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2 Sept 1982

Dear Mr Whitley,

You will remember we were in correspondence last Dec" — and now August has passed — and I am sorry to say that my short article — on Dunes / Mare Crisium — is not yet written. My time has been taken up with other matters — but I am not without hope — if your book has not already gone to press, that is:

In your letter of 29 Dec. you mention that you had in mind to call on me when you were in Cambridge earlier that month. I was sorry not to see you — and this has prompted me to write — as I expect to be in your neighbourhood later this month. I plan to leave Cambridge on 16th Sept & after a few days archaeological work in Stirling & in Perthshire, expect to be in

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The camp at Durno, Aberdeenshire, and the site of Mons Graupius

By J. K. ST JOSEPH

THE discovery of a large Roman camp at Durno, six miles NW of Inverurie, in Aberdeenshire, was made on 26 July 1975, in the course of a reconnaissance flight from Scone airfield to the Moray Firth. Only about half the perimeter, including two gates (each with a traverse) was visible at the time of discovery, but this was enough to show that the area exceeded 50 acres. Further observation from the air in 1976–77,[1] and field-work, including the digging of a number of ditch-sections,[2] have established the line of the ditch round the greater part of the perimeter, proving the area to be about 140 acres (57 ha.).

The camp (centre at NJ 699572) occupies uneven ground between 100 m and 135 m above O.D., divided into several fields that belong to Logie Home Farm, to Westerton, and to the steading of Easterton, respectively (PL. XIX). The ruins of Logie Durno church lie only a few hundred metres to the SE, but the land is now within the parish of Chapel of Garioch, centred upon the hamlet of that name 3·5 km away, to S of the river Urie. The shape of the camp approximates to a rectangle, having a long axis aligned NW–SE, but the north-easternmost sector of each of the long sides is inclined northwards, so that the whole NW end is twisted in that direction. This may be quite deliberate planning to take best advantage of the ground. The highest ground within the camp is in the centre and in the middle sector of the NE side: a fold in the ground followed by the side-road from Easterton to Westerton separates a rounded hill, of which the summit lies just within the NW gate, from the rest of the camp, and the axis of a second fold runs through the E angle. The form of the topography may be judged well enough from the general plan (FIG. 1), with contours at 25-ft. intervals. No part of the area occupies an excessively steep slope, and tents could be pitched almost anywhere, particularly if a little terracing was undertaken; nevertheless, the camp appears to extend rather far down the slope to the SW. This has the advantage of bringing it within easy reach of the small river Urie, the only effective supply of water.

In the account that follows, the camp is described in a clockwise circuit, starting at the S angle. The departure of the plan from a rectangle makes for awkward use of points of the compass: the two long sides are, for convenience, described as 'SW' and 'NE', the two short sides as 'NW' and 'SE'. The marked changes in direction in the two long sides have the effect that the alignment of about a third of each of those sides is mainly N and S.

Trenches were dug[3] to establish the line of the ditch where the evidence of air-photographs

[1] The following photographs in the Cambridge University Collection are relevant for a study of the camp: BVD 85-102, BVE 1-13, K17-AJ 5-15 taken 26 July 1975; CAF 28-49, 52-53 taken 21 July 1976; CDE 19-30 taken 20 July, and CDV 51-61, K17-AS 50-51 taken 31 July 1977.

[2] I am grateful to Mr A. A. Smith, of Pitbee, Pitcaple, who kindly gave permission for work in the fields of Logie Home farm; to Mr John Stuart of Hillhead of Lethendy who permitted digging in the fields of Westerton, and to Mr H. Ohldag of Easterton, for work near Easterton.

[3] In both 1975 and 1976, G. Maxwell and N. B. Clayton helped with the digging, being joined in 1976 by R. M. Ogilvie and by D. Willington with boys from Trinity College, Glenalmond; in 1977 a few trenches were dug by G. Maxwell and C. D. St. Joseph. Without all this help the results could not have been attained so quickly.

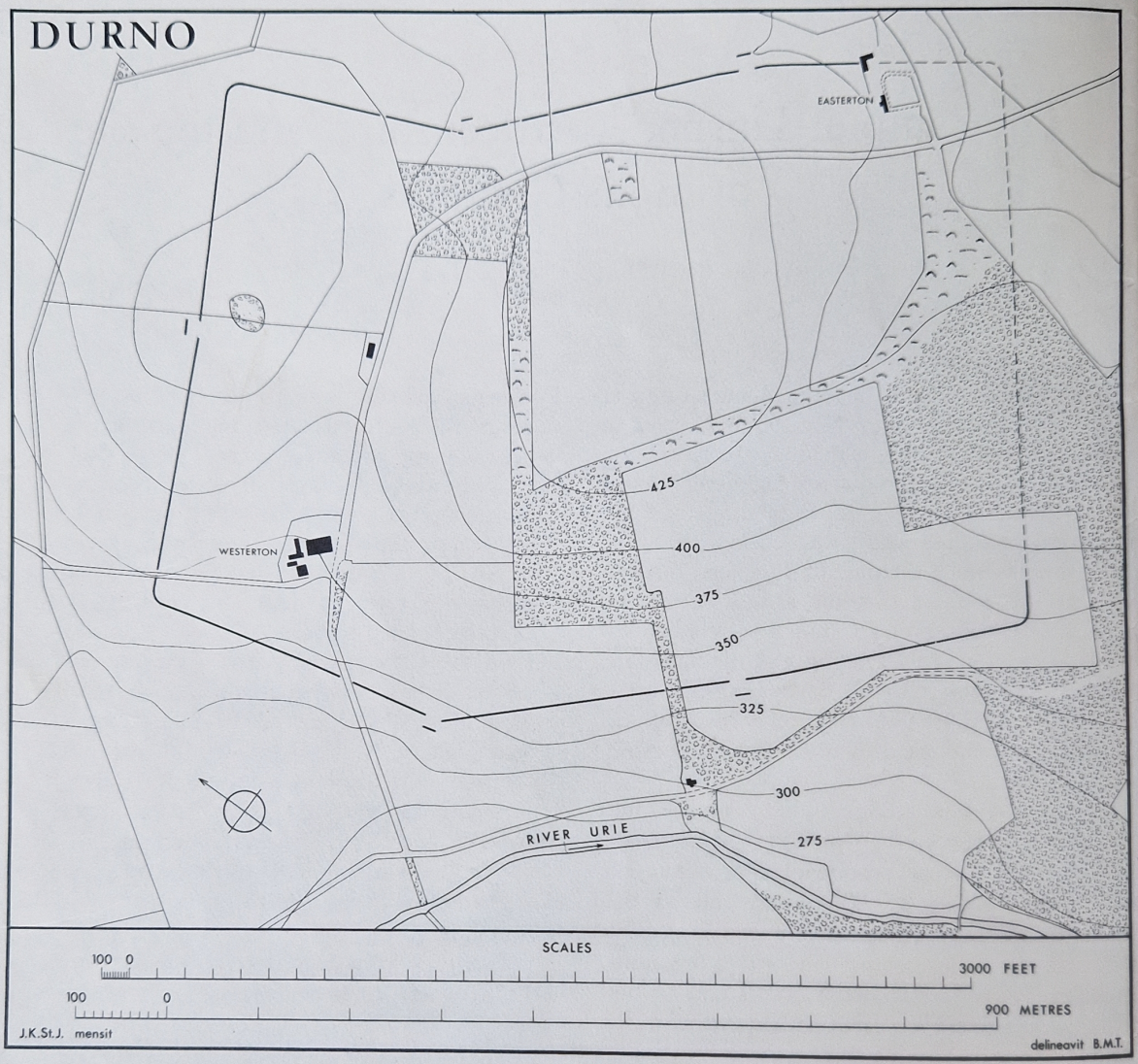


FIG. 1. Roman camp at Durno, Aberdeenshire (contours in feet).

needed to be confirmed or where the ditch remained invisible (FIG. 1). The S angle and adjoining parts of the SW and SE sides lie in a field that has been in grass for the last few years. From the angle, the line of the SE side was traced for 45·5 m up a slope. It then ran out to the surface, and no ditch remained at the upper end of the field, having presumably been removed by ploughing down the slope. The SW side was quickly established in four trenches, for a distance of some 150 m. Beyond, the line of ditch, only faintly visible in 1975, appeared as a distinct parch-mark in 1976, when a gate together with its traverse could be distinguished. A minor change in direction occurs about 50 m from the centre of the gate. The remainder of the SW side, together with the rounded W angle, has been visible as a crop-mark in all three years of observation (PL. XVIII B), including a second gate with traverse. A change in direction of 30° occurs at that gate. The NW side lies within fields that likewise have been in grass for the last three years; nevertheless under optimum conditions, the course of the ditch could just be discerned. The line was confirmed in 1976 by

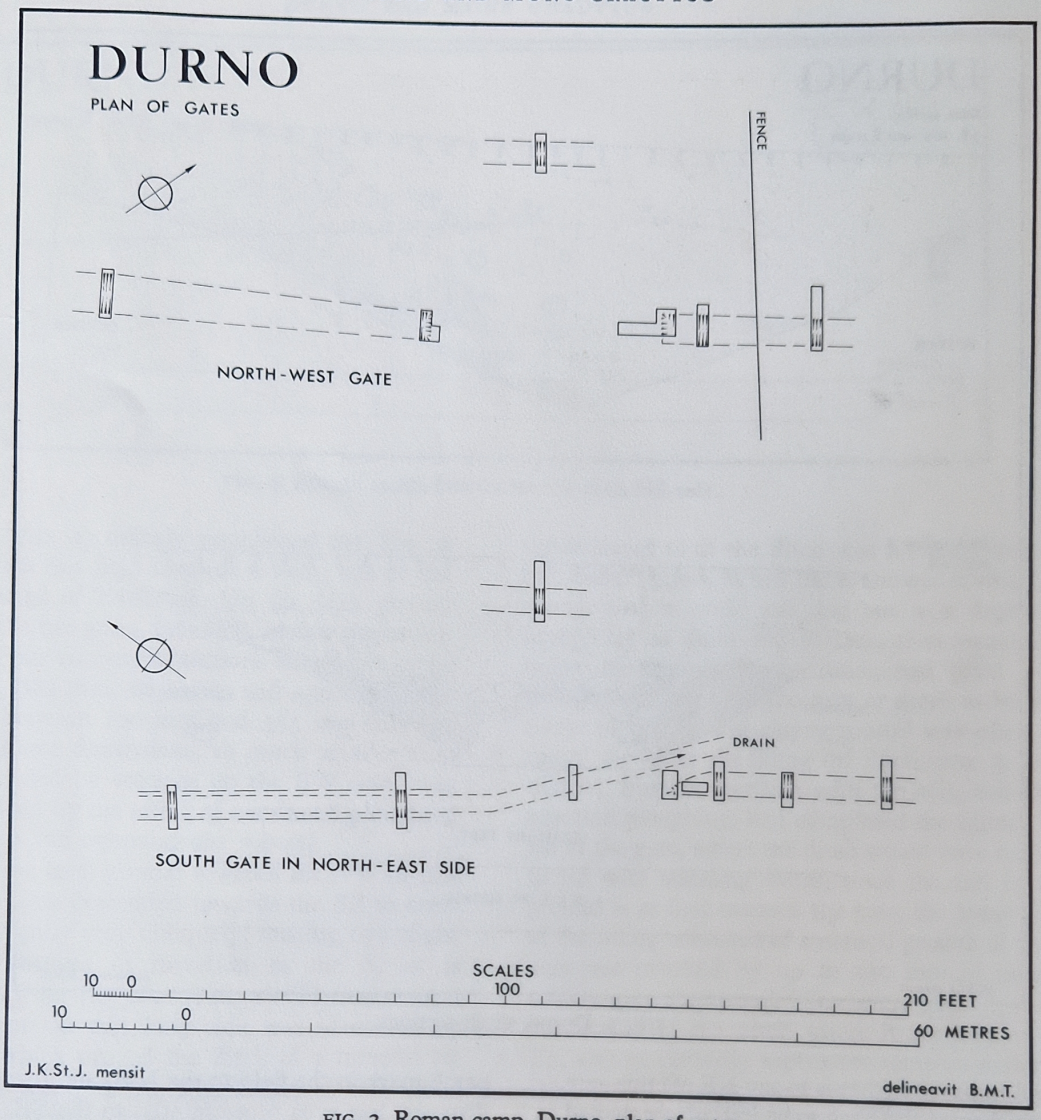


FIG. 2. Roman camp, Durno, plan of gates.

digging to determine details of the NW gate. This was shown (FIG. 2) to be 20 m wide, and to have had a traverse of which the ditch, now remaining little more than a shallow hollow 0·48 m deep, was set 15 m out. The ends of the ditch on either side of the gate were neatly squared. The ditch in all the trenches in the sectors so far described was between 2·45 m and 3·65 m wide and up to 1·3 m deep, usually V-shaped (FIG. 3), and cut in brown, brashy soil, derived from weathering of the underlying shale, though a section on the SW side, 89 m NW of the first gate to be mentioned, encountered thinly-bedded shales barely a foot from the surface. There, the ditch, 2·5 m wide and only 70 mm deep, had steeply sloping sides and a flat bottom, 1·7 m in width, cut in rock. In these sections up to 150 mm of fine silt occurred at the bottom of the ditch, and the remainder of the filling was composed of greyish, silted earth from the weathering of the subsoil, with small stones and occasional larger cobbles.

In the sections near the NW gate the ditch was found to have been dug in gravelly subsoil. How-

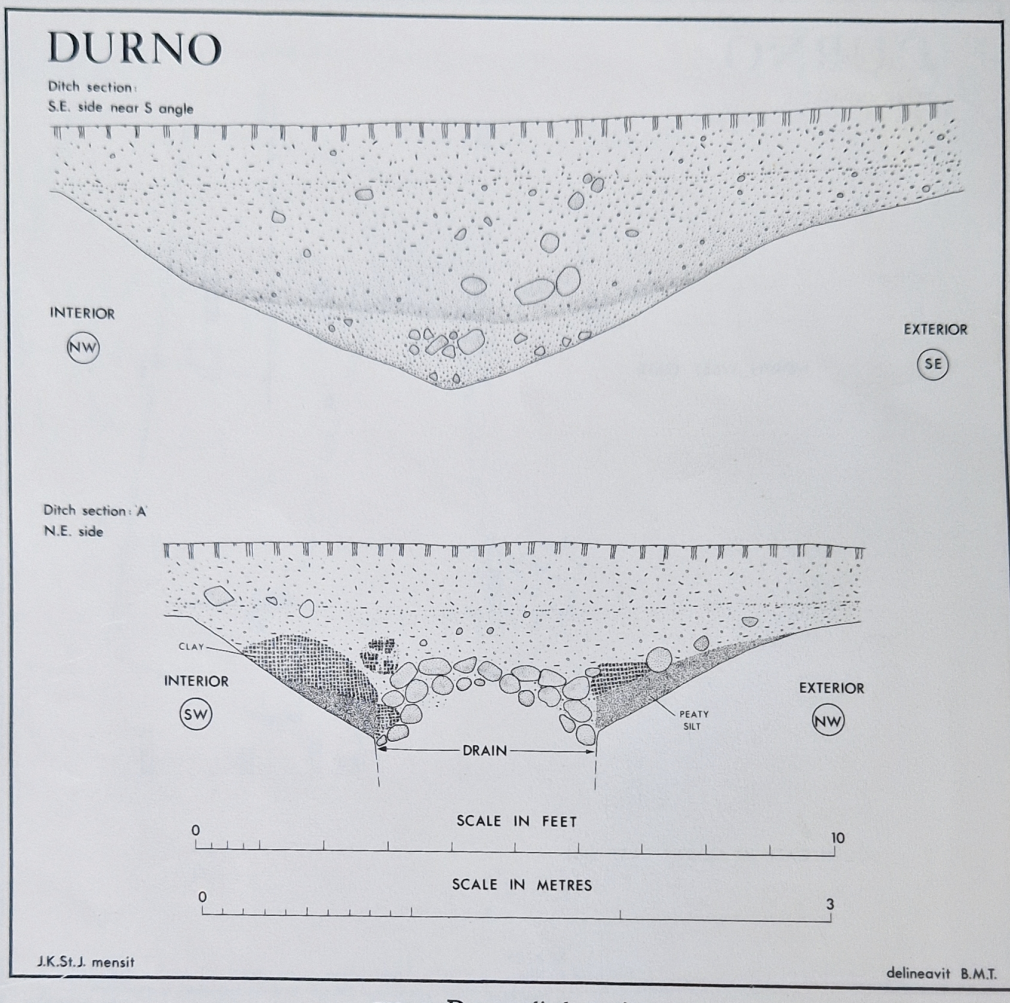


FIG. 3. Durno, ditch-sections.

ever, 58 m beyond (that is to say NE of) this gate, a trench showed the ditch to be irregularly shaped, as considerable boulders of igneous rock were encountered in the inner half of the filling, only just below the surface. The uppermost of these boulders were bedded in gravel, and may represent rampart-material levelled back into the ditch when the land was first improved for agriculture.[4]

On the long, NE side, a length of some 185 m of the ditch, together with a gate and its traverse, had been recorded from the air, to NE of a wood. This length falls into two sectors, involving a change of direction of 25° at the gate, matching the change at the corresponding gate in the SW side. The line of ditch could just be traced as a parch mark in the field to the NW, and for a short distance, but even more faintly, to the SE.

Work on the NE side was thus concentrated in the field immediately NW of Easterton. It was in grass in 1975–76, when no very certain traces could be discerned from the air. In 1977, the land was ploughed and put down to oats, but the crop ripened so late that the best conditions for observing crop-marks came after the summer's reconnaissance was over. However, a series of

[4] Roy's MS map of Scotland, of about 1750, shows, in the neighbourhood of Durno, a patchwork of cultivated fields spreading out from the stream valleys. The area of the camp seems still to have been unenclosed moorland.

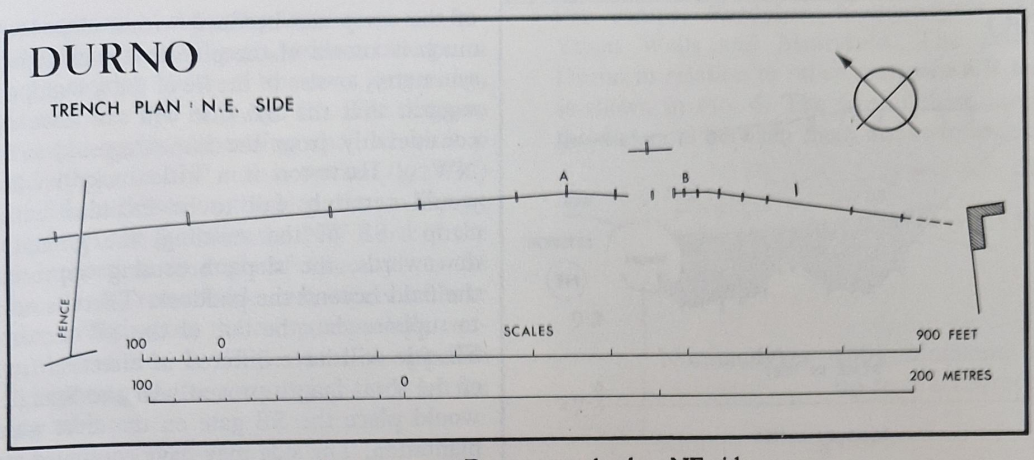


FIG. 4. Roman camp, Durno, trench-plan, NE side.

trenches (FIG. 4) quickly established the line of ditch across this field towards a barn, one of the out-buildings of Easterton. On the high ground between the two gates, the ditch, as now preserved, is tiny. Four successive sections showed it to be 520 mm, 685 mm, 685 mm, and 430 mm deep, and cut between 100 mm and 455 mm into the subsoil. These dimensions, so much smaller than those revealed by sections on the SW side, may be explained by the effect of continued ploughing biting into and removing the subsoil.

From the level ground towards the NW of this field the ditch descended towards the SE to cross a shallow gully very obliquely, making two slight angular changes in direction to the S, as is apparent from the plan (FIG. 1). Thereabouts, a second gate in this long side was identified by digging which proved the ditch of a traverse set 15·25 m out (FIG. 2). The filling of this ditch, which measured 2 m wide and 0·90 m deep, consisted of 255 mm of peat, overlaid by a layer of greyish clayey earth 230 mm thick, with plough-soil above. The gate (FIG. 2) was over 11·25 m wide: on its SE side, the ditch-end was neatly tapered. A large, stone-filled drain, a century or more old in the opinion of the farmer, was encountered at the bottom of the gully. For some distance, this drain coincided with the Roman ditch, there destroying the greater part of the ditch-filling and preventing an accurate determination of the width of the gate. Sections at the bottom of the gully showed that the Roman ditch (FIG 3), there nearly 3·0 m wide, was filled with black, peaty silt which had evidently gradually accumulated until the ditch was no more than a peat-filled hollow. When the drain was inserted, a trench 1·05 m wide was dug out to a depth of nearly 1·5 m from the surface, thus extending below the bottom of the ditch, and filled with rounded stones up to 300 mm or more in length. Some of the natural clayey subsoil was piled on top of the peaty silt filling the ditch (FIG. 3, Section A). Further levelling with top-soil, and then repeated ploughing, had completed the filling. To SE of the gate, where the ditch would have tended to fill with standing water, since the fall in the ground is at first towards the gate, the lower part of the filling consisted of a natural growth of peat; this was overlaid by up to 230 mm of mixed, orange-grey clayey soil. This layer, thickest on the inner side of the ditch where it reached to the lip, almost certainly represents rampart-material. The extent to which this was due to weathering, or to deliberate levelling into the ditch, cannot now be determined. These conditions were encountered in five sections covering a distance of nearly 30·5 m from the gate. The ditch hereabouts was flat-bottomed, some 2 m wide, and between 0·75 m and 0·81 m deep. A section some 6 m from the gate was particularly instructive: there, the ditch had encountered igneous rock and the profile of the section conformed to the rock surface (FIG. 5). No doubt loose boulders will have been removed when the ditch was dug, but one such block, nearly 0·6 m across, remained embedded in the outer face of the ditch. The course of the ditch was proved in further sections to a point some 98 m from the gate, where it was cut to such

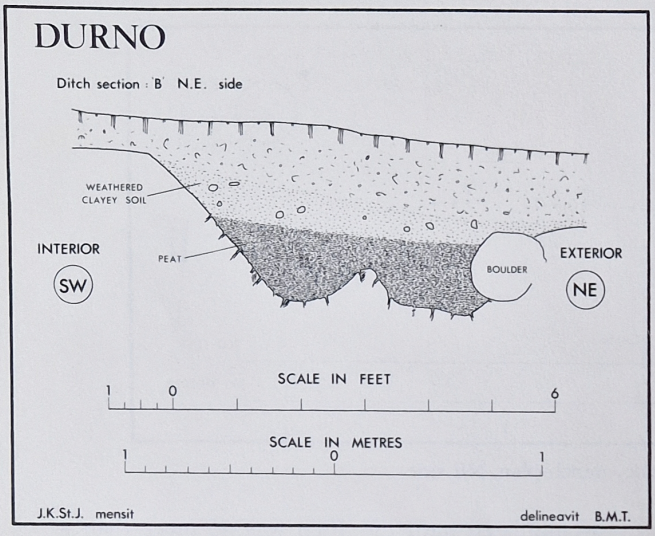


FIG. 5. Durno, ditch-section, NE side of camp, near Easterton.

a slight depth in the subsoil (175 mm) that it could not be traced further. This point is only 27 m from the barn already mentioned. Two more trenches dug on the same alignment beyond the barn, to seek the ditch in the paddock SE of Easterton, revealed rock immediately beneath the turf. However, an oblique aerial photograph of Easterton, taken about 1960/61, and looking NNW, shows that the field NW of the steading had been ploughed not long before. A distinct, light-toned soil-mark is visible on the photograph, almost exactly on the proven line of the Roman defences. This mark is most likely to have been caused by the last remaining trace of the rampart material, which only a little to NW is seen to be of a clayey nature, and lighter in tone than the surface soil. The photograph[5] thus provides supporting evidence that the defences continued at least to the barn.

No signs of the ditch have been noticed on the putative line of the SE side, either in the field across the lane, or within the plantation of firs that covers the crest on which the SE gate must have been set. This area has been wooded for a century or more, but the ground is corrugated into ridges that suggest heavy ploughing of eighteenth- or nineteenth-century date. Thus, the precise position of the E angle and the greater part of the SE side remain undetermined.

Notwithstanding these missing sectors, the size of the camp can be fixed within close limits. So much is known of the plan that considerations of symmetry, as also of the lie of the ground, strongly suggest that the SE side will not have differed considerably from the line suggested in FIG. 1. NW of Easterton is a little rocky knoll which would certainly fall to be included within the camp: SE of the steading, the ground slopes downwards, the slope becoming appreciable in the field beyond the paddock. There is no reason to suppose that the line of the SW sector of the SE side will have differed in direction from that of the short length proved near the S angle. This would place the SE gate on the crest within the plantation. The side may have continued straight or with a slight change in direction – a change of $2\frac{1}{2}°$ occurs at the NW gate. In the plan the distance from the south-easternmost gate in the NE side to the E angle, as drawn, is about equal to the shortest of the three corresponding measurements between an angle and the nearest gate in the long side. This places the E angle just beyond the Easterton paddock, and includes within the area of the camp all conveniently usable ground, while avoiding the steeper slope further E. However this may be, the minimum proven area of the camp, assuming the E angle to lie beneath the barn, is 57·15 ha ($141\frac{1}{4}$ acres): the most likely area, as shown in FIG. 1, is 58·25 ha (*c.* 144 acres).

The apparent absence of the ditch in the paddock by Easterton need cause no surprise. Irregular ditch-profiles where igneous rock was encountered have already been mentioned, for example near the NW gate, and between the south-easternmost gate in the NE side and the barn. Igneous rock outcrops at a number of places within the north-eastern half of the camp, for example near the clump of trees by the NW gate, over a considerable area within the N angle, at the rocky knoll to NW of Easterton, in the paddock SE of Easterton, and in the rough ground, formerly planted, opposite the drive to Easterton. Whenever the defences had to cross such outcrops the intractable nature of the rock must surely have meant that a ditch was dispensed with, but that the rampart, locally formed of boulders and earth, continued.

[5] Photograph No. K 29002, from Skyviews and General Ltd., 26 Stooks Hill, Leeds 11. Mr Ohlda showed me this photograph.

If the long axis of the camp is taken to run between the SE and NW gates, with a change in direction matching those of the two long sides, this axis measures 930 m (3,050 ft.). The distance at right-angles varies, depending upon where it is measured: thus, the NW side is 590 m (1,920 ft.) long, the SE, as drawn on the plan, 620 m (2,035 ft.). In spite of the fact that the NW third of the camp is inclined at an angle of some 27° to the other two thirds, remarkable care seems to have been taken in laying out the camp, especially considering that no side is visible from an opposite side. The spacing of the gates is indicated by the following table:

	m	*ft.*
S angle to nearest gate in SW side	325	(1,066)
Interval between gates in SW side	342	(1,122)
NW gate in SW side, to W angle	338	(1,109)
W angle to NW gate	306	(1,004)
NW gate to E angle	280	(918)
E angle to nearest gate in NE side	274	(899)
Interval between gates in NE side	320	(1,050)

The difference in treatment of the ditch-ends at the NW gate, and at the south-easternmost gate in the NE side is to be noted, as the first such evidence of gang-work to have been recorded at any of the very large camps in Scotland.

The distance from the S angle to the crest-line of the ridge, on which the SE gate must lie, equals that between the W angle and the NW gate. The approximate position of the E angle (FIG. 1) has been determined by the projections of the known lengths of the two adjacent sides. The length of the SE side, so defined, differs by only 27 m from the length of the NW side.

In a recent discussion of the camps of about 100 acres and upwards two groups have been distinguished N of the Antonine Wall.[6] Of seven camps from Ardoch to Kair House, six conform to within 1% of the average area of 129½ acres. At the seventh, Balmakewan, the position of one side, though not proved, is fixed within fairly close limits by the lie of the ground. If the area of this camp is indeed rather more than the proven minimum of 123 acres, the departure from the norm may not differ greatly from 1%. However that may be, the correspondence is remarkable considering the uneven ground on which the camps are set. The second group comprises the five camps, Raedykes, Normandykes, Kintore, Ythan Wells and Muiryfold. The position of Durno in relation to other camps in NE Scotland is shown in FIG. 6. The size of these camps and the distances between them are as follows:

km		*acres*[7] (1 acre = 0·405 ha)
	Raedykes	93
9·2		
	Normandykes	106½ minimum, perhaps up to 2 acres more
17·3		
	Kintore	110
14·1		
	Durno	*141¼ minimum, best estimate c. 144*
11·7		
	Ythan Wells	111
21·7		
	Muiryfold	109

The full extent of Normandykes has not been determined: there may be an acre or more than the minimum 106½ acres. However, this and the following three camps conform closely to an average of 109 acres. Raedykes, at 93 acres, is smaller than the first group by 28%, and than the second by 15%: clearly it fits most easily into the second series. Of all the large camps, Raedykes is closest to the sea (FIG. 6). May its small size be explained by the presence only 5 km away at Stonehaven, of a bay[8] that is the one possible

[6] *JRS* lxiii (1973), 231–32.

[7] For ease of comparison with previous lists of these camps (*JRS* lxiii (1973), 231–3; lxvii (1977), 143–4) the areas are given in imperial measure.

[8] At Stonehaven there is a shallow embayment of the coast where two small streams, the Cowie Water and the Carron Water, reach the sea *c.* 700 m apart. At the S end of the Bay a rocky point cuts off a small cove, the site of the medieval and modern harbour. A mass of rocks at the harbour-entrance was only removed in 1825. How usable this cove would have been in its natural state is uncertain. Perhaps Roman transports would have been beached on the strand of Stonehaven Bay, though this is wide open to the E. Mr Angus Graham has kindly supplied me with notes on the harbour.

trans-shipment point on the coast hereabouts, and by a consequent need temporarily to detach troops for special duties?

The interval between Kintore and Ythan Wells is 25·75 km, measured in a direct line, and up to 0·75 km more if wet ground by the river Urie is to be avoided. Durno lies between these two camps, rather more than half-way from Kintore, and set forward, that is to the west, 1·5 km from the straight line adjoining the two. In the series of 129½-acre camps from Ardoch to Strathmore, the longest interval is that of 26 km between Grassy Walls and Cardean, whereas the average interval is 20 km.[9] That the marching-distance between camps is partly determined by the nature of the terrain is confirmed by the fact that in each of the two exceptionally short intervals, namely the 10·4 km between Ardoch and Innerpeffray, and the 9·2 km between Raedykes and Normandykes, a river of size has to be crossed. The Dee south of Normandykes is a not inconsiderable obstacle, and is followed by a steep 40-m climb up to the camp. The crossing of the Earn south of Innerpeffray is at a convenient ford, and there is a shallow ford of the Tay, south of Grassy Walls, though that river-crossing falls within a marching-interval of average length.

As to the dates of these series of camps, at Ardoch, where military structures of several different kinds overlap, all the evidence seems to point to the largest camp there (of 129 acres) being the latest work on the site.[10] Both the camps of this series, and those of 63 acres[11] which extend over much the same territory, are most easily explained if they were constructed in the Severan campaigns of the early third century. The question has been asked[12] whether the five northernmost large camps (average 109 acres) represent a different campaign? Compared with 129½ acres, there is a reduction in size of about 22%. Why should an army, accompanied in all probability by the Emperor in person, require for the first 120 km of its march beyond the Forth camps uniformly 129½ acres in size, and for the next 80 km, in territory most remote from its base where the army was therefore most vulnerable, camps of no more than 109 acres on average? There is no evidence to suggest that a small force requiring some 20 acres of ground operated separately after Kair House, or indeed returned thence southwards.

The possibility that the northernmost series of five camps are Agricolan has much to commend it. In the N, no other camps are known large enough to have held Agricola's entire field army. As to where are the representatives of the series further S, as yet a partial answer only can be given. At Carpow, on the S shore of the Firth of Tay, a ditch forming part of the outline of a large camp (at least 100 acres in size) has been traced and shown to be cut through by a polygonal work the equivalent at Carpow of the 63-acre camps. The large camp is thus the earlier and, of known series of camps, would seem to correspond most nearly to Dunning and Abernethy (one axial dimension is *c.* 670 m, compared with 694 m at Dunning and 685 m at Abernethy). The shelf of land that carries the Roman works at Carpow overlooks the Tay and is by far the best position from which to mount a crossing of the Firth. Indeed, there is hardly any call for a campaigning army to occupy this position unless a crossing were intended. Six marching-intervals would lead by a reasonably direct route passing the SE side of the Sidlaw Hills to the coast near Montrose, and thence along the coast to Raedykes. Both Montrose Basin, where an 8-acre Roman camp has been identified, and Stonehaven Bay, not to mention the Firth of Tay itself offer the most favourable opportunities on this length of coast for the contacts between fleet and army mentioned by Tacitus.[13]

There are, N of Stonehaven, two further camps respectively at Ythan Wells and at Auchenhove 23·7 km apart, with gates of elaborate plan, involving an external *clavicula* and oblique ditch. Of Ythan Wells, the whole of the two sides, each with a gate, and parts of the remaining two are known: the area is close to 33 acres. Auchenhove, where the length of one side and considerable parts of two others, including one gate, have been

[9] See Table, *JRS* lxiii (1973), 231.

[10] It overlies a camp of 10 acres, a camp of 63 acres, a signal-station and the defences of an annexe attached to the complex of earthworks that remain from superimposed Flavian and Antonine forts.

[11] See Table in *JRS* lxiii (1973), 230.

[12] *JRS* lxiii (1973), 231.

[13] *Agricola*, ch. 25, 1: *ac saepe isdem castris pedes quisque et nauticus miles mixti copiis et laetitia suis quisque facta, . . .*

determined, corresponds in proportions. The date of these camps is not in doubt. The distinctive gate-plan matches that of the camps (to mention only examples N of the Forth) at Menteith, at Dalginross and at Stracathro which have been firmly assigned to the Agricolan period. Seven such camps had been discovered up to 1977, and that others await discovery is shown by the recognition, in 1977, at Beattock (Dumfriesshire) of yet another example.[14] The defences of some camps of this type have been shown to be on so slight a scale[15] that total destruction of others by agriculture is a very real possibility.

N of the Tay geography dictates that the natural route for an invading army must lie north-eastwards, either along Strathmore or on the opposite side of the Sidlaw Hills, to the North Esk and so to Stonehaven. There the Highland front reaches the sea, cutting off the country to the N. Thus, for an expedition bent on penetrating a certain distance into Caledonian territory, but not to the confines of the island, the Howe of the Mearns at the head of Strathmore is a very natural place to stop. This was the thought that led to the suggestion that the camp at Kair House may represent the northern limit of Severan campaigning.[16]

In contrast to the remarkably straight margin of the Highland front that extends north-eastwards from Loch Lomond, beyond Stonehaven the presence of three large river-basins, those of the Dee, the Don and the Deveron, has caused the eastern edge of the Highlands to be much more dissected (FIG. 6). Thus, a number of isolated hills, the Hill of Fare, Benaquhallie, Cairn William, Bennachie, and the Hill of Foudland, stand in advance of the main mountain mass. Eight camps are known between Stonehaven and the Pass of Grange, at the approaches to Moray. These all lie within a corridor of march, crossing relatively easy terrain, and skirting the high ground to W, as if the intention was to reach the approaches to the coastal plain by the shortest route without penetrating the hills. The direction of movement is at first northwards to a point a little beyond Kintore, and then inclines north-westwards towards the Pass of Grange. The change in direction takes place not far from the confluence of the Urie and the Don, and opposite the distinctive granite mountain of Bennachie. Such is the background information essential to a consideration of Durno and of its relation to the other camps N of Stonehaven.

Durno is the largest camp N of the Antonine Wall. How did the army that occupied it reach the site and what was the object of this unique concentration of military force? That a whole series of 144-acre camps extending back to the Forth awaits discovery can hardly be seriously considered. The scale of the defences at Durno, involving a ditch up to 3·6 m wide and 1·3 m deep, is such as to suggest that the entire circuit of some 12 of these camps can hardly have disappeared, or have been so reduced, that no trace whatever might be discerned from the air, even after thirty years' reconnaissance. The same argument applies to the postulated equivalents, S of Raedykes, of the 109-acre camps; but if Agricola's line of march indeed involved a crossing of the Tay at Carpow, only five camps are needed in the interval between Carpow and Raedykes.[17] It may be observed that those parts of Angus SE of the Sidlaw Hills have been subjected to considerably less reconnaissance than has Strathmore.

The remarkable uniformity in size of the large camps, both of the 129½-acre series and of the 109-acre series, already emphasised, demonstrates how close a relationship existed between the composition of a Roman expeditionary force and the area of its camps. Durno must thus have accommodated a specially large force appropri-

[14] *Discovery and Excavation, Scotland*, 1977, 53.

[15] *JRS* lxiii (1973), 223–4.

[16] *JRS* lxiii (1973), 233. Dio, indeed (lxxvi, 13, 3), reports that Severus 'did not desist until he had approached the extremity of the island'. The phrase is too vague and in any case too unrelated to the true shape of Scotland to be pressed closely in dating the most northerly camps, neither series of which approaches the actual extremity of the island.

[17] The site at Logie (*c.* NO 699629) in Angus, provisionally identified on the evidence both of air-photographs and of ditch-sections as a Roman camp (*JRS* lxiii (1973), 226; lxvii (1977), 140) was examined by further digging in 1977. This established lengths of a V-shaped ditch, running for 400 m or more, in two directions at right-angles. However, no gates could be identified, and the angle between the two lengths is sharp. These results show that the remains cannot be accepted as Roman. They are best explained as seventeenth- or eighteenth-century boundary-ditches of vanished plantation-belts. After the ditches had largely silted up, field-drains were inserted in some lengths in the first half of the nineteenth century.

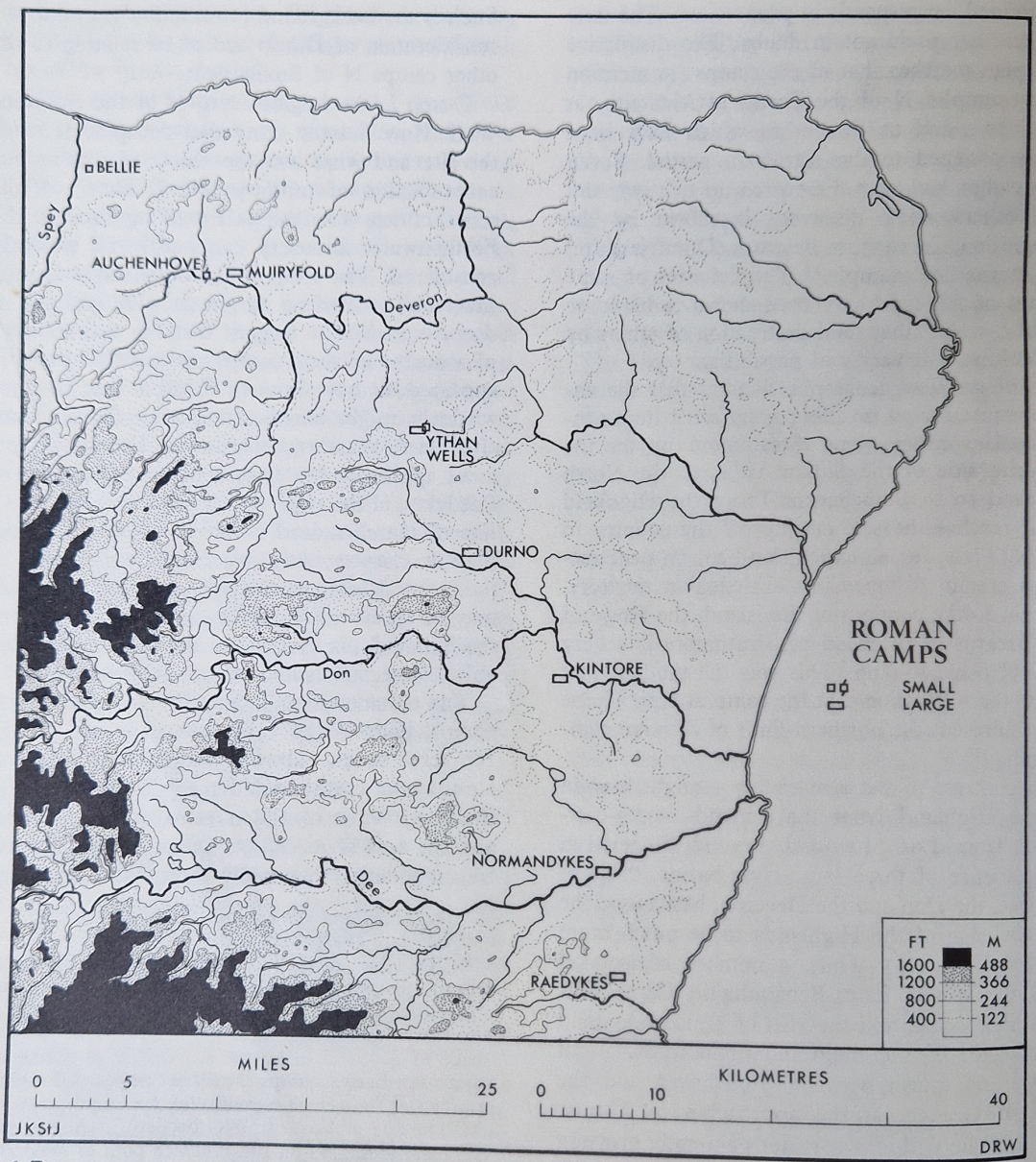


FIG. 6. Roman camps in north-east Scotland. (Stonehaven Bay is near the foot of the map, at the mouth of two small rivers. Bennachie is the mountan of which the summit, at 528 m, lies 5·5 km SW of Durno.)

ate to a camp of 144 acres: a force that everywhere else operated in two or more contingents. Only two types of camp are known within 55 km of Durno: is it chance that the average areas of the two (109 + 33) when added together correspond so closely to that of Durno?[18]

As has been mentioned, the 33-acre camps are undoubtedly Agricolan; so if this equation be correct, then both the 109-acre camps and Durno itself must also be Agricolan. Durno is some 15 acres larger than the 129½-acre camps further S, which are widely accepted as the work of a Sever-

[18] *JRS* lxvii (1977), 144, where this argument was first developed.

an expedition involving the greater part of the army in Britain. Durno must then represent, in the context of Roman military affairs, a concentration of almost overwhelming force in response to a special situation. A sweep across enemy territory, a response to some real or imaginary threat, and an impending battle are all possibilities.[19]

To understand the significance of Durno, reference must be made to the general strategy of Agricola's operations. A first campaign that completed the Roman conquest of North Wales was followed by a further six seasons' operations, all within the 'Highland zone', which nearly doubled the area of Britain under Roman control. Study of the narrative of Tacitus and appreciation of the character of the territory that was progressively over-run suggests planning of high degree, that could only come from a thorough grasp of the unfolding strategic situation. How otherwise could the country northwards as far as the isthmus between Forth and Clyde be conquered within two years? No wonder that a year was needed for consolidation and for the garrisoning of territory already over-run. The remaining three seasons' campaigns were concerned respectively with SW Scotland (as is becoming apparent both from the disposition of Flavian forts in the approaches to Galloway and Ayrshire and from the discovery of a Roman camp on the Ayrshire coast)[20] and with the territory N of the Forth-Clyde isthmus. The sequence suggests an awareness of the need to deal firstly with a vulnerable western flank, and of the recognition that the only possible way of advance northwards involved campaigning outside the Highland massif and cutting off the area, much of it relatively low-lying, between the Forth and the Tay. No appreciation of Agricola's military operations can be complete without knowledge of the extent of native reaction and resistance. No doubt this varied: the very swiftness and seeming inevitability of the Roman advance will have been quite beyond native experience hitherto. There is evidence of opposition from the powerful Brigantian tribal group in northern England: mention by Tacitus of need for consolidation and of attacks on individual camps[21] suggests that opposition was not lacking; while the power of the Caledonian confederacy is brought out, if perhaps over-emphasised, in the description of the seventh campaign. Intelligence, whether from far-ranging scouts or from native sources, may well have suggested to Agricola that, faced with the formidable barrier of the Highlands, the best way to subdue the island was to promote conditions in which confrontation might be achieved with the main body of the Caledonian tribes, even at the risk of a northward advance that involved long and exposed communications.

The camp at Durno has already been described, but some account of the terrain is essential to an understanding of the tactics of the battle. The Roman march northwards from the Forth passes no mountain as distinctive as Bennachie. Composed of granite, about 7 km long and 3 km wide, Bennachie has several separate summits (PL. XIX), of which the highest, Oxen Craig, rises to 528 m. The easternmost summit, the Mither Tap, is a rocky tor crowned by a hill-fort, small in size but of great strength. The S side of Bennachie slopes steeply to the river Don, while westwards the mountain is linked by a ridge, nowhere less than 260 m in height, to the Correen Hills and thereafter to the main mass of the Highlands. From a distance the long profile, from which are seen to project two or more separate peaks according to the direction of view, distinguishes the mountain from all others in the neighbourhood. On the ground, Bennachie is first seen from N of Raedykes, as the ridge of the Mounth is crossed. From the N it is in view from Knock Hill, to NE of Muiryfold: the summit is also conspicuous from large parts of Buchan. From the air, the mountain may be distinguished in clear weather even from the neighbourhood of Brechin in the S, and from the Black Isle to the NW. Bennachie has as distinctive a shape as Burnswark, the Eildon Hills,

[19] Many suggestions as to the site of the battle that was the climax to Agricola's final campaign have been made over the last two centuries. They range between the neighbourhood of Ardoch and the Moray Firth. For recent discussions see O. G. S. Crawford, *The Topography of Roman Scotland* (1949), 130–3, who on the evidence then available placed the battle at Raedykes; A. R. Burn, *P.S.A. Scot.* lxxxvii (1955), 127–33 (between Knock Hill and the Pass of Grange); D. Henderson-Stewart, *Trans. Anc. Mon. Soc.* 8 (1960), 75–85 (the Pass of Grange). In their recent edition of the *Agricola*, R. M. Ogilvie and I. A. Richmond, *De vita Agricolae* (1967), 252, consider 'that it may have been in the vicinity of the Pass of Grange'.

[20] *Britannia* ix (1978), 397.

[21] *Agricola*, ch. 25, 3 and 26, 1, referring to the sixth campaign.

or Schichallion, and it must be visible over almost as wide an area as Schichallion itself. The view from the summit of Bennachie is correspondingly impressive, extending to Lochnagar, to the E end of the Cairngorms, to the Ladder Hills, to Ben Rinnes, and in clear weather even to the mountains of Easter Ross. These details are not without significance in the present context. As reports of a Roman advance spread through the country, what form would resistance take? Co-ordinated action might involve the harrassing of Roman lines of communication, but must also have called for the massing at a suitable point of an effective combination of fighting-men. The assembling of the chariots mentioned by Tacitus suggests a measure of forward planning. A decision of Caledonian chieftains, however made, would no doubt involve the sending out by native lines of communication, in their own way perhaps as rapid and efficient as a telegraph, of a widespread call to summon warriors to fight. The summons would have to be to a suitable and well-known assembly-point close to the anticipated line of Roman advance. What better position is there than Bennachie with its unmistakable profile: an isolated defensible mountain of ample size to serve as a trysting-place for large forces, guarding the natural line of advance northwards, and with the possibility of watching the progress of the Roman advance from afar? If not attacked, Bennachie is a good position from which to harrass lines of communication.[22] The existence of no fewer than six hill-forts, or fortified 'settlements', around Bennachie[23] (a remarkable concentration in this part of Aberdeenshire) affords evidence of a native population at a period not far removed from that of the Roman invasion. No expeditionary force could by-pass Bennachie without running the risk of being cut off. To the Caledonians, the further N their choice of a position in which to make a stand, the less there was to fight for. Buchan does not comprise particularly good land, but there remained the sheltered and fertile plain of Moray: moreover, the wealth of the Highlands, then as in later times, may have been reckoned in cattle rather than in corn.

The picture is thus that of a great concentration representing the flower of the native tribesmen hastily mustered from all over Caledonian territory, occupying a commanding position, chosen so as to invite attack. In some respects the situation matches a famous episode in the conquest of Wales, namely the last stand and defeat of Caratacus in A.D. 51, at a locality not certainly identified,[24] but perhaps near Caersws in the upper valley of the Severn. On the Roman side the question of timing may have been crucial. If the progress of their advance and the approach to Durno were related to the gathering of contingents from Caledonian tribes, it may have been in mind that an opportunity to overcome in a single battle a large part of the native fighting strength might leave little possibility of further resistance.

The relation of Durno to Bennachie has still to be described. The camp lies 1·5 km W of the direct line joining Kintore and Ythan Wells, on rather uneven ground nearly half of which slopes towards Bennachie. Need of an adequate water-supply was without doubt an important factor in the choice of site; nevertheless, a slight shift in position to the NE, or a swinging of the long axis through a right-angle, would have provided a more level site. To an observer on the ground the

[22] Other possible positions are near Stonehaven, where an advancing army would have to skirt the edge of the Highlands as this approaches the sea, and the neighbourhood of the Pass of Grange. Raedykes, the only Roman camp known near Stonehaven, is the smallest in the table on p. 275, and thus unlikely to have served as Agricola's base-camp before the battle. Moreover it lies N of the point where an army's manoeuvres would be most restricted between the hills and the sea. As to Grange, the Pass that forms the lowest part of Strath Isla, now followed both by a main road and a railway, affords the easiest route to Moray. Knock Hill (NJ 538551) which has sometimes been linked with the battle, is a distinctive conical hill (summit 430 m) some 5·5 km NE of the Pass and visible over a wide area. The question may be asked whether it would have afforded enough ground for the large tribal forces that Calgacus had assembled? Moreover, the nearest known Roman camp, 109 acres in size, is that at Muiryfold (NJ 489521), in a position that could only have been reached after the narrows of the pass between Little Balloch Hill and Sillyearn Ridge had been traversed. (For references to Raedykes and to the Pass of Grange, see note 19).

[23] The Mither Tap, NJ 683224; Dunnideer, NJ 613281; Pittodrie, NJ 694244; the Barmkyn of North Keig, NJ 599200; Bruce's Camp, NJ 768190; and perhaps the lightly defended enclosure at Tillymuick, NJ 649245. The land in Lower Garioch is amongst the most fertile in NE Scotland.

[24] *Antiquity* xxv (1961), 270–1 and fig. 1.

impression is very strong that the view to the mountain was an important factor in laying out the camp. In common with all the other large camps, the precise position shows how detailed a knowledge of the terrain was possessed by the Roman command. How else after each marching-interval could a choice be quickly made of 109 acres or more of suitable ground, in proximity to an adequate water-supply? As to this, the 33-acre camps, known from excavation at Ythan Wells to be earlier than those of the 109-acre series, surely represent a rapid forward movement by an appropriately equipped force, having the task of reconnoitring the country ahead. If so, this lesser force will have returned to unite at Durno with Agricola's main army.

To mount an attack on a force of many thousands of tribesmen occupying a mountain such as Bennachie is a military exercise with its own particular problems. The rolling arable land that now extends about the mountain is no guide to the appearance of this moorland in its natural state. The higher slopes of Bennachie, strewn with granite blocks, may have seemed much the same in Roman times as now. As to this, important points to note are, first, that large boulders provide excellent cover for individual marksmen, and second, that concerted cavalry operations over such ground would hardly be possible as horses would easily break their legs. Even the lower slopes must have carried scattered boulders since cleared to permit use of the land for agriculture. Parts of the middle slopes are now planted with conifers: the extent of tree-cover in Roman times remains uncertain.

Between Durno and Bennachie flows the river Urie, a stream now hardly more than 8 m wide, which approaches to within 160 m of the camp at its closest point (FIG. 7). This stream, unless in spate, can today be forded on foot in many places with reasonable ease, and certainly by cavalry, provided occasional deeper holes that occur in any stream-bed are avoided. However, near the camp the present course is largely artificial: the low-lying ground on the S side of the river, now forming part of the arable fields of Carden farm, is, as air photographs show, seamed with old stream-channels over a width of up to 150 m, for a distance of some 650 m between NJ 692270 and NJ 685271. Anciently, this may well have been wet ground, criss-crossed by abandoned stream-courses. A second stream, the Gadie Burn, that flows below the foot of Bennachie, is much less of an obstacle.

The river Don, which flows past the S side of Bennachie, affords an additional defence against attack from that side. An assault could most easily be mounted from the E end, or from the N. The ground best suited for military operations, particularly with cavalry, may be judged to be that lying to the E, comprising the ridge on which Chapel of Garioch stands, and the broad valley to the S of that ridge. However, operations there would involve an attack on a very narrow front, and no doubt the main dispositions of the native contingents, which must have been clearly visible to the Roman command, would have been taken into account. Any attempt to discuss the tactics of the battle is inevitably wide open to criticism. There are narrow limits to the reliable information to be gleaned from Tacitus, and little, moreover, is known about so many aspects of an engagement of this kind.[25] On the Roman side what was the length of the battle-line, or the extent of the main field of encounter? A camp of 58·25 ha (144 acres) would have provided space, even when allowance is made for baggage-trains, for a large part of the entire army of Britain. Precise figures are lacking: if there were major contingents from all the four legions in Britain, with appropriate auxiliary troops, hardly fewer than 17,000 to 20,000 men will have been involved. The marshalling of troops in order of battle must have taken place outside the camp, and surely in front of the river Urie, for the space between the river and the camp is too cramped for manoeuvre. If the word *vallum* in *Agricola*, ch. 35, 2, has an entirely different relevance to the word *munimentis* in ch. 33, 1, referring to the fortifications of the camp, the presence of some obstacle is implied. Whether this involved a continuous bank and ditch or individual post-pits, there may have been no great

[25] That some exhortation both on the Roman and on the Caledonian side took place before the battle may be likely enough, but the two speeches, supposedly by Calgacus and by Agricola, which seem to be so appropriate to the situation, have long been accepted as rhetorical compositions of Tacitus.

disturbance below ground and little trace would now be visible from the air.[26]

No doubt troops would be deployed by units of convenient strength. A whole army in battle array requires ample ground if space is to be allowed for different units, and particularly for cavalry, to manoeuvre individually. The side of the camp that faces Bennachie itself measures just over 1 km. Much may have depended on the disposition of the enemy: the curving front of Bennachie facing towards Durno is 3·5 km long. Would a similar space be enough for the deployment of the Roman forces,[27] especially if their line were reckoned to be disproportionately extended?[28]

If the Caledonian tribesmen moved down to occupy the lower slopes, then Bennachie provides exactly the right setting: *Britannorum acies in speciem simul ac terrorem editioribus locis constiterat ita, ut primum agmen in aequo, ceteri per adclive jugum conexi velut insurgerent.* The granite of Bennachie has so weathered that the principal faces of the mountain have concave slopes, that is to say the higher ground is steep, but the spacing between contours increases on the lower ground. This would mean that any concentration of tribesmen would appear to the Romans to be massed tier upon tier, but it would also afford the advantage on the Caledonian side that the forces highest up the hill would generally have the lower slopes in full view, so that a degree of cohesion of the whole fighting body could the more easily be maintained. This would hardly be possible on a convex slope, where the lower ground is out of sight from higher up. Bennachie, it may be observed, is the only large mountain in this part of Aberdeenshire with such distinctive concave slopes.

The first phase of the battle to be mentioned by Tacitus was the noisy manoeuvring of war-chariots. In Gaul, the use of chariots was becoming outmoded by the time of Caesar's operations. In North Britain, chariots may have lasted longer; perhaps they were regarded as prestige equipment. The assembling of a few score vehicles could hardly be expected to affect the issue of a battle in which such large forces were involved: both men and horses would seem particularly vulnerable. Perhaps their main purpose was to act as a weapon of terror by creating panic. But whether in scores or hundreds, operation of chariots requires appropriate space. With a light, two-horse chariot a maximum speed of 40–45 km per hour can be reached, and maintained for short distances. The ground at the foot of Bennachie is by no means all on the level: hardly less than 1·5 to 2 km would seem adequate for this manoeuvring, even granted the traditional skill of the charioteers. FIG. 7 has been devised with such considerations in mind: the contours, drawn at intervals of 25 feet (7·6 m), permit the nature of the topography to be appreciated at a glance. The higher ridges provide ample space for the assembly of large forces, while the folds in the ground afford some shelter even on so exposed a mountain. The close spacing of the contours readily picks out the steepest gradients which give way down hill to more gentle slopes. The northern face of Bennachie forms a great amphitheatre facing the camp at Durno, a setting of appropriate size for the engagement. From the point of view both of attack and of defence a longer front might have involved an unacceptable dispersal of strength.

FIG. 7 represents a possible analysis of the progress of the battle. The clever tactical use of Roman auxiliary troops has long been recognised. There are too many uncertainties to make any detailed discussion profitable, but a few points may be noted: the advantage to the Romans of drawing the Caledonian forces down from the steeper ground, so that the fighting took place more on the level, away from boulder-strewn slopes; the ease with which the native forces, if adequately

[26] A gently sinuous crop-mark was observed from the air in 1977, near the edge of a small terrace on the N side of the Urie, by Strathorn farm. Two trenches dug in September 1977 showed this to represent a shallow feature 1·85 m wide, with steep sides and a flat bottom 0·70 m below the surface. An early boundary of arable land, or an open leet for water are possible explanations. The feature extends between NJ 6853 2725 and NJ 6895 2721.

[27] A recent reconstruction of the battle of Vetera in A.D. 70, when Cerialis had five legions and appropriate auxiliary infantry and cavalry at his disposal, shows a battle-line of about 4 km. The auxiliaries were in front, the legions disposed behind. However, this battlefield was constricted between the Rhine and a small tributary, the Poll, while marshy ground hampered movement. H. von Petrikovits, *Die römischen Streitkräfte am Niederrhein* (Dusseldorf, 1967) (Führer des Rheinischen Landesmuseums in Bonn), Bild 31 and pp. 59–61.

[28] *Agricola*, ch. 35, 4.

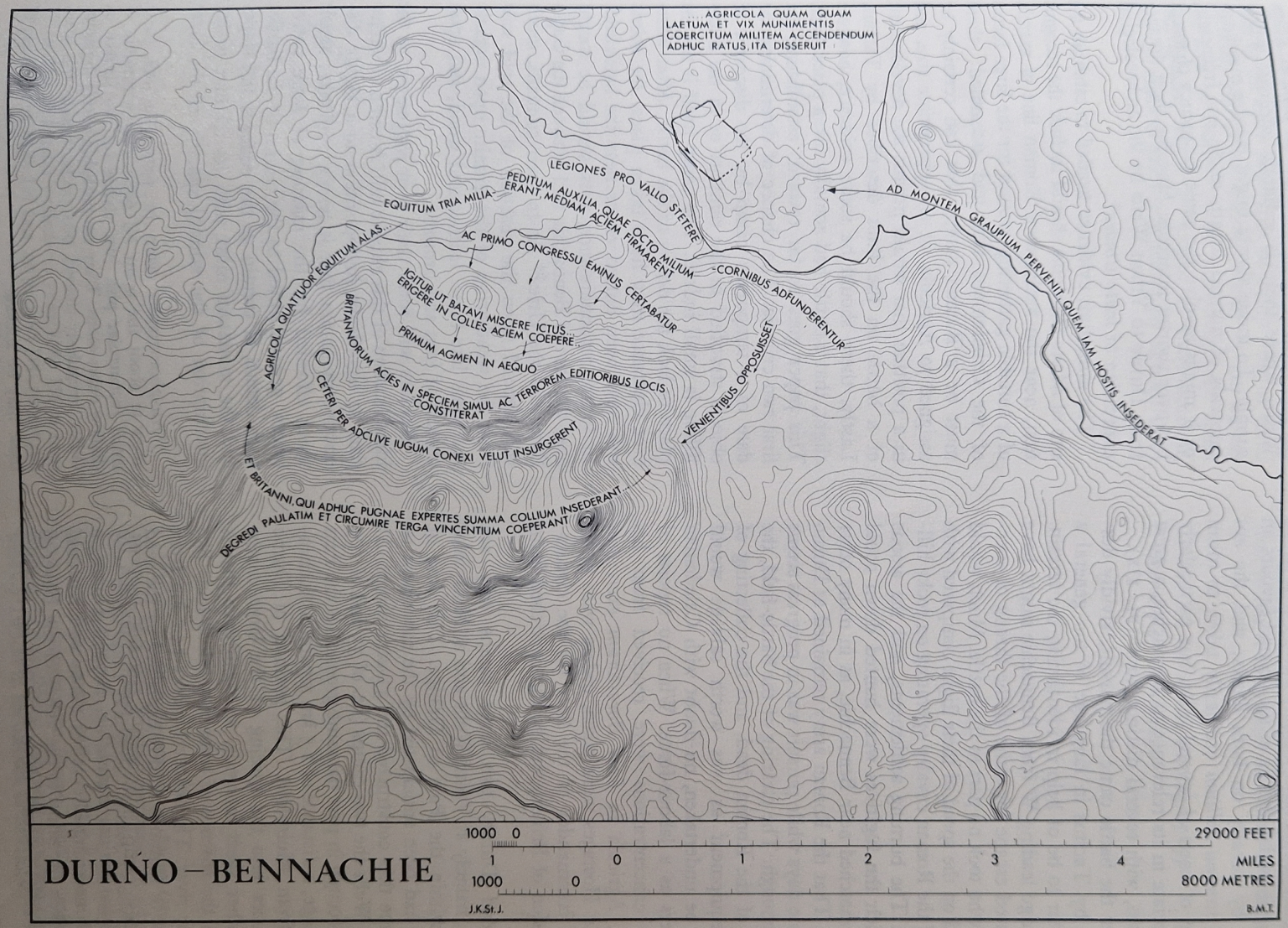


FIG. 7. Map of Bennachie – Mons Graupius, with a tentative reconstruction of the tactics. (Contours at 25-ft. intervals: the summit of the mountain is at 1,733 ft.)

marshalled, could reinforce any part of their front; the way in which the lie of the ground favours an attack by cavalry on both flanks; and the apt phrase *summa collium* ordinarily taken to mean the top of each of several hills, but particularly appropriate in its relevance to Bennachie, a great hill-mass, with several distinct 'tops' (PL. XIX).

After the battle came the pursuit, vividly described by Tacitus in language of too general a character to be of help in identifying the terrain. The ridge leading W from Bennachie might have facilitated escape for some of the throng of spectators who took no part in the battle. Much would depend on the speed of their flight compared with that of the Roman cavalry operating on rocky hill-slopes. The burning settlements, and the woods in which the fugitives were hunted down could all be matched near Bennachie, as in many other places. That the Roman army remained at Durno for some days while pursuit was in progress seems likely enough. The clearing of the battle-field, the burial of the Roman dead, and the collecting of such equipment as was worth salvage would surely be undertaken, no doubt with Caledonian prisoners as a labour-force. When no reports of enemy concentrations were received from his scouts, Agricola *in fines Borestorum exercitum deducit.* Hostages were taken, orders were given to the commander of the fleet for the circumnavigation of Britain, and he then marched *lento itinere.*

Beyond Durno, two large camps only are known, namely at Ythan Wells and at Muiryfold, lying within the Pass of Grange. This line of march had been anticipated by the movement of the force that constructed the 33-acre camps. At Ythan Wells the two camps (i.e. of 33 and of 109 acres) occupy in part the same ground; at the Pass of Grange, a distance of 2·5 km separates Auchenhove from Muiryfold. The position of Durno introduces into the spacing of the large camps two rather short intervals, an occurrence that is rare in the absence of some natural obstacle like a major river. The relatively short 14·1 km from Kintore to Durno is readily explained by the need for a base camp in the best possible position for operations against Bennachie. Beyond Durno, a normal marching-interval of 18 to 19 km would have taken the army to the valley of the Deveron near Huntly. Instead, there was only an 11·7-km march to a position near a water-shed at Ythan Wells, where there is a barely adequate water-supply. To move slowly might involve marching-intervals of normal length made less frequently, or it might involve the same frequency of march but over shorter intervals. May the short distance from Durno to Ythan Wells be the archaeological expression of *lento itinere*?

The minimum evidence needed to establish the site of *Mons Graupius* should include the recognition, near the anticipated Roman line of march, of a suitable gathering-ground for the large forces of the Caledonians that had assembled: there must be a Roman camp, that can certainly be assigned to Agricola, of an appropriate size, and in a position that would permit the development of a battle on the lines described by Tacitus. Lastly, there should be some evidence, however slight, that a battle had actually taken place there. This paper goes so far towards establishing the first two criteria. The chance of determining the date of a temporary camp by the discovery of objects stratified in the rampart or in the ditch-filling is small indeed. The camp itself is not the place to look for debris of the battle. After whatever clearance may have taken place, the debris will have been buried on or near the battlefield. In future reconnaissance, pits should be sought near the foot of Bennachie and between the Gadie Burn and the Urie.[29] As to their contents, much will depend upon the reaction of the acid soils from the weathering of the granite upon organic materials like bone, leather and wood, and upon objects of iron and bronze.

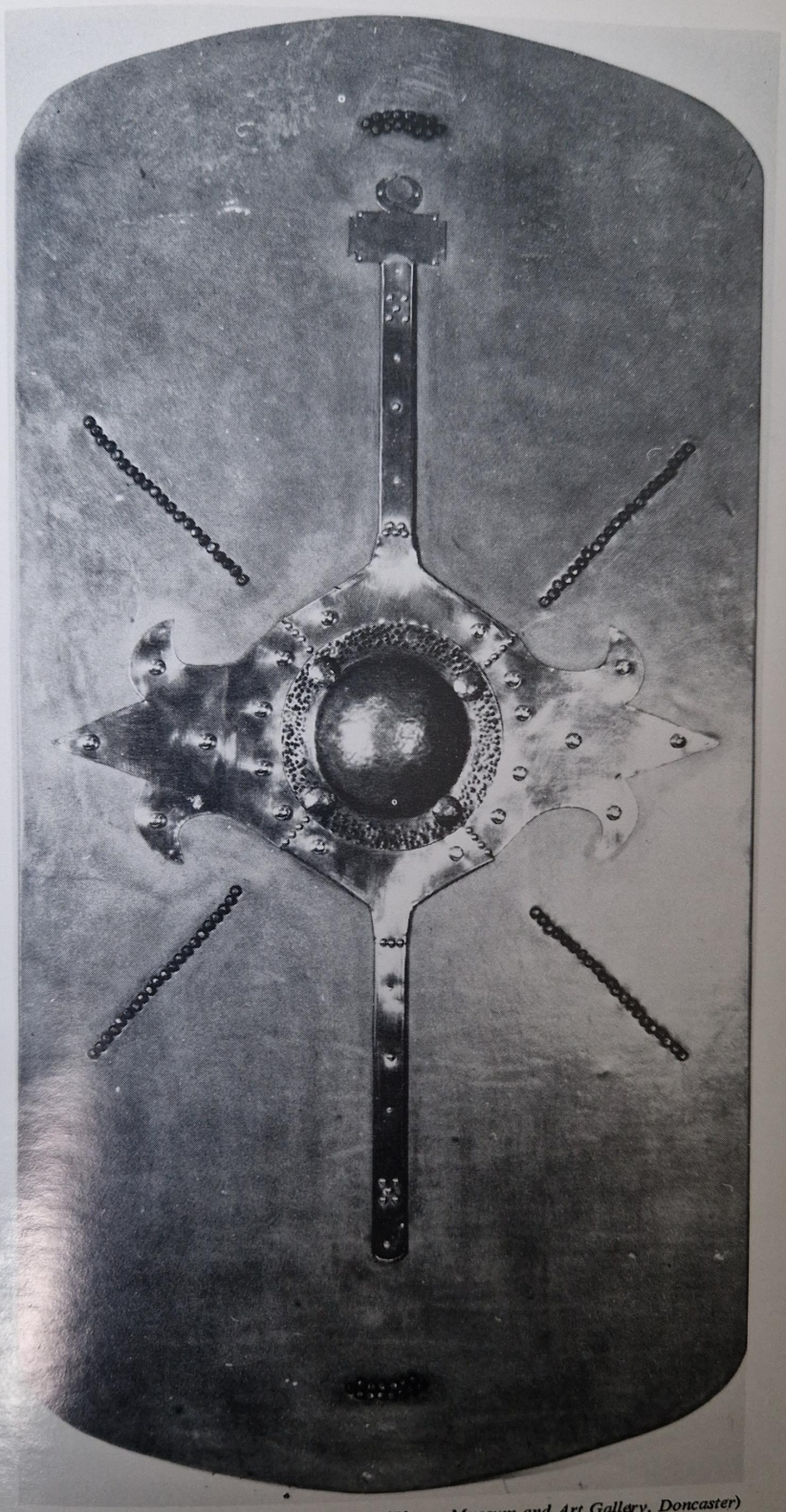
Readers will form their own judgement on the identification of this elusive hill. A camp of unique size, in significant juxtaposition to a highly distinctive mountain that it partly outflanks; ample space afforded for the massing of large native forces; ground suited to the tactics of the battle; such details of terrain as the concave hill-slopes and the mountain mass with its distinct peaks; interruption of the normal spacing of the large

[29] Air-photographs taken in 1977 (K17-AS 50-1) show at about the point NJ 6887 2721 a number of small rectangular pits, just visible on the surface as shallow depressions. They are probably gravel-diggings. Other irregularly-shaped pits occur beside the main road at NJ 6868 2685 (? shallow quarries), and at NJ 6817 2703, NJ 6830 2705, and NJ 6848 2710. None of these may be ancient.

Roman camps by the position at Durno; that the sum of the only two types of camp (one of them certainly Agricolan) known within 55 km equals the area of Durno: these considerations, taken individually, might be judged of little account, but the chances are overwhelmingly against there being in some other locality the significant association which is so evident at Durno-Bennachie.[30]

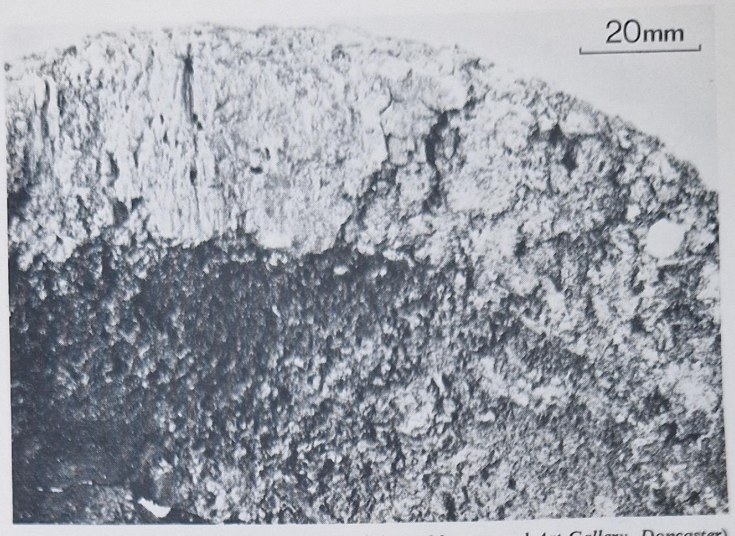
Committee for Aerial Photography,
University of Cambridge

[30] If the equation Bennachie = Mons Graupius be accepted, this very striking mountain would join the four major tribes (Caledonii, Silures, Ordovices, Brigantes), the three large rivers (Clota, Bodotria, Taus) and the two islands (Mona, Thule), that comprise, with one unknown tribe (Boresti) and an unidentified harbour (Trucculensis), the only geographical names used by Tacitus in his account of Britain.



(Photo: Museum and Art Gallery, Doncaster)

The Doncaster Shield: reconstruction (p. 256).



(Photo: Museum and Art Gallery, Doncaster)

A. Doncaster: the carbonised wood of a plank from the shield corroded onto the inside of the flange of the boss (p. 251).

(Photo: copyright reserved, University of Cambridge)

B. Roman camp, Durno (pp. 271 ff.). About two-thirds of the SW side, including a gate where a change in direction occurs, are seen in this oblique photograph looking N over Westerton. The site of the NW gate lies by a fence just above a round clump of trees.

Durno-Bennachie, panorama looking SSW (pp. 271 ff.). The camp occupies the foreground, where the small farms of Easterton (to left) and Westerton (right) can be distinguished. In the distance is the distinctive profile of Bennachie with its several summits, including the Mither Tap, the left-hand peak, crowned by a small hill-fort.

(*Photo: David Dartnall*)

A. Relief of a Genius, Chedworth Manor, Glos. (p. 327).

(*Photo: Otto Fein*)

B. Statuette of a Genius, Museum of London (p. 328).