

XIV.

THE NUCLEAR FORT OF DALMAHOY, MIDLOTHIAN, AND OTHER
DARK AGE CAPITALS. BY ROBERT B. K. STEVENSON,
M.A., F.S.A.Scot.

The two volcanic hills Kaimes and Dalmahoy, about 9 miles south-west of Edinburgh, overlook from the south the western half of Lothian. Their long northern precipices are best seen from the Caledonian railway to Glasgow, which runs immediately below them. A rolling strip of upland country, partly moorland, drained by the Water of Leith, lies between the hills and the Pentland range, and continues south-westward towards Lanark; the Roman fortlet of Castle Greg is 7 miles in that direction. Edinburgh's Castle Rock, Arthur's Seat and the Braids block the view eastward. To the north-east large stretches of the Firth of Forth are visible right up to the Bridge, which is $7\frac{1}{2}$ miles due north, and beyond can be seen the full length of the hills of Fife and the Ochils. To the north-west rise the Bathgate hills.

With this strategic position in mind, we are not surprised that the hills are crowned with early fortifications. The surprise is that both hills are fortified though only $\frac{1}{4}$ mile apart. Up to now interest has been concentrated on Kaimes, where there is a multiple-ramparted contour fort or rather hilltop town of characteristic Early Iron Age type, 390 yards long and about 130 yards broad, containing many hut-circles. A coin of Severus is recorded from it. Professor Childe's excavation of a section of the ramparts showed that their history was complex, but did not result in a more exact dating.¹

The plan of Dalmahoy fort, as given in the Royal Commission on Ancient Monuments' *Inventory of Midlothian* (No. 217), shows two roughly concentric ramparts, complicated only by a tiny sloping annexe, giving an overall length of at most 90 yards athwart the hill (approx. *a*, *b*, *c* and *d* on fig. 1). This apparently almost typical Early Iron Age and quite unimposing plan has, however, been achieved by Procrustean methods. If a whole series of walls forming outer enceintes is taken into account, we have a most unorthodox layout. Overall it is as long as but narrower than Kaimes, being more than 390 yards by, on average, 80 yards. Detailed consideration is necessary to show that the Royal Commission was indeed in error in presumably considering the outworks to be insignificant field walls of some period later than the fort. These outworks looping

¹ *P.S.A.S.*, 1940-1, 43 ff.

out from a central area suggest, in the present age, the name "nuclear" for the general design, of which there are other examples in Scotland, as we shall see.

DESCRIPTION OF DALMAHOY (fig. 1).¹

As seen from the south (Pl. XXXV, 1), the eastern half of the hill forms a fairly long and horizontal ridge and then tails down gradually, while the western half comes down from an isolated summit (trig. point 800 O.D.) in a number of step-like plateaux. The rubble remains of the most massive stone rampart on the site surround the oval summit (*a* on our plan). Its entrance *E* is shielded by a triangular outwork at a lower level *b*, the south-east rampart of which, a stony bank with entrance at *D*, is continued as a terrace round the south end of the summit, and then drops down as the remains of a wall to run along the top of a low rock scarp 40 feet out from the base of the west side of the summit, which is much less high than the southern side. The north wall of the resulting enclosure *c* curves east on the top of an outcrop face, forming thereby one side of the entrance *F* (Pl. XXXV, 2) to another enclosure *d* on much the same level. From there it probably sloped up to join the north-east wall of *b*—the upper portion at least of the oblique wall is recognisable. The northern wall of *d* runs parallel to the edge of a high steep drop (shown too far south by the Commission); at the eastern end there is a less steep grassy slope which is spanned by a retaining wall. So far we have been largely following the Commission.

To the east of the summit, however, the long ridge *e* is also definitely enclosed. Its southern slope is only moderately steep, and relatively even since the lower ridges of outcrop run up and down rather than horizontally. The ground at its base was probably boggier not long ago. The enclosing wall runs along the upper part of the slope, starting from the outer rampart of the summit in the form of a precisely similar stony bank or terraced retaining wall. An entrance *C* through this is very distinct. It leads towards the inner entrances *D* and *E*, and like *F* it is incurved on one side. This all seems to indicate a structural connection with the summit's fortifications. Thereafter for 190 yards the course of this wall is clearly marked by a narrow, largely artificial terrace running horizontally at about 30 yards out from the crest of the ridge; there is now a path along most of it. Except where smooth outcrops of rock have provided little grip, many large stones are left from the footings of a wall, which at the east end is seen to have been 8-10 feet wide. Then suddenly a right-angle bend with a curved corner swings the wall up to the crest which is just beginning to descend. This is evidently a military move and bears out the character of the wall, for the crest at this point forms the skyline to

¹ Many friends have helped in the arduous survey. In particular I owe the profiles to Mr C. S. T. Calder.

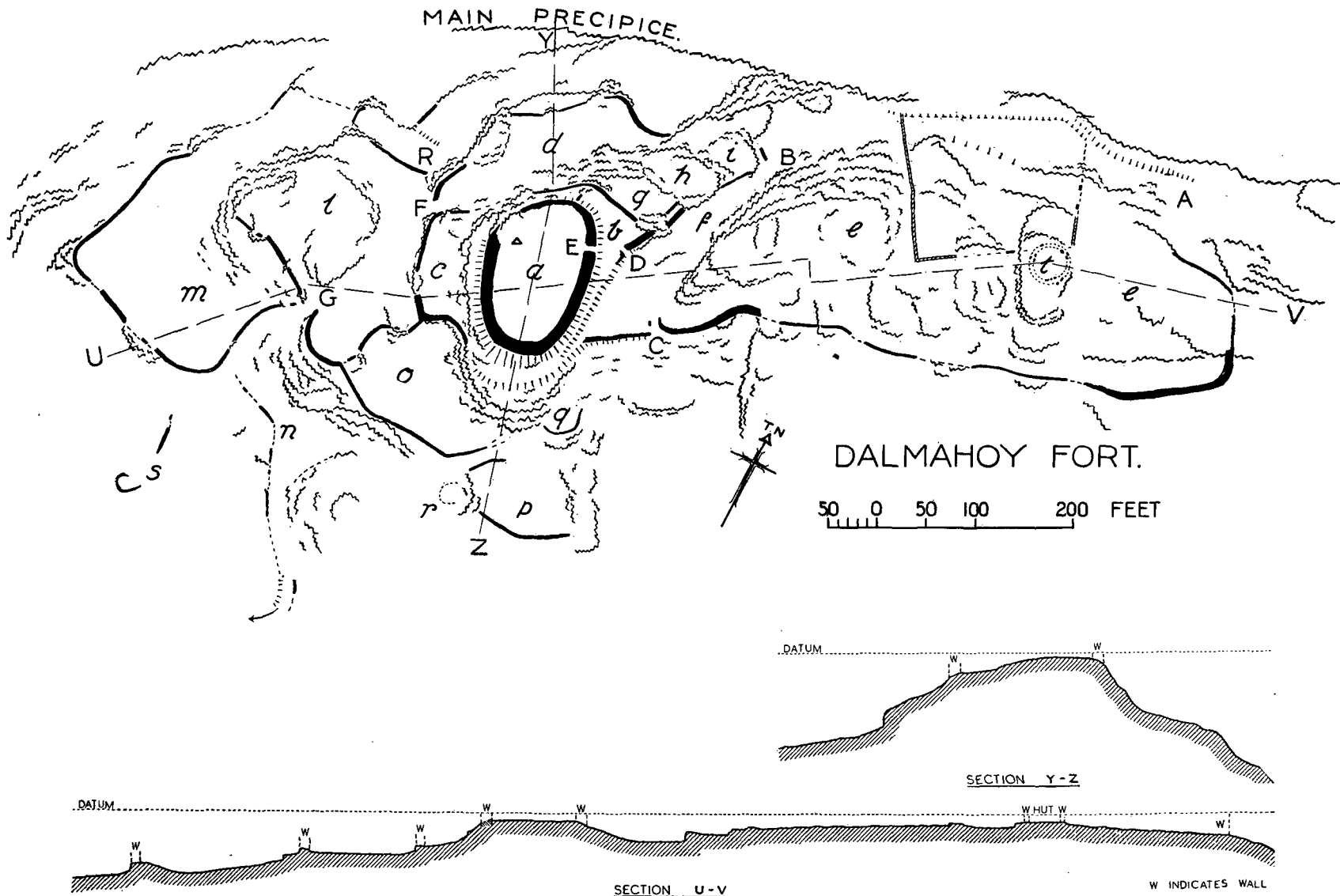


Fig. 1. Plan, showing walls and outcrop faces, and sections. (Errata in plan—for R read k, transpose Y and Z.)

anyone coming up the long eastern approach (which topographically might be expected to be the main approach), and *vice versa* is the only point from which that slope can be overlooked by anyone on the hilltop.

To the north of the crest here the hill drops sharply to a natural terrace which is a continuation of the easiest approach: the further edge of the terrace is the top of the main precipice of the hill. There is no direct evidence of an entrance at this point A. Overlooking it the remains of the enclosing wall turn north-west along the top of the drop for 80 feet, disappearing finally at an outcrop, and we can only conjecture whether it sloped downward from there obliquely, or sharply to the narrowest part of the terrace on which there is now a low artificial terrace running westwards close to the edge of the precipice, suggesting an embanked roadway probably combined with a rampart. Though this only runs undisturbed for 35 yards, it is replaced by what may well be a modern recutting of it—a bank that forms one side of a rectangular enclosure *x*, part of whose other sides are walls just 3 feet wide which in places have vanished completely. The whole structural character and disregard for the lines of the hill mark *x* off from the other structures at Dalmahoy—indeed it is marked as a plantation by the 1853 Ordnance Survey—and reinforce the probability that the others are quite different in origin and date.

Beyond the north-west corner of *x* there is virtually no trace of the older bank. Very quickly, however, the rocky outcrops make us turn south-westwards into the gully *f* that separates the main ridge from the summit. The narrowest part of the gully was once closed by a gateway B, for to the right large horizontal blocks in front of an outcrop mark the site of a wall, while a single laid block still lies on the top of a natural curving rock wall on the left side. Passing through this entrance we have low crags to the left, and on the right a series of small plateaux (*i-g*) rising in steps towards the summit, with the remains of walling flanking the gully, which brings us back to D.

Looking down from the summit we can see three more enclosures to the west, two adjacent to *c* at its foot, already described. The larger of these, *l*, is also defensively planned, though a large rocky boss occupying half of its area makes the layout hard to grasp on the ground. The innermost corner of *l* leads into gateway F, from which the north-east side of the enclosure can be traced, first as a stony bank and then as a series of blocks cunningly fitted into the top of a natural rock wall (Pl. XXXV, 3). Nothing at all remains after a short distance, nor along the top of the steep craggy north-west side. The slope on the south-west is in part much gentler, and the remains of walling run clearly along it in such a way as to take advantage of outcrops, and then, after an entrance G, to continue as a sort of sickle-shaped bastion round the edge of another craggy drop. As

the crags begin to slope obliquely down the south side of the hill the wall follows their top, turning, after they fade out, to approach the southern base of the summit, thus forming the southern sides of a sloping enclosure *o*, which is all at a lower level than *l*, from which it is separated by a natural drop reinforced by walling. Entrance *G* is, like *B*, *C* and *F*, incurved on one side only. The path going out of it slopes down with a wall on the right, and on the left first a steep slope and then low lines of outcrop. The wall curves away after 110 feet, to run on a course at right angles and to enclose the outermost enceinte *m*. It seems as if from the same point another wall had run in the opposite direction to turn the descent from *G* round the base of the "bastion," thereafter at *n* bending south to lead through a shallow natural gully. At its mouth a bank turns the roadway south-westwards towards the col between Dalmahoy and Kaimes.

The south-west side of *m* incorporates a small rocky knoll, while the western corner also takes advantage of a rocky feature. Then the north-west wall runs fairly straight to another rocky drop, followed by a downward slope, where it disappears with only a stretch remaining at what must have been the north corner. Some remains and suggestions of walling show that the top of the slopes and crags were linked up on a line outside and below the north side of *l* and *d*, a cross-wall separating *m* from a small V-shaped enclosure *k*, itself probably subdivided.

To the south of the summit an embanked wall between outcrop faces forms a field-like enclosure *p* on the hill slope.

South and west of *m* and on the same level is a large unenclosed area. As noted by the Commission (*Inventory*, No. 218), this contains the footings of an irregularly circular structure *s* about 20 feet across. Stretches of a wall run between it and the south corner of *m*. There are also slighter traces of what might be a hut-circle at *r* overlooking *p* from the west. In the scree from the summit, at the head of *p*, there is a tiny plateau with a sort of retaining wall on top, as if the site of a structure *q*. Lastly we must note the remains of two concentric rings of large horizontal blocks *t*, on the top of the main ridge, 60 yards within the east end of *e*. They mark the inner and outer faces of a hut wall 42 feet in outside diameter.

SUMMARY OF ITS FEATURES.

The walls that can be thus identified from remains that in many cases are just scattered blocks form, therefore, a series of enclosures looping out around the summit, their shape governed closely by the natural divisions and levels of a remarkably craggy site. Though enclosures *m* and *p* and, perhaps *o* are not in any sense defensible, they take full advantage of natural obstacles, particularly linking outcrops of rock with walling. Enclosures *e*

and *l* do exactly the same, but are definitely sited for defence, and dominate and canalise, to A and G, the two easiest approaches to the vicinity of the summit from each end of the hill. The same general features are found also in *b*, *c*, *d* and *k*. The enclosing walls vary in constructional method even round a single enceinte; sometimes large blocks forming wall footings were simply laid on the ground or on level rock; sometimes they were so fitted above natural rock faces that we might overlook them unless we note that their length lies horizontally whereas the longest natural lines and cracks are vertical; sometimes the stones are backed against the hill-side with the earth behind levelled out terracewise. The builders, in short, adopted different techniques according to the ground being crossed. The second and third of these techniques may be taken as characteristic. Another feature is the angular plan of some of the enclosures, particularly where they loop off from one another. The frequency with which walls may run up slopes should also be noted.

The rubble-cored wall round the summit is much more massive than the others; it is not merely defensive but a fortification, forming a citadel. Its entrance is a narrow doorway, not a gateway incurved on one side as are four of the outer examples. One conclusion might be that though the remainder hang together in design and construction, this innermost enceinte is different even in period. But the small "bailey" ¹ *b*, which is visibly inseparable from it and has a straight-sided entrance, has a south-east side exactly like the outermost stretch of wall west of entrance C, to which it was probably linked. Indeed some structure on the summit is essential to give coherence to the whole, in which the enclosures tend to have their defensive character more stressed the closer they are to the centre. Our conclusion is that we are dealing with a single work—though details may have been modified or added during the one epoch of occupation. As mentioned above, the name "nuclear" is proposed for such a plan.

OTHER NUCLEAR FORTS.

Whoever planned the works at Dalmahoy must have deliberately chosen this site rather than the much more even top of Kaimes because it suited his purpose better. Whether one builds a house or a fortification, the site chosen is one suitable according to the structural or defensive ideas and needs of the day; the ground is not the determining factor in the design, though it may cause modifications. *A priori*, then, we should conclude that nuclear forts were a definite type. And in fact several other

¹ Though the word is here used figuratively and not in its technical sense, the resemblance of the summit to the top of a Norman motte, with the lower works sited like a bailey, will have struck some readers. Is this, together with some Irish "raths," a pointer to a Celtic origin for the "motte-and-bailey" concept?

examples exist and have been described individually, although not hitherto classified as belonging to one type.¹

Dundurn.—When publishing his 1894 Rhind Lectures entitled *Early Fortifications in Scotland*, Christison devoted six pages to describing and illustrating the fortifications on the isolated craggy hill called Dundurn, which rises to a height of 200 feet above the haugh of the Earn close to St Fillans.² There, as he recorded, a series of enceintes at different levels surround the summit—an even stronger site than Dalmahoy. The walls are reduced to structureless heaps and screes of rubble. Earthworks are included in the lower parts of the scheme. One of his views and his plan are reproduced here, figs. 2 and 3.³ Some slight modifications might, however, be made: the tiny plateau between T and Q had definitely been walled; the only approach to O, Q, R and T was almost certainly up an oblique path from the centre of the great hollow I; since the outer enclosures have earthwork walls (H, V-B-C-X), we must prolong on the plan the bank that runs out from C to curve round across the west end of the hill and end finally on a line with the southern stretch of crags; there should also be some indications of a terrace between V and F; and lastly it should be noted that the path to S is only feasible for sheep, goats or men unopposed. The whole layout, though not the constructional detail, is identical with that of Dalmahoy and the total area similar, 325 by 180 yards.

A prominent feature of Dundurn is the "covered way" or hollow roadway A, nearly 100 yards long, its outer side being a stony bank still rising to a height of 6 feet on the exterior, with a stone revetment inside. Within the narrow entrance B this bank was continued by a terrace or wall right up to F, the entrance into the main lower enclosure I, which is dominated by the precipice that rises to the summit.

Dunadd.—The hill of Dunadd has been described several times in our *Proceedings*,⁴ notably by Christison. Craw's adaptation of the 1904 plan is here reproduced again (fig. 4). The steep craggy slopes rise abruptly for 160 feet from the flat expanse of Crinan Moss.⁵ Here the fort consists of a fortified summit from which five enclosures loop out, their size governed by the natural features of the hill. The outermost wall, not hitherto recorded, should be marked practically along the tips of the hachures of the eastern

¹ Excluded from the present paper are smaller, but in several respects analogous, structures in S.E. Scotland to which my attention has been drawn by officers of the Royal Commission on Ancient Monuments; one of the kind also exists at "Little Dunagoil," Bute.

² The Rev. William Mackenzie in the *New Statistical Account* (1845), x. 578, wrote that a dun or fortified hill at the east end of Loch Earn gave its name to the old parish of Dundurn. But later (p. 582) he called the hill we are considering "Dun Fillan," as did his predecessor in the *Old Statistical Account*; and on the Ordnance maps the name Dundurn is given to the high and unfortified hill to the south, though the farms of Easter and Wester Dundurn straddle "St Fillan's Hill" and the old church. Christison records a better tradition. Possibly St Fillan's Chair on the summit caused the misnomer.

³ Already repeated in *P.S.A.S.*, xxxiv.

⁴ *P.S.A.S.*, xiii. 23; xxxviii. 224; xxxix. 292; lxiv. 111.

⁵ See Christison, *P.S.A.S.*, xxxix, figs. 18 and 19.

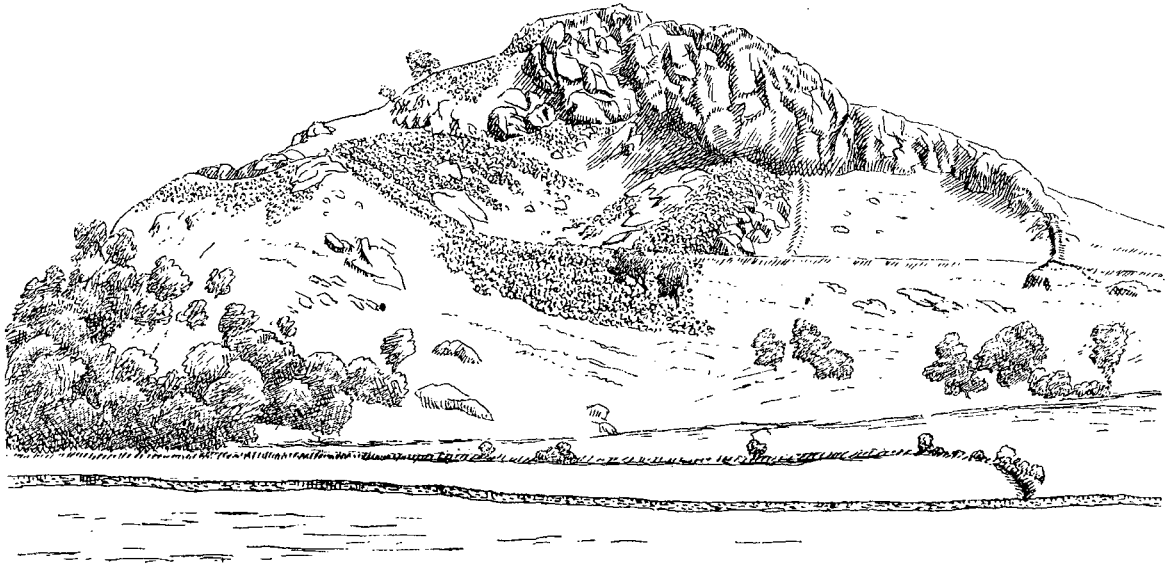


Fig. 2. Christison's view of Dundurn from N.W.

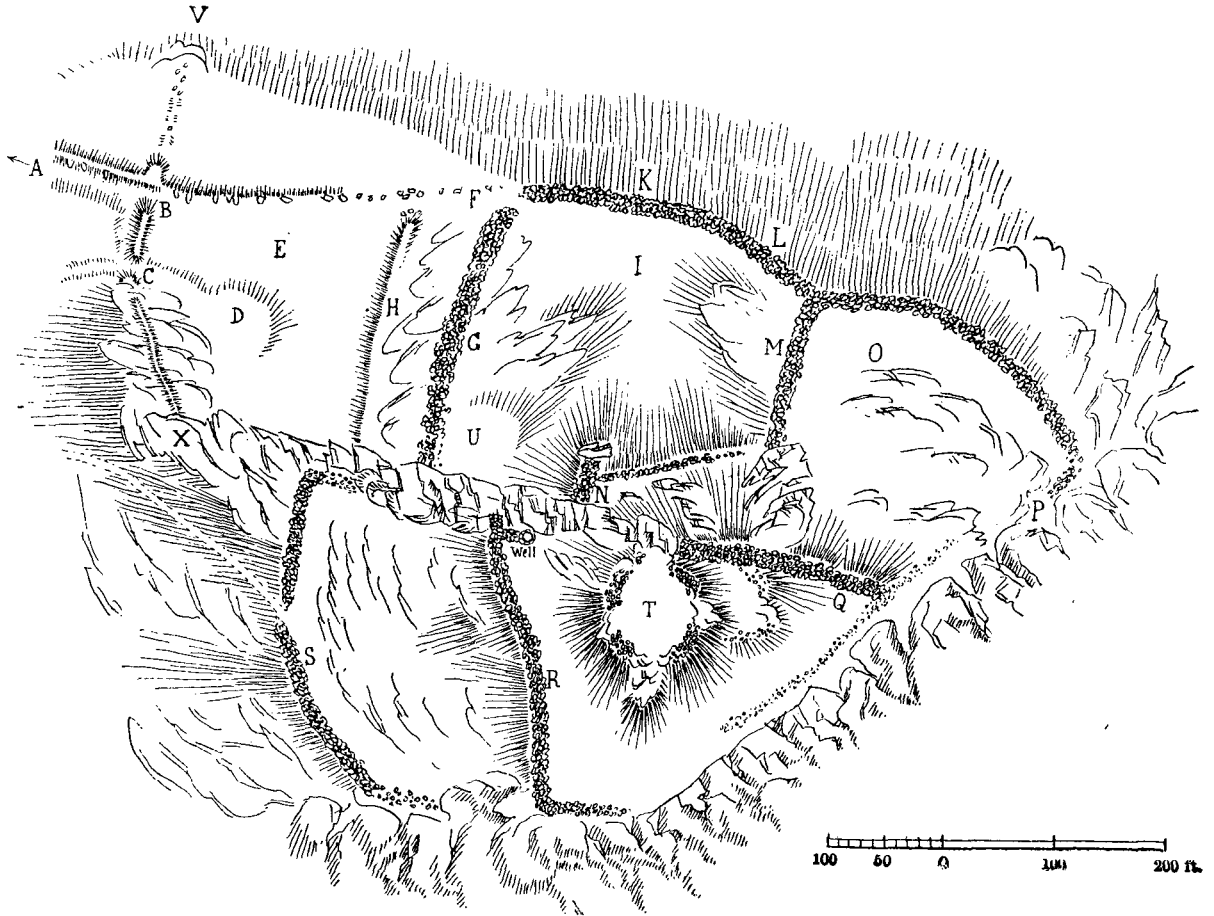


Fig. 3. Christison's plan of Dundurn.

quadrant of the plan: only a few stones of it remain, particularly in small gullies, along the edge of what is a broad natural terrace. This wall was about 30 yards outside that of EF and can never have been at all as massive. It should also be noted that enclosure B was actually completely walled in, since the outer of the two walls at its north-east corner can be seen to continue in a straight line south-westwards along the lower part of the rocky slope. Here as elsewhere at Dunadd, walling and rock faces are dovetailed as noted at Dalmahoy.¹ This wall of B was penetrated by an oblique

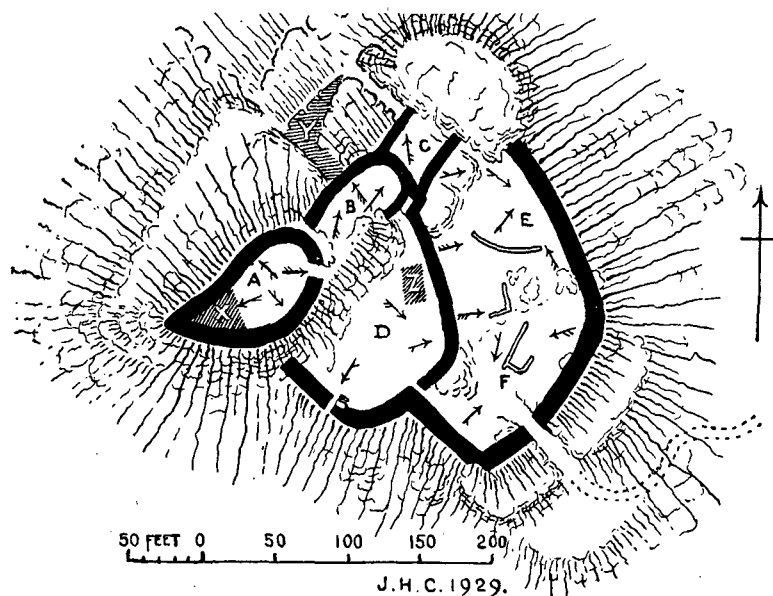


Fig. 4. Craw's plan of Dunadd.

path² which rose up below A, whose entrance incidentally was much narrower than indicated on the plan. The roadway out of E is much less definite than the dots on the plan suggest, and the nature of the ground, particularly at its foot, shows that it can never have been comparable to Dundurn's "covered way." The large lower plateaux on the south-western side of the hill bear no readily recognisable remains of enceinte walls, but are hemmed in by the bog. The enclosed area of the fort is rather under 100 yards in average diameter, but with those plateaux—and excluding the less well-protected low ground on the east side—the available area above the bog is 200 by 100 yards.

Ruberslaw.—Unlike both the foregoing, Ruberslaw is a major hill, its highest point 1392 feet above O.D., commanding a very wide view. It differs from most of the other, less isolated, hills round Hawick and Jedburgh in having a rugged and precipitous top in various plateaux and natural

¹ See Christison, *P.S.A.S.*, xxxix, fig. 24.

² Shown in Christison, *op. cit.*, fig. 20.

terraces. Dr A. O. Curle's description of the fort on that top was printed in the same volume of our *Proceedings*¹ as Christison's account of his excavations at Dunadd, but unfortunately only part of the structures then described were covered by the plan published. The new plan prepared by the Royal Commission for its forthcoming *Inventory of Roxburghshire*² will make clear that this is another nuclear fort.

In size it recalls Dundurn and Dalmahoy, being nearly 300 yards long by 200 yards at the widest. An outermost rampart, in origin probably much older than the rest, surrounds more than three-quarters of the site at a varying height determined by the natural distinction between the head and shoulder of the hill existing at the western side only: at lowest it lies 105 feet below the summit. The middle enclosure on the south is commanded by the summit or "citadel"; its enclosing wall runs at one end up the steep slope nearly at right angles to the "citadel's" wall and to its own previous course, while at the other it abuts on the summit's crags. From there start what appear to be traces of a wall enclosing the northern side. The rocky summit stands isolated with an easy approach only from the north-east, though there is a cleft at the other end; the enclosure on it forms a pointed oval 250 by 100 feet. Below the north-east end there is a rather square enclosure forming a small bailey, which prevents direct access uphill from that direction; its north-west wall runs along the top of a low line of crags and commands the gully that forms the somewhat circuitous line of approach, from the north-west within the outermost enclosure.

HISTORICAL IMPLICATIONS.

So far we have considered only the design of these nuclear forts. Their date and purpose are, however, matters of considerable interest. As is well known, the excavations at Dunadd in 1904 and again in 1929³ gave archæological substance to W. F. Skene's identification of the site as the seat of the Scotie kings of Dalriada captured in A.D. 736 by the Picts,⁴ though we now know that "the great stones and carns" which, he said, "preserve the record of many an attempt to take it," really belong to the Bronze Age. The archæological evidence suggests that Dunadd was inhabited into the ninth century. The same author, moreover, identified Dundurn as that Dundurn which is mentioned in the *Ulster Annals* in the same breath as Dunadd—*obsessio Duinaitt et Duinduirn*—when dealing with the fighting, between unidentified opponents, in 683, which may have had as a consequence Ecfrieth's campaign two years afterwards, ending in

¹ *P.S.A.S.*, xxxix. 219.

² I am much indebted to the Commissioners for a preview of this plan, from which the following measurements are taken. They are not responsible for my interpretations.

³ *P.S.A.S.*, xxxix. and lxiv.

⁴ *Celtic Scotland*, i. (1876), 229, 264, 290, and iii. 129.

his defeat at Dunnichen. Two centuries later a king Giric died at "Dundurn renowned in song," and some verses of Barchan's "Prophecy" suggest that he was killed near the Earn by the men of Fortrenn.¹ Skene went so far as to call Dundurn the principal stronghold of the Pictish district of Fortrenn.² The evidence seems slight, but his conclusion is rendered striking to us by the similarity noted above between the two fortifications.

For the post-Roman date of the walls of Ruberslaw we have the unmistakable evidence of Roman dressed stones built into them, as Dr Curle first pointed out. In the case of Dalmahoy it seems improbable that the fort there is contemporary with, far less earlier than, the Early Iron Age



Fig. 5. Gold stud-cap or dress ornament from Dalmahoy fort. ($\frac{1}{4}$)

fort on Kaimes. There have also been found, by the writer, in the "citadel" of Dalmahoy several fragments of moulds resembling in texture those from Dunadd, and a tiny gold stud-cap or dress ornament which may fit least awkwardly into a Dark Age context. This object (fig. 5), under $\frac{1}{4}$ inch in diameter, consists of a thin circular disk of gold. The edge has been turned up, then folded over. A depression has been punched in the centre, through which there is a ragged pin-hole (or thread-hole), and round it are eight small depressions made with a round-nosed punch.

Finally, it is significant that Christison remarked that "Dunadd may not inaptly be compared to Dumbarton Rock."³ The Britons who chose the Rock, now called after them, to be the "capital" of Strathclyde⁴ clearly shared the remarkable preference for an isolated and craggy hill shown at our other sites,⁵ and to which the nuclear pattern of fortification was above all adapted.⁶

The evidence for dating this type of structure thus all points in the same direction—to the two or three centuries when the Scots, Picts, Britons and Angles, and later Scandinavians, were striving for the mastery of Central and Southern Scotland. Dalmahoy and Ruberslaw compare

¹ A. O. Anderson, *Early Sources of Scottish History*, i. 364 ff.

² *Op. cit.*, i. 264, 339, 342; and *Chronicles of the Picts and Scots* (1867), pp. cxix and cxxxvi-viii.

³ Area about 250 yards by 200.

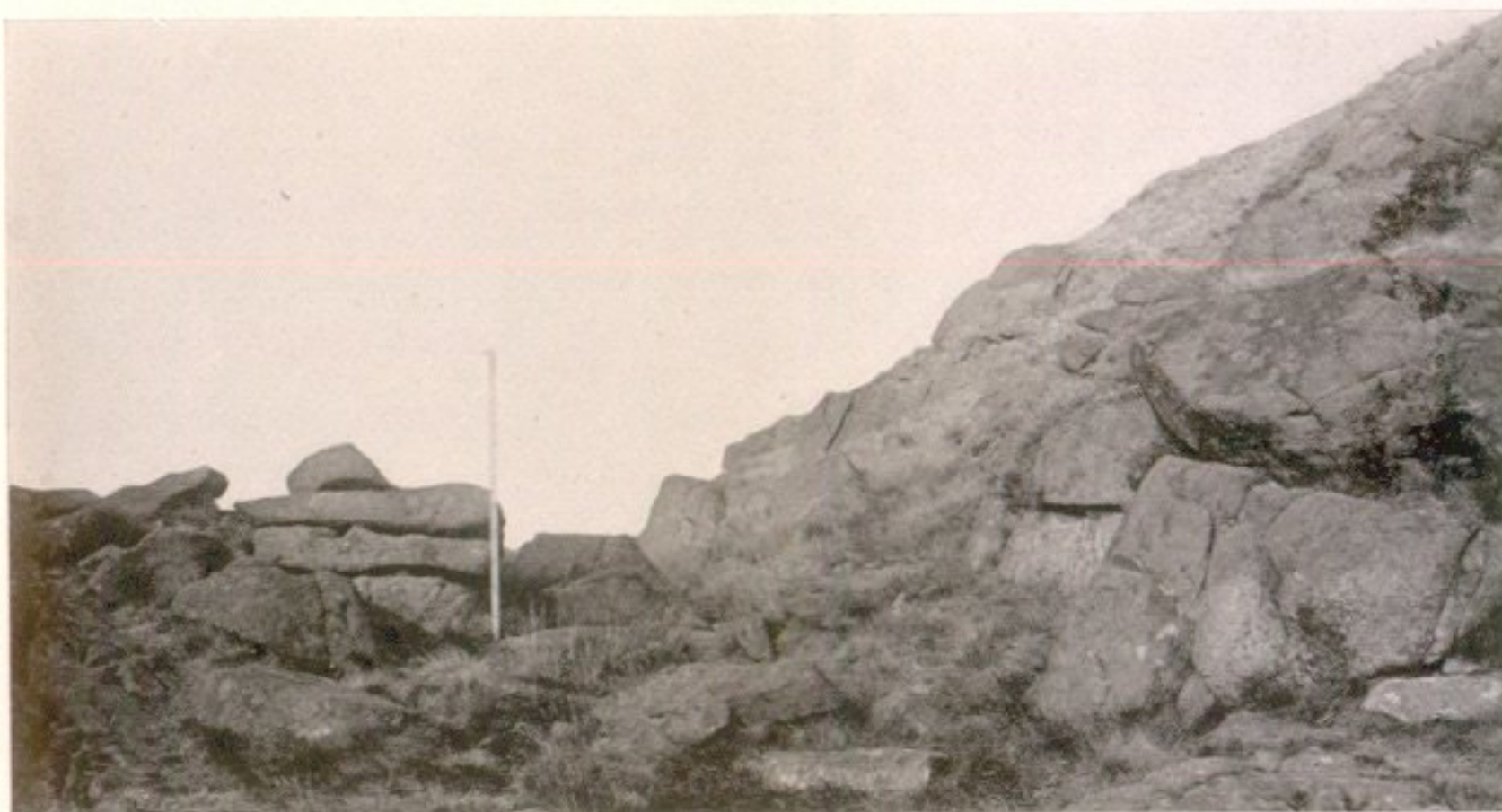
⁴ Seat of Ridderch, *d. A.D.* 612; destroyed by the Norse 870: see *Early Sources*, i. Called by Bede "*civitas Brittonum munitissima . . . Alcluth*" (*Hist. Eccl.*, i.).

⁵ It does not seem so remarkable to us owing to our familiarity with medieval castles.

⁶ Since this paper was written Dr Douglas Simpson has informed me that there are remains of a nuclear fort at Dunolly, near Oban. This place is recorded in the *Annals* as destroyed or burnt in 685, 698 and 701; and then "built by Selbach" in 714. A. O. Anderson says: "Dunolly was the principal stronghold of the tribe of Loarn . . . by taking it Selbach probably made good his claim not only to the chieftainship . . . but also to the kingship of Argyle" (*Early Sources*, i. 207-8).



1. Dalmahoy Hill from the south.



2. Dalmahoy, Entrance F. (Staff $5\frac{1}{2}$ feet high.)



3. Dalmahoy, walling and rock face, north side of enclosure 1.

favourably in size and strength with the three historic "capitals," if we may continue to follow Skene's so far successful intuition in calling them so, and must therefore be considered to have been of major if not maximum importance. Excavation here and research south of the Border are required before we can say whether the Angles shared the defensive conceptions of their enemies, or whether Dalmahoy marks the return to Lothian of the Picts or the Britons; for example, when Bishop Trumwin had to forsake Abercorn, a few miles to the north, after the battle of Dunnichen. In that case the position of Ruberslaw, just north of the Cheviots and not far from Dere Street, might denote that the Angles withdrew even beyond the Tweed after that campaign, though before Bede's history was finished in 731 they had returned to the Forth, probably already in 711.

Unfortunately the extent of the territory dominated by Dalmahoy can never be inferred, because we shall never know the periods of occupation of Edinburgh Rock, another ideal site for a nuclear fort. Yet another, perhaps temporary, fortification in the same area at much the same date may be that at the top of Arthur's Seat,¹ for though in plan quite different from such forts, being just a simple double rampart across the face of the hill, the constructional methods are those we have noted as characteristic at Dalmahoy.

The juxtaposition of the forts of Kaimies and Dalmahoy is a striking illustration of one feature of the Dark Ages, the temporary ebb of those steadily widening circles of urbanisation, civilisation in its literal sense, which spread across Europe from the "most ancient East" throughout the Bronze Age, as Professor Childe has shown,² to reach England not long before Cæsar's invasion and Scotland in the first century A.D. Kaimies was a defended village or small town like Traprain, equivalent to what Cæsar called an *oppidum*, its oval ramparts enclosing a single open area containing many huts. At Dalmahoy in contrast there is a citadel of small size, with less strongly defended enceintes immediately below it, some of which on the analogy of Dunadd will also have been lived in; this is a reflection of the proto-feudal world in which chiefs or kings of various degrees each with their retainers dominate the pattern of society. Besides bodyguard and servants, the kings had close to them the specialists of the society, bards no doubt and also skilled craftsmen, *e.g.* iron-workers and makers of bronze brooches and pins and jet bracelets (attested at Dunadd by iron ore, crucibles and moulds, and wasters), or makers of glass ornaments (as at the contemporary crannog of Lagore in Meath).

The nature of the sites and the nuclear plan suggest further that they were strongholds where dependants could gather when the main forces were away, and into which could be driven the cattle, which the Irish tales indicate as the principal mark of wealth. The outer enclosures are

¹ *P.S.A.S.*, lxxxii. 165.

² *Dawn of European Civilisation.*

best adapted to impede raiders from driving off cattle, while the inner enclosures are more suited to keeping the raiders out. The walled-in approach roads, particularly that at Dundurn, are too narrow for wheeled traffic and unnecessary for horsemen, but, like the gangway of a cattle-ship, would canalise admirably the upward rush of cattle. In support of this interpretation may be cited an article by Mr A. H. A. Hogg on "Native Settlements of Northumberland."¹ There, following Sir Cyril and Lady Fox,² he suggested that the outer enclosures associated with some multiple-ring forts were used by people whose chief business was cattle raising, and he noted that slightly hollowed roads, often deliberately revetted with stone, are associated with such sites. He also drew attention to a modern African narrative which shows that cattle outside an inner enclosure may assist the defence in the event of a night attack. No close parallels to our nuclear forts have, however, yet been identified in Northumberland. Perhaps it is rather to the north and west that we should turn to find further examples.³