

IV.

EXCAVATIONS ON THE ESTATE OF MEIKLEOUR, PERTHSHIRE,
1939. BY I. A. RICHMOND, M.A., F.S.A., F.S.A.Scot.

(1) A ROMAN SIGNAL-TOWER ON THE BLACK HILL.

The Black Hill lies at the east end of the parish of Caputh, on the north bank of the River Isla, about one mile above the watersmeet of Isla and Tay. It is the tallest of a small and isolated group of glacial hummocks, and rises 58 feet above the gravel-and-sand cause of the Stormont, which it commands. In shape it resembles a tadpole, with globular head tailing off in a sinuous curve. As has long been known, the head or summit of the hill is crowned by a small earthwork, not unlike a disk-barrow in appearance: and, on the assumption that appearance connoted reality, excavations were undertaken there by the Hon. John Abercromby in May 1903 (*Proc. Soc. Ant. Scot.*, vol. xxxviii. pp. 82-87). It was soon realised, however, that the work was not a barrow, but a small fortification, fairly regularly planned, crowning the hill. It had a V-shaped ditch and a rampart of "dark mould" (*op. cit.*, p. 83), and it was thought that the ditch did not appear on the steep northern side of the hill. The meagre relics consisted of iron nails, glass, and the end of a bronze pin, which "may be part of a *fibula*." The glass, it was said, closely resembled "similar glass at the Museum from Roman camps and sites, and is itself probably Roman" (*op. cit.*, p. 86).

In 1935 the site was visited by the writer and Mr James McIntyre, who were at that time examining putative Roman sites in Scotland. We were impressed by the similarity of the site to such works as Roy's signal-station north of Ardoch, and we felt that the relics recovered by Abercromby justified the hypothesis that the work was a Roman signal-station. When the position of the hill in relation to the known Roman fortress at Inchtuthil was taken into account, suspicion increased that, despite the heavy damage incurred during the excavations of 1903, fresh examination might yet reveal the characteristic features of a Roman signal-tower in timber or stone, enclosed by a rampart and ditch. The examination seemed the more desirable, since no trace could now be found of the relics recovered in 1903.

Permission to excavate was accordingly sought from Mr Mercer Nairn, owner of the site, and readily granted through his factor, Mr John Renton. But, owing to preoccupation with the site at Fendoch, advantage was not taken of the offer until 1939, when this Society made a grant to the writer for the purpose. Cross-sections of the defences soon revealed the V-shaped ditch

noted by Abercromby, and added considerably to his information. The ditch follows a not quite regular course, encircling the summit of the hill,

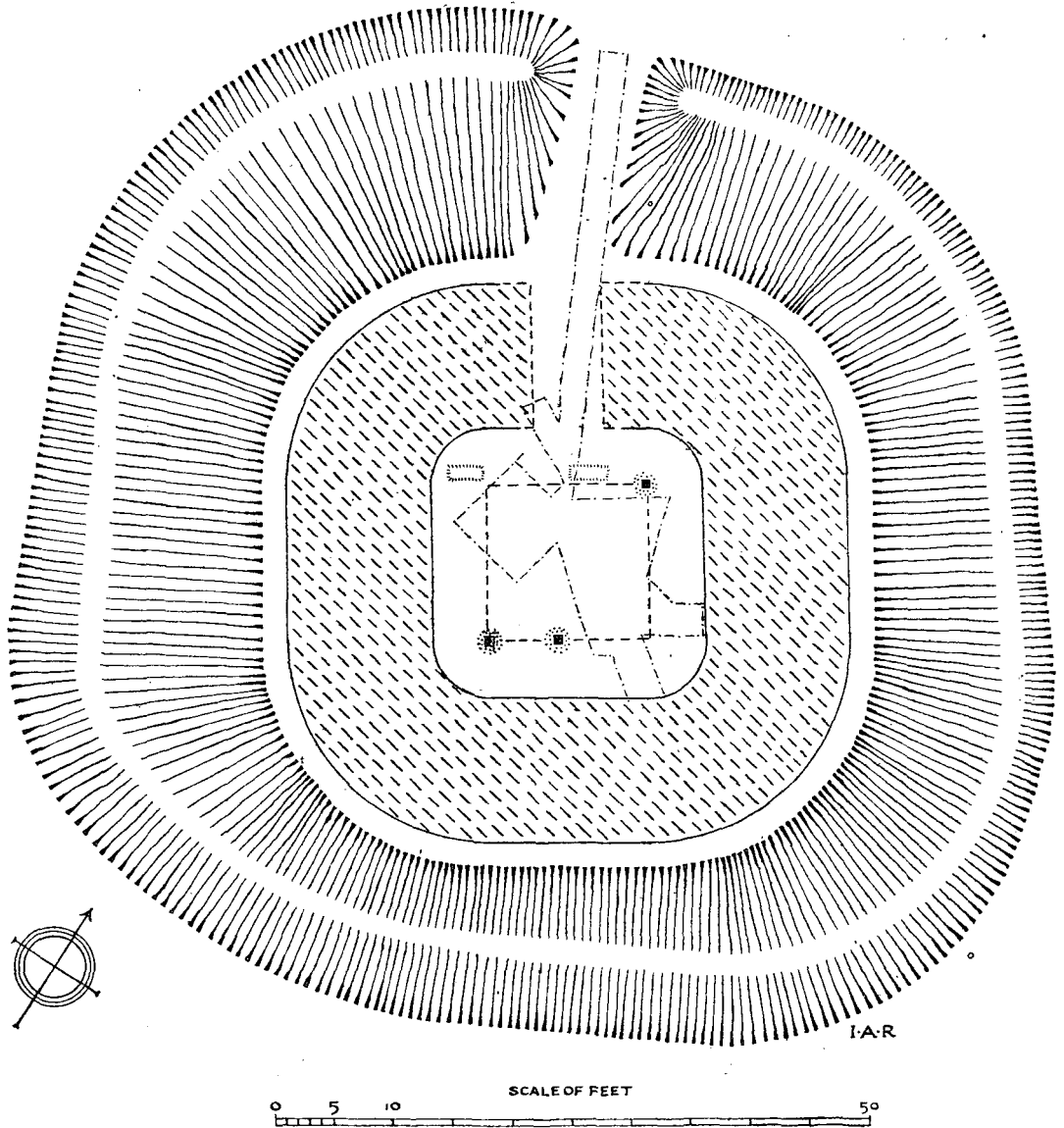


Fig. 1. Plan of Black Hill Signal-tower, Meikleour. Abercromby's trenches are defined by dots and dashes.

and does in fact run on its north side, but is interrupted by a narrow causeway of undisturbed subsoil at the point where Abercromby cut his



Ditch of Black Hill signal-tower, south-west side.



Post-holes for door and south-west angle of signal-tower,
Black Hill, Meikleour.

trench (fig. 1). The profile is V-shaped, but there is the narrow square channel at the bottom, as is typical of the Roman *fossa fastigata*. The depth at the outer scarp is only about 2 feet 6 inches, but this apparent weakness is due to the steep slope of the hill and is compensated by an inner scarp of 7 feet 9 inches, formed by cutting down the slope. The effective width is some 15 feet, and the upcast has been disposed in a shallow spread mound (not noted on fig. 1) beyond the outer scarp.

The rampart, which is separated from the ditch by a distinct if narrow berm, is not formed of upcast from the ditch, which would be yellow sand or gravel, but of dark-coloured material, sufficiently distinctive to have probably given the hill its name. It was built in evident layers or blocks. But the material of which it is formed is so sandy that rain-water has percolated through and through it. Thus, although the laminated structure was clearly visible to the eye, percolation, or leaching, had in this very exposed position washed out the normal traces of humus, denoting blocks of turf, leaving, as Dr Arthur Raistrick reports, only a dark pellicle, coating each grain of sand, to tell us that humus was once present. The effect of this staining, however, combined with the recognition of structure in blocks, is to dissociate the rampart completely from the subsoil and to place it in the well-known class of Roman ramparts composed of blocks of turf or humus. It was 12 feet wide at the base, and still stands 3 feet 8 inches high. It enclosed a space about 19 feet square, with rounded corners. The entrance had been on the north. Although trees prevented an examination of the actual passage, its existence was shown by an interruption of the ditch, in the centre of the north side, forming a natural causeway some 7 feet wide to which allusion has already been made.

Within the area thus defended, Abercromby had dug (*op. cit.*, fig. 1, p. 85) at least two large and deep pits, penetrating for 4 or 5 feet into the subsoil. Our first task was to rediscover and to isolate these, in order to learn how much of the internal space remained unexcavated. It was soon evident that the pits lay in opposite corners of the area. Elsewhere, therefore, the old surface was skinned by wide trenches, which presently disclosed three large round post-holes, each about 18 inches wide; two of these are diagonally opposite, at the north-east and south-west corners, while the third (Plate VIII) lies some 4 feet from the south-west corner. They thus form part of a building 14 feet square, which is the internal dimension of the standard turret on Hadrian's Wall. Further, they retained the impress of timbers 1 foot square. There can be no doubt that uprights of this scale, exactly comparable with the gate-tower timbers of Fendoch, held a high tower. The two adjacent posts may be taken to have held the door-frame. And in this connexion a small point observed by Abercromby may be regarded as significant. He records (*op. cit.*, p. 84) that

"a narrow trench, afterwards enlarged, was made westwards just south of the tree," that is, across the site of the inner hole: and here was found "a squarish freestone," exhibiting "on one face a countersunk hole, $1\frac{3}{4}$ inch in diameter and $\frac{1}{2}$ inch deep." There can be little doubt that this object, hitherto unexplained because its association with the post-holes remained unknown, had been the pivot-hole of the door.

Excavation did not produce further relics, except one more iron nail, of hand-made square section. But it is nevertheless possible to say that the excavation not only amply confirms the Roman date suggested by the previous relics, but definitely connects the work with a Roman structural type. This is the wooden tower, enclosed by rampart and ditch, of the kind so well known in Roman Scotland already. It may be remarked, however, that, while the type of tower is more or less constant, the enclosures vary. The well-known Gask series, with the exception of No. 5, exhibits no rampart. The Ardoch series, exemplified by Kaims Castle¹ and Roy's signal-post,² closely resembles the present example. None, however, is closely dated within the Roman period, nor has fortune enabled us to offer a close date for this one. An answer as to date must await the discovery of others in the same series.

The concluding remark raises the question of purpose. The tower is placed in a curious position. It does not, as might be expected, face Inchtuthil, $2\frac{3}{4}$ miles away. Its immediate objective is two isolated gaps or passages in a large linear earthwork, which runs across the plain some 500 yards away at the nearest point. The earthwork is known as the Cleaven Dyke, and its highly distinctive characteristics are described below.

(2) THE CLEAVEN DYKE, A ROMAN LIMES.

While the earlier Scottish archaeologists frequently refer³ to the Cleaven Dyke, there are few accurate descriptions of its features and course. The visible remains, known since 1772, consist of a large mound now approximately 30 feet wide at the base and 5 feet high, set equidistantly between two shallow flat-bottomed ditches, 16 feet wide and 2 feet deep, which lie 150 feet apart from centre to centre. The mound

¹ Kaims Castle, *Proc. Soc. Ant. Scot.*, vol. xxxv. p. 19, fig. 2.

² Roy, *Military Antiquities*, pls. x, xxxi; see also Richmond and McIntyre, *Arch. Journal*, vol. xciii. p. 313, fig. 3, for a more recent interpretation of the site.

³ Pennant, *Tour of Scotland* (1772), Appendix XV, p. 452. The "mount exploratory" probably refers to the large motte at Cargill. But in *O.S.A.* (1793), vol. ix. p. 506, *s.v.* Caputh, where the Dyke is described, the Rev. W. Innerarity makes an explicit reference to the Black Hill as follows: "In this area there are several exploratory mounts; one, apparently artificial (now called the Blackhill, and planted with firs), stands near the head of the supposed bridge, and from the remains of a fortification on the top, seems to have been designed to cover the landing-place." The *N.S.A.* has nothing whatever to say of the work. James Knox, in his *Topography of the Basin of the Tay* (1831), p. 64, notes that "the Cleaven Dyke has openings at the west end and middle, where the gates were probably situated." But Knox does not specifically refer to the gaps.

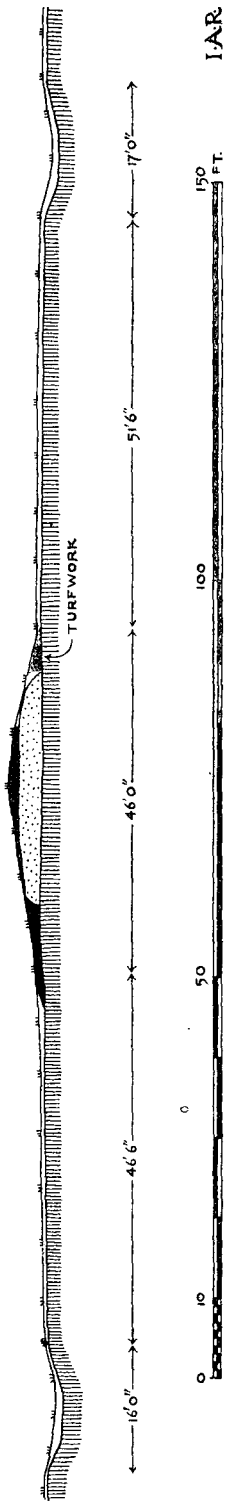


Fig. 2. Section of Cleaven Dyke, west of the Blairgowrie Road, Meikleour.

is thus separated from either ditch by a berm approximately 50 feet wide. It is also evident that in cross-section the mound has a volume considerably greater than that of the ditches combined (fig. 2).

An explanation of the last point may be developed from the evidence of three sections, cut through the earthwork in 1901. These revealed that the mound was composed of sand and gravel, such as the ditches must have produced: but this material had been retained at the edges "with a kind of clayey sand . . . for a distance probably of 2 yards, the object of this being evidently to prevent the gravel and sand from slipping" (*Proc. Soc. Ant. Scot.*, vol, xxxvi. p. 234). These conditions were observed again in three sections cut across the work in 1939. The character of the "kind of clayey sand" was much as described by Dr Thomas Ross. But it felt to the touch like material principally composed of humus; and analysis revealed that it was precisely the same as the turf or humus from the Black Hill earthwork, already described above. Further, there were definite traces of a cap of the same material: while at one point it could be seen that the kerb had been built and the mound retained in steps. It is thus clear that we are dealing with a mound composed not merely of upcast from the ditches, but of humic material disposed in a cap and revetments. One source at least of the extra material in the cross-section is therefore plain.

A second source whence extra material may have been derived is the large 50-foot berms. It is noteworthy that these exhibit, when compared with the surrounding land-surface, a markedly flat appearance, as if they had been deliberately stripped or levelled. Apart from the revetment and capping in humic material, these wide berms are in many ways the most remarkable feature of the earthwork.

The existing sector of the Dyke runs through the Meikleour plantations known¹ as the North and South Woods, for a distance of 2070 yards. It crosses somewhat obliquely the main road from Perth to Blairgowrie, at 150 yards south of the twelfth milestone from Perth, leaving 1530 yards of the earthwork to west of the road. The earliest mention of the work in archaeological literature² is in 1772, and there is reason to think that by then the state of the remains was not very different from what it is at present, seeing that upon Stobie's *Map of Perthshire*, published in 1811, the work is shown amid plantations covering the same area as to-day.

The course followed by the Dyke is usually taken to be "perfectly straight" (*Proc. Soc. Ant. Scot.*, vol. xxxvi. p. 235). Though correct as applied to the general course, this description is not strictly true in detail. At 120 yards west of the Perth-Blairgowrie road, the mound and ditches, hitherto running 61 degrees west of north, turn 10 degrees southwards. This direction is maintained for 183 yards, when there is a northward turn of 21 degrees, and at 130 yards farther east the works resume their old line. The reason for the change in direction appears to be a desire to approach at right angles a passage through the work immediately west of the Perth-Blairgowrie road, where the south ditch is interrupted by a 38-foot gap. The main road has swept away the east side of the corresponding gaps in the mound and the north ditch, leaving to view only their western butt-ends. Modern gravel-pits also impinge upon the causeway, helping to obscure the feature and to explain why it has hitherto remained unobserved. The centre of the gap is 140 yards east of the 10-degree change of direction already noted. Less obscure, however, is a second gap in the work, situated 220 yards east of the turn where the main course is resumed. This is 60 feet wide. No excavation was carried out in the eastern gap, but an examination of the west gap showed that no laid road had passed through it. The humus kerbing of the mound, however, clearly defined its butt-end and is here not less than 6 feet wide at the base.

Beyond the wood towards the west no trace of the work is now to be seen in the ploughed field (No. 994), though an air-photograph shows the ditches just before they reach the little runner at the north end of the field. They are still continuing the same straight line. Eastwards, the mound can be seen making its way across field 1035, and it is again visible as a gentle swelling at the north end of field 1066, just south of the twelfth milestone on the road from Dunkeld to Coupar-Angus. No further remains can be detected, but these observations increase the known length of the work to 2970 yards. There is, however, no reason why the work should not have run straight to the River Isla, as tradition asserts that it did.

¹ Ordnance Survey Map, 25-inch scale, *Perthshire*, lxiii. 11 and 15; 6-inch scale, lxiii. S.E.

² See note 3, p. 40.

At this point the nature of the work requires further discussion. So far as the evidence of sections and field-observation goes it is of uniform construction throughout. It consists of upcast from two shallow flat-bottomed ditches, enclosed between revetments and a cap of humic material. This turf or humus is distinguishable by colour, but has been so heavily permeated or leached by water as almost to have destroyed the evidence from microscopic analysis. The bank thus formed is the most prominent feature of the work, and its prominence has been increased by separating the ditches from it by levelled berms not less than 50 feet wide. The whole work thus forms a broad strip of cleared ground, 150 feet wide over the ditch centres. Its limits are marked by the ditches and its axis by a bulky mound.

The work thus described is evidently not defensive. Its ditches are insignificant, giving advantage to neither side and serving only to demarcate the strip which they bound. Again, the large low mound, on the middle line of the work, is not a high rampart from which the top has been removed, for the cap and revetments show that its shape and size have changed relatively little since it was first erected. Thus, the work as a whole is evidently a boundary-belt, so broad that it could not be mistaken for anything else, and furnished with a central mound so that the actual boundary line might be clear to all beyond dispute. The work may be valueless as a defence: its political significance is strikingly clear.

The great breadth of the work is perhaps its most remarkable feature. Its level 50-foot berms, bounded by the shallow ditches, hint at the reason. To-day, the woods through which the work passes have been planted on top of it by man; thus, it existed long before the plantations. But the flat sand-and-gravel carse which it traverses is by nature tree-bearing, and it is reasonable to suppose that when the boundary was first cut it was laid out through woodland. This would explain not only the width of the work—a ride in a wood must be wide to make an impression—but also the fact that the humic material, of which the revetments and cap of the mound were composed, is so lacking in form and solidity. Woodland soil can be cut in blocks and built as a kerb or a cap, but it is friable, porous, and ultimately unretentive of its binding content, exactly like the material which confronts us in the mound. Indeed, it is difficult to conceive what other condition would more readily explain the state of affairs revealed by the microscope.

Analogies for the work are at first sight hard to find. It is quite unlike British boundary dykes of the Dark Age or the Bronze Age, which exhibit neither the wide gaps for passage nor the broad levelled berms nor at all commonly the double ditch. On this important question of comparison a consultation, verbal and epistolary,¹ with Sir Cyril Fox,

¹ Sir Cyril Fox writes: "But no true parallel to your dyke is known to me. The broad openings; the broad and levelled berms: these do not occur in my experience in Dark Age earthworks. The

whose knowledge of such works in these islands is unrivalled, confirmed the verdict unequivocally. The difference has, indeed, been observed in print by Mr O. G. S. Crawford, whose wide experience of linear earthworks entitles his views to respect: in describing a native defensive frontier-dyke near Melrose, he observes that at "no point in its course has the earthwork the slightest resemblance to Roman workmanship, and this explanation can be entirely eliminated. Except for a portion north of Cauldshiels hill the dyke nowhere follows a really straight course, but winds irregularly across the moor. In this respect it differs entirely from the Cleaven dyke, near Meikleour, in Perthshire, which runs straight as a Roman road across the country between the Isla river and some undetermined point farther west" (*Antiquity*, vol. x. pp. 348-9). It is evident that, when they are confronted by the Cleaven Dyke, both authorities turn away from the native dykes, with which they are so well acquainted, with a lack of hesitation which inevitably prompts the question whether the work may not be Roman.

Roman frontier-dykes, however, as opposed to frontier walls or palisades, are not so common as to suggest that many examples will be forthcoming for comparison. Yet there is one famous linear earthwork in Britain which offers in general design and purpose some striking points of resemblance to the Cleaven Dyke. This is the dyke commonly known as the Vallum, which formed the rearward boundary-dyke of the military zone of Hadrian's Wall. True, the similarity is not immediately apparent: for the works are conversely planned, the Cleaven Dyke with central mound and lateral ditches, the Vallum with lateral mounds and central ditch. Granted this variation in design, however, both works perform the same function. They cut off, by means of their outer mounds or ditches, a broad linear strip of land and mark it as an indisputable boundary by an axial feature, namely, a deep ditch or a broad upstanding mound. The minds which conceived the two works were thus approaching the same problem from the same point of view, if in slightly different manner. Nor is the main design of the works, attested as Roman for the Vallum, the only feature of Roman guise which the two dykes have in common. Both run for a long distance with undeviating course: both exhibit angular changes of direction while running straight from point to point; the mounds of both are retained by humic revetments so that their profiles are sharp and clear to this day; in both, too, a flat-bottomed ditch of non-military type is employed. Nor do these numerous points of resemblance lose significance when it is recalled that parallels for either are not forthcoming elsewhere. Two dykes so distinctive in themselves, yet so closely

boundary banks of the Late Bronze Age offer no parallel either. So, assuming that the character of the work as described in your letter is constant, I think you are right in hinting at Roman origin, and political not military function."

alike in conception and purpose, can hardly have belonged to different ages. The Vallum is indisputably Roman. If we introduce at this point the fact that the Roman watch-tower on the Black Hill surveys the passages through the Cleaven Dyke, the chain of inferential reasoning in favour of a Roman origin for this work also seems to be complete.

The argument for a Roman date will be further reinforced by a consideration of the purpose of the work in relation to its topography. Earlier Scottish archæologists took the Roman date for granted, some fancying the Dyke to be the very *vallum* of Agricola's famous battlefield, where *legiones pro vallo steterē*; others supposing that it bounded, together with Tay and Isla, one vast Roman depot. No criticism of these views is here warranted, for no student of Roman tactics or castrametation would explain the Dyke in such terms to-day. Nevertheless, the old topographers were right in seizing upon the situation of the work as the key to its function (fig. 3).

At the east end the Dyke ran to the River Isla. There is no reason to suppose that it ran beyond it. Tradition does not say that it did, and the parish boundary which so temptingly continues the course seems¹ to be a relatively modern adjustment. It is the Isla, deep and sluggish, which then forms a natural moat protecting for eight miles the Roman line of advance along Strathmore. This was based (fig. 3) upon a military road which crossed the Tay above the watersmeet of Tay and Almond and extended beyond the permanent fort, recently rediscovered from the air at Cardean, near Meikle. In its early phase at least, however, this blockade of the Highlands pivoted upon the legionary fortress of Inchtuthil, which looked not only north-eastwards to Strathmore but north-westwards to the gates of Atholl. On strategic grounds it seems almost axiomatic that so long as Roman troops were controlling Strathmore at all, the crucial position of Inchtuthil must have been firmly held. And in fact the notable series of works, which, as Sir George Macdonald has shown, succeeded the legionary fortress on the site, attests the tenacity with which Roman generalship clung to this key-point. Inchtuthil, however, is not sheltered by the Tay. It lies on its farther bank, forming as it were a huge redoubt or bridge-head fortress, whence troops could readily operate against the hill-folk. Immediately in front of it stretches the flat wooded carse. Then follows the broken ground of the Stormont, a jungle of lake and marsh, indifferently drained by the Lunan Burn. Beyond the jungle rise the foot-hills of the Grampians. An obvious need here existed for an artificial barrier, blazing through the forest the limits of Cæsar's land: for such an operation *limitem scindere* was the Roman term.²

¹ This fact emerges from Stobie's *Map of Perthshire*, where the older parish boundary is shown. Two days spent in local inquiries from the ecclesiastical authorities revealed only ignorance of the matter.

² Tacitus, *Annals*, i. 50, *silvam Cæsiam limitemque a Tiberio cæptum scindit*.

Exactly this need is met by the Cleaven Dyke. The work is said to have ended at the Tay: and it does in fact disappear from view not far from an old river-bed where the Tay once ran at a stage in its geological development far earlier than Roman times. Actually, the Dyke is so

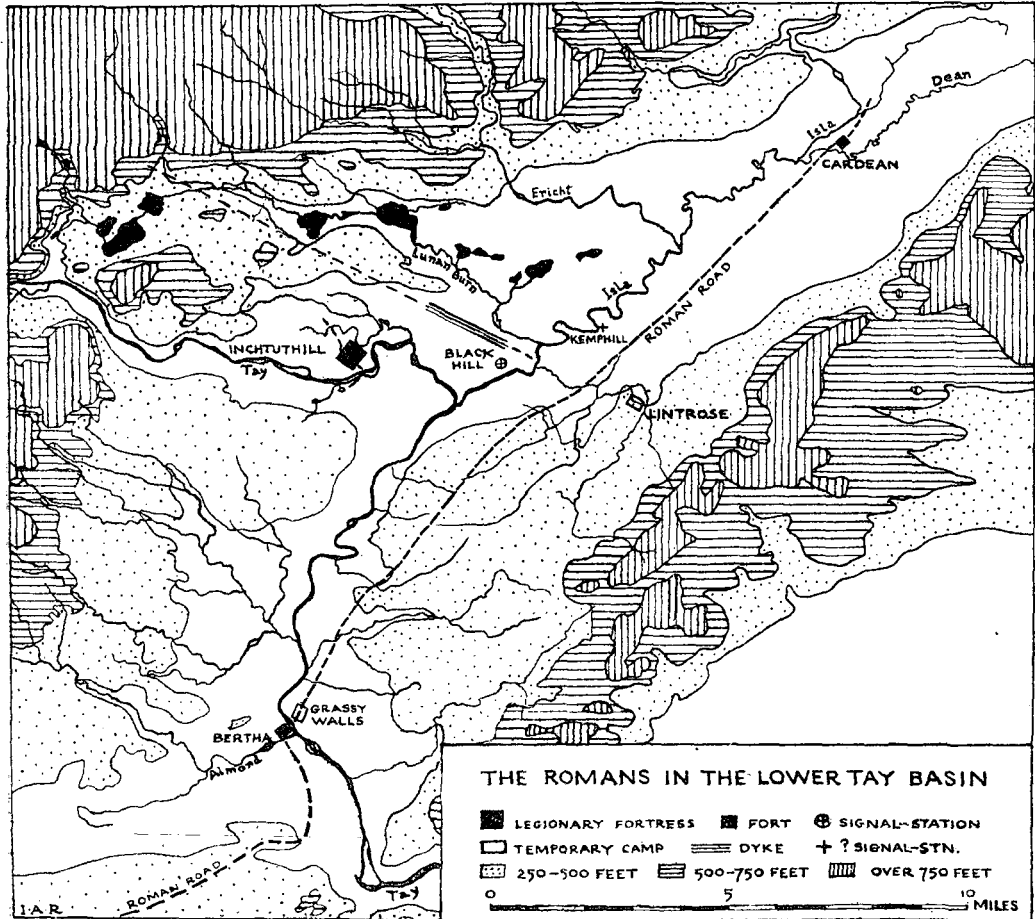


Fig. 3. Roman remains in the Tay basin in relation to the Cleaven Dyke.

planned as to skirt this old river-bed, and to head for the north-west, whither the well-known roadway from Inchtuthil also points. In fact, there is no reason to suppose that the work ended where it is now last seen, with the effect of exposing the whole front of Inchtuthil, 2 miles distant across the haughs. On the contrary, it might be expected to continue right across the rolling country until it reached the hills near Dunkeld, 6 miles to the north-west. It is not as if Roman activities were unknown

in this region. The road heading in this direction from Inchtuthil has already been mentioned. It will also be recalled that the Gourdie quarries, whence stone was obtained for the rampart of the fortress and for the bath-house, lay 2 miles to the north, within the tract of land which would be included by a continuation of the dyke. Thus, it is a reasonable hypothesis that the Dyke continued across the plain, so as to define the Roman territory on the left bank of the Tay and to cut off the broken wooded lands imperfectly drained by the Lunan Burn and its numerous lochs.

If this conception of the Cleaven Dyke is correct, it will now be worth while to return to the question of the relation between it and the Black Hill signal-tower. In the general scheme the position of the tower is significant, for it commands the head of the re-entrant formed by the Isla flood-plain. That, however, was not the only consideration in the minds of its constructors. The tower is so placed as immediately to survey two passages through the Dyke. Such gaps, comparable in breadth with those¹ of the German *limes*, seem to have been rare, for no more occur over a length of 1466 yards beyond the western example. Yet these two are relatively close to one another. They are best explained as openings serving two forest-trails. One of these occupies the important natural line of communication between the river-fords of Kinclaven and the Highland pass of Glenshee, carrying the only road between Perthshire and Braemar. The second serves a route of more local significance and leads to the lowest crossing of the Lunan Burn at Littleour. The crossings are not occupied by a paved track: in other words, they were not Roman lines of communication but local native routes, which here converge upon the river-crossing and for which paving was not required on the gravel subsoil. On the other hand, it seems necessary to assume that they were passing through woodland until they emerged at the cleared *limes*, since they could otherwise have been made to converge upon one opening only. This topographical point² usefully confirms the deduction in favour of woodland³ to be made from the nature of the subsoil.

Granted, then, that the trails and the *limes* which the tower watched ran through woodland, the reason for preferring the Black Hill above all other possible sites becomes apparent. In wooded country a vantage-point which placed the ground-floor of a watch-tower 60 feet above its

¹ Cf. Altes Jagdhaus, Fabricius, *O.R.L.*, Strecke 3, Cap. 8, and *passim*.

² One might compare Fox, *Personality of Britain* (1938), p. 51, for a not dissimilar argument from the distribution of chambered cairns to that of forest-lands.

³ For a speculative estimate of the nature of the woodland the writer is indebted to Dr J. B. Simpson of the Geological Survey, who suggests "one would have thought that pine was the most probable dominant, with a sprinkling of oak, elm, birch, alder and willow, and a scrub vegetation of hazel, blackthorn, and broom." It may be remarked that while pine is no longer there indigenous, it has recently been found in pollen from Roman deposits as far south as Benwell and Cockmount on the line of Hadrian's Wall, as yet unpublished.

whole field of survey was an immense advantage. Add to the height thus gained not less than 30 feet for the tower itself, and a point has been gained from which every movement far and wide across the *limes* could be detected and signalled. Indeed, Nature has here provided an eyrie comparable with a Norman motte.

What then were the connexions of this remarkable tower, so conspicuously placed at the key-position in the re-entrant *limes*, where the man-made boundary takes the place of the river, Nature's moat? It would be easy enough to signal to Inchtuthil, $2\frac{3}{4}$ miles away, which was probably the seat of the nearest garrison. This may well have been the principal function of the tower. But watch-towers on Roman frontiers run more commonly in series than in single units; and it might be expected that the left bank of the Isla was surveyed from other posts in touch with the Black Hill. It is perhaps worth while to direct attention to the site of Kempfill, a summit overlooking the river north-west of Coupar-Angus, where the name itself is suggestive of an earthwork and where, on the very crown of the hill, there is a suspiciously flat platform, suggestive of an earthwork much reduced by ploughing. The place is in view of Black Hill, and the use of the spot by the Ordnance Survey as a minor triangulation-point is eloquent of its local command of view. Here, it might be suggested, lay the next signal-post on the way to Cardean.