditch, while the defenders have either to leap the side ditches in confusion and crowd back through the gateway openings, or cross the rear ditch and scale their own rampart. In short, this theory placed the defenders in a weaker position than their enemies, and therefore cannot be the right one.

A closer consideration of the outer ditch suggests a better explanation. This is a Punic ditch (Pl. xvii B), which differs from the normal *fossa fastigata* in having one vertical side; and the effect of this, in jumping, is that while it is easy to land safely from the vertical side on to the sloping side, it is extremely difficult to reverse the action. The tendency is to miscalculate the distance owing to the difference in angle of the two sides. The effect of this upon the use of the platform is as follows: on the north side, where the platform reaches to the edge of the escarpment, and where attackers are not invited, the Punic outer ditch is placed with vertical face warding off approach: on all the other sides it is placed with vertical face unseen by the attacker, who is tempted to undertake the easy jump on to the platform. Once there, not only does he find retreat difficult, but he has come into full range from the defenders on the rampart; thus he has either to come forward, and face an impregnable defence, or to return and expose himself as a living target while trying to cross the outer ditch. In other

[1] Collingwood, *Archaeology of Roman Britain*, p. 46, suggests at last an alternative theory for the ravelins at Ardoch and elsewhere, that they prevented easy escape, as the Punic ditch was perhaps meant to do here.

words, the platform is not an advanced line, but a trap designed to bring the enemy into the worst possible position.

This explanation seems to meet the facts best. But it demands that the ultimate defence of rampart and ditch shall be as strong as possible, since the enemy trapped on the platform is likely to become desperate, and must therefore be met by a very difficult obstacle. This would be supplied by the twenty-foot rampart, and either a sixteen-foot single ditch or two really deep seven-foot ditches; but the ditches in their present state are inadequate, and if it must be conjectured how they were to have been finished, the writer inclines to choose the sixteen-foot single ditch as the more likely.[1]

It is, however, clear that the upcast from these ditches would in itself be insufficient to complete the platform. Additional earth was therefore derived from pits outside the earthwork. Five of these were located on the west side (see plan, Pl. xxi), and it may be that some of the pits in the ditch of C, which are situated very close to the roadway between B and D, were also dug for the same purpose.[2]

Inside the earthwork no trenching was done, excepting one cross-trench in the southern, unploughed half. This revealed no trace of buildings, wooden or stone, and no sign of occupation. The north rampart-section produced a single scrap of *mortarium*-rim, discussed below. Otherwise, our experience entirely confirmed that of Sir Nathan Bodington and Mr. S. D. Kitson in 1908,[3] who found the interior barren when they trenched it.

(4) The Occupation of B and D

It has now become clear that the occupation of B and D presents a set of circumstances strikingly similar to those of the occupation of A and C. The

[1] It should be noted, however, that the north ditch of the fort at High Rochester (*Bremenum*) seems to present both types, a large single ditch east of the north gate, and a double one west of the gate, as forming alternative solutions to a rather similar problem.

[2] See, however, p. 40 for an alternative view.

[3] See *Y.A.J.* xxviii, pp. 29–30.

only difference is that on this occasion the force employed was bigger, and that we know much more about B than opportunity permitted to learn about C. Further, there is no question which came first, since D clearly took some time to build and yet was never used for a dwelling. A force of some size arrived at Cawthorn, re-occupied and enlarged A, making of it the entrenchment which we call B, and lived there for some time, long enough for officers to demand 'dug-outs,' and for an adjustment to be made to one of the ovens. As a whole, the army lived in its leather tents, but the exposed nature of the site and (as our own experience would suggest) bad weather, led it to screen its tents and hearths from wet and wind with mounds of turf.

The nature of the troops that arrived is also clear. They were legionaries, since they brought with them *ballistae*. Their numbers cannot have been very large. One or two cohorts have been suggested for C: here there is just over twice as much accommodation, suggestive of from three to four cohorts. This agrees with the 'dug-out' accommodation. The three 'dug-outs' situated together would belong to the three tribunes—the only officials important enough to require quarters of this kind; while the larger isolated 'dug-out,' in the *praetorium*, would belong to the *praefectus castrorum*, whose special duty it would be to accompany troops on a constructional expedition[1] such as this. The inferior dug-out, no. 5, not far away, may have belonged to one of his special subordinates. This, at least, is the natural arrangement, corresponding to the officers who would accompany such an army.

Finally, it must be emphasised that, as in the case of the former occupation, the army came in peace. The defences of D may be warlike, and would have been formidable had they been completed; but they could not contain the army occupying B, which was building them. And the rampart and ditch of B is of the simplest type, quite unsuited to stern needs, but perfectly adequate for the ordinary encampment of a

[1] Cf. Tac. *Annals*, i, 20, where the *praefectus castrorum*, supervising engineering works, was turned upon by his troops, near Nauportus.

force not in danger. The disposition of its *ballistaria* tells the same story, for they are not arranged so as to defend the camp best, but so as to shoot into a field of fire that could interfere with nobody. Thus, while the front of the camp is directed towards D, and connected with it by a road, the back is used for artillery practice with the *ballista*.

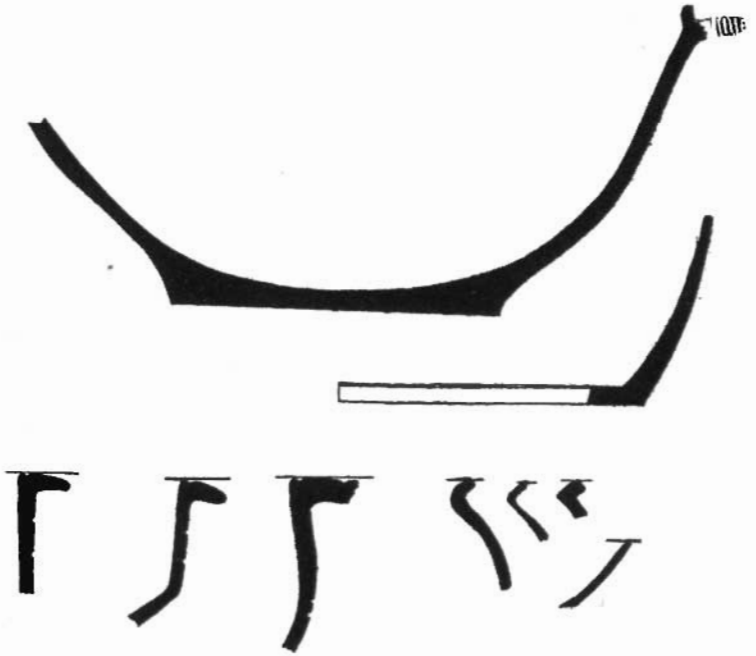
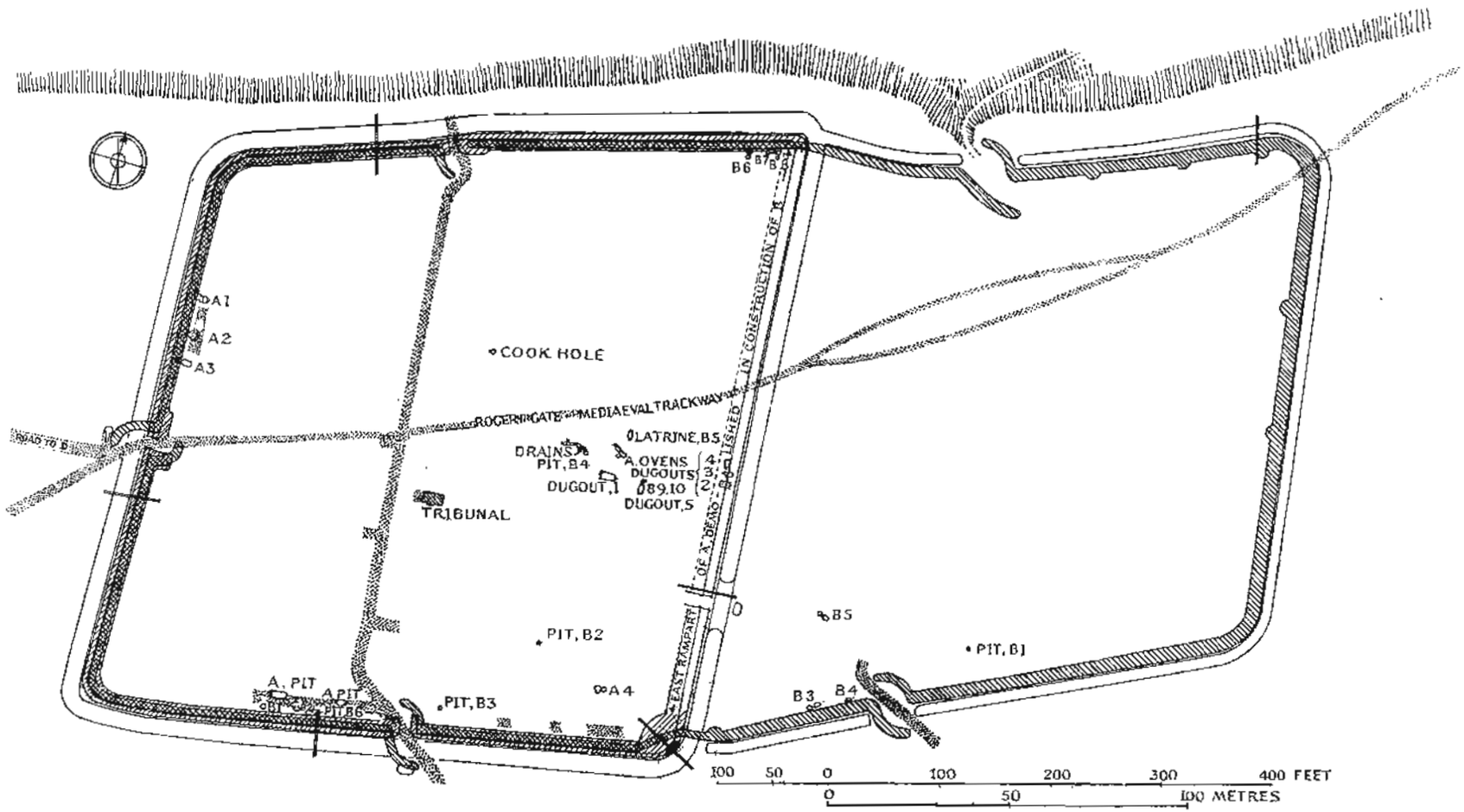


FIG. 20. POTTERY-SECTIONS FROM B. ($\frac{1}{2}$)

(5) THE DATE OF THE OCCUPATION OF B AND D

A clue to the date of B's occupation is given by the pottery. The dating depends upon the *mortarium* and the carinated bowls (Fig. 20), though the other types, tiny jars, dish, and *mortarium*-like bowl, are such as fall between A.D. 80 and 120. The first two types, however, take us a little closer. Comparison with the pottery from the Fort at Malton will show that neither the mortar nor the bowls have the sharp outline or the hard fabric which distinguish Agricolan ware; on the other hand, they have not reached



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CAWTHORN: CAMPS A AND B.

the simplified types current under Hadrian, as exemplified by the pottery of Hadrian's Wall. With this opinion Messrs. R. G. Collingwood, F. G. Simpson and E. B. Birley concur. The date indicated falls not much more than ten years on either side of the turn of the first century, during the period of quiet which followed Agricola's conquest and preceded the troubles at the end of Trajan's reign. Thus it would not involve great error to choose A.D. 100 as the mean date of the second occupation of Cawthorn. The first occupation will precede it by about ten years, and will also fall in that time of quiet.

This dating is of some importance, since it entirely confirms the reading of the evidence concerning the purpose of the site. This period is one during which we should expect the legion at York to be indulging in manoeuvres without fear of interference, and coming on to the wild moors to do them, just as our own army from Catterick and Newcastle invades the uplands of the Pennine or Cheviot, or as Hadrian's African army[1] went out into the desert. Further, the fact that the period was peaceful accentuates all the difficulties of accepting the alternative view, that two attempts were made to throw a permanent garrison into Cawthorn, and that both failed; or, again, that the *praefectus castrorum* of York was so stupid as to attempt to occupy twice a site that he had once learnt to be waterless. In short, both the date and character of the camps fit the manoeuvre-theory better than any other. All other views introduce unavoidable contradictions.

SUMMARY OF RESULTS

The results of our inquiry may, therefore, be tabulated as follows.

(1) Cawthorn was occupied twice.

(2) The occupations were separated by an interval

[1] *C.I.L.*, viii, 2532. Also Appian *Iberica*, 86, *τὰ οὖν ἀγχοτάτω πεδία πάντα περιιών, ἑκάστης ἡμέρας, ἄλλο μετ' ἄλλο στρατόπεδον ἤγειρέ τε καὶ καθῆρει,... καὶ τοῖς μὲν ταφρεύειν ἐτέτακτο, τοῖς δὲ τειχίζειν, τοῖς δὲ σκηνοποιεῖν, χρόνου τε μῆκος ὡρίζετο αὐτοῖς καὶ διεμετρεῖτο*: Cf. Corbulo's action in Syria, Tac. *Ann.* xiii, 35; and Vegetius, i, 25 on training recruits.

estimated at six to ten years: the mean date of the second occupation is A.D. 100.

(3) On each occasion the force lived in one camp and built another; thus, the occupants of C built A, while the occupants of B built D. This is proved by the character and lay-out of the works.

(4) On the first occasion, A was systematically demolished when abandoned, though not yet completely finished. D, on the other hand, was abandoned incomplete, without demolition.

(5) The forces employed on both occasions were legionaries, since they possessed *ballistae*, weapons issued at this period to no auxiliary troop.

(6) The character of the entrenchments in which these forces lived tells us that they expected no danger, and that they were entirely occupied in drill and in building A or D.

(7) The fact that the site chosen was unsuitable for permanent occupation, coupled with the abandonment of A and D when unfinished, leads us to conclude that the operations were manoeuvres, and not serious warfare.

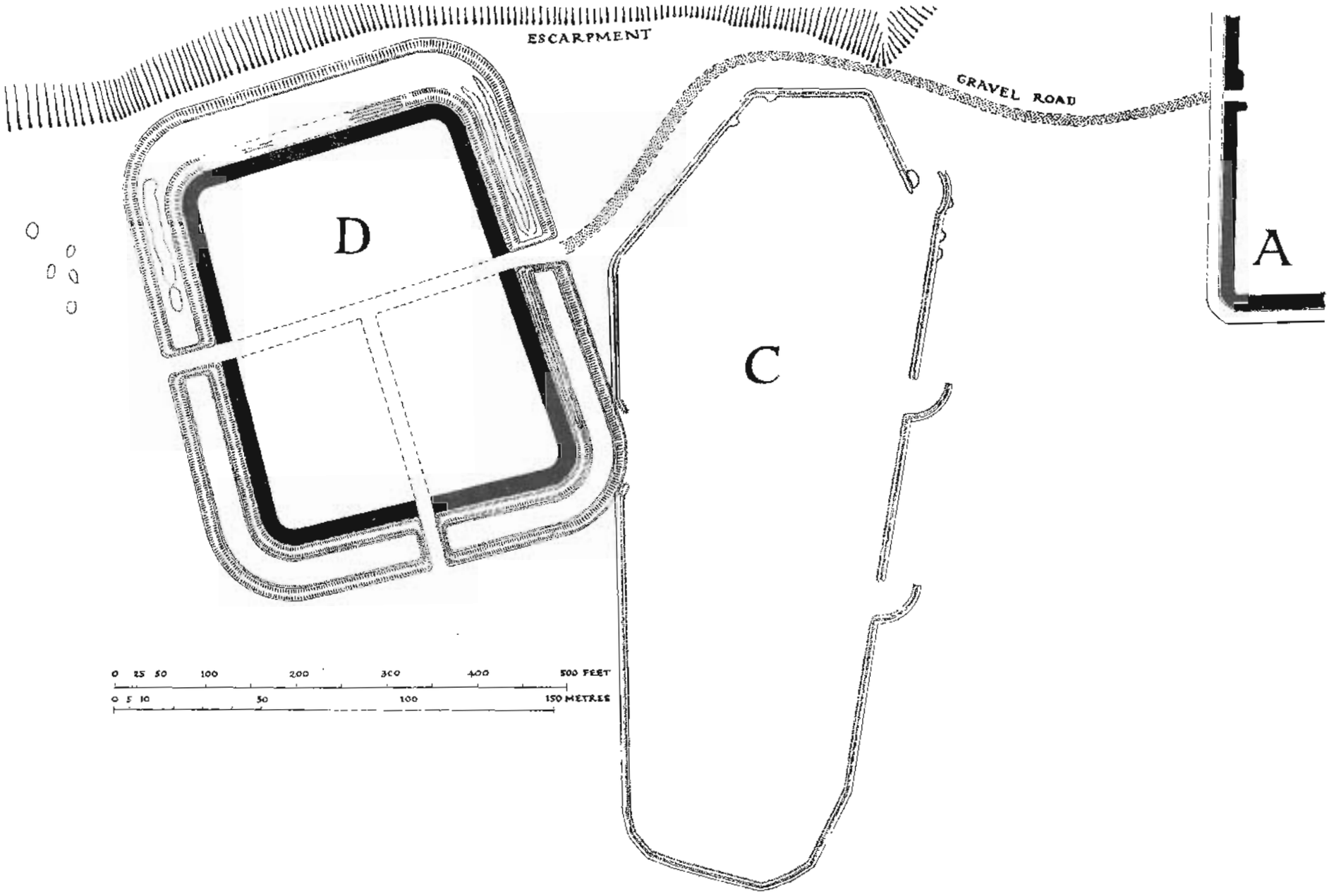
(8) Granting conclusions 5 and 7, the force involved will be the Ninth Legion from York. Thus, by a completely different line of argument, we reach the conclusion drawn by General Roy.[1]

(9) Numbers are hard to calculate. But we venture to estimate the first force as one or two cohorts, the second as three.

(10) The site has no connexion with the permanent occupation of Yorkshire, and therefore need not be connected with the Roman road usually associated with it.

(11) These camps are unique, not only in Britain, but in the Roman world as at present known. They are at present in excellent hands, but their future should be watched with attention by a nation that cares for its antiquities.

[1] Roy, *Military Antiquities*, p. 65, pl. xi.



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CAWTHORN : CAMPS C AND D.