

## VII.

ACCOUNT OF THE EXCAVATION OF THE ROMAN STATION OF  
CAMELON, NEAR FALKIRK, STIRLINGSHIRE, UNDERTAKEN BY  
THE SOCIETY IN 1900.

(Read 12th March 1900.)

I. HISTORY AND GENERAL DESCRIPTION. BY DAVID CHRISTISON,  
M.D., SECRETARY.

## (1) LITERARY HISTORY.

The earliest mention of Camelon is the fabulous account by Hector Boece, whose Latin history of Scotland, published in 1522, was translated by John Bellenden,<sup>1</sup> and printed about 1536, at the request of King James V., and of which a highly elaborated metrical version was also written about the same time by William Stewart.<sup>2</sup>

Bellenden, vol. i., the first buke, p. 29: "In this time (*i.e.*, of Fergus, King of Scots), rang Esdail, King of Brittonis, and Cruthneus Cameloun, King of Pichtis, quhill biggit efter, upone the Watter of Carron, the ciete of Camelon." "This ciete of Camelon resistit, mony yeris efter, to the Britonis and Romanis, quhill at last, Kinneth, King of Scottis, quhill put the Pichtis out of Albion, brocht it to uter subversioun."

Having given Camelon this highly respectable origin, the romancer further on comes to a wholly fictitious narrative of its "uter subversioun," of which the following are the concluding passages. Vol. i., the tent buke, p. 161: "The cieteyanis, astonist with this suddane irruptioun of Scottis, and nocht of power to resist, left the wallis, and faucht, sa lang as thay nicht with perseverant hatrent to the deith; and finalie wer all slane, bot ony mercy or ransom. The nobillis comandit to cast down the toun, and to leif na Pichtis on live within the

<sup>1</sup> *The History and Chronicles of Scotland*, Hector Boece, translated by John Bellenden, circa 1536; reprinted 1821.

<sup>2</sup> *The Buik of the Cronickis of Scotland, or a Metrical Version of the History of Hector Boece*, edited by W. B. Turnbull, 1858.

samin. The priestis, matronis, virginis, and childrin, come afore Kenneth with pietuous cheir, desiring grace: bot the fury of Scottis wes sa gret, that thay, bot ony miseration, wer al slane." "Of all this toun, sum time sa honest, remanit nocht haistely, bot the powder, wall and calsay: of quhilkis, sum thing remains yit in thir dayis."

The only fact that appears to come out of all this fiction is that Boece knew of the remains at Camelon, and considered them to be not Roman but Pictish.

George Buchanan, whose knowledge of the place must have been about half a century later, describes it thus:—"This rampart (the Antonine Vallum), where it touched the river Carron, had a garrison or fortress which, by its situation and the termination of a number of roads there, had the appearance of a small city, which some of our writers falsely imagine to have been Camelodunum, but it more probably was the city Bede called Guidi. Only a few years before this was written remains of the ditches and walls, and likewise of the streets, were visible; nor even yet are the walls so completely destroyed, or the vestiges so indistinct, as not to be traced in many places; and in the earth, on being but slightly dug, square stones are discovered, which the owners of the land in the vicinity use in the erection of their houses; the inscriptions, too, that have been deciphered indicate it to have been of Roman workmanship."

In another passage, vol. i. p. 25, Buchanan ascribes the damage to agricultural improvements as well as plundering the stones; he also says that Camelon could not be Camelodunum, which was 300 miles distant from it, "if any credit is to be attached either to Ptolemy or the Itinerary of Antoninus," and points out, besides, that the destruction of Camelodunum, according to Tacitus, took place in the reign of Claudius, forty years before the Romans under Agricola penetrated to Camelon. He also disposes of Boece's Pictish fiction thus:—"We nowhere find in ancient monuments that Camelodunum was ever the

<sup>1</sup> *The History of Scotland*, George Buchanan, circa 1582; translated by James Aikman, 1827, i. 89.

capital of the Picts, Abernethy having been both the royal residence and the seat of the church primate."

Upwards of a hundred years elapse before a new series of notices begin, at the very end of the 17th century. The first is by Gibson, in his edition of *Camden*.<sup>1</sup> "There is yet a confused appearance of a little ancient city, where the common people believe there was formerly a road for ships. They call it Camelot." "It may be gathered from history that this was the palace of the Picts." He then mentions the discovery of an anchor "within this hundred years," the remains of fortifications and streets, and the finding of old vaults and coins. (In Gough's edition of *Camden*, 1803, it is stated that the plough has almost levelled the banks.)

An anonymous letter, dated 1697,<sup>2</sup> and marked *copy*, relating an excursion to the west of Edinburgh, is the next in date. The description of Camelon is a little more precise than those by Boece and Buchanan, as it mentions "vestiges of two large squares of 600 feet each, in both of which are several steads or ruines of stone buildings, and a ditch and rampart round each square." The author heard of Roman coins having been found, but the people would not admit they had any; also of the finding of anchors and sea tackle; and he notices the paved way, half a mile long, leading to the Antonine Vallum, "at the end of which stood a great castle, called by the country folks the Maiden Castle, but now little is to be seen of it."

Sibbald<sup>3</sup> mentions vestiges of regular streets, vaults under them, a military way passing south to Carnwath, and the finding of Roman coins; also the digging up of an anchor "within a century of years," and the appearances of the sea having formerly flowed up to the town, which he thinks, on the slenderest possible grounds, may have been the "*Camunlodunum Brigantum*, which the vulgar call at this day Camulon near Falkirk." He also identifies it with Bede's Guidi.

<sup>1</sup> *Britannia*, William Camden, Gibson's edition, 1695, pp. 921 and 958.

<sup>2</sup> *Historical Manuscripts Commission*, xiii., app. ii., Portland MSS., ii. 56.

<sup>3</sup> *Historical Inquiries*, Sir Robert Sibbald, M.D., 1707, pp. 33, 34.

Stukely<sup>1</sup> says briefly :—"December 1720. We may still discern the track of the streets, foundations of buildings and subterraneous vaults. The country people call it Camelon or Camelot."

Gordon<sup>2</sup> thinks that "Hector Boethius was much mistaken in reckoning this ruinous town Camelon to be the old Camelodunum mentioned by Tacitus," and is firmly persuaded that it is the place described by that author as having been built by Agricola as winter quarters for his army after his second expedition to these parts. He also calls it "the supposed Guidi mentioned by Bede," and says it was evidently Roman, from the noble Roman military way which runs through it. "Here both inscriptions and medals have been dug up; I myself saw two beautiful silver coins of Vespasian and Antoninus Pius, which are now in the hands of the present Countess of Kilmarnock."

Horsley<sup>3</sup> makes the extraordinary mistake of putting Camelon on the Roman wall. He says that the wall, ditch, and military way "come up to Camelon, where there are the manifest remains of a considerable town; but there are not at present any distinct vestiges of ramparts or a fortification remaining. Some conjecture that Rough Castle has only been a kind of appendage or summer encampment to Camelon, and that the fort in the series of the wall should be reckoned here, where the distance is more suitable to the rest of the intervals."

From about the middle to the end of the 18th century comes another series of observers, of whom probably the first was General Roy.<sup>4</sup> His plan, reproduced here in outline (fig. 1), represents the half of the station to the west of the 'Roman way,' as uncultivated and surrounded on its northern part by double, on the southern by triple lines, the nature of which, in the absence of sections, is obscure, but showing that something more than the mere single wide undulation of the present day

<sup>1</sup> *An Account of a Roman Temple and other Antiquities near Graham's Dike in Scotland*, Wm. Stukely, M.D.

<sup>2</sup> *Itinerarium septentrionale*, Alexander Gordon, 1726, p. 23.

<sup>3</sup> *Britannia Romana*, John Horsley, 1732.

<sup>4</sup> *The Military Antiquities of the Romans in North Britain*, General W. Roy. Published in 1793, after his death, but from observations made long before.

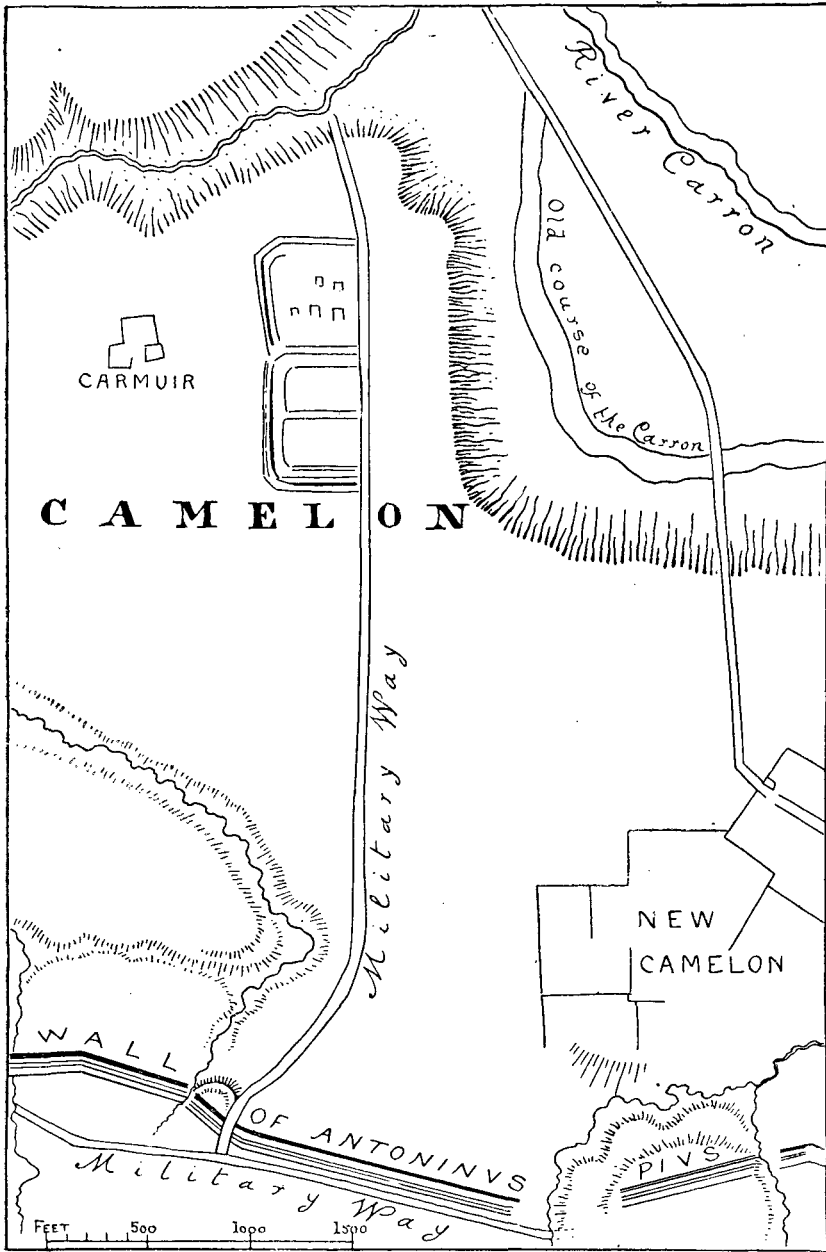


Fig. 1. General Roy's Plan of Camelon.

existed in his time. Within the northern part are five rectangular 'ruins,' their long axis north and south. A street seems to run round the rear of the lines, and another bisects the south camp from west to east. The eastern half of the station is represented as under cultivation. Faint indications of the fortifications are shown at the north and south ends, but there is no trace of them on the east side, and the undulation, still visible there at the north camp, must have escaped his observation. The total length on Roy's plan is 1250 feet, of which about 600 goes to the north camp and 650 to the south one.

According to Roy's plan, the 'Roman way,' where it pierced the Antonine Vallum, at a slightly re-entering angle in it, was flanked by a little demilune on the west, and after running about 300 yards north-east, took a course due north for about 800 yards to the south gate of the station.

Roy, as usual, gives us very little information in his text:—"Though this place is probably the *Caer-Guidi* of Bede, yet antiquaries have not been able to determine what was its more ancient name. From its extent and the many vestiges of buildings remaining in it, it certainly hath been one of the most considerable stations belonging to the Romans in North Britain. The town consists of two parts, whereof that towards the south seems to have been the original station, and that on the north a subsequent or additional work."

Maitland,<sup>1</sup> after mentioning the military way through *Camelon*, goes on thus:—"Divers pavements of streets seem to cross one another at right angles. This place seems to have been fortified with a ditch and rampart; but as the former has been filled with the latter there is little of the wall remaining." He also says that the site of the supposed harbour was a little higher on the river *Carron* at a place called *Duratre*, where, "a few years since," an anchor was discovered. As to the alleged vaults, he says, "though I made the strictest search in the place and inquiry among the neighbours, I could neither discover, nor they show me, any one of the said vaults." "Divers Roman coins and inscriptional

<sup>1</sup> *The History and Antiquities of Scotland*, Wm. Maitland, 1757, i. 206.

stones are said to have been dug up; but where deposited at present, I cannot learn." He also censures Horsley's great mistake in placing Camelon on the Roman wall, above half a mile off, "at a place where the military way crosseth the said wall."

Pennant<sup>1</sup> did not go to Camelon, as he was informed that "not a relique is to be seen at present worthy of a visit."

The *Old Statistical Account*, 1797, says, "There are now few vestiges remaining; but not long ago foundations of houses and the direction of some of the streets were visible." The author also speaks of the village called Camelon, in the neighbourhood of Old Camelon, as being new.

Stuart<sup>2</sup> treats of Camelon as a Roman seaport, and states erroneously that "not a vestige remains to indicate the position it held."

The Ordnance Surveyors, 1860, were equally at fault, failing to see the still evident undulation in the ground that outlines the northern area, and marking the site with an oval dotted line, the long axis of which is from west to east, while that of the actually visible rectangular site is from north to south.

#### SUMMARY OF THE HISTORY TO THE PRESENT DAY.

The name *Camelon* first appears in Boece, 1522, in the Latinised form of Camelodunum, and it may be a question whether it was not invented by that clever romancer, and subsequently passed on to the village of New Camelon, which, as shown in Roy's plan, was 600 yards from the Roman site, for there is no evidence of the existence of a mediæval Camelon either on the ground, or in history, or in Blaeu's map; and so late as the end of the 18th century, the writer in the *Old Statistical Account* speaks of the village as new. Gibson, however, in 1695, asserts that the common people called the place *Camelot*, and Stukely that they name it Camelon or Camelot. Its identification with the Guidi of Bede can only be regarded as a vague speculation.

<sup>1</sup> *A Tour in Scotland*, 1772, Thomas Pennant, published 1776.

<sup>2</sup> *Caledonia Romana*, Robert Stuart, 1852.

The remains, according to Buchanan, were much more perfect a few years before 1582 than at that date, but he states that even then the ditches, walls, and streets could be traced in many places, and a century and a half later these, as well as the remains of buildings, are shown on Roy's map; but about the middle of the 18th century, according to Maitland, the trenches were filled up with the rampart, and probably soon thereafter, the remains of streets, etc., in the interior were obliterated by the plough. The only subsequent change was caused by the railway, which fifty years ago was carried obliquely through the station, from south-east to north-west in a cutting 5 feet deep. The causes of destruction specially mentioned as going on in his day by Buchanan, were agricultural improvement and the carrying away of hewn stones to build houses by the neighbouring lairds, but even then the area seems to have been covered with soil, as digging was required to get at the stones.

*The Harbour.*—The supposed Roman harbour at Camelon is first mentioned in 1695 and 1697, apparently solely on the very slender ground of the alleged discovery of an anchor and sea-tackle within a century before that. In 1757 its position is said to have been at *Duratre*, now Dorrator, about a quarter of a mile north-east of the station.

*The Roman Way* passing through the station is mentioned first in 1697. Where it pierces the Antonine Vallum, it was uncovered in 1894 when Mr Fairlie's villa was built on a prominent mound on the Vallum on the west side of the entrance, which seems to have been the demilune, marked by Roy, and which was cut down 6 feet to accommodate Mr Fairlie's villa. It was seen by Mr Buchanan, and found to have been well paved and covered with 'channel.'

*Maiden*, perhaps more safely written *Maden Castle*.—This 'great castle,' described by the anonymous writer of 1697 as being at the Vallum end of the Roman Way, I had supposed was possibly represented on Roy's map, 500 yards north-east of the entrance, by an unnamed oval mound, measuring 1000 by 500 feet on the top;



but I am informed by Mr Buchanan that there never can have been such a mound in this position.

*A new Castellum.*—When a piece of ground south of, close to, and right in rear of the passage through the Vallum was being trenched in 1894–95, to make a garden to Mr Fairlie's villa, Mr Buchanan observed that the whole area consisted of a mass of tumbled stones, with scattered heaps of broken brown and grayish or whitish pottery. The east side was bounded by a stone bottoming, exactly like the paving under the Vallum, which ran direct south from the Vallum for about 100 feet, and then westward, where it was soon broken up; but there could hardly be a doubt that it ended on the west, as it began on the east, forming a rectangle, of which the Vallum was the north side, and that Mr Buchanan has added another Wall-Fort, or Castellum, to those already known. It seems improbable that this was "Maden Castle," as it is on the south side of the wall.

*Relics.*—Of the coins and inscriptional stones mentioned by nearly all the old authorities, not one is known to exist, and no reading of any of the alleged inscriptions has ever been given.

## (2) GENERAL DESCRIPTION OF THE PLACE AND THE EXCAVATIONS.

### *Introductory.*

The condition of Camelon, as just described, remained much the same for half a century, till, in the autumn of 1898, our Council was informed by Mr MacLuekie, F.S.A. Scot., that the southern half of the station had been feued for the erection of two new foundries, that the cutting of a railway siding had already been begun on the ground, and he suggested that, as this would be the last chance of investigating the part of the station implicated, we should undertake the work.

The desirability of this was so obvious that the Council at once resolved to ask leave from the proprietor, Mr Forbes of Callander, who readily granted it, not only for the southern half of the site, where our operations would necessarily be much hampered by the simultaneous

erection of the foundries, but also for the northern half, where we should have a free hand.

Permission to excavate any part of the southern half of the ground not at the moment under their own building operations was kindly given by Messrs R. & A. Main and Mr John Wilkie, the feuars; and the farming tenant, Mr Fleming, Carmuir, was equally ready in affording us every facility.

Mr Thomas Ross, Architect, F.S.A. Scot., undertook the duty of general adviser in the practical carrying out of the work, and the Committee enjoyed on this occasion an unusual advantage in having the advice and active aid of two residents in Falkirk, close to the scene of operations, Messrs J. R. MacLuckie and Mungo Buchanan, who had long taken a keen interest in the Roman antiquities of the district. Mr MacLuckie, from his local knowledge of place and people, was always ready to smooth away difficulties, and advise as to the conduct of the operations; and Mr Buchanan, a trained surveyor, gave the whole leisure of a busy life to the gratuitous planning of the details disclosed from week to week, a service which was all the more invaluable, as, owing to the nearly complete levelling of the fortifications, the remains were more obscure and more difficult to trace out than in any of our previous undertakings. In so trying an investigation we were fortunate also in securing the services of Mr Alexander Mackie as Clerk of Works, to whose experience and unwearied attention to details are greatly due the thorough results obtained from the excavations.

Mr Mackie arrived on the ground to watch operations at the railway cutting in the middle of February 1899, and our own work, begun in the middle of March, was continued for very nearly twelve months, closing on the 3rd March 1900.

#### GENERAL DESCRIPTION.

##### *The Site of Camelon.*

The Roman station of Camelon is situated about 1100 yards north, and therefore in front of the Antonine Vallum, and  $1\frac{1}{2}$  miles west by north of Falkirk, on the edge of a tableland raised 50 to 60 feet above

the Carse through which meanders the Carron River, now at a distance of the third of a mile, but which, as its ancient bed shows, formerly flowed at the foot of the steep bank. The station protected the "Roman way" marked on Roy's map (fig. 1) as passing from the Antonine Vallum through it, and said to have been traceable formerly to Stirling and across the Forth to Ardoch, which lies 20 miles, or two easy marches, to the north.

*Aspect of the Station before our Excavations.*

An inexperienced observer might easily have concluded, as did the Ordnance Surveyors, that no trace of the station remained, but to a practised eye the boundary of the northern of the two imperfect rectangles, still visible in Roy's day, was distinctly enough marked all round by a broad, low undulation of the ground, rising to a height of several feet, but falling so gradually on either side that its width could not be fixed, even in spring, when its position was accentuated by a difference in tint between its vegetation and that of the field in general. The most distinct side was on the south, on the boundary between the two divisions, where the rise is supported on the south by a retaining wall.

No trace remained even of this undulation round the southern rectangle, save a faintly marked portion on the south side.

*Nature of the Site.*—The position of Camelon resembles that of the Roman stations at Birrens, Ardoch, and Lyne, in being on a plateau, raised a considerable height above a stream close below, and thus deriving strength from the steep descent to the stream. In the case of Camelon this protection is amply afforded to the north end and to the greater part of the east side of the station, but towards the south end of this side the bank gradually loses in height and steepness, and the approach to the south and west sides is almost level.

*The Fortifications.*

Leaving Mr Buchanan to describe his large plans in detail, I shall notice the fortifications in their general aspects by help of a plan reduced

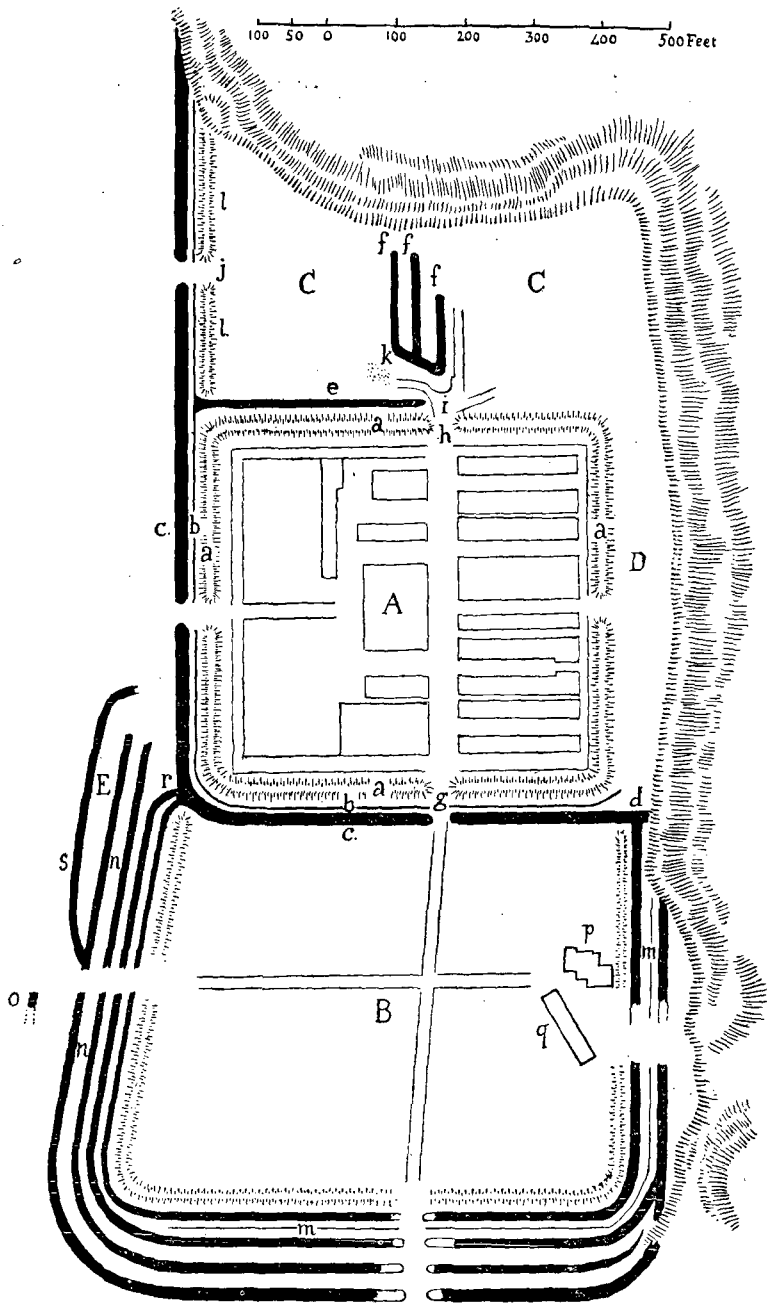


Fig. 2. Sketch Ground-Plan of Camelion after Excavation.

from his to a convenient size for ready reference (fig. 2), in which the trenches are represented by black bands, so as to catch the eye at once, and the whole plan of the place is restored to the original state, as far as is warranted by our excavations.

The station at Camelon consists of two quadrilateral works and an annex, arranged in close apposition in a line nearly from north to south, 1870 feet in length. The northern quadrilateral, A, is a regular rectangle, but the southern one, B, is rectangular only on the east side. The annex CC is directly continuous northwards with the rectangle A, and is now, perhaps always was, fortified only on the west side, the south being covered by the rectangle, and the north and east protected by steep banks. In form the annex is irregular, owing to the erosion of the bank, but it may be compared to a rectangle, with a crescentic cut into its north side.

#### *The Rectangle A.*

The dimensions of the rectangle A, over all, are 640 feet from east to west by 620 from north to south, and the area within the ramparts measures 530 feet from east to west by 490 from north to south.

The work had apparently but one line of defence, consisting of a single massive rampart (fig. 2 a a), about 40 feet wide at the base, composed of earth and other materials to be afterwards described, and protected on the weaker sides by one or two trenches.

On the south and west sides, immediately in front of the rampart, for there seems to have been no berm, came a small trench, b, with a low, narrow ridge between it and the large V-shaped trench, c, 23 feet wide and 8 feet deep. Both these trenches at the top had been filled in from the upper material of the rampart, but before this happened they had apparently stood for some time unimpaired, as the lower four feet of the main trench was a mass of black decayed vegetation.<sup>1</sup> In the

<sup>1</sup> Part of a sod from the base of the rampart having been sent to Professor Bayley Balfour, Regius Keeper of the Botanic Garden, for identification of the vegetation, he has kindly forwarded the following report by Mr H. F. Tagg:—"I find the material to consist chiefly of plants of *Polytrichum commune*. There is also present a species of *Hypnum* and in small quantity *Sphagnum*."

smaller trench, but only on the south front, pointed 'stobs' or stakes of wood, about 3 feet long, lay against the scarp, and may have been planted in the trench as obstacles. The large trench was prolonged about 60 feet beyond the south-east angle of the work till it ran out on the steep eastern bank at d, but the small trench ceased at the angle.

On the east side there was no trench, but as the rampart is withdrawn about 70 feet from the edge of the bank, it is possible that there had been some outer defence which has been destroyed by the erosion of the bank.

Probably because the north side was covered by the annex, the width of the trench e was reduced to 10 feet from the north-west angle as far as the north entrance, and beyond that there was no trench, doubtless because the space in front was cut off and protected by three trenches, f f f, running from the entrance of the rectangle towards the north bank.

*The Entrances* follow the usual rules as to number and position. Unlike the streets of the interior, which are of hard gravel, they are paved. Those on the south and west were much destroyed, but the other two were in fair condition. Deep holes at the sides, with disturbed stones in them, probably indicate the position of gates, but although three of the entrances were fully 20 feet wide, there was no sign of double gates. The east entrance narrows remarkably to a width of only 10 feet. The south and east entrances certainly had no defensive traverse. The front of the west one was so destroyed by the railway that the point could not be determined. The north one had no traverse, but was guarded by the trench k, which unites the south ends of the three trenches f. From a paved space, i, opposite the north entrance, two short paved roads branch off to the east and west divisions of the annex respectively, and a third runs northward in rear of the three trenches f.

*Streets.*—Assuming the interior arrangements to be the same as in the temporary camps, the street, 40 feet wide, running between the north and south gates, must be the *Via Principalis*, with the central 'prætorium' A in its rear, round which the narrower street, from the east to the west gate, has to turn in the usual manner. A street also runs in

rear of the rampart on all four sides, and there are others between the blocks of buildings. All these streets are surfaced with hard compacted gravel.

*The North Annex.*

No sign of the annex remained on the surface, but the excavations showed, as was expected, that the Romans had not neglected to fortify an open space so close to the station. This was done by continuing the western trenches of the main work till they ran out on the declivity, and raising a rampart, 20 feet wide, behind them. The steep declivity probably furnished all the defence necessary on the north and east sides, while the south side rested on the main work.

The annex may have lost part of its area by erosion of the declivity, at the foot of which the old course of the Carron Water is still visible. At present the area is quadrilateral, with a wide crescentic cut into the north side, and measures about 600 feet from E. to W., with an average of 400 from N. to S.

The remarkable three trenches, f, nearly subdivide the area, the eastern half of which is continuous round the angle of the main work, with the space D between the latter and the declivity. This space is 70 feet wide, and has a hard surface of gravel, perhaps to fit it for a drill ground.

*The South Quadrilateral.*

Owing to the rapid erection of public works on this division during our operations, only a small part of the interior could be excavated, but, fortunately, a fairly complete plan of the fortifications was made out.

The dimensions over all are 700 feet from north to south by 810<sup>1</sup> and 890 feet from east to west at the north and south ends respectively. Within the rampart the measurements are 540 feet from north to south by 610 and 685 from east to west. The work is therefore considerably larger than the rectangle to the north, both in its overall and interior

<sup>1</sup> Exclusive of a small annex, E, to the west, which would add 40 feet.

dimensions. It is regularly placed with regard to the rectangle, although slightly overlapping it on either side, and in form it is rectangular at the east end, but the south side projects 80 feet beyond the north side, so that the north-west angle is obtuse and the south-west one acute.

*Fortifications of the South Camp.*—Like the northern rectangle the south quadrilateral had a single rampart, reduced considerably in width, and also much less complex in structure, but, on the other hand, covered by a more elaborate system of trenches, multiplying the lines of defence, to compensate for the nearly total absence of natural advantage from the site.

*The East Side*, deriving some advantage from the declivity, had only two trenches, which ran into the prolongation eastward of the south trench of the north camp, but the platform between the trenches was nearly 30 feet wide, and as it was intersected longitudinally by a small trench, probably for a palisade, two lines of defence seem to have been provided in front of the rampart, the total width of the defences being about 85 feet.

On the *South Side* the width was increased to nearly 160 feet by the addition of two trenches and two more wide platforms, and as the 'palisade trench' of the east side was continued on the inner platform of the south side, the lines of defence appear to have been four in number, besides the rampart and berm.

*The West Side* also had four trenches, but they were nearer to each other, and although, on the other hand, the rampart and berm were wider, the total width was reduced to 118 feet; but as the narrowest platform was still 8 feet wide, all three were capable of defence. In addition to these, the northern half of the west side was defended by another trench, s, taking in the space, E, 30 feet wide. Possibly the south half was similarly protected, as the fragment of a trench was found in its front, at o, but its connections could not be traced.

*Entrances of the South Camp.*—The position of the *south entrance* was quite traceable, but the disturbance was too great to allow of any evidence as to the gateway. A *west entrance* could not be located in



line with the east to west street. The *east entrance* could not have been in line with the east course of the same street, as the building, p, blocked the way, but there were indications that the street passed at an angle between p and q to reach an entrance in a position further south than the natural one. The *north entrance* was through the south entrance of the north camp.

*Streets.*—The only streets found in the south camp were the one just mentioned and another crossing it at right angles in the centre, connecting the Via Principalis of the north camp with the Way from the Antonine Vallum.

*Buildings in the South Camp.*—The remains of two interesting buildings, p, q, which may have been either villas or possibly bathing establishments, were uncovered. They were close to each other, and the rampart on the east side, near its middle, p being parallel with it, but q set obliquely. A part of the latter, 70 feet long and 3 to 6 feet high, and well buttressed, was the finest piece of Roman masonry discovered in Scotland, and its total destruction by the railway operations is much to be regretted.

#### *Period of the Works Constructed at Camelon.*

Nothing was discovered to fix the date of Camelon, but it is not unlikely that an earlier work than any of those just described was indicated by a parallel set of trenches which were found obliquely crossing those of the south quadrilateral at its south-west angle. The said trenches appeared to be at right angles to the Roman Via from the Antonine Wall, which points to an intention to construct a camp with that natural orientation, but as we found no other distinct remains of such a camp, we cannot say whether it ever was really made or not. That these trenches were anterior to those we followed out at the south camp seems proved, not only by their fragmentary character when compared with the continuity of the others, but by the filling in, as explained by Mr Buchanan.

The north camp has a slight command over the south one, so that it

may be considered a military necessity that it was either prior to the latter, or that the two were planned and constructed simultaneously. Although the somewhat irregular manner in which the trenches of the south camp run into those of the north camp seems adverse to this view, on the other hand the absence of all evidence in our excavations of a north front of fortification to the former seems to prove that it never could have existed independently of the north camp.

The complete obliteration of the defences of the south, as compared with those of the north camp, may be accounted for by the whole material of the rampart in the former being required to fill up the numerous trenches, when the area was put under cultivation; whereas, in the north camp, the much more massive rampart only required to part with its top to fill the comparatively few trenches, and thus a large part of it remained as a visible mound, gradually rounded off, and spread out by the action of the plough.

COMPARISON OF CAMELON WITH OTHER ROMAN STATIONS IN BRITAIN  
AND ON THE GERMAN LIMES.

*General Plan.*—Certain principles are generally followed in all the stations in Britain and on the German Limes. Thus they are almost always rectangular, with rounded angles, and with four entrances, two of which are in the middle of the shorter sides of the rectangle, while the other two are nearer the one end than the other of the longer sides. But exceptions to all these rules occasionally occur, and the details vary greatly. The plans in the Scottish stations, all constructed of earth, are much more complex than in the German *Kastelle*, the great majority of which are defended by stone walls, and still more so than in the few *Erd-Kastelle*, which are excessively simple. The four sufficiently investigated English stations are stone-walled and simple in plan. But there are others which on the surface appear to be analogous to the Scottish works. The Scottish stations are also distinguished by having fortified annexes, which is only of exceptional occurrence elsewhere.

In the *position of the Pretorium* the Scottish stations are somewhat peculiar, as in two of them, Birrens and Ardoch, it is absolutely central, which does not happen in any of the four English and twenty German examples in which the position is accurately known. At Camelon itself, at Bremenium, and at two of the German *Kastelle*, the position is not far from central, being only 24 feet out at Camelon and 14 at Bremenium. But Lyne alone, of the Scottish stations, agrees with the three remaining English and eighteen remaining German examples in having it decidedly nearer one end than the other.

Adopting the terms used for the temporary camps, as the permanent stations were laid out in much the same manner, and assuming that the key to the situation is the position of the Pretorium in rear of the *Via Principalis*, then Camelon agrees with the English stations and with sixteen *Kastelle* in having the Pretorium nearer the Decuman than the Pretorian gate, while at Lyne and two of the *Kastelle* it is nearer the latter than the former.

The *position of the Via Principalis* is much nearer the P. Pretoria than the P. Decumana in the four Scottish, three English, and twenty-five of the twenty-nine *Kastelle* in which it is known. It is nearly in the middle at *Melandra*, Derbyshire, and at Hofheim and Trenfurt, and is much nearer the P. Decumana than the P. Pretoria at Buch and Heidenheim.

*Direction of the Front.*—Assuming this to be indicated by the P. Pretoria, the German *Kastelle* invariably face the Limes or direction of the enemy; but it is the very opposite with the Scottish stations, as Birrens fronts, not northwards, but towards the Wall of Hadrian; Ardoch and Lyne are directed towards the line of retreat of an army invading Caledonia, and Camelon turns its back on the Roman way to the north.

*Nature of the Sites.*—The *Kastelle* seem to have derived little natural advantage from their site, the object being rather to facilitate egress to open ground in front and rear; three of the Scottish stations, on the other hand, were protected by a steep declivity on two sides, and if

Ardoch had only one side thus guarded, the others seem to have been well covered by marshes, but it is remarkable that at Camelon and Birrens the P. Pretoria, or front, opens directly on the steep declivity, whereas at Lyne it is the P. Decumana, or rear, that does so.

*Structure.*—Whatever may be the peculiarities of the four Scottish stations in ground-plan they are essentially distinguished from those of England and Germany by the structure of the fortifications, which are of earth in the former, whereas in the latter they are stone walls, with or without a backing of earth. A few *Erd-Kastelle* do, indeed, occur near the Limes, but they were extremely simple. They had no rampart, and the single trench must have been palisaded, while the Scottish stations had a massive rampart and a complex defence by trenches and platforms.

It is with each other, therefore, that we must compare the Scottish stations. The complexity of their plans, which is so distinguishing a feature, is far too large a subject to take up here, but the diversity in the structure of the ramparts is sufficiently remarkable to deserve some notice, and we may include the Antonine Vallum in the comparison, as well as the unique Birrenswark.

In all of these, except the last, the earthen rampart conceals stonework, disposed at the base in two totally different manners, for, whereas in the Antonine Vallum, and at Birrens and Ardoch, it runs like a causeway under the centre, at Lyne and Camelon it is marginal, forming outer and inner kerbs, but covered by the rampart. The substance of the Antonine Vallum consists of layers of sods, but in the stations the base is composed of peat, clay, wood, and brushwood, the upper part being of earth, or sand and gravel. The subsidiary ramparts of the stations are simply constructed of the spoil of the trenches, and the composition of those at Birrenswark are intermediate, peat not being used, and the clay and brushwood being in less quantity. The rampart at Camelon was peculiar in resting between the kerbs on a hollow bed of very hard sand, which kept the clay and peat in a moist, slimy condition.

The facing of the ramparts was probably of sods in general, but at Camelon there was distinct evidence that it was of clay, which rested in.

a mass several feet thick on the kerbs, thinned out upwards, and had a flat surface on the slope; and at Birrenswark a kind of 'stone pitching' was used, the stones in some places overlapping like slates on the roof of a house.

COMPARISON OF SIZE IN SQUARE YARDS.

	Main Station.	Secondary Station.	Fortified Annexes.		Total.
Birrens . . . .	18,500	19,300	...	...	37,800
Lyne . . . . .	28,800	...	8,700	8,000	45,000
Camelon . . . .	28,800	38,800	26,600	...	94,000
Ardoch . . . .	20,000	<sup>1</sup> 106,000	...	...	126,000
Bremenium . . .	19,100	...	...	...	...
Æsica . . . . .	16,600	...	...	...	...
Hardknot . . . .	16,600	...	...	...	...
Melandra . . . .	11,000	...	...	...	...

Comparing the Scottish main works of the stations with each other, the areas of Lyne and Camelon are nearly alike, amounting in round numbers to 28,000 yards, while Birrens and Ardoch do not differ from each other greatly in size, but, on an average, have only about two-thirds of the area of Lyne and Camelon. Taking in the secondary stations and annexes, however, all resemblances in size entirely disappear.

Comparing the Scottish main works with the English stations, Birrens and Ardoch average with Bremenium, but the other three English stations are decidedly less than the smallest of the Scottish four.

The thirty-four excavated *Kastelle* of the Ober-Germanisch-Rätische-Limes differ very greatly in size, but are reducible to a certain degree of order. In a rough way, it may be said that there are four of a very great size bearing no relation to each other; nine follow between 40,000 and 27,000 square yards; then come ten between 26,000 and 24,000 square yards. A decided hiatus follows, as there are no *Kastelle* between, in round numbers, 24,000 and 9000 square yards. Lastly comes a set of small camps, nine in number, between 9000 and 6000 square yards. In

<sup>1</sup> The 'Procestrium,' the large camps not reckoned.

this large list there are several instances of two Kastle approaching very nearly, though not exactly, to the same size. Instituting a comparison with the Scottish stations, it appears that two of them considerably exceed the class of Kastle that includes ten between 24,000 and 26,000 square yards; and that the other two, together with the English four, are much less than the said class, and are of a size which is not represented at all in the Kastle.

The result of the inquiry seems to be that approximations in size among the forty-two stations of the three countries are so rare as to be probably accidental. But if this be true of the main stations, much more is it so if we include the annexes. A total disagreement between the Scottish four, which all have them, is thus brought out; annexes have not been noticed in the English four, and are rare as fortified spaces in the Kastle, although these usually have a 'Vicus' beside them, the size of which cannot be estimated in default of an enclosure.

Thus, on the whole, it does not seem that any argument can be founded on similarity of size, and it may be added that the same is true in regard to the proportion of length to breadth.