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ACCOUNT OF THE EXCAVATION OF THE ROMAN STATION
AT ARDOCH, PERTHSHIRE, UNDERTAKEN BY THE
SOCIETY OF ANTIQUARIES OF SCOTLAND IN 1896-97.

I. GENERAL HISTORY OF THE PLACE AND DESCRIPTION OF THE
DEFENCES. BY D. CHRISTISON, M.D., SECRETARY.

The success of their excavations at Birrens, Dumfriesshire, in 1895, encouraged the Society of Antiquaries of Scotland to undertake a similar enterprise, the following year, at the celebrated Camp of Ardoch, in Perthshire. Accordingly, permission having been willingly given by Colonel Home Drummond, the proprietor, and by Sir James Bell, the tenant of the ground, operations were begun in May, and were continued, with but little interruption from bad weather, for a twelvemonth. Mr J. H. Cunningham, C.E., Treasurer of the Society, undertook the direct charge, residing in the village for a considerable part of the time; and frequent visits were made by the other members of the Committee of Management.

The most important share in the description of the results—the explanation of his own plans and sections of the fortifications and interior—naturally devolves on Mr Cunningham; Dr Joseph Anderson has undertaken the description of the *Finds* ; Mr Thomas Ross explains the true nature of a structure which for two centuries has passed for the prætorium; and to myself has fallen the duty of getting up the previous history of the Station and larger Camps, and describing the general nature of the fortifications, besides noticing the “Roman Road” that passes them.

A. GENERAL HISTORY OF ARDOCH STATION.

The derivation of the name *Ardoch*, according to Sir Herbert Maxwell, is from the Gaelic *Ard Achadh* or *magh*, “high field,” an interpretation which is sufficiently descriptive of the site. It is possible that the old Celtic term for a fort, *Rath*, was formerly connected with the place, as

the form *Raith* occurs in charters referring to neighbouring lands, and the haugh of the Knaick Water, below the north-west angle of the station, is marked "Slacks of Raith" on the six-inch O.M.; but the term is not applied to the station itself in any of the accounts that have come down to us.

The situation is 18 miles due north of the Antonine Vallum, at its nearest point, not far west of Falkirk. By the present road, always probably the marching route, the distance is increased to 20 miles, or two easy days' marches, Stirling and the passage of the Forth lying about half way between. The position was of strategical importance, as besides blocking the approaches to the low country from Comrie and Crieff, it stands on the old road to Perth, which, avoiding the low, marshy valley of the Earn, ran on the firmer ground past Ardoch, Strageath, and Gask.

In following out the early notices of Ardoch, I shall confine myself, in the first instance, to the Station, as distinguished from the large Camps, and I shall take the notices in the order of the date of the observations, not of their publication, as some were not made known till long after the time when the observations were made. The plans generally give only the essential features of the originals, and some of them are considerably reduced.

1. The earliest notice is to be found in the recently published *Blair Drummond Papers*.¹ It is contained in an unsigned letter, which is thus introduced by the Editor:—

"Letter [from James Lord Drummond, afterwards Fourth Earl of Perth] to Mr Patrick Drummond,—Stobhall, 15th January [16]72."

After a reference to the recent discovery of a large hoard of Roman coins at some place within five miles of Drummond Castle, "amongst the hills which lye at its back," the writer goes on to say:—"The leaguer of the Romans for one whole winter lay at Ardoch, some four miles or more towards the south from that place, and ther is to be sein ther entrenchments and fortifications in circular lines, deepir in some places than that a man on horseback can be seen; and north-east from that ther are more trenches, alyke in form and largeness; but the ground being much better, has made the people, against my grandfather's order, till them doune in some places. Ther was near these a round open, lyke the mouth of a narrow well, of a great depth, into which my grandfather ordered a malefactor to go, who (glad of the opportunity to escape hanging) went and

¹ *Hist. MSS. Commission. Tenth Report, part i. p. 130.*

brought up a spur and buckler of brasse, which were lost the time that a garison of Oliver's dispossessed us of Drummond. Ther was found a stone ther, upon which was cut an inscription to show that a captain of the Spanish Legion died ther. If you please, I shall coppie it for you. It is rudly cut."

The vagueness and inaccuracy that haunt all descriptions by the early writers, and serve to perplex rather than instruct the modern inquirer, are well illustrated here. The lines are called circular, whereas they are rectilinear, and the depth of the trenches is exaggerated. The trenches to the north-east—accurately enough, in a general way, likened to those at Ardoch—are no doubt those of the camp still traceable at Strageath; but although the writer plainly states that the "round open" was near the latter place, there is every reason to believe that he meant the former.

2. The next notice was by Sir Robert Sibbald, who having been appointed family physician to the Earl of Perth in 1678, had good opportunities of visiting Ardoch. He was the first to give a plan of the place (fig. 1). In his description,¹ after quoting Vegetius as to the advantages which a camp ought to have, he goes on to show that Ardoch fulfils the necessary conditions:—"This is indeed upon a heath in a sloping ground: it hath the Water of Kneck running close by it, whose banks are so high that it could not overflow; and there is wood near to it, and more has been about it; there's no mountain nor considerable height so near as that they could from thence annoy it." After again quoting Vegetius, he goes on:—"And the largeness of this camp, and its situation upon the frontier, makes this to be a prætentura. The *prætorium* or the general's quarter is a large square about a hundred paces² every way; round it are five or six *aggeres* or dykes, and as many *valla* or ditches, the deepness of a man's height. There are ports to the four quarters of the world. . . . The inscription we have given the figure of was taken up out of the prætorium of the prætentura; below which are caves, out of which some pieces of a shield were taken up."

¹ Camden's *Britannia* (under "The Thule of the Ancients," by Sir Robert Sibbald), Gibson's ed., 1695, p. 1096.

² Sir Robert here means the Roman *passus* of two *gradi*, equivalent to nearly five English feet.

Evidently Sir Robert, by the camp, or *prætentura*, intended to include both what has commonly been called the *procestrium* and the station, and regarded the latter as the *prætorium*, while he takes no notice of the small rectangle within the station, which has so long erroneously passed

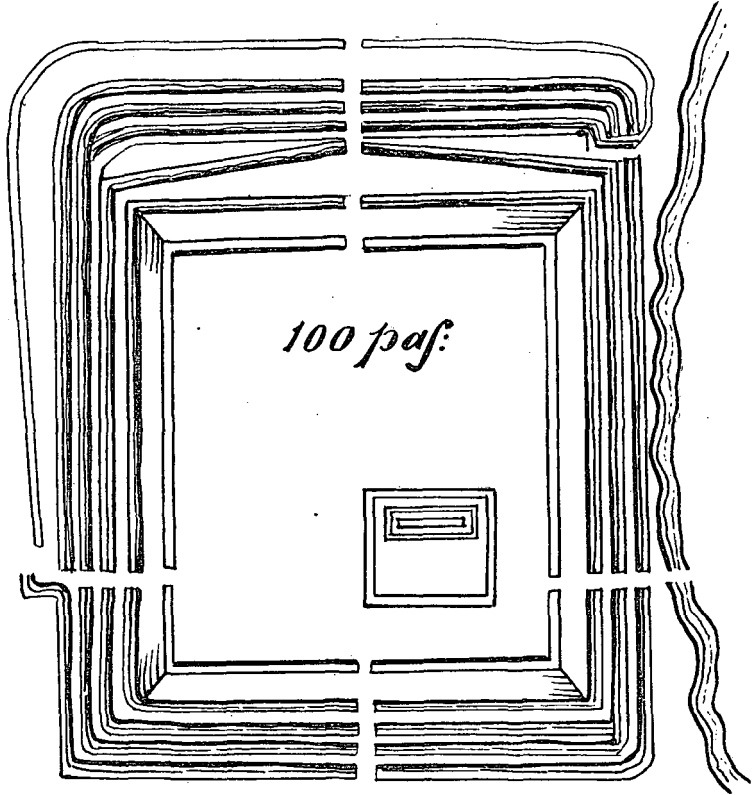


Fig. 1. Sir Robert Sibbald's Plan of Ardoch.

as the *prætorium*. He shows it, indeed, in his plan, but placed in the south-west corner, parallel with the lines of the station, in both which respects he is wrong.

His map would be valuable, as showing the state of matters at a period

considerably earlier than General Roy's, could it be relied on, and certainly in some respects it is superior to those which intervened between the publication of these two. Thus the north side has the right number of trenches, and shows in a rude way the independent works placed among them, which for convenience may be called 'ravelins.' Sibbald is probably correct also in representing four trenches on the south side, now much destroyed; but he is certainly wrong in giving only four on the east, and it is doubtful if there ever could have been room for more than two of the three he places on the west. The map also errs in making the angles acute or nearly so instead of rounding them well off, and in reversing the east and west sides.

In another work,¹ Sir Robert repeats his description with but little variation. The chief differences are, that he speaks more vaguely of the inscription as being "taken up out of the camp," and calls the spaces below the *prætorium vaults* instead of *caves*.

3. Alexander Gordon, who must have visited Ardoch early in the 18th century, thus describes it:²—"The fair vestiges of the fort are so great and conspicuous, and the number of Roman coins are so many, together sometimes with inscriptions upon stones, that it hath been by vulgar error esteemed a camp. For my own part I never saw but one inscription, which was a sepulchral monument, and is now at Drummond Castle." After referring to his plate of this well-known stone and describing it, he says:—"This fort of Ardoch I recommend to the publick as the most entire and best preserved of any Roman antiquity of that kind in Britain, having no less than five rows of ditches and six ramparts on the south side; and of the four gates that led into the area, three of them are very distinct and plain, viz., the *Præteria*, *Decumana*, and *Dextra*,—the *prætorium*, or the place where the general's tent stood, exceeding anything that I ever saw in any Roman fort. It lies on the Water of Kneck, in Strathallan, but the side next the water is more demolished than any other."

From a serious error in pointing the compass to the west instead of

¹ *Historical Inquiries concerning Roman Antiquities in Scotland*, by Sir Robert Sibbald, M.D., 1707, p. 37.

² *Itinerarium Septentrionale*, 1726, p. 41.

the north (fig. 2), Gordon takes the east side for the south in his description, and is thrown out also in the naming of the gates. As to the plan, it is a fancy sketch of what he thought a camp ought to be. Unable to

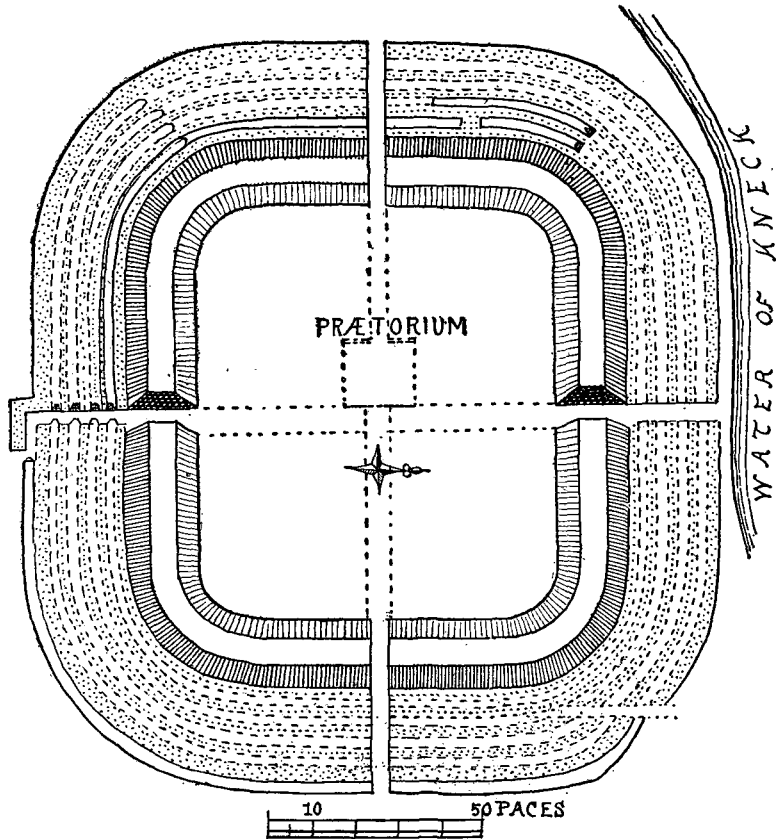


Fig. 2. Alexander Gordon's Plan of Ardoch.

imagine any irregularity in the work of a Roman, he gives us a nearly symmetrical rectangle, with five trenches on each side, in defiance of the obvious fact that no one side is the least like another. But besides

this, he also gives the supposed *prætorium* a symmetrical position, which it has not in any respect. Lastly, he swells the inner rampart to the enormous width of nearly 80 feet, and greatly reduces that of the other defences on the north and east.

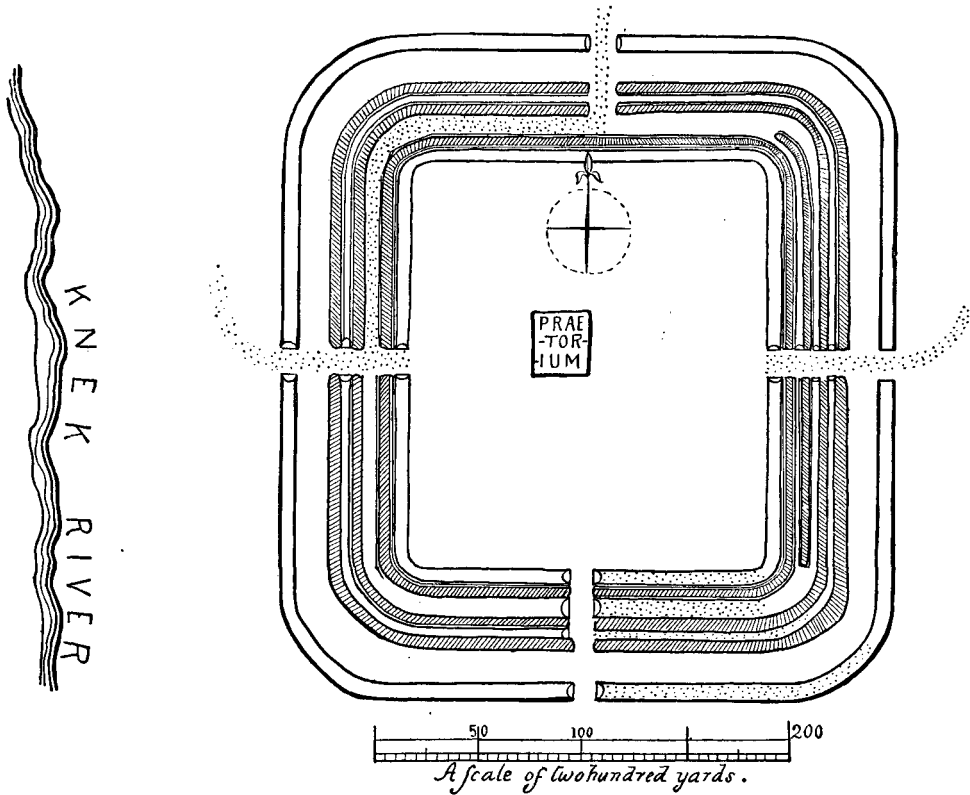


Fig. 3. Horsley's Plan of Ardoch.

4. Horsley merely mentions Ardoch in his text, without describing it,¹ giving a plan (fig. 3) abounding in errors, and without any indication whence it came. It is far too symmetrical, having an outer and

¹ *Britannia Romana*, 1732.

inner rampart and three trenches going all round, and the interpolation of a fourth trench on the east side alone marks a sense of irregularity in the design. The entrances are symmetrically placed, but the north one, after passing the two outer trenches, instead of proceeding into the station, is continued as a roadway, marked by dots, between the inner and middle trenches to the west entrance. On the east side of the south entrance, the inner and outer ramparts and the spaces between the trenches are all inexplicably dotted, as if they also were roads. The lines of the so-called *prætorium* are erroneously drawn parallel with those of the station; and the work is placed entirely to the north of the *Via Principalis* instead of standing partly upon it.

5. Sir John Clerk of Penicuik visited Ardoch in 1749.¹ He also regarded the whole station as the *prætorium*, since he says that "the ditches are large about the *prætorium*"; but if what he tells about the small contained rectangle had only been made known at the time, instead of being hidden in MS. till four years ago, it might have put a stop to the mistake about the *prætorium*, which continued to be made by all subsequent writers:—"there is a square place in the middle, where I believe they had a temple, for there was a chapel built here, and the ground about serves still as a burial-place to the country people." The conclusion he comes to, that the Romans had a temple there because a chapel was afterwards built on the same spot, is odd enough, but the statement about the chapel is quite precise.

6. Although the classic work of General Roy² was not published till 1793, his plan of Ardoch was made in 1755, and therefore falls to be considered now. As usual with him, the description is unsatisfactory:—"The place shows the wonderful pains the Romans had bestowed in fortifying it, having surrounded it with no fewer than six ramparts or envelopes, great part of which are yet in a high state of perfection. From the general position of the gates and *prætorium*, which are situated similarly to those of the Polybian camp, it may be observed that the

¹ *Memoirs of the Life of Sir John Clerk of Penicuik*, Scot. Hist. Soc. Publications, 1892, p. 258.

² *The Roman Military Antiquities of North Britain*. Major-General Wm. Roy. 1793.

Romans, even in their stations, placed the *prætorium* in the rear division of their work, or that which was farthest removed from the enemy. It is true, indeed, that here the *prætorium* seems to have been marked off, probably from hurry, somewhat irregularly ; neither being placed exactly in the middle, nor having its sides truly parallel to those of the station. From the inscription on the sepulchral stone dug up at this place, it is certain that at some period or another, here the first cohort of Spanish auxiliaries lay in garrison." For the inadequacy and inaccuracy of this account, Roy makes ample amends by his plan (fig. 4), which, but for the further damage done since his day on the southern side, might almost stand for a perfect plan of the place at the present time.

7. A brief notice of Ardoch by the historian Maitland¹ appeared two years after Roy's map was made, but long before its publication. He calls the station "the *prætorium* of the camp," and all that he tells us is :—"The *prætorium* or southern part of this camp, by its remains, appears to have been fortified with quintuple ramparts and ditches. The spot where the governor's tent was situated is likewise to be seen."

8. Richard Pococke, Bishop of Meath,² says of Ardoch, which he visited in 1760 :—"It consists within the intrenchments of about two acres of ground ; on the side to the river were only two fosses, one of which has been destroyed by the road ; on the other side are five fosses and a rampart, within which there is a broad way all round. In the *prætorium* is a very small fosse for the general's tent, nearer to one side than the other ; the outer rampart cannot be less than 20 feet high." This account is defective and confused. The acreage of the interior is much understated ; two of the sides are left undescribed ; the inner rampart is ignored, and the height of the outer one exaggerated.

9. Pennant, whose *Tour in Scotland* was published in 1772, says of Ardoch that, as the west side was strong by nature, "Agricola thought fit to give it there the security of only a single fosse ; the other three have five, if not six fosses of a vast depth, with ramparts of corresponding height between. The works on the south side are much injured by the plough ; the others in fine preservation. In the area is the *prætorium*

¹ *The History and Antiquities of Scotland.* Wm. Maitland. 1757.

² *Tours in Scotland in 1747, '50, and '60,* Scot. Hist. Soc. Pub., 1887, p. 240.

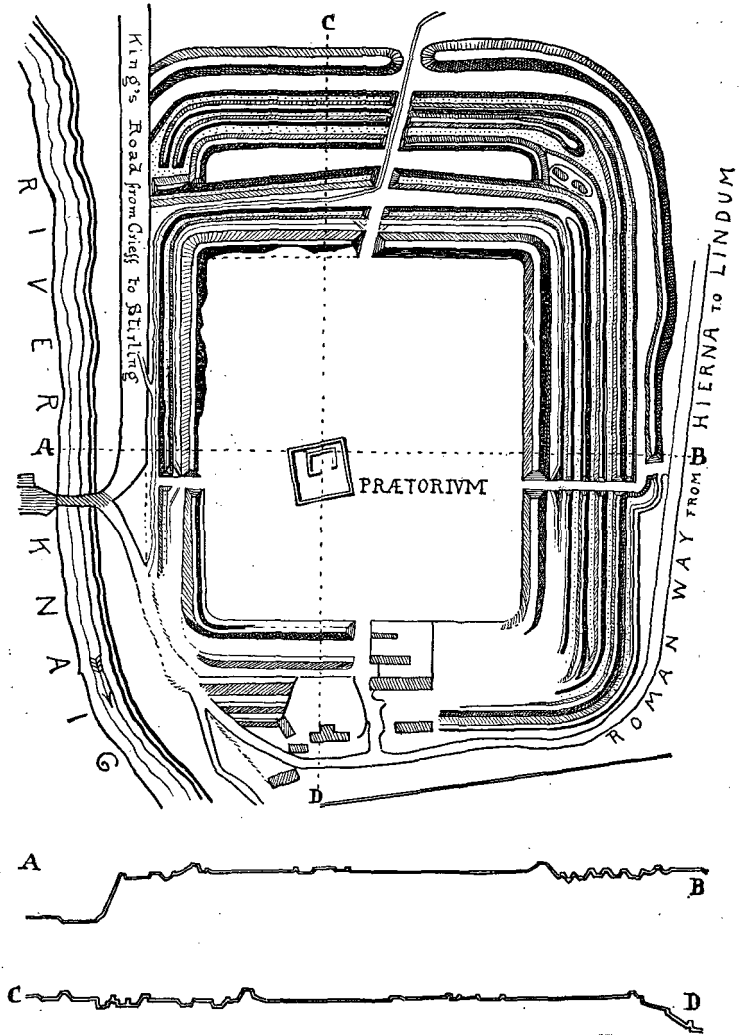


Fig. 4. General Roy's Plan of Ardoch.

or the quarter of the general, in a tolerable perfect state. The area is 450 feet by 400. The four *portæ* or entrances are plainly to be distinguished, and the road from the prætorial port to the prætorium very visible." This description is also misleading. Ignoring the inner rampart—the main defence on every side, to which all the others are adjuncts—and the outer one, which exists on two sides, Pennant gives us instead a series of ramparts between the "five, if not six fosses," where, in the proper sense of the term, there are none. His plan (fig. 5) is not easily understood, as the scale is small, and some of the trenches are shaded, others not, so that it is difficult to distinguish them from the ramparts; but the discrepancies, whether a comparison be made with his own text or with the facts, are glaring. Instead of the "five or six fosses" of his text on the east, north, and south sides, the plan shows only four on the east and south, while those on the north number two instead of three in front of the 'ravelins.' The latter are represented, although in a confused manner, but the 'prætorium' is erroneously placed with regard to the Via Principalis, and in its parallelism with the station.

10. The first fairly accurate description of the station appeared in the *Old Statistical Account of Scotland*, published in 1793, and was written by the Rev. John Scott, minister of Muthil, to which parish Ardoch then belonged. He dwells correctly on the natural advantages of the situation, and in particular gives the valuable information that the south side was protected by "a deep moss that runs a long way eastward," which, from drainage, is no longer appreciable. He also states the number of trenches on the east and north correctly, and notices that the lines and ditches on the latter side are 20 yards broader than on the former; that the west side has only one ditch, but may have had at least one more, filled up in constructing "the great military road from Stirling to the North"; and that the south side was much destroyed, but probably had three or four ditches. Of the "General's Quarter," he says that it "rises above the level of the camp, but is not in the center; . . . it exhibits evident marks of having been enclosed with a stone wall, and contains the foundations of a house 10 yards by 7. That a place of worship has been erected here is not

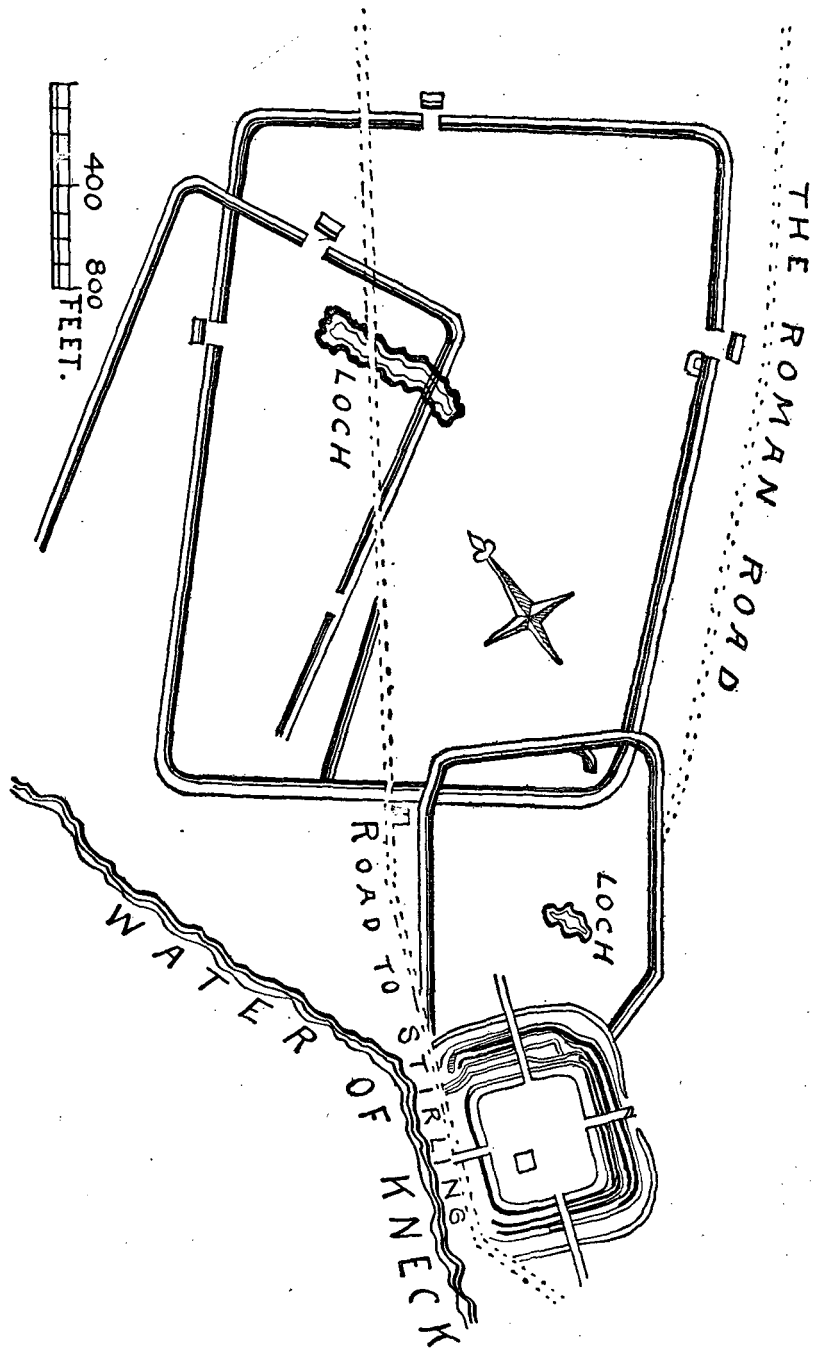


Fig. 5. Pennant's Plan of Ardoch, including the large Camps.

improbable, as it has obtained the name of *Chapel Hill* from time immemorial." In all these details Mr Scott shows a degree of accuracy rarely attained by observers of the period; but the effect of time in improving a tradition is shown in his account of the "round open," described in Lord Drummond's letter 120 years previously. Mr Scott calls it a sloping hole near the side of the prætorium; substitutes "soldiers in the Duke of Argyle's army, 1719, after the battle of Sheriffmuir," for "a garrison of Oliver's," and "the House of Ardoch" for "Drummond Castle"; makes the malefactor bring up "Roman spears, helmets, fragments of bridles, and several other articles"; and sends him down again to be killed by foul air. Mr Scott also states that "the mouth of the hole was covered up with a millstone, by an old gentleman who lived at Ardoch, while the family was in Russia, about 1720; and as earth was laid over the millstone, the place cannot now be found, although diligent search has been made for it."

11. The publication of Roy's work in 1793 put an end to the appearance of misleading plans; but we have still to record an account,¹ in which inextricable confusion has been produced apparently by mixing up two descriptions, in one of which the compass-points are wrong and the measurements are in feet, while in the other the bearings are correct, but the measurements are in paces. It describes one side as "defended by the steep bank of the little river Kneck, and therefore furnished with a single fosse, while on the south and east sides it has six ramparts and five ditches, and on the other side only five ramparts. The works on the south side are much injured by the plough, the rest in fine preservation. In this area, which is 450 feet by 400, with four entrances plainly to be discerned, is the prætorium, a small hill almost in the center, tolerably perfect, and the road from the porta prætoria to it is very visible. Three of the four gates are very distinguishable; the area about 90 paces by 80 is a corn-field, and rounded off at the corners. The west and south sides are least perfect; the inner rampart all round very high."

The *New Statistical Account*, Chalmers' *Caledonia*, and Stuart's *Caledonia Romana* come near our own time, and contain nothing of

¹ *Britannia*, by William Camden. Edition of Gough, 1806, iv. p. 121.

special interest, and the Ordnance Survey plan (1863) need not be given as it agrees with Mr Cunningham's, but is on a smaller scale.

B. GENERAL DESCRIPTION OF THE FORTIFICATIONS.

The early writers agree in regarding the fortifications as a series of alternate ramparts and trenches. There can be no doubt, however, that they essentially consist of a strong rampart with a series of trenches in front, the other supposed ramparts being merely the ridges necessarily left in digging the trenches. No doubt there may have been a certain making up and adjusting of their tops, unavoidable perhaps in dealing with an undulating site, but they have no decided command, are too high to serve as breastworks, and are too narrow on the top to have been defended from there. In addition to these essential parts, Ardoch, like Birrens, had an outer rampart in at least a part of the *enceinte*, but it parts company from Birrens in having certain subsidiary works introduced among the trenches.

Hence there is a complexity in the design of Ardoch which has given rise to much speculation, and even to some doubt as to its Roman origin. Thus General von Sarwey, military head of the German Imperial Limes Commission, when he saw Ardoch a few years ago, and was asked if he thought it was Roman, replied with a caution worthy of a Scot, "You all say that it is"; and the latest writer on the subject, Mr. M'Kenny Hughes,¹ has advanced the ingenious theory that the Romans placed their station within a native work, preserving a part of the original lines.

There can be no doubt that on a cursory examination the lines of fortification at Ardoch seem confused and inexplicable, particularly on the north face, and still more at the north-east angle, where two foot-paths, in crossing the lines, lower the crests and partially fill up the trenches. But when carefully studied, and especially when laid down on a plan, the fortifications will be found, I believe, to fall into skilfully designed order.

¹ *Archæologia*, liv. 267.

The East Front.

This may be taken first, as it is one of the simplest and best preserved portions. The whole front is shown in Roy's plan (fig. 4), and on a large scale in Mr Cunningham's (Plate V.), but the following description is specially illustrated by the part of the front which appears on the plan (fig. 6),¹ with the enlarged section on the line AB:—

- a*, The inner or main rampart.
- b*, The berm at its foot.
- c, d, e, f*, The ridges left in digging the five trenches.
- g*, Platform between the outer trench and the outer rampart.
- h*, The outer rampart.

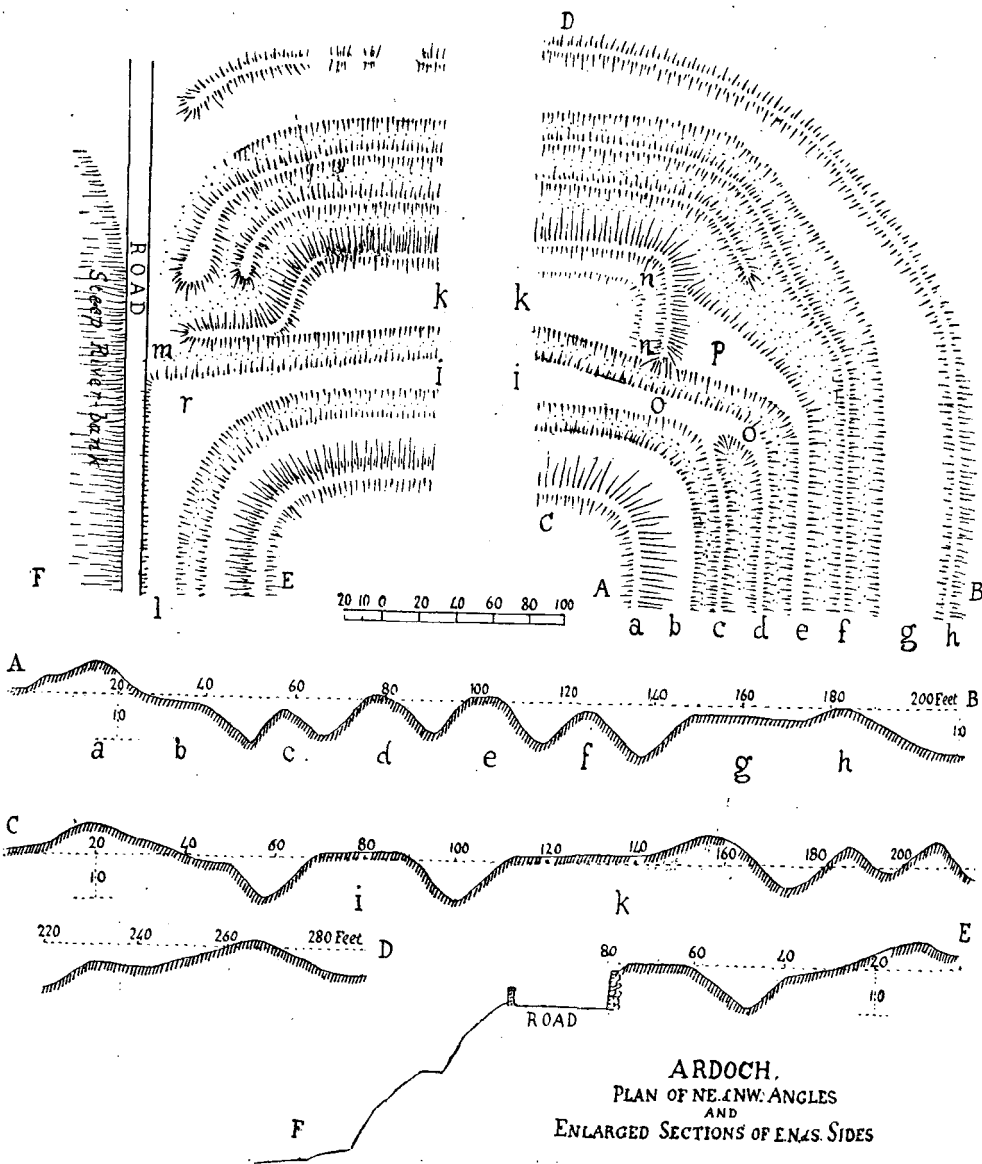
I shall now briefly describe the general nature of these parts.

a, The rampart, now 30 to 40 feet wide at the base, rising in some places 6 feet above the interior, and 17 above the excavated trenches, proved to be laminated in the lower part, and to rest on a layer of stones 7 feet wide. It is analogous in structure, therefore, to the ramparts of Birrens and the Antonine Vallum.

b, The berm, or walk between the rampart foot and the first trench, is 6 or 8 feet wide, and constitutes another analogy with Birrens and with many parts of the Antonine Vallum, although in other parts of the latter the space expands almost to the width of a field, and loses all claim to the term. The stone walls of the 'Kastelle' of the German Limes also have a berm, generally only 3 feet wide, in one or two instances not more than a foot and a half; but occasionally it exceeds 3 feet, and at *Lorch* and *Langenhain* is fully as wide as at Ardoch.

c, d, e, f, These ridges are not precisely alike. They are all flat-topped, forming convenient paths, but the crest of the first, *c*, is cut down several feet below the level of the others, and the average width of the third, *e*, 4 to 8 feet, is double that of the others. This pre-eminence of *e*, marked also by a slight command of the works in front, is noticeable in the photographic view (Plate I.), and becomes more

¹ Taken by Mr F. R. Coles, founded on that of the Ordnance Survey. In the last line of the title, the compass points should be E. N. and W.



ARDOCH.
 PLAN OF NE. & NW. ANGLES
 AND
 ENLARGED SECTIONS OF E. & S. SIDES

Fig. 6.



View of Ramparts and Trenches of the North-East Angle and East Side of Roman Station at Ardoch.
(From a Photograph by Messrs Valentine & Sons.)

evident south of the east entrance, where the flat top gradually expands to a width of 15 feet (Plate V.).

The trenches, as we found them, were 5 or 6 feet deep, but our excavations proved that their original depth was 8 or 9 feet. Their width varied somewhat, but averaged 20 feet at the top, and the bottom was narrow or angled. The dimensions of the trenches in the *Kastelle* of the German Limes vary greatly. At *Henzel* the single trench is only about 13 feet wide and barely $4\frac{1}{2}$ feet deep; while one of the two at *Markabel* is about 37 feet wide and $6\frac{1}{2}$ feet deep. The greatest depth recorded is at *Hofheim*,—11 feet 4 inches. Almost always they are angled at the bottom. Sometimes the intermediate ridges are flat-topped as at Ardoch, rarely are they round-topped as at Birrens, and often they are sharp-crested.

g, This platform, from the winding, irregular course of the outer rampart, varies in width from 15 to 35 feet.

h, The outer rampart is little inferior in mass to the inner one, but is not laminated, and has no substratum of stones. In some parts it rises 8 or 10 feet above the exterior.

All these parts, as far as the east entrance, are well seen in Messrs Valentine's photograph (Plate I.). In the middle distance on the right is the inner rampart, sloping down to the berm, which is behind the figure in knickerbockers. The workman with the spade stands on the depressed ridge between the first and second trenches. Then follow the second, third, and fourth ridges, with their trenches sweeping round from the N.E. angle, the predominance of the third being well marked. On the extreme left is the platform and inner slope of the outer rampart. Closing the view, and concealing the prolongation of the lines of fortification on its further side, is the east entrance, particularly well seen as it crosses the two inner trenches to pierce the inner rampart. The sitting figure on the right is not on the inner rampart, but on a detached work or 'ravelin' of the north face, to be described immediately.

The North-East Angle and North Face.

On looking at the plan (fig. 6) it will be seen that the inner ram-

part, *a*, the berm, *b*, the first trench between *b* and *c*, and the third between *d* and *e*, go round the angle from the east to the north side, unaltered; so do the fourth ridge, *f*, the fifth trench, between *f* and the platform *g*, the platform *g* itself, and the outer rampart, *h*. But the other parts undergo the following changes:—

The second trench, between the ridges *c* and *d*, ends blindly in the flank of a new work or 'ravelin' facing north, which springs from the united ridges *c*, *d*, at *o*, *o*. The third or most important ridge, *e*, of the east face expands into a triangular platform, *p*, which is flanked and dominated by a second 'ravelin,' *k*, with its strong rampart, *n*, *n*. And the fourth trench, between *e* and *f*, dividing into two and separated by a new ridge, passes in front of the second 'ravelin.'

The *ravelins*, as I have ventured to call them, may now be described. The *first or inner ravelin* (fig. 6) is continuous with the ridge crests, *c*, *d*, of the east face, and with the platform, *r*, *l*, of the west face. Its flanks are only 8 or 9 feet wide, and it expands gradually to a width of 33 feet in the middle (Plate V.). It has no rampart or parapet. The *second or outer ravelin* (fig. 6) is continuous with the ridge, *e*, of the east face, through the platform, *p*, which it completely dominates, however, from its strongly ramparted flank, *n*, *n*. The rampart is continued along the front and round the west flank, when it turns at a right angle, descends and forms a kind of breastwork in front of the second trench, and flanking the ends of the third, fourth, and fifth. In contrast with the inner ravelin, this one (Plate V.) is widest at the flanks, 35 and 40 feet, and narrowest, 15 feet, in the middle.

In Messrs Valentine's photograph of the north face (Plate II.), the four sitting figures are on the rampart of the outer ravelin; behind them and to the left is the inner ravelin, berm, and inner rampart, the angle of the latter, where it turns from the north to the west face, being above the white-bearded figure on the left. Mr Ely, with his ten-foot rod, stands in the third trench, which, when excavated, proved to have been 3 or 4 feet deeper originally. The fourth and fifth ridges with their trenches follow, sweeping round from the east face; and on the extreme right, behind the figure with the spade, are the platform and inner slope of the outer rampart. The most distant figure is at the excavations of



View of Ramparts and Trenches on North Side of Roman Station at Ardoch. Taken from the East.
(From a Photograph by Messrs Valentine & Sons.)

the north entrance. In the immediate foreground is the platform of the outer rampart again. Returning to Plate I., to get some idea of the north-east angle, we see Mr Ely with his 10-foot rod standing behind the outer ridge of the trenches, with the beginning of the additional ridge of the north face on his left. Behind him Mr Cunningham stands on the platform (*p* on plan, fig. 6), from which rises the flanking rampart of the outer ravelin, on which sits Dr Munro. Behind Mr Cunningham, the inner ravelin (*o, o*, on the plan) is faintly seen running into the two inner trench-ridges of the east face. To the left the platform joins the third ridge of that face, the appearance of being somewhat cut off from it being due to a footpath, which may be seen also partially filling up the trenches. Another less marked footpath is shown nearer Mr Ely.

The North-West Angle and West Face.

The west face, being confined by the proximity of the precipitous bank of the Knaick Water, could not have, and from its natural strength did not require, so many defences as the east and north faces. This sudden contraction necessitated great modifications at the angle, and accordingly we find that the outer rampart with its platform stop abruptly (fig. 6), and that the second, third, fourth, and fifth trenches unite to form a single trench, which probably was continued along the west front, on the site of the present road to Crieff. In rear of this are the existing platform, *l*, and the first trench, berm, and inner rampart, as before.

Entrances.

To complete our description, a few words may be here introduced about the entrances. Only two are preserved.

The East entrance, barred in front by an angled projection of the outer trench (Plate V.), is of earth, and passes straight across the trenches, on a level with their tops, till it comes near the inner one, when it slopes up gently to pass through the gateway in the rampart. It is shown in its whole length at the far end of the trenches in Plate I., and its course across the inner trench and through the inner rampart is

seen at the left hand in Mr Macintyre's photograph (Plate III.). The complex closure of the eastern entrance by palisades, as indicated by post-holes, is shown in Plate V.

The North entrance (Plate V.) appears to differ from the other only in taking an oblique course across the trenches. But excavation showed that originally it had been carried no further from the inside than to the outer ravelin, and from the outside, across the first trench, the two intermediate trenches running without interruption along the whole north face. In the German *Kastelle* the trench is also sometimes continuous in front of the entrance, and has been crossed by a drawbridge, as at *Oberscheidenthal*.¹ But at Ardoch there are no signs of a foundation for a drawbridge, for which the width to be spanned, being across two trenches, was probably too great.

Utilisation of the Defences.

Such being the nature of the defences, let us now endeavour to understand how they were utilised.

On the *East front* the first or outer line of defence would be the rampart, *h* (fig. 6), with its broad platform, *g*; and the main line was evidently constituted by the inner rampart and the berm at its foot, both of which could be lined by warriors. The rampart is much too high towards the interior of the station to have been defended otherwise than from the top, but we discovered nothing to show whether the defenders had been protected by any kind of breastwork.

But in addition to the outer and inner lines there can be little doubt that a middle line was also provided. The crests between the trenches are too narrow in general to give secure footing to men wielding weapons, but the second from the outside is of double width, and considerably more in some parts, and seems suitable for the purpose. Its predominating character is well seen in Plate I.

¹ Vor der Front der beiden Türme (of the porta pratoria) liegt eine 2,60 bis 3,10^m breite, mehrschichtige Stückerung von c. 50 cm. Höhe, offenbar eine Art Rampe für die Zügbrücke, da der Graben vor dem Thore nicht unterbrochen est. *Der Obergermanisch-Raetische Limes des Römerreiches*, Lief. vi.



East Entrance of Roman Station at Ardoch, crossing the Inner Trench and Main Rampart. Taken from South-East.

(From a Photograph by P. M. Macintyre, F.S.A. Scot.)

On the *North front* the outer and inner lines are as on the east, but instead of a merely slightly widened crest, the middle line is greatly strengthened by the substitution of the two "ravelins."

Of the *West front* we cannot speak so precisely, as it has been mutilated by the construction of a road, but there can be little doubt that besides the inner line there was only the existing terrace as an outer line (fig. 6, *l*, in plan, and overlooking the road in section E, F). This terrace was necessary to command the short slope to the river-bank, which is not visible from the rampart.

The *South side* has been so much destroyed that we may pass it by.

Flanking defence at the Angles.—The bewildering complexity at the N.E. and N.W. angles may be partly ascribed to the alterations required by a sudden change from a width of about 200 feet on the east front of fortification to 280 feet on the north front, and again from 280 on the north front to 100 at most on the west front, but it is not likely that these changes were worked out at haphazard, and it can scarcely be by accident that a flanking defence is provided at the angles, always the weakest points of a quadrilateral work. Thus, at the N.E. angle (fig. 6), the flank, *n, n*, of the outer ravelin 'crosses fire' eastward with the ends of the inner ravelin, *o, o*, and with the inner line of defence, at *C*, which bear northward; and its left flank acts similarly at the N.W. angle, which is further strengthened by the wide platform, *r*, at the angle of junction of the inner ravelin, *i*, with the terrace, *l*, of the west front.

We may now consider whether this unique design could have emanated from Roman engineers. In the first place, that it did so seems probable, on the ground that our excavations,—as Dr Anderson's description of the finds shows,—yielded no reliable evidence of any other than a Roman occupation. But, secondly, there does not seem to be any serious objection to a Roman origin on structural grounds. The mere difference in width of the fortifications is not one, as that is characteristic of military engineering in all times and countries, is met with in unquestionably Roman works, and is amply accounted for here by the nature of the site. Thus the west side, strongly protected by the bank of the Knaick Water, was sufficiently fortified by a front scarcely 100

feet wide. The south front, not so strong, but with a considerable command; had a width of about 150 feet; while the east front, which has a less command, has its width increased to fully 200 feet. The north front, on ground that rises slightly outwards, and, judging from the early accounts, having been less protected by marshes than the east and south fronts, required most defence of all, and accordingly the width of the fortifications rises to 280 feet. The multiplication of trenches is also no difficulty. If the *Kastelle* of the German Limes merely duplicate the trench on weak fronts, the undoubtedly Roman *Birrens* has six trenches, or one more than Ardoch.

It is in their details that the fortifications of Ardoch are unique. Thus, although the trenches on the north face of Birrens are more numerous than those on the east face of Ardoch, they are uniform in plan, and their intervening mounds have rounded crests, indicating that the entrenched lines were merely obstacles. Even the outer rampart there appears to have been nothing more than an enlarged ridge. But at Ardoch, besides minor differences, one of the ridges, *e* (fig. 6), is widened, as if to serve as a line of defence; and the outer rampart, *h*, of great strength, is backed by a wide platform, *g*, which must have been a powerful aid to its defence.

These characteristics, however, would hardly have given rise to doubts as to the Roman origin of the works. It is to the complications on the north face and angles that the difficulties are due. But after all, may these not be regarded as developments from simpler Roman models? Thus we have, first of all, the *Kastelle* of the German Limes, with a stone wall and a single trench; then other *Kastelle*, in which the trench is doubled. At Birrens the trenches increase to six; but this may have been because the stone wall of the *Kastelle* was exchanged for an earthen vallum, and required greater protection. At Ardoch, an isolated work at the utmost limit of the Roman empire, the necessity for increased strength was probably felt, and the east front was strengthened by deeper trenches, by the provision of a wide platform in rear of the outer rampart, and by a middle line of defence, made by the simple device of widening the top of one of the trench-ridges. But this was not the weakest front; and on the north, two ravelins were substituted for the

widened trench-ridge of the east face, and were so planned as to give a flanking defence to the angles, which in the stone *Kastelle* was usually provided by towers on the wall.

There may have been another reason in favour of wide fronts, with several lines of defence, in a Station built, as our excavations proved, of wood; the barracks and stores were thus withdrawn as far as possible from the risk of being set on fire by the discharge of burning missiles from without,—a real risk, as Cæsar tells us that one of his camps in Gaul was destroyed by the discharge of red-hot bullets of clay; and, in fact, that Ardoch may have been attacked in the same way is quite possible, as sling-bolts of baked clay were found in considerable quantity in the interior of the station. Arising from this necessity for a wide front, might come the construction of several lines of defence, because the chief small-arm missile of the Roman soldier was the javelin, which could not effectively command a width of from 200 to 280 feet.

But, on structural grounds, not only is there no insuperable difficulty in ascribing the entire plan to the Romans; there are also strong objections to a native claim to any share in it. Thus, the site is undoubtedly much more characteristic of Roman than native choice, and there are but three other rectangular works at all like it in Scotland, one of which has been proved to be Roman, while from the discovery of relics at another, the probability is that it also is Roman. There is, therefore, an almost entire absence of works of this type which can even be suspected of being native.

That certain changes had been made on the fortifications, however, was clearly proved by our excavations. They were as follows:—

(a) On excavating two saucer-like hollows in the platform, *p*, fig. 6, it was found that they covered a short, straight trench, running parallel with the others of the north front, and ending abruptly in the flank of the outer ravelin.

(b) The west flank of the inner ravelin, about half way between *i* and *r*, fig. 6, had been formerly cut off by a cross-trench from the 'bastion,' *r*.

(c) A trench, marked 'Ditch' in Mr Cunningham's plan, was found in all the sections made across the berm. There was no indication of

it on the surface, which was everywhere level. On the north front it proved to be a mere slight hollow in the subsoil, but it gradually deepened on the east and west sides, and on the south appeared to be as deep as the trenches of defence. The gradual deepening from the higher-lying north to the low level on the south suggested that it was intended as a drain to preserve the rampart from getting water-logged, but it seems to have been purposely covered over by laminae of earth, peat, and gravel.

(d) The occurrence at different levels of hard artificial surfaces of small cobble-work or gravel. Sometimes one was directly above another, as near the east entrance, where an old road was found a foot below a newer one. A remarkable discovery was also made of a hard surface beneath the platform, *g* (fig. 6), of the outer rampart. Beginning at the surface, near the middle of the north front, opposite *d*, it 'dished' downward to a depth of several feet on the east front, coming gradually to the surface again on the south side of the east entrance. It occupied the whole breadth of the platform, and extended beneath the rampart nearly to its outer side, and was apparently too wide to have been a road.

These discoveries, as it appears to me, indicate changes made by the Romans on their own original plan, rather than on pre-existing native work. We have now no means of explaining them, but possibly they may have been due to a widening of the defences, and a readjustment of levels.

There had also been much filling up of the interior, which must have been artificial, as it consists largely of gravel of considerable size. In a portion of the north-eastern part of the area, this filling amounts to 7 feet, the lower half of which must apparently have been Roman work, as it rests on a double layer of cobbles laid upon the till, and contains post holes, which elsewhere occur only in the till. The upper half, again, seems to have been filled in after the Roman period, as it is above the level of the top of the post holes and of the Roman Finds. This may have happened long after the abandonment of the place, in order to level it up for ploughing.

In concluding this account of the fortifications, it must be allowed that additional information of value might have been obtained if we

had carried our excavations further, but the great expense of moving such masses of earth precluded us from doing so. If at any future time, however, operations should be resumed, our work will serve as a basis to our successors; and the plans will show what has been done and what remains to be done.

C. THE LARGE CAMPS.

Although but small attention was paid in our investigation to the larger camps, it has been thought advisable to collect here the little that we are told about them by the early writers. The Drummond letter of 1672 ignores them; and all that Sibbald says, in the "Thule of Camden," 1695, repeated in his *Historical Inquiries*, 1707, is:—"To the east" (of the station) "there are several larger squares, with their circumvallations continued for a good way." Sibbald makes the mistake of putting them to the east instead of the north of the station, but he at least recognises their camp-like character, which seems to have been missed by Gordon, who says:—"To the north of the Fort of Ardoch are to be seen the vestiges of a vast large ditch upon the moor, with two or three small projections of earth at regular distances, as if they had been for the out-scouts to the foresaid fort. This great ditch can be traced for above two miles." It may be that Gordon is here attempting to describe the large camps, the little earthen projections "for the out-scouts" being the traverses in front of the gates, shown in Roy's plan, but his description conveys the idea of a long straight trench and not of an enclosure.

Horsley and Sir John Clerk take no notice of the large camps; and General Roy's account is by far the most valuable we have, accompanied as it is by a plan (fig. 7), the accuracy of which is vouched for by the poor remains of what he saw being found on the very spots indicated by him. It is unnecessary to give his account at full length, but the main statements are these:—The mean length of the larger of the three camps was 2800 feet, and the mean breadth 1950 feet; and it was capable of holding 28,800 men, on the Polybian system of calculation. The greater part of the rampart with three

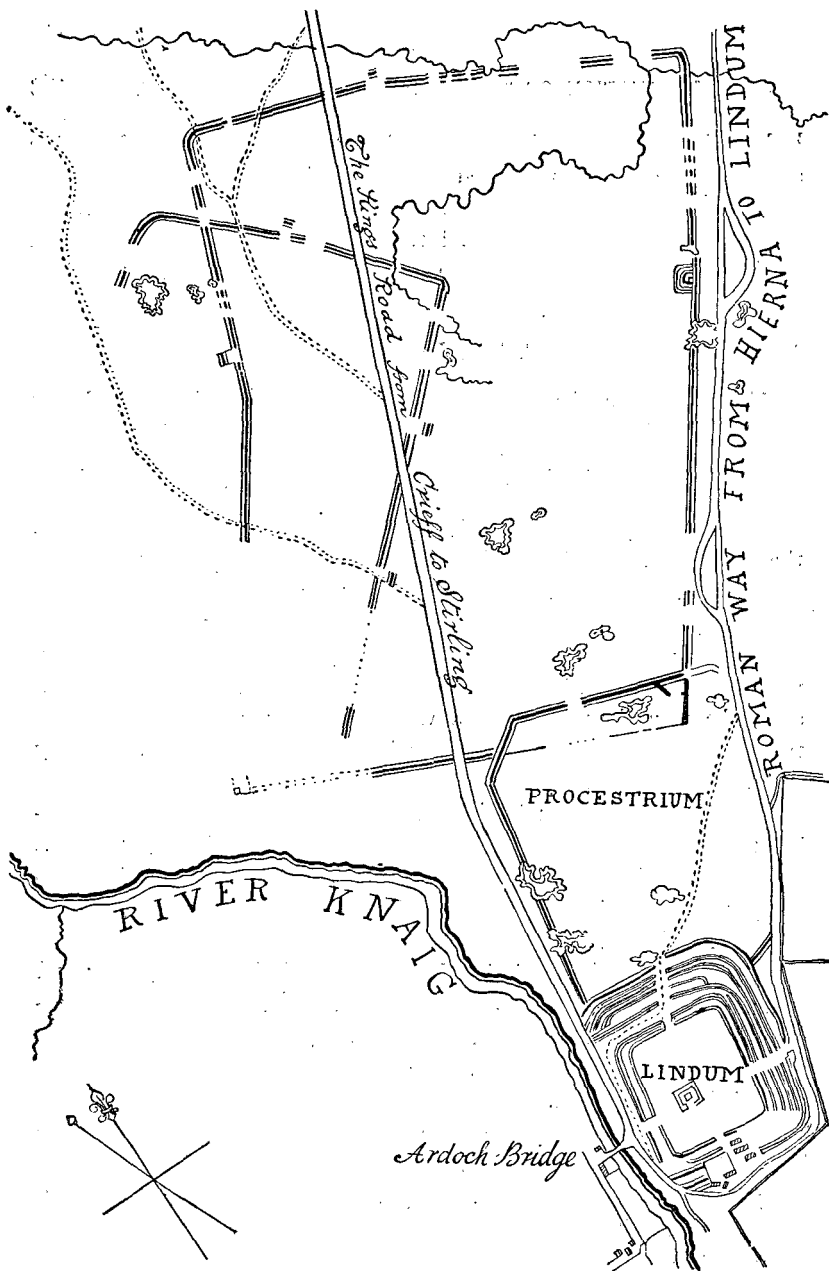


Fig. 7. General Roy's Plan of all the Ardoch Camps, reduced.

gates remained, except the half of 'the Roman epaulment' which covered the south one. Within the east rampart there was a small square redoubt, situated on a gentle eminence; the interior was partly morassy, and he thought must always have been so.

The second camp lay half within, half without, the western rampart of the first, which it cut twice obliquely. Its mean length was 1910 feet, the mean breadth 1340 feet, and it could accommodate 12,000 men. The north end, the greatest part of the east side, a small portion of the west, and three of the gates remained entire. But the lowest part of both these camps, where they approached the Knaig Water, was demolished. From the manner in which the north intrenchment of the smaller camp intersected the west one of the other, it seemed to have been subsequent to it. The interior had two rising grounds commanding any others near them, and must at all times have been free from inconvenient wetness. It was difficult to understand why the bit of the greater camp within the smaller one had not been levelled by the Roman occupants, to suit their usual arrangements.

The third camp was of a different nature, as it joined the station, and its intrenchment was considerably stronger. It was therefore rather a *procestrium* than a temporary camp. Its mean length was 1060 feet, the mean breadth 900 feet, and it could hold 4000 men. It was evidently thrown up subsequently to the great camp, whose rampart it defaced in crossing it. The part of the rampart of the great camp within it appeared to have been levelled, as only faint traces of it remained.

Pennant is the only other authority who gives a plan of the larger camps (fig. 5). It will be seen that, although evidently not so faithful as Roy's, there is no very essential difference between them. What he says is as follows:—"To the north of this fortress" (the station) "are the outlines of three enclosures, surrounded, if I recollect aright, by only single ramparts. They are the works of different periods. . . . The first is contiguous to the station, and receives into the west side the Roman road. The measurements of the area are 1080 feet by 840. The portæ are quite filled up. Another very large one lies north of this and part of the south, and even trespasses in and

takes in a small portion of it. The four entrances are very visible, and each has by way of defence, opposite to it, on the outside, a short rampart. The dimensions of this are 2600 feet by 1670.

"A third, which seems never to have been completed, breaks in on one side of the greater. It points towards the Kneek, and either never reached the water, or has been on that side totally defaced."

It is satisfactory that this description agrees substantially with Roy's, and is even a little fuller in detail.

The camps seem to have been tolerably well preserved till near the end of the 18th century, as in the *Old Statistical Account of Scotland* (1793) it is stated that, besides the station, there are "other two encampments adjoining it, having a communication with one another, containing about 230 acres of ground." The author bewails the destruction of the south side of the station, but says that Sir William Stirling, the then proprietor, made use of the ground of the station for pasturing cattle, and enclosed it with a high stone wall, that it might never again suffer from a ploughshare; and that he also "prohibited the tenants from ploughing up or otherwise demolishing any part of the remaining lines or ramparts round the two larger camps."

Notwithstanding this prohibition, the destruction of the large camps went on, and was probably soon as complete as it is at present; for although the author of the *New Statistical Account* (1845) of the parish describes them as being pretty perfect, it is because he copies Roy's account almost *verbatim*, and makes it apply to his own day. This seems very plain, as the Ordnance Surveyors, about the same time, represent the poor remains in identically the same state as they are now.

The existing parts are shown in the Ordnance plan (Plate IV.). Scarcely any trace of the east side of the procestrium remains. The north side is probably fairly preserved, but is so choked with a young plantation that it cannot be properly examined. It does not seem, however, to be so strong as a small but well preserved part of the west side, where a section was made, and where the rampart is scarcely less massive than that of the station.

A well-preserved fragment of the largest camp, in the plantation west of the north side of the procestrium, although inferior to this, is of some

strength; but a considerable part of the east side of the lesser camp in the plantation west of the highway to Crieff, now completely riddled with rabbit-burrows, seems to have been of comparatively trifling dimensions.

D. 'ROMAN ROAD' FROM ARDOCH TO STRATHEARN, AND FIELD
WORKS NEAR IT.

To complete our notice of the ancient works connected with Ardoch, I add an account of a 'Roman road,' with its neighbouring field works (fig. 8), which runs northward to Strageath, crosses the Earn there, and continues eastward past Gask, nearly as far as Dupplin Loch.

It is not mentioned in the Drummond letter of 1673; and Sibbald appears to have known only the eastern section, of which he says, "A little to the eastward (of Strageath camp) beginneth the Roman *via militaris*, called by the common people the *Street Way*. This in some places is raised above the ground almost a man's height, and is so broad that one coach may pass by another with ease upon it, and this runneth towards the river Tay."

Gordon, on the other hand, speaks only of the section between Ardoch and Strageath as part of the great military way coming from beyond Stirling and Dunblane, passing at the foot of the hill that rises above Ardoch Moor, and reaching towards Innerpeffery. He also notices the little work, now marked Kaimes Castle on the O.M., as "a small Castellum called Cemps Castle," or perhaps more properly Camps Castle, "seeing from thence the two forts of Ardoch and Innerpeffery are seen."

Roy does not describe the road, but gives it on his plans (*Roman Military Antiquities of North Britain*, pl. x. and xix.) from Ardoch to about a mile beyond Strageath, where his plan stops.

Maitland appears to be the only authority who professes to trace the military way south of Ardoch, towards the Antonine Vallum. He describes it as starting from the latter at Madun-Castle, and passing through Camelon to Stirling, where "it joins the Roman Station on the southern side of the Castle, which is fortified with a rampart and spacious ditch, which, although greatly defaced, appears to be of Roman

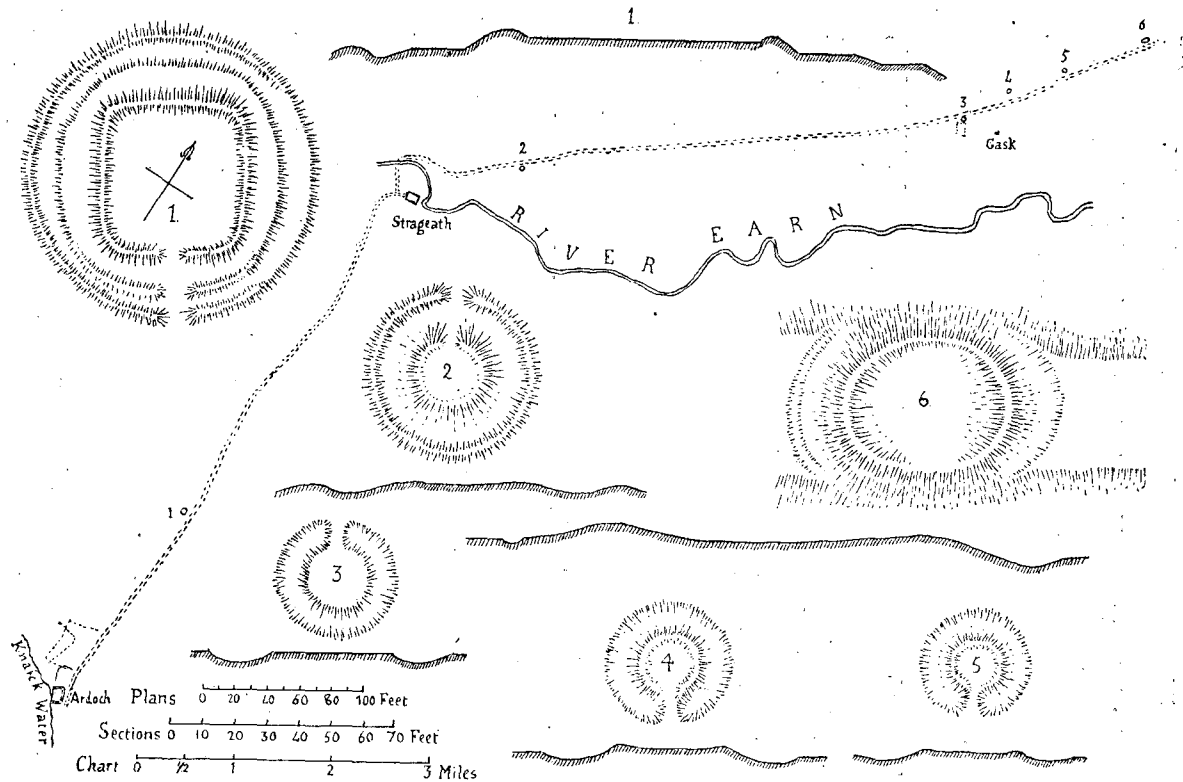


Fig. 8. Chart of "Roman Road," Strathearn, and enlarged Plans of Posts near it.

construction." The *trajectus* or ferry of the Forth is demonstrable "by the course of the military way on both sides of the river"; and at the north end of Dunblane it "plainly appears by the name of the old road, and crossing the riveret Allan, near the Woodend, goes on and crosses both the new road and the Water of Kneck, a little below the bridge; and ascending the eminence, runs along the eastern side of the camp."

Resuming from Ardoch, he describes the military way as passing by the west side of a village called Redfoord, on to Kemps Castle, which he calls, in an exaggerated way, a very strong oblong fort, fortified with a double ditch and triple ramparts, and so on till it intersects Strageath Camp. The section beyond that he merely notices as being continued "between the park walls of Gask."

Pococke only makes cursory mention of this eastern section, but is more precise in his account of the part between Ardoch and Strageath:—"about two measured miles from the Camp (Ardoch) is a small fort called the Castle Camp, with one Fosse and a kind of terrace round the Camp. We saw the Roman road plainly; it is overgrown with heath, and the soil has become black by the rotting of the vegetables. I observed about two or three yards from it on both sides small holes, not deep enough to be dangerous, which doubtless were made to supply gravel for the road."

Pennant also noticed "great multitudes" of these holes, mostly of a round form; and states that the Roman way passes by Kemp or Camp Castle, defended by three deep ditches, and led him from Strageath to Ardoch. But he was the first to observe a number of other works connected with the road, which he approached from the east. "At a small distance from Dupplin first meet with the Roman road, 24 feet broad, formed with great stones, visible in many places. . . . Pass by the great plantation at Gask Hall; in these woods is a small circular entrenchment, and about half a mile further on Gask Moor is another, whose ditch is eleven feet wide; the area within the bank fifty-six in diameter; and between this and Innerpaffery are two other similar, placed as near that everything that stirred beneath, or at a certain distance around, could be seen." After passing Kemps Castle, at a small glen or hollow that crosses the road, he saw a deep oblong

trench; and a little further on, in a line with it, a small round area like those on Gaskmoor, but stronger, having no fewer than three fosses. Not far off there was also a regular lunette with a very strong foss, in front of a deep dell, and near it another round fort with two ditches. From the lunette a great foss passed half a mile wide of Ardoch, and, he was told, fell into the Water of Kneek at two miles distant from its origin. He then reached Ardoch.

The next account is contained in an anonymous and untitled paper among the early unpublished communications to the Scottish Society of Antiquaries (vol. ii. MS., 1785-99), read to the Society 6th August 1789. Besides the three small intrenched works near Gask that still exist, and another which has disappeared, three Roman camps or stations are mentioned, which are not now to be found.

“There was a Roman Camp at Gask: it has been but a slight entrenchment, for a flight probably (*sic*); three of the entries are distinct enough, with the ditch on each side of them, and the breastwork at the proper distance before. The small mound entrenchment north of the camp has no connexion. Its entry is from the camp, not into it, therefore could not be the Pretorium; there is another of the same kind a quarter of a mile or so west and on the same side, near and with its entry to the Roman road, also other two on the north side in Gask Parks, both near the Street and their entries toward it, in all four. . . . In the eastmost of Gask's inclosures on the Street or Roman road at steps for a foot passage there goes off the remains of a Roman Caseway nine or ten feet broad, which had gone north to the morass or bog over which there had probably been a bridge to cross over to the Drum, on the east of which is a small Roman station called Thorny Hill or the Hill of Midgeal, supposed so named from being about midway twixt Strageth Camp and Bertha; this detached Roman Road or Casey is but lately known to (*sic*). There is a small Roman Camp or Station north from Gask in the park of Muirhead, north-west from the Farm-house; the know or rising ground is called Kempy, facing the house of Williamstown; one deep ditch is very distinct, other two without it are perceptible; it may be 100 yards in length, the breadth not to be found; a precipice supplying the south trenches.”

The position of the first mentioned camp is below the post No. 3 (fig. 11), and a plan (fig. 9), accompanying the MS. account, shows a perfectly regular rectangle, with the angles squared off, enclosed by a single intrenchment, the area of the interior being about 470 feet by 400, or very nearly the same as that of Ardoch station. The side entrances are much nearer the north than the south end. The "small round intrenchment north of the camp" is quite detached, 4 or 5

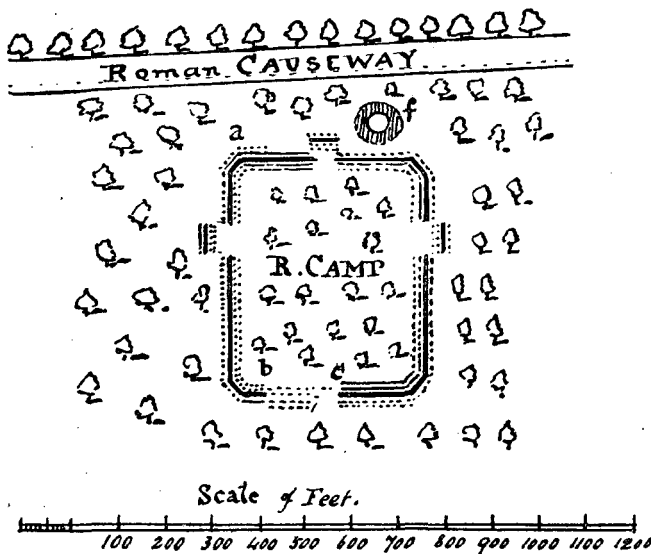


Fig. 9. Plan of Camp at Gask, from MS. dated 1789.

yards in front of it, and about as far to the east of the traverse guarding the north entrance.

The *O.S.A.* of the parish of Muthil states that, besides Camp Castle, "there is another fort of observation, larger, but not so entire, to the northward of the house of Orchil," and that in the parks of Gask there are still the remains of a Roman station.

The *N.S.A.* of Gask says:—"The Roman causeway which extends through the parish on the highest ground is 20 feet broad, composed of

rough stones closely laid together." By the side of it "Roman stations are still visible, capable of containing from 12 to 20 men. They are enclosed by ditches, which are very distinct. Within Gask's policy vestiges of two camps may still be traced, one on the south side the other on the north of the Roman road, or Street as it is called by the inhabitants."

On the 6-inch O.M. of 1863 the road is laid down in the whole course from Ardoch to Gask, but marked "Site of Roman Road." Skirting the east side of the Ardoch camps (Chart, fig. 8), it is shown running N.N.E. for about $5\frac{1}{2}$ miles till 350 yards west of Strageath camp, when it bends sharply eastward and enters the west end of that camp. About half way along this bend the main road strikes north again, reaching the Earn 500 yards north of the camp. Resuming on the left bank of the river, it runs almost straight and east for eight miles, to near Dupplin Loch on its north side.

With all this testimony, there can be no doubt that an ancient road did run for about 14 miles, from Ardoch to near Dupplin Loch, as described by the early writers, but they do not tell us much as to its structure. It is not said to have been paved in any part of its course from Ardoch to Strageath, but numerous holes were noticed beside it, as if to supply gravel for it. In the eastern section, however, near Gask, it was said to be "of rough stones closely laid together," 20 feet in width, and near Dupplin to be "formed of great stones" and to be 24 feet wide. It is also said to have given off at its east end "a case-way 9 or 10 feet broad, running north.

Present State of the Road.

The ancient roadway is plainly indicated at the present day, skirting the east side of Ardoch station, and excavation revealed the old surface, composed of tightly compacted gravel, only a few inches beneath the sod. The road was 26 feet wide, slightly arched, free from ruts, and as smooth as a cyclist could wish.

Beyond this, to the east of the site of the great camp, Mr Cunningham could find no trace of the road; and in 1895 I was equally

unsuccessful near Kaims Castle, and at several points near Strageath where it is marked on the O.M. I was able, however, to follow it out for three miles west of the Gask woods. Here, although apparently very little used even as a cart-track, it is distinctly marked, near the east end, by a stone curb on each side, defining a width of 10 feet; a great part of this curb is gone, but in several places ten or twelve contiguous stones remain. Here the roadway is raised to the height of the top of the curb, but is so soft that wheels sink 6 or 7 inches in it. In these ruts I could not detect any sign of causeway, but Dr Joseph Anderson, at an earlier visit, did see some at a point where a burn had washed away the soil. About half a mile westward the roadway is no longer raised and the curb is seldom seen. Still, the top of it is occasionally visible, defining the 10 feet width as before. Further west, the roadway is raised several feet (doubtless where Sibbald describes it as about the height of a man), but it was too much covered with thorns and weeds to be investigated. A little further west it is sunk a foot or two.

Present state of the Field-works near the Road.

The following works are mentioned by the early writers as being in the vicinity of the road, beginning at its east or Dupplin end.

A small oval work near the east end.

Four very small circular intrenchments, close to the road in the Gask plantations, and another, $4\frac{1}{2}$ miles west, near Innerpeffery.

Three camps or stations, of which one was north of the road at its east end, another north of it opposite Gask, and another close in rear of one of the small works on the south side of the road.

Kaims Castle, close to the N.E. side of the road, 3 miles south of Strageath.

A fort larger than it, north of Orchil House.

A "round area," like those on Gask Moor, but with triple fosses.

A lunette, with a very strong fosse.

Another round fort, with two ditches.

Unfortunately, the locality of several of these works cannot be

identified, as they have entirely disappeared, and the names of the places near their alleged position have become obsolete. Some of them may not even have been near the road. The distribution of the whole was very irregular; eight were near the eastern end of the road; an interval of $4\frac{1}{2}$ miles follows before the next; $1\frac{1}{2}$ miles further on is Strageath; another interval of $3\frac{1}{2}$ miles brings us to Kaims Castle, and the fort near Orchil; and the remaining three were near the last mile and a half between Kaims Castle and the great camp of Ardoch.

Of the eight works which have disappeared, the only one of which the position is known is the camp on the south side of the road at Gask. The following six that remain I found in good preservation in 1895.

Kaims Castle (fig. 8, No. 1). The interior measures 80 by 75 feet from crest to crest of a slight rectangular rampart, with rounded angles. A terrace runs round about 5 feet below the rampart, and a few feet below this is a second terrace, which, on the two sides where the ground does not fall away, becomes a trench. Both terraces have a slight parapet. Unlike the interior, with its rampart, these outer lines are curved. The dimensions over all are about 185 by 170 feet.

(Nos. 2, 3, 4, 5.) These little works vary in diameter over all from 70 to 110 feet, and from crest to crest of the interior, from 30 to 35 feet. Their profile is slight the rampart rising 3 to 4 feet at most above the trench.

(No. 6.) Instead of being on level ground like the others, this larger and oval work is on a little knoll. It measures 180 feet over all, and 100 by 80 feet inside from crest to crest of a rampart, which falls away almost to nothing at the sides, but is very broad at the ends. A trench cuts it off from slight continuations of the knoll at each end, and to the west the knoll rises again to a little round flat-topped eminence, commanding the interior from a distance of 100 feet, and with a few large stones on it, suggestive of a plundered stone-circle.

Notwithstanding the irregular distribution of the fortified works along the course of the road, it seems impossible to deny them some connection with it; and it is fair to state that a certain regularity may even be traced, if we confine attention to the larger works. Thus the three largest—Ardoch, Strageath, and the camp at Gask—are located at

equal intervals along the road ; and it should also be observed, as possibly more than an accidental coincidence, that the interior space is about the same in all three. Again, Kaims Castle, the next in point of size, although nearer Ardoch than Strageath, is placed at the only point in the road from which both are visible.

Lastly, the question remains—Are we entitled to call the road Roman ? The fact that the first part of it runs from Ardoch, a proved Roman station, to Strageath, which has all the appearance of being another, is at least strongly in favour of the Romans having used it so far ; and as the further or Gask section resembles the first part in having defensive works in connection with it, there is a presumption in favour of this section also having been used by them. But it might be going too far to say that they were the original constructors of it. The familiarity of their Caledonian foes with wheeled vehicles, proved by their use of war-chariots, if Tacitus is to be believed, argues that they had roads, without which, in a country so rough and marshy as Caledonia, wheeled vehicles could scarcely move ; and these roads would naturally follow the easiest lines of communication. There is nothing extravagant, therefore, in the supposition that the Romans may have found the road in some degree ready-made. But there is a third supposition, which cannot be summarily dismissed,—that the road may not have come into existence until after the Roman period. I do not think this is likely, however, as the larger works near the road are Roman in character, and the others, if not distinctively Roman, are still less distinctively native, from their exceedingly small size, and their sites being chosen without any regard to natural defensibility. The finding of relics might place the whole subject in a clearer light, and the thorough search for them in such small works would be a comparatively easy task.

Note.—A branch of birch as thick as the arm, and retaining the silver bark, was found under the rampart of the station. Specimens of wood and charcoal from the interior were pronounced by Professor Bayley Balfour to be oak, probably alder, possibly willow or poplar. The grain appeared to be barley, but some of the grains might be wheat. The results are much the same as at Birrens.