Melandra Castle

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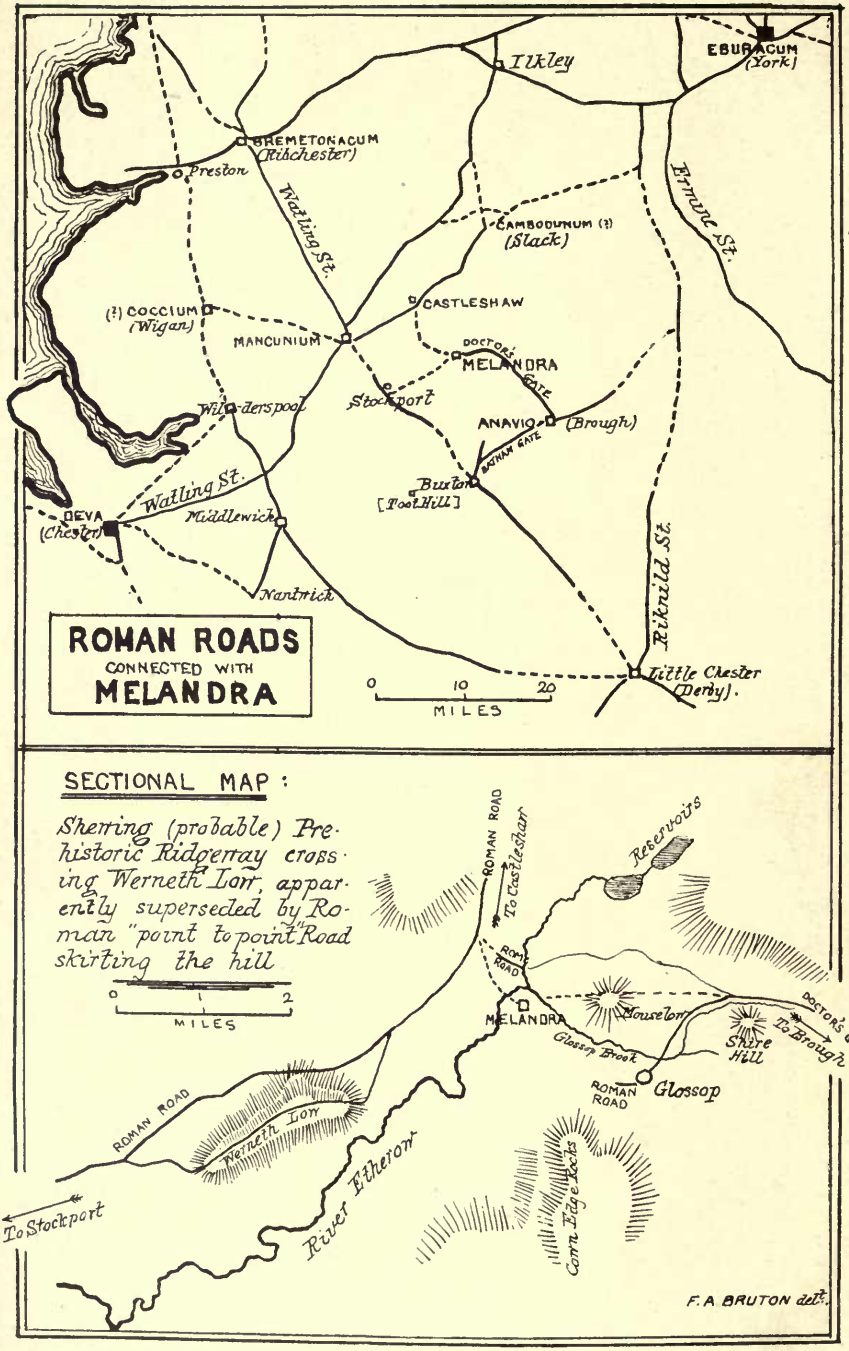

Frontispiece,

Melandra Castle

BEING THE REPORT OF THE

Manchester and District Branch of the

Classical Association

for 1905

EDITED BY

R. S. CONWAY, Litt.D.,
Professor of Latin.

WITH AN INTRODUCTION

BY

The Rev. E. L. HICKS, M.A.,
Canon Residentiary of Manchester; President of the Branch.

MANCHESTER
AT THE UNIVERSITY PRESS
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Editor's Note.

If the aim of the Classical Association may be defined in a sentence, it is to preserve and proclaim the connexion of Classical studies with the larger and deeper interests of daily life. The history, the politics, the society, the literature, the religion of our own community, all have their roots in antiquity; and none of these can be fully understood without the help of the great ancient writers whom the Classical student learns to count among his wisest and most delightful friends. His work is to build a bridge between the life of the past and the life of the present; his ambition is to make the bridge a broad, well-trodden road. One of the means to this end is to discover and interpret the actual traces which remain in our own district of the power which the Romans held in Britain throughout the first four Christian centuries.

To this task of enquiry the Manchester and District Branch of the Classical Association hopes to contribute something year by year. The present volume is the fruit of our first year's work upon a particular site known as 'Melandra Castle,' and upon the various objects found within it; though it seemed well to include two articles not directly connected with this site (Dr. Haverfield's and Miss Limebeer's) but dealing with kindred topics. At the end of the volume will be found the Proceedings of the Branch for 1905, including its Treasurer's Statement and its List of Members.

On behalf of the Excavation Committee I have to thank the

Subscribers to the Excavation Fund and to appeal for the continuance and increase of the support which has enabled us to proceed so far. We hope this summer to attack a new site, which so far as we know has never yet been disturbed, and to continue the work at Melandra. And on behalf of the General Committee it is well that I should remind our members to make the Branch known as widely as possible to all those who are likely to be interested in its objects, so that its numbers may be maintained and increased, and its general work prosperously continued.

It is a pleasant duty to acknowledge how much our enterprise owes to the kind help of many friends. First of all to Mr. Robert Hamnett, (Hon. Secretary of the Glossop Natural History and Archæological Society) to whose skill and enthusiasm is due the rescue of the site, the preservation of the remains, and the whole possibility of any systematic study of the fort. All of us who have been at work on the spot owe him an especial debt for his unwearied kindness. Then to Mr. John Swarbrick, A.R.I.B.A., of Manchester, for his generous help in surveying the site; to Mr. Francis Jones, M.Sc., for his kindness in analysing various substances found in the camp; and to Mr. F. W. Parrott, of the Manchester Grammar School, for the very great care and skill he devoted to producing the photographs contained in this volume. Nor are we less grateful to Professor William Ridgeway, of Cambridge, and Dr. F. Haverfield, of Oxford, for valuable advice on many important points. Other acknowledgements will be found in the particular articles.

It is, I suppose, forbidden to an Editor to express his gratitude to his companions in producing a volume of this kind, however generous he feels their help to have been; but it is at least right that I should record the debt of the Excavation Committee to the experience and enthusiasm of their Hon. Secretary, Mr. F. A. Bruton, M.A., and of all the contributors; to Mr. W. J. Goodrich, M.A., for his kindness in making the Index. *Sic uos non uobis.*

Finally we have to thank the Publications Committee of the University of Manchester for undertaking a considerable share of

the cost of this volume; their Chairman, Professor T. F. Tout, for valuable guidance in matters relating to its production; and their publishers, Messrs. Sherratt and Hughes, with the very able foreman of their works, for the pains they have taken to meet the special difficulties it involved.

R. S. CONWAY,

MAY, 1906. *Chairman of the Committee of the Branch, and of the Excavation Committee.*

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Introduction.

THERE are, perhaps, some to be found, even now, who would class the archæologist where Samuel Johnson affected to place the lexicographer, among "those who toil at the lower employments of life," as one "whom mankind have considered, not as the pupil, but the slave of science, the pioneer of literature, doomed only to remove rubbish and clear obstructions from the paths of learning and genius, who press forward to conquest and glory, without bestowing a smile on the humble drudge that facilitates their progress." But the growth of more scientific ideas has brought a loftier estimate of historical research, a keener appreciation of its methods. The general reader, as well as the average scholar, will, it is hoped, be glad to follow the processes of research recorded in this volume, and to appropriate the results (for some results there are) which have been attained. Foremost among these should be mentioned the plan of the camp and its gates, wherein every stone has been carefully measured; the chronological evidence of the vase-fragments now studied for the first time with a precision which supplies us with a virtual treatise on British pottery; the conclusions as to the date of the occupation, which throw interesting light also upon the the date of the Roman fort at Manchester; the description of the Roman and pre-Roman roads; and the study of the

weights, which opens up some new points in the relation of the Roman and Keltic systems. The literary study at the close is not without historical interest.

These pages have also a value as showing what classical study really means. It is not chiefly concerned with books but with humanity—with the doings and feelings of man. The spade as well as the pen must be called into play, if we would reproduce the history of the past and fill up some of the huge gaps left by the literary evidence.

It will also be seen that researches like these are an important instrument of education. Much of our knowledge we are obliged to receive almost passively upon the authority of others. But it is essential that on some points we should sift the evidence to the bottom, and base our beliefs upon foundations we have built for ourselves. One genuine experience, however small, of really original enquiry makes all the difference between progressive and unprogressive study. Discovery is the test of the scholar in whatever field he may be working. *Est aliquid, quocumque loco quocumque recessu,* to have made one's self proprietor of a single fact. The exploration of a small Roman fort, which has apparently been spoiled in ancient times of most of its relics, can be made a precious object-lesson of Classical method. It has already been so employed with marked effect by Professor Conway and his friends.

What the Manchester Branch of the Classical Association has been endeavouring at Melandra, it may perhaps repeat on other and more fruitful soil. Considerable discoveries may await its efforts; for one great charm of archæology is the emergence of the unexpected. In the meantime this little volume affords a pleasing foretaste of better things to come, and will sensibly enliven our historical imagination. It carries us back at once to Roman, and even pre-Roman

times, and enables the mind to reconstruct, in living form and colour, the earlier stages of our island-history. Every sentence in the several essays is an appeal not only to scientific interest but also to local patriotism. Nor is such a sentiment, especially when it finds vent in methodical research, an unworthy or fruitless impulse. There is a human touch in these researches which brings the men of that early date into close contact with ourselves. In the patient exploration of an ancient site, in the scientific study of the results of that research, the scholar of our time experiences the same feelings which prompted Dr. Johnson's famous rapture about his visit to Iona: "To abstract the mind from all local emotion would be impossible, if it were endeavoured, and would be foolish if it were possible. Whatever withdraws us from our senses, whatever makes the past, the distant, or the future, predominate over the present, advances us in the dignity of thinking beings." We feel the same as he, though we might nowadays put it differently. Manchester itself, though a great industrial and commercial centre, has never been wholly given to the idolatry of wealth. It is not the slave of materialism, nor are its sons and daughters mere drudges of the mill, the market, or the forge. The Muses have not yet deserted us, in spite of the smoke and din: Clio and Euterpe make willing and welcome sojourn. *Non tam aversus equos nostra sol jungit ab urbe.*

E. L. HICKS.

Whitsuntide, 1906.

ADDENDA.

Page 5. A note should be added referring the reader to the Sectional Map in the Frontispiece.

„ 42. A note should be added explaining that the photographer has slightly over-reduced the plan of Gellygaer.

„ 98. In reply to a question, Professor Hope W. Hogg has very kindly sent me the following note (May 19, 1906):—

> "Among the Jewish coins assigned to the period A.D. 132—135 are coins of the first year bearing the name 'Simon Prince of Israel,' and coins of the second year bearing the name 'Simon.' It is reasonably inferred that 'Simon' was the personal name of the leader of the Jewish revolt against Hadrian. Jewish sources call him Ben— (or Bar—) Koziba, perhaps from his native town or his father; Christian sources call him (Bar) Chochebas, 'Son of the Star,' a Messianic title founded on Numbers xxiv., 18. Of his career and the course of the war not much is known with certainty; but the struggle was severe, and the revolt was suppressed only after Roman troops had been amassed in considerable strength by (Sextus) Julius Severus, governor of Britain (*leg. pr. pr. provinciae Brittaniae, leg. pr. pr. provinciae Judeae* [C.I.L. iii. n. 2830]), who was transferred to Judaea to take charge of the war (Dio Cassius, lxix., 13). Has that any connection with the presence of the coin at Melandra?"

The information given us by the authorities Prof. Hogg cites, seems to give a negative answer to his final question; since it seems clear that this Severus was never in command in Judaea before coming to Britain, and that he did not return to Britain after the Jewish war. But there is nothing to prevent our supposing that some Roman officer of lower rank had served in Judaea before coming to Britain.

„ 113. At the foot should be added—

RECORD OF LOST FRAGMENT OF INSCRIPTION.

Small sketch, by R. B. Robinson, of the left-hand top corner of a moulded stone found at Melandra, but now lost, containing the letters I M P. C . . . See page 128.

R. S. C

The Ancient Roads connected with Melandra and the Site.

In the following imperfect sketch I propose to deal with Melandra from the point of view offered by the study of the Roman and pre-Roman roads in the district. Melandra was obviously placed where it is to command the western portion of one of the cross ways linking the great Roman roads on the west with those of the east of the Pennine Chain.[1] It dominated the western, just as the answering fort of Brough commanded the eastern portion of the same road near Hope at its junction with the road from Buxton through Bamford to Sheffield. Some ten miles to the north of Melandra the fort of Castleshaw kept watch and ward over a similar crossway, passing over the Pennine moors to the north-east, by way of Slack to join at Castleford the Roman road from the south to York. Before, however, we can discuss these roads it is necessary to distinguish clearly the roads used by the inhabitants long before the Romans set foot in Britain, from those which were made by the Roman engineers.

The earliest roads in Britain, with which I am acquainted, go back into the Prehistoric period as far as the Bronze Age. They undoubtedly had their origin in footpaths, some of Neolithic age, taking the easiest course between one village and another, or one stronghold and another. They are dated—as for example, on the moors and wolds of north eastern Yorkshire—by the burial

1. For details of these roads see Codrington "Roman Roads in Britain," 1903.

places which cluster round them as well as by the habitations. In Derbyshire the road passing along the ridge from Hope past Mam Tor, along Rushup Edge and on to the west, is dated by the stronghold of Mam Tor and by tumuli of the Bronze Age. These roads occur, as might naturally be expected, where the natural conditions were easiest. They are represented by many of the existing "ridgeways" which follow the higher ground. At the time they were made, the whole of Britain, with the exception of a few isolated clearings in the uplands, was covered with forest, the remains of which are to be seen in the stumps of trees lying in the peat on the top of Kinder Scout, and in the large trunks of oak found in the peat between eleven and twelve hundred feet above the sea, by Mr. Watts in making the Upper Swineshaw reservoirs for the supply of Oldham.[2] The bottoms of the valleys were for the most part marshes, and the low-lying region of the Lancashire and the Cheshire plain was covered with forest and marshes, so impenetrable that even as late as the Bronze Age it was rarely traversed. This is proved by the rarity of the remains of this age in the Lancashire and Cheshire plain, as well as in the great low-lying tracts of clay land on the east of the Pennines ranging from London as far as York and Newcastle. The roads therefore in the Bronze Age followed the irregular direction of the ridges, winding along the water partings, and avoiding the valleys as far as possible.[3] They were probably used by pack-horses.

2. ["In an old document it is said that the bailiff of the Lord of Stockport has for his perquisite all the trees washed down by the Mersey from the hills of Longden." *Longdendale*, by Ralph Bernard Robinson (Glossop, 1863), p. 10n. ED.]

3. These generalisations are based on the study of the roads of the south of England from Devonshire to Kent, as well as of those ranging from London through the eastern counties as far as the Tyne, and in part also of those of Derbyshire and of Wales.

In the Prehistoric Iron Age, or that period which immediately preceded the Roman conquest, these roads were improved and developed so that they could be used by wheeled vehicles. Sometimes, as in the case of the Pilgrim's Way from Dover through Canterbury, stretching away westwards on the chalk downs to Berkshire, the slope was chosen for the road rather than the summit of the hills. This also is to be observed in tracing the Icknield Way in some parts of its course from near Bury St. Edmunds to the Thames at Streatley, and southwards, until it climbs the Berkshire downs and is lost in the network of Prehistoric roads in that county. They also were extended into the low forest-clad and marshy districts so as to link together such centres as Manchester and York with the surrounding higher and dryer regions. In the Prehistoric Iron Age the forests of the lower lands were disappearing before the axe of the farmers and herdsmen, and there were probably large clearings in the neighbourhood of the fortified towns in the lower grounds. In these lower grounds it is impossible, according to my experience, to distinguish them from later roads, but when we examine the uplands they are plainly marked by their irregular and winding course, along the ridges, avoiding, as far as may be, the marshy bottoms of the valleys. There is no evidence that they were more than old lines of communication worn by long travel, which may or may not have been mended from time to time. These roads were used also during the Roman occupation, and many of them are still in use.

The Roman roads were made on a totally different principle. They were not only carefully constructed, but they were run from one point of observation to another in a straight line, and as far as the ground would allow, regardless of obstacles, such as hills and the marshy

bottoms of the valleys.[4] Like railways they were from point to point. They did not avoid the lower grounds. In some cases the Roman engineers improved the older roads, and made short cuts, as in instances which I have met with in the road between Canterbury and London, and in some of the roads in the moors of north-eastern Yorkshire. In this respect, therefore, we have a means of distinguishing between the Prehistoric roads which have been used during the Roman occupation and afterwards, and those first constructed by the Roman engineers.

With these facts before us we are in a position to consider the relations of Melandra to the roads in the district. It not only commands the continuation of the "Doctor's Gate" through Glossop, but it is also within striking distance of the western road to Stockport, and of the northern road to Castleshaw, at their junction at Mottram a little over a mile off. The "Doctor's Gate" (one inch contour map sheet 86) starts from the Batham Gate near Hope, a Roman road, mostly straight, running from Buxton to Brough over the plateau of carboniferous limestone, and sweeps northwards along the ridge dividing the valley of the Noe from the Ashop. It follows the westward trend of the latter valley, crossing the stream at a place marked Ford on the map, and winding along the irregular slopes of the ground above Woodlands until it joins the main Sheffield road, which it leaves within a short distance of the water parting. Thence it passes to the north of Cold Harbour Moor, and follows the north side of the valley of

4. The Roman roads were the principal means of communication in Britain down to the beginning of the 19th century, and during all those centuries they apparently grew worse and worse, as is amply proved by the incidental notices of the difficulty of travelling. The duty of repairing them fell mainly on the parish, or on the manor, and it was counted for merit in the church to repair a length of road or to rebuild a bridge. Road-making as a system, could scarcely be said to have existed in Britain from the days of the Romans down to the time of Telford and Macadam.

the Shelf brook into Glossop (sheet 86). Throughout this portion of its course it has all the characters of a road of the Prehistoric Iron Age. It was continued through Glossop, where several fragments of Roman road are preserved, and through Dinting in the valley of the Glossop brook close under Melandra. It crosses the Etherow at Woolley Bridge, and joins the Roman road to Stockport at Mottram. In this section of its course it has undoubtedly been reconstructed and carried along the bottom of the valley by the Roman engineers.

The road to Stockport is a point to point road, and therefore Roman. It passes from Mottram to the south and west, following the line of the high road through Gee Cross and Woodley to Stockport (sheet 98). After crossing the Great Central Railway, an old winding ridge way, named Apple Street, ascends to the height of over 900 ft. by Windy Harbour, over Werneth Low, rejoining the main road at Woodley. In my opinion this is a portion of the original line of the Prehistoric cross way, superseded by the later work of the Roman engineer, carried along an easier gradient. It is obvious that this was a line of communication between Stockport and Brough. From Mottram (sheet 86) there was another line of communication probably of prehistoric age, but marked by fragments of a Roman road, passing northwards through Roe Cross,[5] and following the contours of the east side of the Tame near Bucton Castle[6] in the direction of the Roman fort at Castleshaw. Here it joined the road from Manchester through Oldham and Delph, which from its structure and straightness is undoubtedly Roman.

5. S. Andrew *Trans. Lanc. and Chesh. Antiq. Soc.*, x., p. 48.

6. There is no evidence that this is Roman. It probably belongs to the Prehistoric Iron Age.

The direction of the "Doctor's Gate" through Glossop during the Roman occupation is marked by the fragments of Roman road in the lower town. It is, however, likely that in the prehistoric Iron Age it traversed Old Glossop, ascending the hill by the church, and making for Mouselow Castle, to the north of which a deeply-worn, winding road, Shaw Lane, between Banks Wood and Castlewood, descends into the valley at Brookfield, close under Melandra. Mouselow Castle occupies a commanding position. It consists of a fosse circumscribing the irregular summit of a hill, and clearly defined, excepting on the southern side, where it has been destroyed by a quarry. Within it is a large mound on the northern side, which may have been the site of the keep of an early Norman Castle, and on the south two mounds, probably formed by the debris from the quarry and of no archæological significance. It may have been a stronghold of the Prehistoric Iron Age—or one dating back to the Norman times,—or again it may be both Prehistoric and Norman.[7]

We may now consider the site of Melandra. The fortress stands on a promontory of glacial sand and clay overlooking the valleys of the Glossop brook and the Etherow, at the junction of the two streams. It is[8] of the usual rectangular form, with the sides facing to the north-east, and the corresponding quarters. Each side has a central gate. The main entrance, with a double gateway, is on the north-east. From this the road led into the valley of the Glossop brook, down a steep descent, along

7. All irregular fortified enclosures consisting of fosse and ramp, with one large mound cut off from the rest, which were formerly considered by Mr. Clarke and others to be of Saxon origin, have recently been proved, by Messrs. Round and St. John Hope, to be of early Norman age; the mound represents the keep, the lower area within the fosse being the bailey. Both mound and fosse were defended by palisades, and at a later time by walls.

8. [Approximately, see p. 67. Ed.]

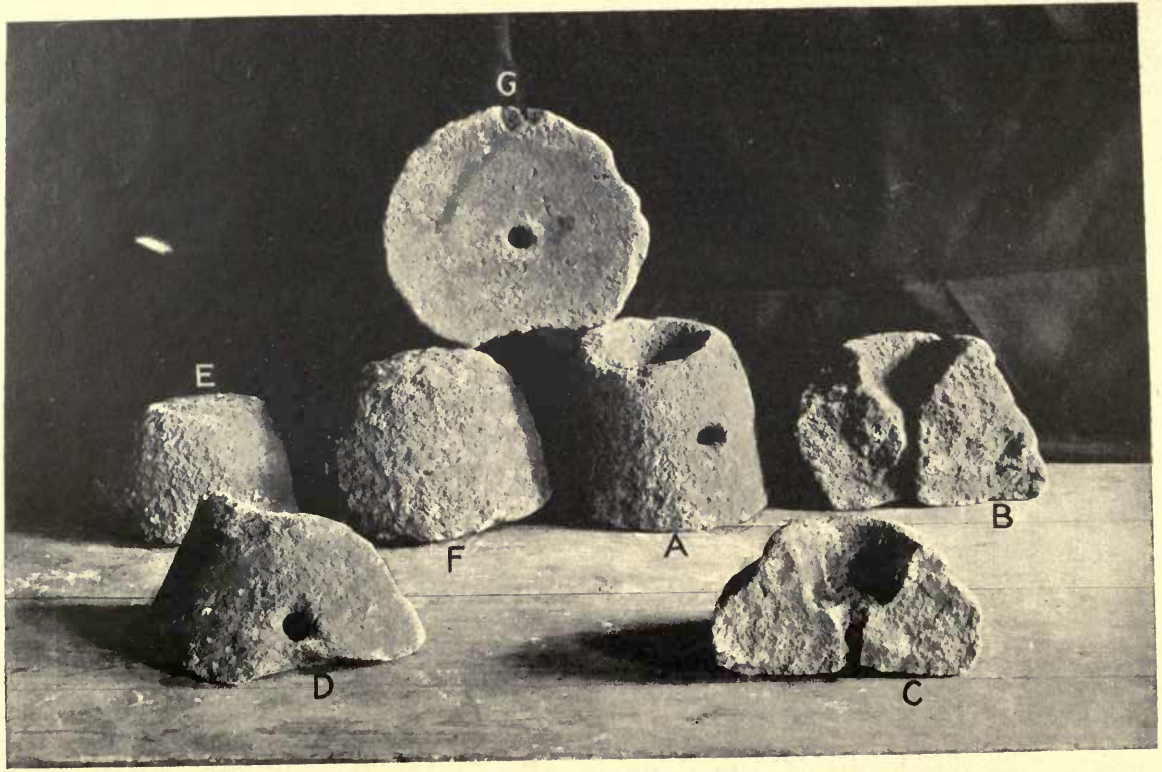


Fig. 1. Pre-Roman Querns.

To face p. 7

which its course has been obliterated by slips. In the south-west gateway a road, now represented by a ridge in the first and third fields to the south, curved round to the east opposite Lower Gamesley Farm. From the small size of the gateway it may be inferred that this was an approach of little importance. It must, however, be observed that the small gateway may stand in relation to the fact that this was the weakest side of the fortress. On the other three sides it was amply protected by the lie of the ground. On the north-west it was not only protected by the steepness of the scarp but by the morass (now represented by alluvium) at its base, traversed by the Etherow; on the north-east by the scarp overlooking the marshy valley of the Glossop brook; and on the south-east by a ravine which formed a tête-du-pont, covering the access to the gate at a distance of about 60 yards. Neither here nor on the opposite side are there traces of roads.

The walls of Melandra are made from the sandstones of the Millstone Grit in the neighbourhood. They, as well as the discoveries which have been made inside, will be described by the members of the Classical Association who carried on the work. I will content myself with calling attention to evidence which seems to me to point to the fact that the site was occupied in Prehistoric times.

A considerable number of flint splinters, knocked off in the manufacture of implements, have been discovered, which show that the site was occupied, like many others near Rochdale and elsewhere in the Pennine Chain, in the Neolithic, or, as is more probable, in the Bronze Age. The evidence that it was occupied in the age of Prehistoric Iron is afforded by portions of seven querns, of bee-hive shape, which characterise that age, four (fig. 1, A.B.C.D.) being upper, and three (E.F.G.) the lower stones. They are all made of millstone grit.

They are identical with the querns found in Danebury, near Northampton, and in the Lake Village of Glastonbury, both of which belong to the Prehistoric Iron Age. They differ from those introduced by the Romans in the fact that the latter are thinner and wider, and disc-shaped, with grinding surfaces frequently grooved, as may be seen from the group (Fig. 2) of six portions of Roman querns from the mill-house in Melandra. These are, with one exception, of Millstone Grit, and were probably made in the district. The exception (the lowest in the figure) is of volcanic rock, and came from the Roman quern factory of Andernach, near Coblentz, from which querns were sent almost over the whole of Roman Europe.[9] A fragment of another quern of the same material has also been found. The bee-hive querns are frequently met with on the moors of Yorkshire, and, so far as my experience goes, are not found in association with Roman remains. Whether or no they were used in Roman times is an open question. If they were used they are merely a survival from the Prehistoric Iron Age —like the greater portion of the roads guarded by Melandra.

In conclusion, we may very well ask why should the roads from Melandra westwards point towards Stockport and Manchester. The answer is to be found in the fact that both these places, as pointed out by Mr. Henry Taylor and Mr. Roeder, were inhabited centres in pre-Roman as well as in later times. Both grew round the fortified rocks which commanded, the one the marshes of the Mersey, and the other the junction of the Irk with the Irwell.

W. Boyd Dawkins.

9. I have identified these querns in Hod Camp, near Blandford, in Roman Chester, and in Caerwent.

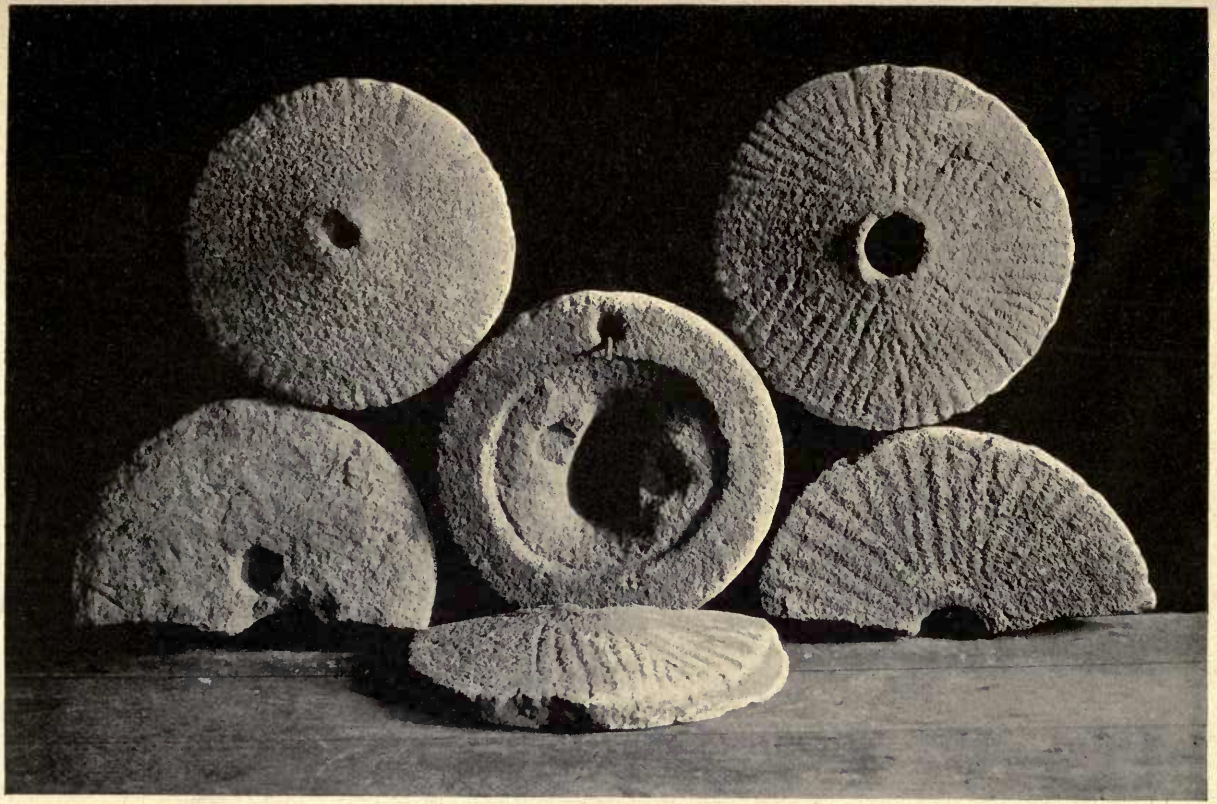


Fig. 2. Roman Querns.

To face p. 8

The Roman Occupation of Derbyshire.

FROM the earliest days the Romans drew a sharp distinction between the spheres of peace and of war. This distinction was, in the first instance, local. Certain regions, the city of Rome in particular, were *domi;* others, outside the sacred line, were *militiae.* The same distinction reappears rather curiously under the Roman Empire in the provinces. Technically, no doubt, the whole provincial area was *militiae.* Practically it was divided into two portions, one the region of peace and the other that of war, or at least of military men. Thus we find in most provinces two distinct areas. The troops, legions or auxiliaries are massed on or near the frontiers. The peaceful population lives behind the military lines and is free from the presence of soldiers. In the Gallic provinces, for example, the whole garrison, with one trifling exception, was massed along the Rhine in the *hiberna* and *castella* which guarded the frontier against German inroads. Similarly, in the Danubian lands, as the frontier advanced under successive rulers from Augustus to Trajan, the troops advanced too. The land behind became a land of peace, and the fortresses were turned into municipalities.

This feature appears equally in Britain. So soon as the conquest of the province was tolerably complete, we can recognise two regions in it, the lands of the north and west, confronting Hibernia and Caledonia, and the lands of the south and east. The first was the district in which troops were posted. The second was a peaceful area, and saw no more of armed forces than occasional

drafts of recruits and veterans passing to and from their posts.

The dividing line between these two regions of Britain is geographical. Britain, as geographers do not always tell us, falls, physically considered, into two parts—uplands and lowlands. The uplands consist of the west country moors, the Welsh hills, and the Pennine chain and northern highlands that adjoin it. The lowlands are the midland plain and the southern and eastern counties. A line drawn from York through Derby to Chester, and from Chester through Shrewsbury to the Bristol Channel, would form a rough boundary between these two areas. Hills no doubt occur to the south of that line, and low ground to the north. But with obvious exceptions this line divides two very different kinds of country.

The uplands are rough and mountainous. They usually rise above 600 feet and often considerably higher. They are scarred with deep ravines and tortuous valleys and sudden gorges. They are unsuited to agriculture, and incapable of supporting a numerous population. The lowlands present a very different spectacle. They are level or covered with gentle hills that rarely rise above 600 feet. Their soil and climate favours, or at least tolerates, serious agriculture, a dense population, and peaceful and settled life.

The difference between these two regions is well marked in the history of Roman Britain. Even the course of the conquest illustrates it. Little as we know the imperfectly recorded details, we can see that the lowlands were overrun in three or four years (A.D. 43—47). By the end of that period the Roman arms had so far advanced that they could operate against the Welsh hill tribes, could seize the mines of Flintshire, and prepare to attack the Brigantes of Yorkshire. But here their victorious career

was stayed. Instead of four, it cost nearly forty years to subdue the uplands (48—85), and even after that the spirit of the hillmen was not finally crushed.

In the development which naturally followed the conquest, the two areas remained distinct. The lowlands became rapidly Romanized. Progress was necessarily not uniform. Some districts, like Kent and Essex, had learnt not a little of Roman culture before 43. Others lay so far outside the main currents of provincial life that they never became thoroughly amalgamated. Others, again, like Warwickshire, were so thinly inhabited that substantially there was no population in them to Romanize. Class, too, differed inevitably from class. The wealthier and better educated naturally adopted Roman speech and manners more accurately and intelligently than the labourer or the rustic. But in the main the lowlands were civilised. A few municipalities, with Roman charters, were established. Many smaller and less privileged towns developed and flourished. The countryside was dotted with the residences of large land owners, generally Romanized natives. The minerals were worked in suitable places. Corn was grown and exported. Wool was dyed and obtained a name.[1] There was perhaps little wealth, but there was abundant comfort, orderliness and peace.

Turn now to the uplands. We meet no towns or "villas," no indication of comfortable unwarlike ease. Everywhere our civilian life stops where the hills begin. Instead, the spectacle is military, and the normal elements are forts and fortresses. Here, in these uplands, was distributed the garrison of forty or fifty thousand men which kept the hill tribes quiet and prevented the inroad of the Caledonian Highlander or Irish pirate. No doubt

1. See my paper *Romanization of Roman Britain* ("British Academy Proceedings," vol. ii.), p. 25, and references there.

this was not the only function of this garrison. It was there also to keep the peace in the lowlands, ready to crush a rising if such occurred. So far as we know, its services in this matter were never needed. In the more important work of keeping the peace along the hills and frontiers, it was continuously and seriously engaged.

The organisation of the garrison proceeded on the normal lines of the Roman army. That army, as it was under the Empire, consisted of two principal grades of troops—legions and auxiliaries. The legion was a body of 5,000 to 6,000 heavy infantry, recruited from the civilised and Roman or Romanized portions of the Italian or provincial populations, and constituting in size and morale and fighting strength the dominant element in the army, but an element which, owing to its very size, was a cumbrous as well as a powerful weapon. Three legions garrisoned Britain, one in each of three large fortresses—York, Chester and Caerleon. These formed the basis on which the defence of the province relied. But besides the legions, we have also the troops of the second line, the so-called auxiliaries. These were levied from among the subjects (but not the citizens) of Rome. They were less well-paid, less favoured in conditions of service, less reliable in warfare; they were also grouped together in less potent units of 500 or 1,000 men. But they had advantages. They were handier units, and they often included cavalry, bowmen, light troops. Accordingly they were stationed, not in large *hiberna* but in small *castella*, each covering some three or four or six or eight acres. These *castella* in most of their general arrangements were only a simplified variety of the *hiberna*. They were rectangular walled areas with four gates planted symmetrically in opposite pairs, central *principia* or headquarters in the middle, and barracks and storehouses

in wood or stone covering the rest of the interior. Such forts were dotted over the military area in strategic positions, along the frontiers, along the great roads of the north or west, or wherever need was apparent.

Derbyshire counts three of these forts. They are the most southerly forts in England proper, that is, among those which guarded the north as distinct from the garrisons of the Welsh mountains and valleys. One of the three—Littlechester, on the north side of Derby—is hardly known at all as a fort. But the remains there, as seen by Stukely in the eighteenth century, can only be explained as those of a fort. A second fort is at Brough, near Hope, in the Noe valley, guarding the route across the Pennine hills from the fort at Templeborough, near Sheffield, to the posts in the Cheshire and South Lancashire lowlands, and watching the wild heights of High Peak and Kinderscout. The valley in which it stands is the one bit of open habitable lowland among all the north Derbyshire hills, and it is just here that we might expect a fort to be placed to keep peace and order in the difficult region. The third fort is Melandra, near Glossop, planted on a spur that juts out into Longdendale and overlooking the easiest access from the western lowlands into the hills. It, too, by its position declares its purpose plainly.

We can tell the purpose of these forts. We cannot guess so easily their history. We know that the Roman advance northwards moved along the two lines of least resistance. Quite early in the conquest the legions had forced their way up the wide valley which separates Derbyshire from Wales and had established a legionary fortress[2] at Chester (about A.D. 48—50). It was probably

2. Full references to the authorities for this and other statements in this and the following page will be found in the *Victoria History of Derbyshire*, i., 201—221.

not so early that they pushed on from Lincoln to York. But it is likely enough that when they did advance the intervening wedge of Derbyshire was left still unconquered. Its adits were doubtless held. Coins[3] suggest that Melandra may have been established at least as early as Agricola (A.D. 78—85). Littlechester may also have been planted early, and thus if the hillmen were not conquered, they were at least hemmed in. By about A.D. 100 it was found possible to send into the Peak a *censitor* to register the natives for taxation and recruitment, and that step usually accompanies growing civilisation. But the progress was not wholly forwards. Late in Trajan's reign the north of Britain was disturbed and a whole legion was annihilated. The rising was crushed, and Hadrian's Wall was built to cut off the insurgents from the unconquered and unconquerable Caledonians (about 123). But a new generation sprung up that knew not the defeat of their fathers, and a fresh rising broke out (about A.D. 158). Then the fort at Brough was either built or rebuilt, and, as coins suggest, the other forts were occupied in force. The rising again failed, and it is the last in this part of Britain. Further north, troubles continued. But in Derbyshire, comparative peace apparently ensued. Littlechester seems to drop out of sight as an important place before the end of the second century. It may, indeed, have been dismantled and abandoned. The life of the other forts was possibly longer. But we have no cause to connect them with further troubles. They remained as part of the military system of the north, rather to prevent the growth of restlessness than to coerce unquiet men.

F. HAVERFIELD.

3. See the article on *The Coins, infra.*

The Roman Place-names of Derbyshire.

It is unfortunate that the ancient authorities which supply us liberally with the Roman names of towns or forts in Britain have for the most part left Derbyshire severely alone. The reason is not far to seek. The fact that none of the principal Roman roads led through the county is sufficient to explain the neglect of it in such a work as the "Itinerary of Antoninus." A traveller in search of knowledge or 'impressions' of Britain would naturally choose the more important roads, which would offer him easier and safer travelling, better accommodation, and more to see. The additional information which seemed to have come as a godsend to grateful antiquaries from the publication of the work of "Richard of Cirencester" in 1757, was shown some forty years ago to be but vanity. "Richard's" history proved to be a forgery palmed off upon the world by one Charles Bertram (1723—1765), an Englishman resident in Copenhagen, who used his ingenuity and his absence to dupe the over-credulous Dr. Stukeley and others.[1]

We must be thankful for small mercies. They come in the shape of the work of the *Ravennas Anonymus*, whoever or whatever he may be. The compilation which goes under this name, first published at Paris in 1688, appears

1. There is an interesting account of Bertram and his remarkable forgeries in the *Dictionary of National Biography*. He originally called himself "Richard of Westminster." The mischief done by him still lingers on in some quarters. He has vitiated most of the maps of Roman Britain published during the last century.

to have been written in the seventh century.[2] It contains an unmethodical, careless, and sometimes demonstrably inaccurate list of the names of places in various parts of the Roman world. But with all its faults it is certainly "founded on fact," and cannot be neglected by the student of ancient geography. The section which is of use for the present purpose is V, 31 (Pinder and Parthey). There we find the following series of names, in the ablative case, as is usual in the itineraries:—

Nanione *or* Nauione.[3]
Aquis.
Arnemeza (Arnemeya, *codex Basiliensis*).
Zerdotalia.

Let us consider these names in order.

In Vol. vii. of the *Journal of the Derbyshire Archæological and Natural History Society*, Mr. W. Thompson Watkin suggested that *Nauio* was the name of the Roman fort at Brough, where successful excavations have recently been conducted by Mr. Garstang. In support of his view he cited a fragmentary sepulchral inscription[4] found at Foligno, in Italy. There we read of a *censitor* (census-officer) *Brittonum Anauion*. Watkin took the letters *Anauion* to represent *a Nauione, i.e.*, "from Nauio," but, as Dr. Haverfield[5] points out, we must read *Brittonum Anauion(ensium), i.e.*, "of the Anavionensian Britons."

2. Pinder and Parthey's ed. (Berlin 1860), *Praef.*

3. The alternative reading has been added in accordance with the information now to hand in Dr. F. Haverfield's very important article on "Romano-British Derbyshire," contributed to the *Victoria History* of the county. There we learn (p. 210, footnote) that Professor Phillimore reports the reading of the best MS. (Vatican Urbinas 961) to be *Nauione*. Though most of the present article was prepared before the *Victoria History* was available, I gratefully acknowledge valuable assistance derived from it.

4. *Ephemeris Epigraphica* vii, 1102.

5. *Derb. Arch. Journ.*, xxvi. (1904), to which I am indebted for most of the facts stated about (A)nauio; *Victoria Hist.*, p. 210.

In the year 1862 a Roman milestone (now in the Buxton Museum) was found near the Silverlands of Higher Buxton. It refers to some place as being distant 10 or 11[6] miles ANAVIONE. It is impossible to tell from the inscription alone whether we are to understand ANAVIONE as one word, *i.e.*, from Anauio," or as two, *i.e.*, A NAVIONE, "from Nauio."[7] But the Foligno inscription constitutes a strong presumption in favour of the former alternative. Two other considerations taken in connexion with the facts already stated practically settle the question of the Roman name of Brough:—

1. Assuming, as we may reasonably do, that the milestone has been found near its original site, we may conclude that it was set up in Buxton. Now the only Roman fort about 10 miles by the road from Buxton was Brough.

2. Ravennas mentions in succession two rivers named *Anaua* and *Doruantium* respectively. It is difficult to resist the conclusion that *Doruantium* is the modern Derwent, and *Anaua* the modern Noe (or Now), the stream on whose bank the remains of the Brough fort have been found. *Anauio* would then be derived from the name of the stream.

Thus we may infer that the Roman name of Brough was Anauio.[8]

6. The number is not clear. Dr. Haverfield thinks it is probably 10 (*Derb. Arch. Journ.*, loc. cit.), but possibly 11 (*Victoria Hist.*, pp. 210, 226).

7. This reminds one of a somewhat similar difficulty in Cæsar's *Gallic War*, I. xxxi. 12 quod proelium factum sit Admagetobrigae. As this use of the locative case (referring to a town at which a battle is fought) is very irregular, it has been suggested that we ought to read *ad Magetobrigam*, i.e. "at Magetobriga." The real name of the town is unknown.

8. Horsley's alternative theories about the *Nauione* of Ravennas (especially the second, that the word is a corruption of *Causennae*) are worthy of the age in which Voltaire defined etymology as "A science in which the vowels count for nothing and the consonants for very little."

The name *Aquae* was given by the Romans to several watering-places more or less famous for their baths or medicinal springs. Thus *Aquae Sulis* is the modern Bath, *Aquae Aureliae* is Baden-Baden, and *Aquae Mattiacae* is Wiesbaden. The warm springs and baths of Buxton were known to the Romans, as the remains of a bath-house which have been discovered are sufficient to show. It was only natural—one may say it was inevitable—that the name *Aquae* should be applied to such a place, and it is unreasonable to doubt that the fort of that name mentioned by Ravennas after *Anauio* is that of Buxton. Whether any epithet was added to distinguish this *Aquae* from others we cannot tell, but it is very probable. If one may claim the antiquaries' privilege of making rash guesses, it might be suggested that *Arnemeza*, the next name given in Ravennas, a name about which nothing is known, did not designate another place, but was separated from *Aquis* by a natural and common mistake. We should then read *Aquis Arnemezae*. *Arnemeza* may represent the name of a deity associated with the springs or with the district; we may compare *Aquae Apollinares* ("Apollo's springs; *Phoebi uada*, Martial, vi. 42, 7) in Etruria.

But the suggestion at the end of the last paragraph may justly seem to be "a wild and uncritical guess." These are the words used by Dr. Haverfield of a conjecture made by Mr. Watkin as to the ancient name of the fort now known as Melandra Castle.[9] Mr. Watkin identified this place with the *Zerdotalia* mentioned by Ravennas next to Arnemeza. He also thought "that, like numerous other misspellings in the work, *Zerdotalia* should be *Zedrotalia*, and that the name of the station was preserved in the river which flows beneath it, the Edrow, as it was styled to the

9. *Derb. Arch. Journ.*, vii., pp. 86–7; also Watkin's *Roman Cheshire*, p. 24.

beginning of this (i.e., the nineteenth) century, now softened into Etherow." [10] This conjecture is ingenious, and one would fain accept it; it would give an interesting parallel to the naming of the fort *Anauio* from the river *Anaua*, which has been already mentioned, and as to the exact form of the word, whether *Zerdotalia* or *Zedrotalia*, the authority of the MSS. of Ravennas is certainly not great. But it is sadly to be feared that the *Z* at the beginning of the word is an insuperable objection to the theory, and it must be considered very doubtful if there is any connexion between the names *Etherow* and *Zerdotalia (Zedrotalia)*. As to the origin of *Zerdotalia*, *Arnemeza*, and *Melandra*, nothing certain can be said. The name *Melandra Castle*, commonly applied at the present day to the fort near Glossop, has not been traced further back than the year 1772. In that year the Rev. Mr. Watson read before the Society of Antiquaries a paper which was subsequently published in *Archæolgia*, Vol. iii. (1775), paper xxvi.[11] There he says: "The people call it *Melandra Castle;* the area of it is called the Castle-yard, and eleven fields adjoining to it are named in old deeds the *Castle Carrs*." The word *Melandra* has a curiously Greek appearance, and looks like the creation of a pedant.

Somewhat earlier in the same section of Ravennas in which we find the five names which have just been dealt with, there occur two other names which must be mentioned, namely, *Lutudaron* (other readings *Lutudaton* and *Lutudarum*) and *Derbentione*.

Several lead pigs which have been discovered in the

10. *Roman Cheshire*, loc. cit.

11. *An Account of an undescribed* Roman *Station in* Derbyshire. *By the Reverend Mr.* Watson; *in a Letter to the Reverend Mr. Norris*, Secretary. Read at the Society of Antiquaries, Dec. 10, 1772.

eighteenth and nineteenth centuries in various parts of England bear the letters LVT, LVTVD, or LVTVDARES. The last of these abbreviations [12] stands for *Lutudarensis*, which doubtless means "Of Lutudarum." The correct reading in the Ravennas citation is most probably *Lutudaro*. In the inscription last mentioned the adjective *Lutudarensis* is applied to a mine *(Metallum Lutudarense)*. The fact that far more pigs bearing the name of Lutudarum have been found in the neighbourhood of Matlock than in any other place is some reason for supposing that the name was applied to that district or to some part of it. If the ordinary view as to the identity of the place mentioned next in Ravennas be correct, the locality of Lutudarum may be regarded as being fixed with fair accuracy.[13]

It is now a very long time since *Deruentio* was first identified with Little Chester. "There is good ground," says Lysons (V., p. ccxv.), "to suppose it (Little Chester) was called *Derventio*, from the neighbouring river (the Derwent), though there were at least two other towns of the same name in the island; one near York, and a second in Cumberland. The many roads bearing in every direction to the station, the numerous remains dug up on the spot. and the exact distance from *ad Trivonam* and *Etocetum*, which Richard states *Derventio* to be in his 18th iter, put this subject out of all reasonable doubt." We now know the value of "Richard" and his statements, but the other reasons here assigned all hold good. Little Chester was in Roman times a place of considerable importance, partly because it was the meeting-point of a

12. Found on Tansley Moor, about two miles north-east of Matlock, in 1894. Dr. Haverfield (*Proc. Soc. Antiq.* xv. 188; *Vict. Hist.* p. 232) and several others have written on the subject.

13. Lysons (*Magna Britannia*, V., p. ccvii.) says "there is great reason to suppose" that Lutudarum "was the present town of Chesterfield." The reasons which he adduces in support of this idea (*ib.* p. ccxi.) are quite inconclusive.

number of roads. The neighbouring town of Derby used to be identified with *Deruentio (Derbentio)*, but besides the fact that the etymology of *Derby* is very uncertain, it may be safely asserted that if *Deruentio* was in that district it must have been the important station of Little Chester. The variant *Derbentio* need, of course, cause no surprise, as *b* was often written for consonantal *u* in later Latin.[14]

Such is the meagre information which we possess on the subject of this paper. For further knowledge we must wait till the discovery of another inscription or of some long-lost work comes to reward our patience.

W. B. Anderson.

14. This was due to changes in the pronunciation.

The Excavations at Melandra in 1905.

The Excavations carried out at Melandra during 1905 by the Special Committee of the Manchester Branch of the Classical Association, while throwing considerable light on the construction, if not on the history of this fort, have been not less fruitful in suggesting how much has still to be done before the remains can be said to have disclosed all the information to be obtained from them. In preparing this report, the opportunity has been taken of indicating the lines of enquiry which have been thus pointed out.

The best summary of the results of the excavations is obtained by a glance at the plan[1] which accompanies this article. When work was commenced in February, 1905, not only was it impossible to produce a plan of the fort, but the very existence of any remains of two of the gateways, and of the greater part of the stone rampart had yet to be determined. As will be shown presently, the exact dimensions of the structure have now for the first time been obtained.

One word is necessary as to the scale on which the plan is drawn. It is greatly to be regretted that, with a few exceptions, the plans of the Roman works in Britain are

1. See plan at the end. I wish especially to thank Mr. John Swarbrick for the assistance he has given in the preparation of this plan. He has not only spent a number of whole days with me at Melandra, making the necessary measurements, but he kindly undertook to plot the results, and has also helped me with some technical details which his professional knowledge enabled him to furnish.

drawn to nearly every conceivable scale, so that a comparison of plans, which might throw much useful light on them, is at present out of the question. Even the beautifully executed and very complete plan of Birrens, for example, seems to have a scale of its own. An attempt has been made recently to rectify this. The Society of Antiquaries have recommended the adoption of a uniform scale of 30 feet to the inch. This is the scale on which the results of the recent explorations at Silchester and Caerwent have been plotted, as well as the plans of the forts at Housesteads, Aesica and Gellygaer, and possibly elsewhere. I have, therefore, chosen this scale for the plan of Melandra, and the Committee have thus taken the first step towards making their small contribution to the "Corpus of Roman works in Britain," the need for which has been urged by Mr. Garstang,[2] and which it is to be hoped the Society referred to will undertake at no distant date.

Alas! it is only the skeleton of a plan after all, and when the beautifully complete plans of other forts are compared with it, one wonders whether the plan of Melandra will be recovered before the site is so riddled with trial excavations as to make the task difficult if not impossible. It is true that the absence of stone foundations makes the task less easy, but against this should be set the fact that the remains have lain practically undisturbed, and that the local committee have taken care to preserve them with a substantial enclosure.

In order to make clear at what point the work was taken up last year, it will be necessary briefly to record what had been already accomplished. It is curious that no reference to this fort has been discovered earlier than

2. *On some features of Roman Military Defensive Works. Trans. Hist. Soc. Lanc. and Chesh.*, 1901, vol. iii., p. 2.

1772, when a letter referring to Melandra was read at the December meeting of the Society of Antiquaries, from the Rev. John Watson, of Stockport.[3] The letter (which was illustrated by a plan of the camp, and a drawing of the Centurial Stone) reported the discovery of the site by Mr. Watson in July, 1771. He says: "The plough has not defaced it, so that the form of it cannot be mistaken." The four gates and the foundations of a building within the area he reports as "exceedingly visible." Of the defences he says: "The ramparts, which have considerable quantities of hewn stones in them, seem to be about three yards broad. On the southern and eastern sides were ditches, of which part remains, the rest is filled up."

Unfortunately, since Watson's time, much havoc has been worked, not only by the plough, but also by the cutting of drains and the deportation of great quantities of stone for building purposes. No effort seems to have been made to examine the site from an archæological point of view till August, 1899, when, after some preliminary operations, inspired mainly by Mr. Robert Hamnett, Mr. John Garstang was asked by a local committee to superintend the work of excavation. The only accounts of these excavations (lasting from August 24th to October 5th) which I have been able to find consist of a short interim report dated September 14th, 1899, and a paper by Mr. Garstang in the Proceedings of the Derbyshire Archæological Society.[4] In the former he summarizes the results of the excavations by saying that "they have so far determined the nature and positions of the corner turrets of the Roman fort, the eastern entrance with its guard chambers, a greater part of the prætorium, or some group

3. *Archaeologia* vol. iii., p. 236.

4. *Proc. Derb. Arch. Soc.*, vol. xxiii., p. 90. [The interim report appeared in the *Glossopdale Chronicle*, September 22, 1899. Ed.

of buildings of importance, and the position of the western entrance." It will appear later that a number of conjectures made by Mr. Garstang before he was called away to his work in Egypt, have since been found to be correct. It was during these excavations that a large number of the smaller finds (a list of which has been prepared)[5] were secured, though some of the most interesting and important of these objects have been found since by a small band of men working under Mr. Hamnett's direction.[6]

We now come to the work of the Committee of the Classical Association in 1905, which may be said to have been directed mainly to the solution of the following problems:—

(1) The nature of the northern and southern gateways.
(2) The exact dimensions of the fort.
(3) The extent and mode of construction of the rampart.

How far it has been possible to obtain answers to these questions the following details will show.

THE NORTHERN GATEWAY.

A slight depression in the line of the rampart on the northern side of the enclosure was the only indication of the remains of this structure when its excavation was commenced in February. A modern stone wall had to be

5. Infra: *List of Miscellaneous Objects.*

6. Messrs. J. J. Booth, S. Mellor, and W. Russell. I wish to put on record the work done by these men, because, while their methods are no doubt open to criticism, they have by their perseverance won from the somewhat intractable soil of Melandra some of the most valuable evidence of the importance of the site. The beautiful little set of Roman weights was found by Mr. Russell. Of Mr. Hamnett's work, which is beyond praise, there is of course no need to speak. It is well known that he has been the originator and guiding spirit of the work of exploration. He has himself unearthed some of the most valuable relics the site has yielded.

taken away and the superincumbent earth removed to a considerable depth before the first trace of the foundation was discovered. When, however, the outer line of the stone rampart had been struck on both sides, the position of the gate was located and gradually the foundations of the structure were uncovered. The excavations raised a number of interesting points, which it will be well to put on record.

Beginning at the western side of the gate the stone rampart was found to terminate in a stone 3 ft. square, wider than the rest of the course, and beyond this appeared a large boulder, apparently placed in position to protect the angle of the gateway. This stone is embedded in a considerable quantity of dark cement. An analysis of this cement by Mr. Francis Jones, M.Sc., has shown that it contains ferric oxide, traces of other metals, and sand. It may be mentioned here that in his section of the wall of the Roman fort at Manchester, Mr. Charles Roeder marks a course of "brownish-black Roman mortar."[7]

The plan shows that this gate was just as deeply recessed as that on the east, but though the masonry is of excellent character, what remains is not quite so massive. The general plan appears to have been the same at both entrances. The foundations of the western guard-chamber (if such it be) are nearly complete. Immediately to the west of it, instead of the clay rampart, was found a mass of charcoal about two feet deep, containing fragments of pottery, and the floor of the chamber also showed traces of charcoal. This is, however, a common feature of these chambers.[8] The natural inference is that we have here

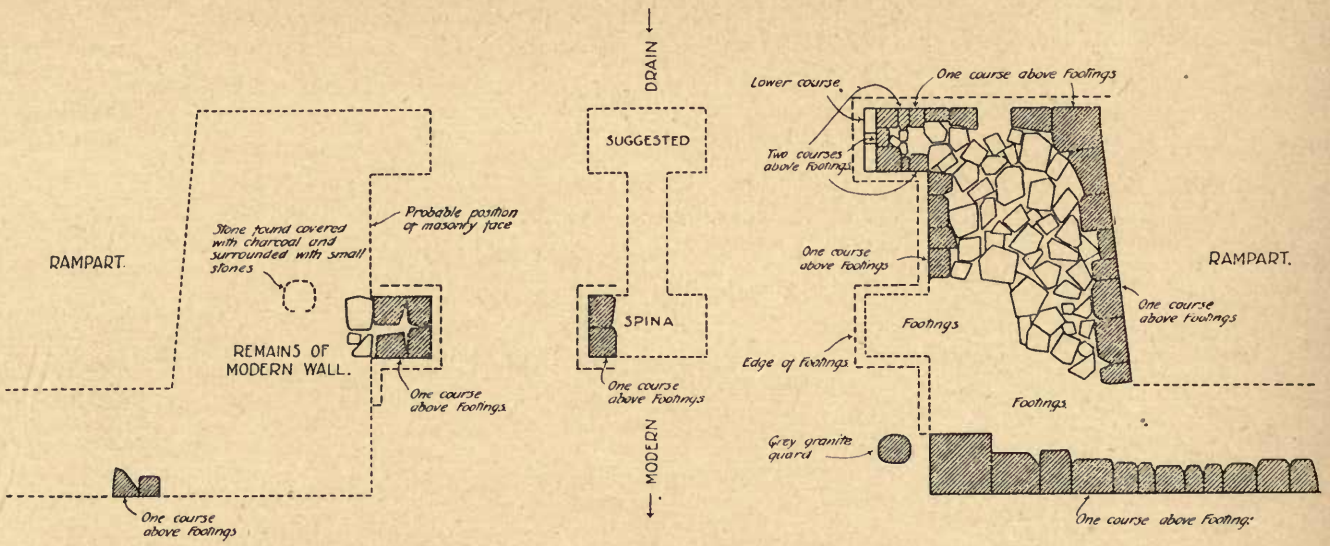
7. *Roman Manchester*, p. 8.

8. See Ward: *The Roman Fort of Gellygaer*, p. 40. (I have to thank Mr. Ward for kindly giving me permission not only to quote from his book, but also to make free use of his illustrations). See especially also on this point Mr. J. P. Gibson's account of his excavation of the Mucklebank Turret. *Arch. Aelian.*, vol. xxiv., p. 16.

Foundation of West End of North Gate from the North East.

To face p. 27

NORTH GATEWAY.



SCALE OF FEET

Inches 0 0 5 10 15 20 Feet

MEASURED BY
F. A. BRUTON M A.,
AND
JOHN SWARBRICK A.R.I.B.A

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the remains of a large fire,[9] but the bank has not yet been cut back sufficiently to show how far the charred remains extend. As the section has weathered back during the winter, the black layer has only come out more distinctly.

The floor of the chamber consists of irregular stones and clay, and there is no indication of an entrance on either side. The faced stones of its shell that still remain are 18 inches long, set back six to eight inches on a flag foundation. Of the outer of the two bases of the pilasters on this side nothing remains but the flag foundation, which is about 3 ft. 6 ins. square; that is, much larger than at some other forts, indicating what stately structures the Melandra gates must have been. The inner one has two courses of dressed stones *in situ* (the upper recessed), and the accompanying photograph, though taken in an unfortunate light, will serve to show the nature of the work. The photograph is taken looking inwards, towards the camp, in a westerly direction. In the foreground to the right, part of the flag foundation of the outer pilaster can just be made out, and the masonry of the inner pilaster is well shown, as well as the floor or core of the chamber in rear. The first course of stones has a depth of 1 ft. 1½ ins., the second of 10 inches. The pilaster is very well squared, and (just as would be done in work of the present day) the straight joint has been broken on both sides. The style of the work leaves no doubt that both arches were of a substantial character, though, as the plan shows, the inner part of the *spina* is lost. It was not considered worth while to show in the plan the irregular stones lying about between the chambers.

Near this pilaster, evidently embedded in the road,

9. Rœder searched in vain for evidences of a conflagration at Manchester. *Roman Manchester*, p. 56.

were found the bases of two columns. These are shown in the photograph resting on the bank above. They are of much better workmanship than those found at Brough,[10] and bear a striking resemblance to those discovered *in situ* in the building called the Prætorium at Borcovicium.[11] Each consists of two recessed *tori* on a square plinth of 18½ in. side. It requires no stretch of the imagination to suppose that these once formed the bases of columns in the colonnade of the headquarters building at Melandra. The other objects found in excavating the gateway include several voussoirs, one of excellent workmanship, pieces of other columns of inferior style, and fragments of millstones and of ornamented "Samian" and other ware. The massive imposts which are such a feature of the eastern gate, are entirely wanting at the northern entrance.

It may be mentioned here that in the course of the excavations a number of the earlier (beehive-shaped) querns have been thrown out. I have collected no less than seven of these, found at Melandra (besides base-stones), including at least three different patterns; we have had these photographed, and Professor Boyd Dawkins has dealt with them in his article.[12] The fragments of tiles were not so numerous as at the other gates, *e.g.*, the west gate, where the road was strewn with fallen roof-tiles.[13] The road passing through the gate was found to be in excellent preservation, having a hard surface of concrete, raised to the level of the top of the first course of dressed stones.

One other find may be mentioned. On one of the

10. *Roman Brough. Proc. Derb. Arch. Soc.*, 1904, p. 19.

11. *Arch. Aelian.*, vol. xxv., p. 270. A beautiful photograph of the Prætorium, showing the stones *in situ*, faces p. 193.

12. See p. 8. Nearly all these querns are broken in two.

13. Hamnett, *Proc. Derb. Arch. Soc.*, vol. xxiii., p. 100.

stones a figure was found rudely cut in outline with a pointed tool. I should not mention this if it had not happened that a very similar piece of work was found at Aesica, a photograph of which is given in Mr. Gibson's report.[14] When placed at a proper angle to the light the Melandra figure comes out fairly distinctly. Canon Hicks suggested that, rude as it is, it may have been originally intended to represent the god Mithras. The Aesica figure, which is executed in exactly the same style, has been conjectured to represent the god Mercury, as it seems to bear something resembling the *caduceus*, and there is a suggestion of wings above the head. The workmen at Aesica gave it the name of "Ould Charlie."

Passing to the other side of the gate, it will be seen that the guard chamber there (if one existed) is not so well indicated, though the outer pilaster appears as an exceedingly well squared block of masonry. One detail, however, seems worthy of mention. Inside the wall was found what may be a small hearth, carrying several inches of charcoal. If this is a hearth (which is, however, quite uncertain) it would appear to settle the question as to whether the lower portions of the flanking towers were used at all, or whether (as they are so small) they merely served as supports to the upper part of the towers.

We now come to one of the most interesting points under discussion. In describing the eastern gate, Mr. Garstang said: [15] "The bed of the central *spina*, which supported the weight of the double span in the centre, alone was difficult to locate." An examination, in 1905, of the ground between the towers of the north gate brought to light part of the base of the central pier. Unfortunately,

14. *Arch. Aelian*, vol. xxiv., p. 64.
15. *Proc. Derb. Arch. Soc.*, vol. xxiii., p. 94.

the cutting of a modern drain had removed a portion of this base. But for this accident it would now be possible to finally answer the question whether the arches of the Melandra gates were equal. In his interim report, Mr. Garstang hazards the suggestion that possibly the eastern entrance was "surmounted by two *unequal* arches, the larger for road traffic, the smaller for foot passengers." He states that this is indicated both by excavation and "by the trend of the street crossing the interior." He repeats the statement in his paper on Melandra (p. 95), and again, in his paper on Roman Military Works (p. 12), he speaks of "some suggestion of unequal arches."

The first question that arises is: What were Mr. Garstang's grounds for the theory? In cutting one of the sections we discovered in 1905 that the foundations of the eastern gate (which we supposed had been fully examined), went one course deeper than Mr. Garstang had thought. We do not know if his conjecture in regard to the east gate was based upon the position of the irregular stones lying between the guard chambers, and which he very likely had no time to examine. I have myself had these stones lifted; they appear to be lying loosely about and to have no connection with the foundations of a *spina*, which (as shown by our work at the north gate) must lie nearly two feet deeper. It was only when the draft of this report was written that I found on enquiry that the excavations at this point had never been taken deeper. It is possible the evidence required may yet exist, but there is no time to obtain it before publication. Mr. Garstang first adduced Lincoln as a parallel case (p. 95); but in a footnote, apparently added later, he says: "The Lincoln gate is not really analogous." [16] The other parallel instance adduced

16. The great inequality of the arches of the Lincoln gate would surely prevent its being used as a parallel.

is that of Hard Knott.[17] Lastly, reference is made to Mr. Haverfield's mention of a similar construction in some of the smaller Roman forts of Northern Africa.[18]

Let it be said clearly that, as far as the eastern and western gates are concerned, the question is still an open one, which may yet be settled by a fuller excavation of the former. Fortunately, we discovered part of the central pier at the north gate, and there is little doubt that the arches at that entrance were equal. At all events, we have there the exact width of one span, and, assuming that the door jambs (if such existed) rested on the first course (and this is rendered probable by the fact that the road seems to have been made up to this level), the exact width of the opening would be 7 ft. 10 in. Neglecting the door jambs the space might be 8 ft. 6 in. This is almost precisely the width assumed by Mr. Garstang for his wider arch,[19] the calculation being made from one of the voussoirs found, which indicated a span of eight feet. We are then left with a little over 13 feet for the other span and the central pier. As the pilasters are exactly equal on both sides, it is difficult to see why we should assume that the other span was smaller. Of course one arch may have been *built up*, leaving only a small arched door for entrance, but in that case the whole idea of adducing Lincoln and Hard Knott as parallels falls to the ground.[20] In both those cases the inequality is shown by foundations.

17. The inequality of the arches there worked out in one instance to 3 inches! (9ft. 11in. and 9ft. 8in.). In two other gates, however, Mr. Dymond reports as much as 2ft. 11in. and 3ft. 7in. respectively.

18. In his own very interesting account of Melandra (*The Victoria History of Derbyshire*, vol. i.), Mr. Haverfield states that the arches were reported to be unequal at the western gate also. Here *western* has evidently been printed for *northern*. (The northern arches *were* at first supposed to be unequal). Mr. Hamnett, who excavated the western gate, tells me (March, 1906), that he found no such indications at that entrance.

19. See drawings. *Proc. Derb. Arch. Soc.*, vol. xxiii., p. 93.

20. It is clear, however, from Mr. Garstang's plan (*Some Features of Roman Military Defensive Works*, Plate iv.) that he did not intend this.

If we are discussing whether one arch was built up, and pierced by a small door, the only possible evidence of a construction of that kind left now must be derived from the voussoirs. Apparently Mr. Garstang rested his theory upon these. He found one voussoir, which gave a span of eight feet, and he assigned this to the larger arch.[19] Three others gave spans respectively of 2 ft. 6 in., 2 ft. 3 in., and 2 ft. 1 in., and these he conjectured might belong to a door and a smaller arch, though this arch and the central pier had somehow to fill a span of over 13 feet. Now we have turned out a number of voussoirs at the northern gate, and their evidence is equally conflicting. They vary greatly in size, and in quality of workmanship. By far the best, which is a well worked piece of gritstone, and which I have measured several times, gives a span of just under 14 inches. A keystone, not so well worked, gives the same span. A much larger voussoir, roughly worked, gives a span of 21 inches. There are others, but so far I have not found one belonging to the 8 foot span. Very likely one may be there, but the voussoirs would probably be carried off. Voussoirs have also been found at the southern gate, which it would be impossible to connect with the span at that entrance. A rough measurement shows that one of these also gives a span of 21 inches. Another indicates a narrower opening. It is perfectly evident that these voussoirs do not belong to the main arches at all. They point to the existence of windows or similar openings. Moreover, as we find bases of columns in the road near the north gate, which may have come from the central building, it is possible some of the voussoirs came from that building also. Perhaps a careful examination of all the voussoirs by an expert might lead to some conclusion. But there seems little reason to doubt that the two main spans of the original structure were equal,

and about 8 feet wide. We should thus be left with about 5 feet for the central pier (*i.e.*, not quite twice the width of each of the side pilasters), and this is apparently the width of the central pier at Aesica and Borcovicium.

Assuming that we have here the standard width of the Melandra gates (viz., about 8 ft.), this corresponds pretty nearly with those of Chesters and Borcovicium.[21] It is, however, less than that of the Gellygaer gates, which measure 9 ft. 6 in.[22] The gates at Aesica were wider still. As far as excavation can show, it would appear that there was in these cases no central *spina*, but that there were two central piers. The argument from analogy would seem to point in the same direction. I can only find proper *spinae* represented in two cases, viz., the west gate at Silchester and the south-west gate at Gellygaer. They are apparently wanting (to mention a few cases) at Chesters, Borcovicium, Aesica and Lambessa.

No trace has been found at Melandra of either the sills or jambs of the doors, which have of course been discovered at other forts. In several cases where they are present the wheel ruts are clearly shown on the sills of the gates, and their gauge is a matter of interest. The wheel ruts still to be seen on the sill of the east gate at Borcovicium are about eight inches deep, and the gauge is given by Bruce [23] as "a little more than four feet six inches and a half." The gauge shown by the ruts on the Roman road through Delamere Forest, according to the careful measurements of Watkin,[24] is "four feet

21. As far as I can make out from the plans. I have not the figures by me. I remember distinctly that the first thing that struck me on looking at the gates at Borcovicium was the narrowness of the entrance.

22. As mentioned below, the flanking turrets at Gellygaer were also much larger than at Melandra.

23. *Handbook to Roman Wall*, 1895, p. 142.

24. *Roman Cheshire*, p. 37. See also *Proc. Lanc. Chesh. Ant. Soc.*, vol. iii., p. 187.

six inches, measuring from the centre of the bottom of each rut." On the supposed Roman road crossing Blackstone Edge, Watkin (and also Dr. March) made out no less than five parallel pairs of ruts, each giving a gauge of "four and a half feet."[25] On the sill of the south-west gate at Gellygaer, Ward found "two worn hollows, about five feet from centre to centre, made by the passage of wheels."[26] In the place already referred to above, Bruce also mentions the similarity of the gauge of the wheel ruts which anyone who has visited Pompeii will remember as so clearly shown in its streets. I have no measurement of this gauge, and the only other reference to it that I have been able to find is in Baedeker's *Southern Italy* (1900, p. 123), where mention is made of "deep ruts in the causeways, not more than four and a half feet apart." The correspondence of these measurements, recorded independently, and at places so far apart, is striking. It is worth while comparing them with the gauge of our English railways and tramways, which is regulated to four feet eight and a half inches, measuring to the faces of the flanges.

Another feature is wanting which is common at the gates of the forts on Hadrian's wall. There it is usual to find distinct traces of at least two periods of occupation. Unless in the fact that parts of columns, etc., seem to have been used for making the road last constructed, we have so far no evidence of the kind in the stone remains at Melandra.

Finally, to return for a moment to a question raised before—were the bases of the towers that flanked the gateways used as guard chambers, or were they closed? Here analogy would certainly suggest that they were so

25. *Roman Lancashire*, p. 61.
26. *The Roman Fort of Gellygaer*, p. 40.

used. Anyone who has visited other forts would expect that this was the case. The presence of what might be a small hearth in one of them points in the same direction. Whatever may be the answer to this question, the space inside must have been very limited. The outside measurements of these towers at Melandra vary from 8 ft. 5 in. to 9 ft. 11 in. Even if the walls were only two feet thick (and at Gellygaer they are thicker than this), the inside dimensions would be not more than 5 ft. 11 in. and 4 ft. 5 in. respectively, so that the rooms would be mere cells. (As will be seen in a moment, this was not the case at the southern gateway.) At Chesters, Gellygaer, Borcovicium, and other places where guard chambers actually existed, the inside measurements vary from 8 to 12 feet.

There is one other point. If we may draw an analogy from the angle turrets at Melandra, there seems no doubt that the lower chambers of these had no entrance from the outside, and can only have been used, if used at all, as storerooms entered from above. Mr. Garstang (who excavated the two best-preserved towers) says expressly[27] that "in no case had a tower, whether in a corner, or flanking a gate, a masoned floor at the ground level, nor any definite appearance of an entrance;" and he goes on to refer to similar cases on the German *Limes*, where the turrets are conjectured to have been provided with a useful chamber in the upper storey only, which might be entered directly from the sentry walk on the rampart. We need not, however, go so far afield as the *Limes* for an illustration. The towers at Hard Knott, with outside measurements varying from 13 ft. 3 in. to 8 ft. 8 in. had no entrance on the ground floor, but

27. *Proc. Derb. Arch. Soc.*, vol. xxiii., p. 92.

evidently had upper storeys.[28] It is quite possible that the upper parts of these turrets were largely constructed of wood. Vitruvius expressly recommends this as a precaution: "so that, if the enemy obtain possession of any part of the walls, the wooden communication may be promptly cut away by the defenders, and thus prevent the enemy from penetrating to the other parts of the walls without the danger of precipitating themselves into the vacant hollows of the towers." [29]

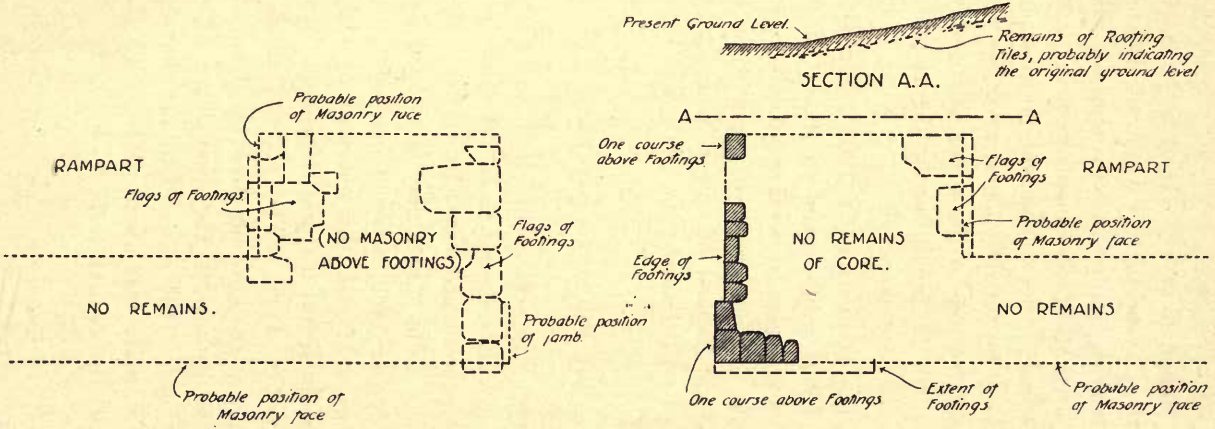
To sum up, the excavations in 1905 (coupled of course with those of 1899) would seem to show that the three double gateways at Melandra were massive stone structures consisting of two double arches of equal span springing from six piers and flanked by towers which may or may not have had a useful chamber on the ground floor.

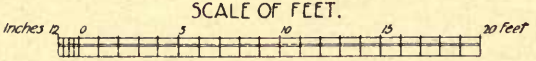
THE SOUTHERN GATEWAY.

Mr. Garstang's conjecture that both the northern and western gates would be found to be "similar in plan" to the eastern entrance turned out to be correct. He proceeds (*loc. cit.*, p. 95): "The fourth may have been smaller and spanned by a single arch, or even enclosed in a wooden frame." The excavation of this gateway, of which, again, no indication existed but a slight depression in the bank, was commenced in April. The plan is given opposite. It will be seen that the entrance took the form of a single gateway, flanked by towers, the dimensions of which are greater than those of the other flanking chambers. The width of the gateway was about 10 ft., and the outside measurement of the towers is 12 ft. by 11 ft. 3 in. The

28. *Cumb. and Westm. Antiq. and Arch. Soc. Proc.*, vol. xii., p. 383.
29. Vitruv. *De Architect*, i., 5.

SOUTH GATEWAY.





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M.J. del.

ground floor of these is paved with large slabs, which are roughly indicated to scale in the plan; at the other gates no such paving is seen, the interior appearing to be a mere core. No bold projecting pilasters are seen here; there is merely a slight projection of two stones at the outer side, as if to receive a light arch. Fewer voussoirs were found, but this is the side from which it would be most easy to carry away stone. The indications are not strongly in favour of the existence of a stone arch at all. The form of the gate can only be a matter of conjecture. While the road that passes through the gate (the road is in excellent condition) was being uncovered, an iron bar five feet long was found lying across it between the guard chambers. Unfortunately it was not possible to preserve it intact. The only other finds were a few voussoirs, and a chamfered impost measuring $8\frac{1}{2}$ by $6\frac{1}{2}$ by $2\frac{1}{2}$ inches.

One of the most interesting facts brought out by the excavation of this gate was first pointed out by Mr. J. H. Hopkinson. In the vertical section of the bank that rested against the inner face of the eastern guard chamber (the clay rampart clearly came right up to the tower walls at this gate) a line of fragments of red tile was distinctly shown sloping gradually downwards towards the road. Assuming (as is most probable) that this line represents the original slope of the bank, upon which the tiles fell as the building was demolished, it shows clearly that right and left of the gateway inside the fort, the bank sloped gently upwards, and so served as an approach to the rampart walk. This was also the method of approach to the rampart walk at the Saalburg.[31] At Gellygaer, where the earth would be too loose to form a bank, the rampart walk was approached precisely at this point by

31. *Das Römerkastell Saalburg*, von A. von Cohausen und L. Jacobi, p. 24: "ein Wehrgang, zu welchem eine sanfte Böschung hinaufführte."

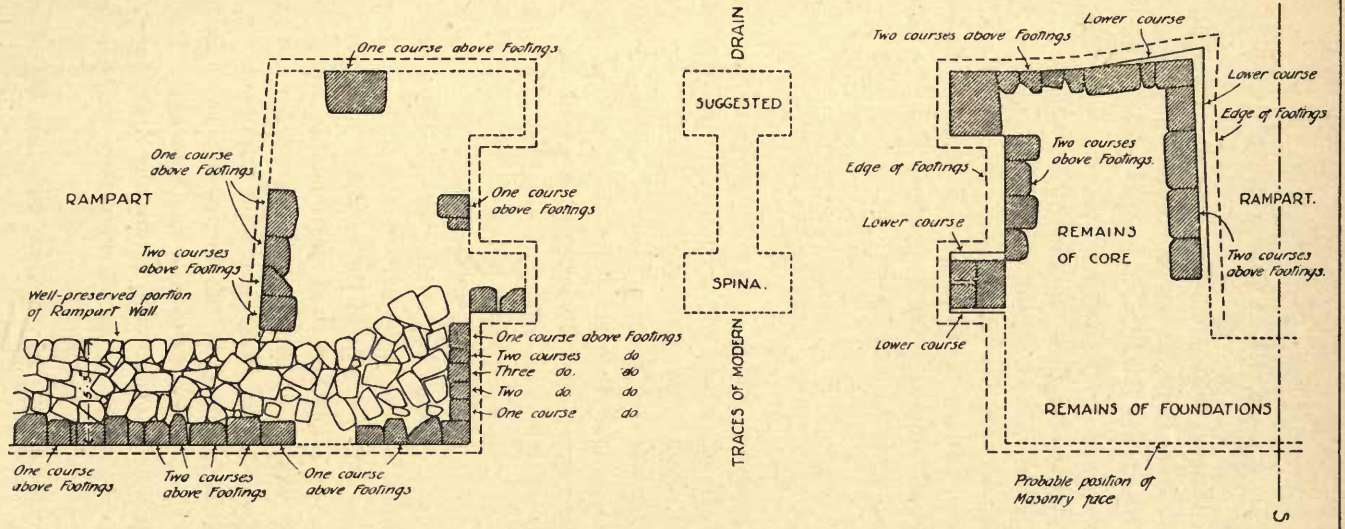
means of steps, which may be seen on the plan. When the final measurements at Melandra were being checked early this year (1906), the bank was found to have weathered back, and this red line was so regular and so clearly defined that we measured the angle of the slope in order that it may be shown with the plan of the gate. The line may also be clearly seen in the section north of the east gate, where I have myself several times found the dressed stones, lying, apparently just as they had fallen, upon the broken tiles.

THE EASTERN GATEWAY.

This gateway, which is by far the best preserved of all, and gives indications of having been the most massive, was excavated by Mr. Garstang in 1899. As no detailed plan of it has ever been published, a measured plan has now been prepared on the same scale as the other plans, partly for purposes of comparison with the northern entrance, which it so strongly resembles (the latter was a few inches wider), partly because the plan shows in a striking manner on the southern side the way in which the rampart joined up with the gateway tower. No excavation has been done here except such as was required to obtain clean sections of the rampart on either side. In the course of cutting these sections, as mentioned elsewhere, it was found that the foundations of the gate went one course deeper than had been supposed. A curious irregularity appears at the north-western corner of the plan, both in the courses and the footings. I compared the plan with the gateway before the drawing was inked in, and the twist in the foundations exists exactly as shown.

The remains of the western gate are so broken and

EAST GATEWAY.



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fragmentary, and are so constantly under water, that a reliable plan of that entrance can scarcely be hoped for. Such measurements as have been taken, however, indicate that it was similar to the other double gateways.

DIMENSIONS OF THE FORT.

The uncovering of the north and south gateways made it possible for the first time to obtain the exact dimensions of the fort. Turning to the plan, it will be seen that the enclosure is almost a rhombus, with the corners rounded off, as was usual. As is explained elsewhere,[32] the departure from the rectangular shape is no doubt due to a slight error in setting off the right angle in the centre at the outset. It will be seen that the plan of Gellygaer received a similar twist in the opposite direction. Apparently, the angle was only set off once, after which measurements were made with ten-foot rods *(decempedæ)*, along and parallel to the two base lines at right angles. This explains the repetition of the error throughout. Curiously, another error appears in both plans. If the front line of the central building be produced, it will be found in each case to pass out at about the centre of one of the western gates.

The orientation of these plans is a matter of interest. When forts lay along a frontier, of course the lie of the fort would be determined by the lie of the frontier. In the majority of other cases, so far as I can find, the *diagonals*, roughly speaking, are directed towards the cardinal points. Of course this may be purely a matter of chance, due to the lie of the ground.[33]

The exact length of Melandra, measuring to the outer

32. See p. 67.

33. Vegetius (*De Re Milit.*, 23), is explicit on this matter: "*Porta autem quae appellatur praetoria aut orientem spectare debet, aut illum locum qui ad hostes respiciet.*" Why *orientem*, I wonder?

faces of the stone rampart, along a line perpendicular to the line of the south wall is 398½ feet; the breadth, measured along the centre of the *Via Principalis*, also to the outer line of rampart is 368¼ feet. The area covered by the fort, making allowance for the irregularity of the shape, but disregarding the rounding off of the corners, is 16,265 square yards, or 3·36 acres approximately. Now that the exact dimensions are known, it will be interesting to compare them with those of other forts, excluding, of course, those that are out of proportion larger than Melandra. These comparisons are more interesting if the forts are taken in groups. Those to which we naturally turn first are the neighbouring forts at Manchester, Brough, and Castle Shaw, and the little earthwork at Toot Hill. The dimensions in feet, as reported, are as follows:—

	Length.	Breadth.
Mancunium[34]	525	420
Melandra	398	368
Castle Shaw[35]	363	330
Brough[36]	336	275
Toot Hill[37]	198	145

The comparison is of course only a rough one, as in two cases an earthwork has been measured.[38] The fort at

34. Rœder. *Roman Manch.*, p. 49. Watkin's numbers are 490 and 440. *Roman Lanc.*, p. 92.

35. Aikin. *Desc. of Country round Manchester.*

36. *Proc. Derb. Arch. Soc.*, 1904. *Rom. Brough.*, p. 10.

37. Measured by Mr. T. C. Horsfall and myself in 1905. Our measurements agreed exactly with those made by Watkin and Earwaker in 1874. The figure is irregular and these numbers indicate greatest length and breadth of vallum.

38. In these quotations of areas, I am uncertain in some cases whether the rampart is included. Where this is of clay, the difference may be considerable. Aesica, with its earthen rampart, is a case in point. When the above was in type, I found that the areas assigned to Aesica and Vindobala did not quite agree with Mr. Haverfield's figures in his article in *Social England*. The areas given above are taken from Mr. A. E. Wallis Budge's list in his *Roman Antiq. at Chesters.*

Ribchester was larger[39] (about 615 feet by 440), approaching more nearly in size to several recently excavated on the Antonine Vallum. Of the forts on the wall of Hadrian, while several are less than half as large as Melandra, a number are very nearly the same size, as the following table will show (Ribchester and Manchester are included for purposes of comparison):—

	Approximate area.
Ribchester	6 acres.
Amboglanna, Cilurnum and Tunnocelum	5½ acres.
Manchester and Borcovicium	5 acres.
Segedunum, Vindobala, Procolitia, Magna and Pons Aelii	3½ acres.
Melandra	3⅓ acres.
Vindolana	3¼ acres.
Aesica and Gabrosentis	3 acres.

Finally, two forts, one in the north and one in the south, both of which resemble Melandra in several points, are of almost exactly the same size. The figures are:—

	Length.	Breadth.
Gellygaer[40]	402	385
Melandra	398	368
Hard Knott[41]	375	375

When we turn to the continental forts we find (I think) none whose dimensions correspond to those of Melandra. Some have an area of between one and two acres, others range from 4½ to seven acres and upwards. Thus, of between thirty and forty Kastelle that have been excavated

39. Garstang. *Roman Ribchester.* (Preston: Toulmin, 1898.)
40. Ward, *op. cit.*, p. 8
41. *Proc. Cumb. and Westm. Arch. Soc.*, vol. xii.

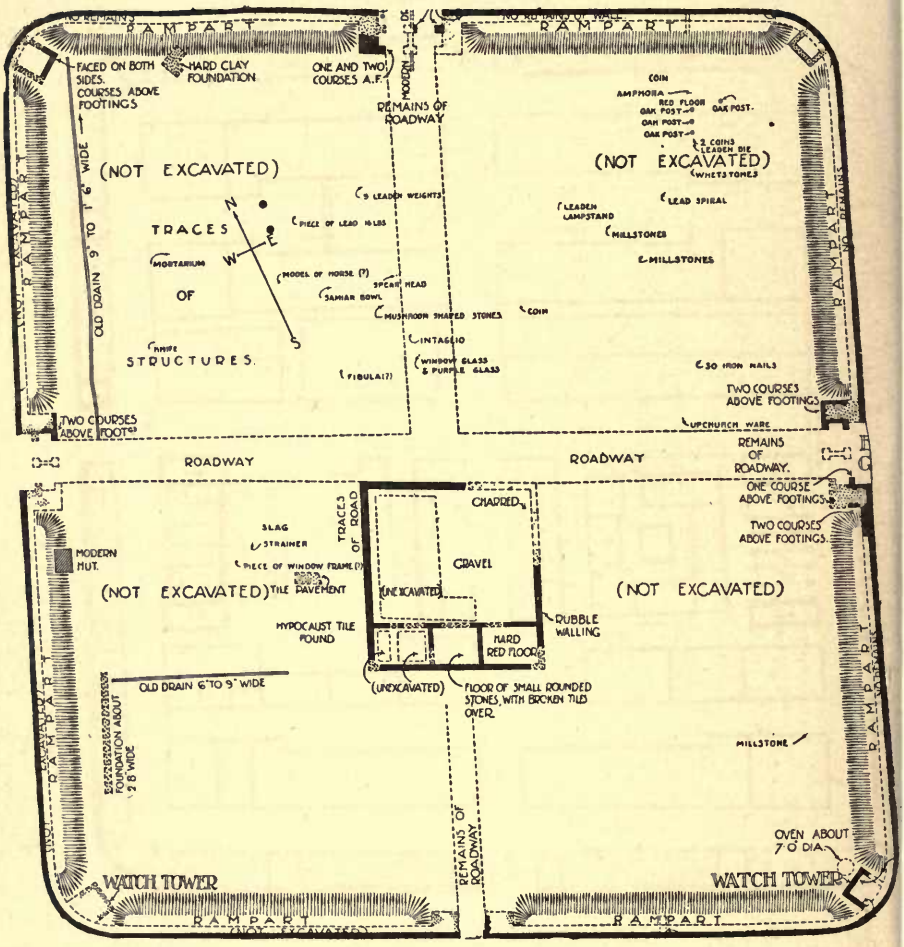
on the Ober-germanisch-raetische Limes nine have an area of between 6,000 and 7,000 sq. yds., ten have an area of between 24,000 and 26,000 sq. yds. (Melandra would come half-way between the two groups), the rest are much larger.

The variation in the dimensions of the forts suggests the question as to how far these were determined by the number of men to be accommodated, a point which it would be out of place to discuss here. Apparently each of these forts was garrisoned by an *ala* of cavalry or a cohort of infantry,[42] both auxiliary troops. There is reason to suppose that the forts at Manchester and Melandra were both garrisoned by infantry. The cohort of Tungrians at Borcovicium is supposed to have numbered 1,000 men. Mancunium covered the same area as Borcovicium. It is probable that the garrison at Melandra did not much exceed half that number.

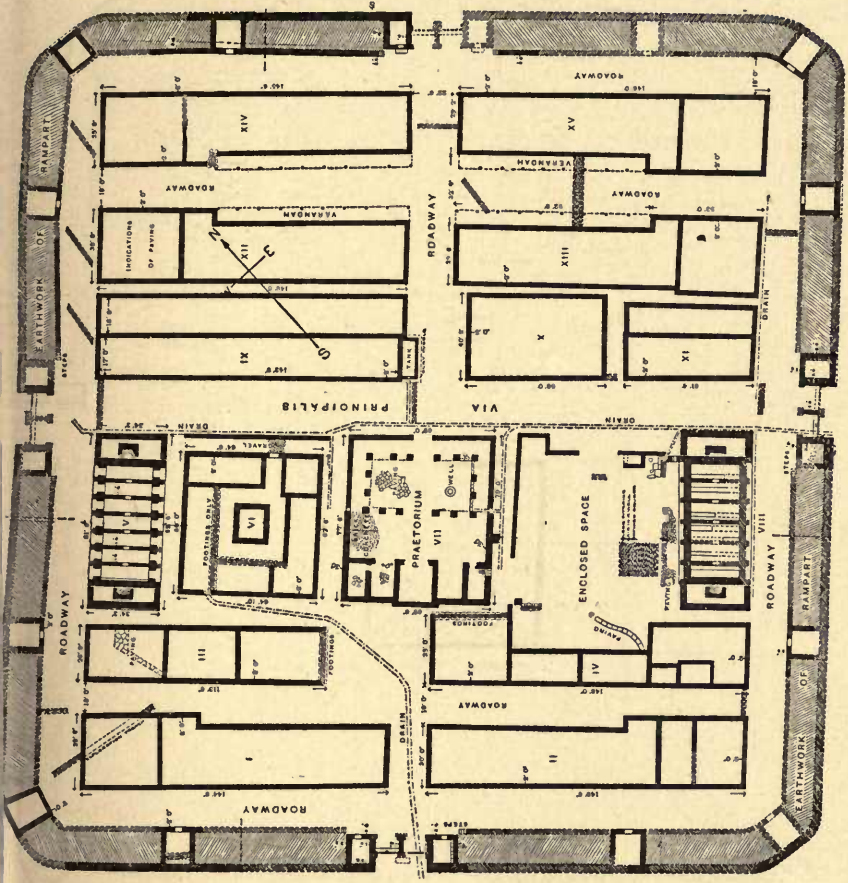
Without doubt the fort that most resembles Melandra is that of Hard Knott. The plans are almost identically the same and apparently at both stations all but the official buildings were of wood. Unfortunately, a plan of Hard Knott to the standard scale has not been published. I have, therefore, for purposes of comparison, placed the plans of Melandra and Gellygaer,[43] both drawn to the same scale, on opposite pages. An examination of the two plans side by side will show the striking points of resemblance, and perhaps it is not unreasonable to assume (at least until the further excavation of Melandra has disclosed the plan of the interior) that the arrangement

42. Except the smaller forts. Mr. Haverfield estimates that some of the smaller forts on the Danubian frontier may have been held by as few as 50 men under a *beneficiarius*. (*Athenæum*, October 22nd, 1892.)

43. As explained above, I am indebted to Mr. J. Ward, F.S.A., for permission to reproduce the plan of Gellygaer from his memoir on that fort.



Roman Fort: Melandra.



Roman Fort; Gellygaer.

of the buildings was not unlike that of the southern fort. One point in which the two have a striking resemblance, is the central position of the *Via Principalis*.

As the details of the interior of Melandra have still to be obtained by excavation, the numbered squares (of 20 ft. side), into which the area has been divided, have been laid upon a separate sheet, so that, as excavations proceed, the results may be added from time to time, pending the publication of a more complete plan of the fort.

THE RAMPART.

We now arrive at one of the most interesting questions which the excavation of Melandra has raised. In his interim report, referred to above, Mr. Garstang said: "The rampart surrounding the fort is a feature of great archæological interest, and apparently of unique type." In his paper on Melandra he describes it as "a form of rampart unusual in Roman works." Nothing has transpired that would tend to qualify this description, and in entering upon a short discussion of the subject it is better to state at the outset that the mode of construction of the Melandra rampart remains an unsolved problem. So far no other fort fully excavated shows a similar defence, though Mr. Haverfield kindly tells me (under date December 27th, 1905) that "the rampart now uncovering at Newstead, near Melrose, seems to have had a stone facing, some rubble, and a lot of clay, but its details are not yet clear." [44]

Mr. Garstang's description of the Melandra defence is

44. The excavations at Newstead are not yet completed. Dr. Anderson has, however, kindly sent me the information that this station, the largest as yet investigated in Scotland, was "defended by a great earthen mound some 40 feet in width, faced with a wall 8 feet thick, with three parallel lines of ditches."

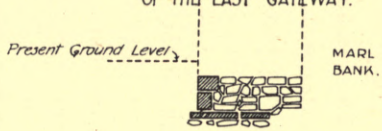
as follows: "The outer shell of masonry has a thickness of little more than a foot, which the backing of rubble increases to four or five feet at its lowest course. With the base of the mound included the width is increased to twenty feet or more." (p. 92). This account was accepted from Mr. Garstang by Mr. Haverfield in the *Victoria History of Derbyshire*[45] (p. 212), with the addition of the remark that it appeared to be an earlier type of rampart than the more usual wall of stone such as was found at Brough. In what follows it is important we should be clear as to what is meant by "rubble." In two standard authorities I find the following statement: "*Rubble walling* is either coursed or uncoursed." In either case the term is used to denote, not a heap of loose material, but a solid wall.

In the summer of 1905, a number of cuts were made into the rampart under Prof. Conway's direction. These cuts, several of which are marked on the plan, are of interest, as showing the excellent construction of the clay bank, which contains no stone whatever. They do not, however, make clear any other point. A number of sections have also been cleared near the gates, and these are more instructive.[46] The best undoubtedly are those immediately north and south of the east gate. The first of these is perhaps the more interesting, but, unfortunately, while the clay bank there is well preserved, the wall has been almost entirely removed. Much later in the year, a portion of the wall that still remains to the

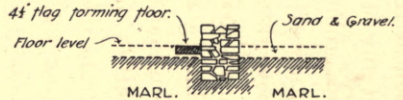
45. Mr. Haverfield has kindly given me permission to make use not only of this article, but also of his valuable notes on the fort at Gellygaer.

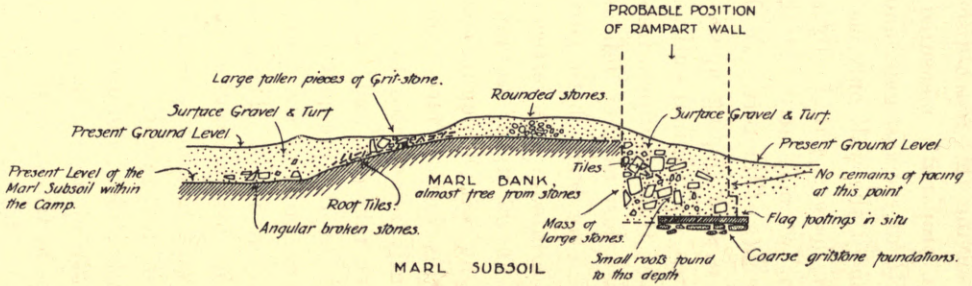
46. It may be as well to state that what is said of these sections refers to their appearance when freshly cut. When the section is much weathered, the details may be obscured. This statement may be necessary, in case anyone should compare the descriptions given with the sections as they appear now.

FRAGMENT OF RAMPART WALL ON THE SOUTH SIDE OF THE EAST GATEWAY.



SECTION THRO' ONE OF THE WALLS OF THE CENTRAL BUILDING.

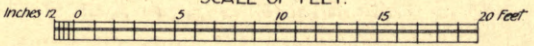




TYPICAL SECTION THRO' RAMPART.

NOTE.
THIS SECTION IS TAKEN ALONG LINE MARKED 'S–S' IN THE PLAN OF THE EAST GATEWAY.

SCALE OF FEET.



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south of the east gate was carefully cleared, and it is possible that an examination of the section at this point, where the wall is better preserved than at any other part, may assist in solving this much-discussed problem. We have, therefore, prepared a measured section of the rampart to the *north* of the east gate, and above this we have placed a section of the wall only, as it may now be seen to the *south* of the east gate.[47] By combining these two sections, I think we may arrive at the original construction of the defences of the fort. To the left of the section the clay bank is seen sloping upwards from the interior of the camp area, its original outline being indicated by the line of broken tiles, on which dressed stones are found, lying apparently just as they fell as the tower was demolished. The clay bank, both north and south of the gate, seems to terminate in a vertical face. On the south side, as shown in the upper section, the wall, consisting of an outer facing, with a roughly coursed rubble backing, runs back to this vertical face. On the north side, the wall is apparently represented by the footings only, the rest having been removed, and a great part of the débris there, as shown by the presence of tiles, may have been derived from the ruins of the tower. The remainder of the section explains itself. The general inference is that the fort was defended by a wall a little over five feet thick, which served as a revetment to a clay bank which ran back some fifteen feet further.

Turning to other forts, and disregarding for the moment the case of Newstead, as still *sub judice*, we find somewhat similar features at Gellygaer and at the Saalburg, on the German *Limes*. The outer defence of Gellygaer consists

47. I think it should be said that this wall has not been exposed down to the foundation. The foundations are inserted exactly as they are found to exist elsewhere.

of a bank of earth about thirteen feet wide, faced on the outside with a four-foot wall, on the inside with one somewhat thinner.[48] The inner retaining wall was probably necessary there on account of the looser nature of the earth. No inner retaining wall has been found at Melandra, though Mr. Garstang mentions that "a row of flat stones placed vertically, forty feet within the outer wall may possibly have been designed to assist the alignment and construction."[49] The defence of the Saalburg fort is described[50] as consisting of "a battlemented wall which served on the inner side as revetment to an earthen wall. . . . The rampart, $2\frac{1}{2}$ metres high, had a fortified platform 3 metres broad, up to which a gentle incline led."[51] The Saalburg wall was about 1·9 metres thick.

There is one other possible parallel to the Melandra rampart, but it is in the defences of a city and not a fort. The wall of the Roman settlement at Cirencester, known as Corinium or Durocornovium, may still be seen on the bank of the little river Churn, that flowed round and possibly through it. Leland (V. pp. 64, 65) speaks of "the cumpace of the old waul" as "nere hand ii myles," and adds "A man may yet walking on the bank of Churne evidently perceyve the cumpace of foundation of towers sumtyme standing in the waul." When the Bristol and Gloucestershire Archaeological Society visited the site some years ago (*Proc.* II. pp. 13, 14), there was still to be seen "a perfect earthen bank which supported the Roman wall." A correspondent informs me (April, 1906) that this remains, and that in the course of the last three months draining operations have uncovered another por-

48. *Rom. Fort of Gellygaer*, plate iii., p. 32.

49. *Interim Report.* We have not seen these stones.

50. *Das Römerkastell Saalburg.* A von Cohausen and Jacobi, p. 24.

51. See p. 37 and note 31.

tion of the wall. In describing these defences in his "*Roman Britain*" (1903, p. 179) Conybeare says: "The rampart consisted first of an outer facing of stone, then of a core of concrete, and finally an earthen embankment within, the whole reaching a width of at least four yards." It is interesting to remember, in comparing this with Melandra, that two at least of the Cirencester inscriptions seem to belong to the end of the first or the beginning of the second century, and that the coins found correspond very nearly with those found at Melandra. (Same *Proc.* XX. p. 262.)

In attempting to decide if we have at Melandra a parallel to either of these constructions, and especially to that at the Saalburg, it will be better to state at the outset what has actually been found there. The foundations of the outer shell of the rampart rest upon the subsoil of marly clay. Near the east gate they go down about two feet into the clay, measuring to the underside of the flag footings. The footings are formed of four inch gritstone flags, upon which the wall rests, being set back upon them about eight inches. Beneath the footings are boulders and lumps of gritstone of poorer quality. Only two courses of dressed stones remain. The lowest consists of blocks of the best gritstone, the outer surface of which has been worked plain, while the inner projects for the purpose of forming a key. The height of the courses varies from eight to thirteen inches. The depth of the faced stones from front to back averages about 1 ft. 6 in. We know that at least one centurial stone was once built into this outer facing, probably near the N.E. corner, where it was afterwards found. Now, one of the most important points brought out by the excavations in 1905 is the fact, of which there can hardly be any doubt (as a glance at the plan will show), that this facing of ashlar masonry, the whole of

which has been scabbled with a mason's pick (or some such tool), completely surrounded the fort. In all these details the work corresponds exactly with the facing of the Wall of Hadrian,[52] though anyone who has seen both will at once notice that the stones at Melandra are larger and better dressed than those on the Wall.[53] Behind this excellent facing, which it will be seen has entirely disappeared in places, is now found an accumulation of stones, and beyond this a bank of pure marly clay, free from stones. At one place, near the east gate, the backing seems to have remained undisturbed, and there, though there is no inner facing, the inner part of the wall seems to have been roughly coursed. The whole question is whether the loose stones (which are seen falling outwards in other places where the facing has been uncovered) once formed a roughly coursed rubble backing, making with the ashlar facing a wall about five feet thick which would serve as a revetment to the clay bank. For the sake of clearness, the arguments which follow are numbered.

1. The rubble wall shows no sign of an inner facing. An inner facing, however, is not necessary in the case of a revetment, and as a matter of fact, does not appear to exist in the revetment walls of the German Kastelle.[54] Even at Hard Knott, where there was no bank, and where the outer facing is "of good hammer-dressed stones," Mr. Dymond reports the inner face as "far inferior to the outer" and "as poor as possible."[55]

52. Cf. Bruce. *Handbook to the Roman Wall*, 4th edition, 1895, pp. 34—37.

53. This was one of the points noticed by Mr. Haverfield.

54. My only authority for this statement is Dr. D. Christison's report on the Castlecary excavations. *Proc. Soc. Ant. Scot.*, 1903, p. 10. Mr. Haverfield tells me that (according to Hettner) the *Saalburg* wall was faced on both sides.

55. *Proc. Cumb. and Westm. Arch. Soc.*, p. 393.

2. If there was such a wall, the mortar has disappeared. Now, we know for certain that there was good mortar at Melandra, as some can still be shown *in situ*. But it has nearly all disappeared, even from the gateway piers. The mortar has also so completely disappeared from Hard Knott, that it was only by the most careful examination that the presence of mortar was detected at all,[56] and at Gellygaer it is reduced to a sandy loam.[57]

3. There is one very possible reason for the disappearance of the mortar at Melandra. The fort is built in the midst of the gritstone country, and the difficulty of obtaining lime (so far as I know, there are no limestone beds within a radius of ten miles) may easily have influenced the character of the mortar.[58] I have dealt with this question later,[59] in the section headed "Materials."[60]

4. But the point which seems to have been most frequently lost sight of in the discussion of the Melandra rampart is the question of the lateral fluid pressure due to the presence of a bank of clay, or an accumulation of loose rubble. I must confess that, bearing this point in mind, the conjectural sketch of the Melandra defences given by Mr. Garstang on Plate I. of his valuable paper on Roman Military Works seems to me to be an impossible one. If I

56. *Ib.*, p. 413.

57. Ward. *Op. cit.*, p. 25.

58. Moreover, lime from the carboniferous limestones is said to be not as good for mortar as that from other formations.

59. See p. 61.

60. It is interesting to note that Vitruvius mentions the decay of walls in Rome in his time through the perishing of the mortar. "We may see this in several monuments about the city, built of marble or of stones squared externally . . . but filled up with rubble run with mortar. Time has taken up the moisture of the mortar, and destroyed its efficacy. . . . All cohesion is thus ruined, and the walls fall to decay." (*De Arch.*, ii., 8.)

understand it aright, he there represents an ashlar wall one stone in thickness and 14 feet high, as serving as a revetment to a bank of clay with some rubble at the bottom, rising to within a few feet of the top of the wall. Now a rough rule due to calculation and experience would seem to show that ground of an average character can be retained by a wall that is one-third or possibly one-quarter as thick as it is high. It is practically certain that the outer shell of masonry at Melandra could not have sustained the pressure of a clay bank.[61] If we assume that the wall at Melandra stood at the height (suggested by Mr. Garstang) of 14 feet, then a wall 5 feet thick, which seems suggested by the remains still to be seen south of the eastern gate would be sufficient to hold in a clay bank, and the whole structure would thus resemble that at the Saalburg.†

5. Of course the question arises: What has become of this rubble wall? I think the 1905 excavations, which Professor Conway has specially directed towards the uncovering of the outer rampart, have materially assisted in answering this question. Mr. Garstang said of the outer wall: "The traces of this now remain near the chief gateways only." We have traced it more or less completely on all sides, sufficiently to prove without a doubt that it once extended round the enclosure. But the plan will show how completely this wall has been stripped by those in search of stone, so that sometimes for 20 or 30 yards not even a trace of the footings remains. The rubble wall (even if it was not carried away) being thus robbed of its support and pressed by the clay bank, would fall outwards.

61. It is most interesting to note how emphatic Vitruvius is on this question of lateral pressure of earth. Thus (*op. cit.* i., 6) "In the construction of ramparts . . . the wall must be of sufficient thickness to resist the pressure of earth against it." And again (vi., 11) "the thickness of the wall must be proportioned to the weight of earth against it."

† Mr. Haverfield does not think a height of 14ft. probable.

Melandra, as we happen to know, lies in a very bleak and exposed situation. It forms, as it were, a focus for every wind that blows. If we add to the wholesale pilfering that has taken place there the effects of frost, rain, springs, the roots of vegetation, and the dampness of the soil (which would materially assist the frost in its work), and remember that the disintegrating influences which we have actually seen work such havoc in a single season have had free play for many hundreds of years, during which time the wall has been frequently exposed, the wonder will be not that so little but that so much remains. Let us end as we began, by saying that the mode of construction of the Melandra rampart remains an unsolved problem. But I have examined all the sections very many times, both when they were fresh and (which is instructive) at frequent intervals during the winter, when the various forces of denudation have had their way, and taking into consideration all the arguments, and especially remembering how completely the ashlar wall has been stripped, and how exposed the situation is, there seems to me fair ground for supposing that the Melandra defences were *of a similar form* to those at the Saalburg, though the masonry of the wall may possibly not have been so good, and that at the Saalburg seems to have had two faces, and to have been the chief defence.

One final question arises. Is there any evidence to show whether the wall was built later than the clay rampart? I think anyone who has studied the remains and realised how much they have suffered from destruction and decay will feel how impossible it must be to answer this question. In making his sections into the rampart Professor Conway thought he detected in several places a line of boulders, marking what he thought might have originally served as a drain to the outer face of the bank. If this line could

be followed for some distance, it might afford some evidence, but the occurrence of a few boulders at intervals under so much rubble would hardly be conclusive.

Will the argument from analogy help us here? The ramparts of the Scottish forts are, almost without exception, made of earth. The later forts were of stone, and apparently the rampart of earth and stone marks a transition. The neighbouring forts of Mancunium and Brough had a stone rampart 6 to 7 feet thick. The exact history of the transition, however, has not yet been made out. In his valuable note on this subject,[64] which I am glad to be able to use, Mr. Haverfield mentions the case of a fort in the Carpathians built not earlier than A.D. 110, which had at first earthen walls, and was given stone ramparts in 201. A similar case is reported by Arrian as occurring on the Armenian frontier. Mr. Haverfield concludes: "It is exactly the same development as that by which the early earthen tumuli of Rome grew into stone structures like the tomb of Caecilia Metella, . . . in these cases, as in the ramparts, there was a period of transition when earth and stone were both in use." As far as Melandra is concerned, I know of no evidence to show whether the wall was added to the clay bank, or whether the two were raised simultaneously, but Professor Conway sends me the following note on this subject:—

> My knowledge of walls and earths is far too slight for me to venture to set any opinion of my own on a practical matter against a definite judgment of either Mr. Bruton's or Dr. Haverfield's. But as every general description of the rampart is inductive and to some extent constructive, it seems one's duty to state what one believes one's self to have seen. Mr. Bruton's descriptions of what is now visible

64. *The Roman Fort of Gellygaer*, p. 38.

appear to me absolutely exact; the only doubt possible to me is about his conclusion as to the sections north and south of the east gate, where to him (p. 45)the clay-mound " seems to end in a vertical face " towards the outside of the camp. I am not quite convinced that the face may not once have been a sloping, and not a vertical front. On the other hand, in several sections of the southern rampart the outline of the whitish-brown clay seems to me fairly distinct, sloping outwards beneath a mass of darker-coloured rubble. From what now is visible I find it difficult to understand the sketch provisionally given by Mr. Garstang (in his paper on Roman Defensive Works) of the rubble (*i.e.*, the stones and earth outside the clay rampart and inside the facing of the wall) as thickest at the ground level. I am at least certain of this much, that in no single spot of the rampart now exposed will the yellowish clay be found *above* any rubble; while, as I have said, I can point to more than one place in the section of the southern rampart where the rubble seems, to me at least, to have been superimposed upon the clay. I cannot help, therefore, inclining to the belief that the wall and all that belongs to it was later than the clay rampart; but I am far from thinking that the evidence is clear enough to make this provable.

R. S. C.

THE ANGLE TURRETS.

Mr. Garstang reported (p. 92) that as the outer wall was stripped from the corners, it was not possible to examine the exact connection between it and the corner towers. The excavations last year, however, practically settled this point. All four corners have now been cleared. At both ends of the northern wall the dressed stones remain, and the rounding of the corners is distinctly shown, as well as the fact that the side walls of the turrets ran up to the outer wall. Whether there was an outer projection, as at the Saalburg,[65] cannot now be determined. At the latter fort no foundations of corner towers were met with. The curve of the wall at Melandra proved (as

65. *Op. cit.*, p. 25.

the result of several measurements) to be roughly the arc of a circle of 32 foot radius. This was afterwards found to be exactly the figure obtained at Brough.[66] The walls of the corner tower at Brough, however, were splayed. The two best preserved towers at Melandra were excavated by Mr. Garstang, and he records the interesting fact that in one or two instances he found that the mound was piled against the walls of the towers (p. 92). At the two other corners we found only the core remaining, and this may account for the apparent inequality of the Melandra turrets, as shown by the plan. These structures are, however, unequal in other forts.[67] The photograph opposite shows the rounding of the wall at the N.E. corner, where, though the walls of the tower are missing, two courses of the outer rampart remain.[68]

THE CENTRAL BUILDING.

No important work has been done here during the year. The clearing of the floor of the central room brought to light a circular stone lying a few inches below the surface of the floor in the middle of the room. The western half of the courtyard has yet to be examined.

ROADS.

The *Via Principalis*, which is in good preservation, had already been uncovered. The excavation of the north gate brought to light the remains of a hard concrete road

66. *Proc. Derb. Arch. Soc.*, 1904, p. 10. The radius of the curve at the Saalburg was 12 metres. (*Op. cit.*, p. 25.)

67. Cf. e.g. Hardknott, where the side measurements vary from 8ft. 8in. to 13ft. 3in. The turrets at Borcovicium show the same irregularity.

68. It will be interesting here to refer to the fact that the recent excavations at Castlecary on the Antonine vallum have brought to light "the first Roman wall-tower met with in Scotland." *Proc. Soc. Ant. Scot.*, Ap., 1903, p. 11.

North East Corner of Fort. To face p. 54

passing through that entrance. On opening up the southern gateway the road leading from that entrance to the central building was also found to be in excellent preservation. The present surface of this road is practically level, and the clay subsoil on which the foundations rest seems also to have been worked level, both being devoid of the usual camber or curvature. The road is about 1 ft. 3 in. thick, and is composed of large rounded stones, smaller cobbles, pebbles, and coarse gravel. The whole of these have been well rammed together and thoroughly consolidated. As neither camber nor wheel ruts can be detected, it is possible that the present surface does not represent the upper surface of the original road.

DRAINS.

The investigation of the Roman drains is rendered more difficult by the fact that the site was drained in the last century at the time of the cotton famine. Before 1905 one Roman drain had been uncovered, which is shown in the plan as pursuing a somewhat irregular course northwards towards the N.W. corner of the area. This was traced back last summer to the southern side of the *Via Principalis*, where it was lost. Two other drains have since been discovered. The first was found to terminate in the rampart wall near the north-east corner, and is so marked on the plan. It has not yet been opened up. The other runs parallel to the *Via Principalis* about half-way between that road and the south wall, and has been followed practically as far as the central building. It is formed of large flags, but has apparently been narrowed by lateral earth-pressure. The clayey subsoil of the site causes it to hold much water, and even in the summer excavation is somewhat impeded for this reason.

THE INTERIOR OF THE FORT.

The indications of buildings within the area have been marked on the plan. I have taken some trouble to get the position of these, as well as of the principal finds, accurately determined, as, pending the complete excavation of the site, such information may be instructive. Fortunately, owing to Mr. Hamnett's care, all the important spots had been marked with stakes. Near the south-eastern turret are plainly indicated the foundations of a kiln or oven. In clearing this during the summer some molten lead was found. While following the drain which is marked to the S.W. of the headquarters, the workman came upon what appears to be a rough stone foundation, which, as the plan will show, was followed for about fifty feet, just before work was abandoned for the season. About the same time the hard clay foundation marked in the N.W. corner was uncovered. Trial excavations, made in previous years, have brought to light a number of floors composed apparently of red burnt earth, five or six inches thick. The substance of which these floors is composed has been examined by Mr. Francis Jones, who finds that it contains silica, iron and traces of other metals. The bases of several oak posts have been found in one of these floors near the N.E. corner, and their position is marked on the plan. The upper part of the posts had been burnt and on following the charred remains the bases were discovered. The one which I saw raised was a squared oak pole, not pointed, but cut square at the bottom, which was 2 ft. 7 in. below the red floor. The wetness of the soil makes it difficult to examine the sockets. When first taken up the oak seemed well preserved and showed the annual rings distinctly, but it rapidly turned black. It was at this point that the coins of Galba and

Trajan were found, as well as a large amphora with pointed base, besides whetstones, and fragments of pottery, lead and glass. It will be seen that the position of these posts corresponds pretty nearly with that of the posts, lines of which were found fronting the barrack-buildings at Gellygaer, and which (as Mr. Haverfield suggested the search for them) were known to the excavators there as "Haverfield's posts." The excellent preservation of those already found suggests that if a systematic excavation of the northern area were undertaken, the plan of the buildings there might be recovered. It is possible to draw inferences from the position of the other finds, especially where there happens to be an accumulation near one spot.

One of the interesting cases is that of the millstones, of which a number were found together some years ago. We found several more in the same place last year, and no doubt others are there. (I also rescued a perfect specimen from the valley below, where I learnt it had been rolled by boys at play.) It was disappointing, when we had taken some pains to collect the millstones for a photograph (see p. 8) to be told afterwards that three perfect specimens were lying at a cottage in the neighbourhood. As two of the Roman millstones seemed to be composed of a volcanic tufa I submitted one to Professor Boyd Dawkins, who has identified it as having come from the banks of the Rhine. One of these appears in the photograph, in the foreground.

In the early part of the year several sections were examined for finds, but they were quite unproductive, and it is a question whether the more profitable method of excavation would not be to set about recovering the original plan of a large section of the interior. In the late summer the sections numbered 136, 137 and 162 to the W. of the central building were examined by Professor

Conway and Mr. Hopkinson. The result is described by the excavators as "on the whole disappointing." Traces of the road that must (judging from other plans) have run along the W. of the building were met with, and fragments of tiles scattered about seemed to suggest that the tiled floor, a portion of which was found by Mr. Garstang in section 160 may have extended in this direction. "Below this level there was nothing but a fine, closely trodden dark brown mixture of clay and sand, permeated with very small fragments of pottery, and averaging about a foot deep, and beneath it was the natural light-brown wet boulder clay of the site." The finds included nothing but a few glass counters and an earthenware strainer, which latter was found under a mass of charcoal, which was one of several indications of fires met with. Near one of the layers of charcoal was found a large lump of slag. Concerning this Professor Boyd Dawkins writes me: "The iron slag implies the working of iron. . . . It may belong to the Prehistoric Iron Age—the same age as the Beehive Querns. I have met with it in the lake village of Glastonbury, and in the prehistoric centres of Northampton, Lewes, Hod, and elsewhere. On the other hand, it may be post-Roman." The discovery (March, 1906) in one of these sections of what is described as a portion of an oak window frame (a measured drawing of which Mr. Hamnett sends me) suggests that, as the soil preserves the oak, we may yet recover some of the wooden fittings of the buildings. The recovery of the small finds is the result of much patient labour, especially as the soil is difficult. Thus the nine small weights which were found together in section 67 were all collected within a square yard. The small figure of a horse was found by Mr. Hamnett in section 81, but it was only after several hours' search that he found the tiny *ephippium* belonging to it, which, as is

mentioned elsewhere (p. 91), is a rather unique relic. In a number of cases the fragments of pottery found have been successfully pieced together, so that fairly complete specimens may be seen of the "Samian" bowl, the amphora, the mortarium, the patera, and glass bottles (see the List of Miscellaneous Remains, *infra.*).

The soil of Melandra has a deteriorating influence on the pottery, which is quite soft when found, though it hardens on exposure. On the other hand, the glass is well preserved. Exactly the opposite is, I believe, the case at Wilderspool, where the soil is sandy. All objects of lead found at Melandra are thickly coated with the double hydrate and carbonate of lead which is usually produced when lead is left in contact with water. The coating has been analysed by Mr. Francis Jones, who finds that it contains no unusual features.

MATERIALS.

Some reference has been made in an earlier paper to the materials of which the walls are built. On this point Professor Boyd Dawkins writes me in answer to a question: "*All* the sandstones at Melandra come from the millstone grit, the light coloured flags as well as the massive blocks. They might very well have come from Mouselow, or even nearer. . . . The Roman tiles were probably made from boulder clay, but not necessarily from any of the clays in the immediate neighbourhood."[69] As is indicated above, the gritstone varies greatly in quality. Broken pieces of the upper beds, which have poor weathering qualities, have been used for the founda-

69. Vitruvius (*De Arch.*, i., 5) declines to dilate on the question of materials "because those which are most desirable cannot, from the situation of a place, be always procured. We must, therefore, use what are found on the spot."

tions of the footings. Stone from other beds of superior quality, but of thin laminated strata, has been used for the walls of buildings within the fort, for the footings of the rampart wall, and for the drains. An example of the wall executed with this material, may be seen in the central building. In this instance the courses vary from 3 in. to 5 in. or 6 in. in height. On account of the different thicknesses of the laminated beds, the work has been irregularly coursed.[70] There seems to have been no attempt to work stone of this description beyond such squaring as could be done with a spalling hammer.

Measurements of the stones of the rampart facing have already been given (p. 47). In the remains of the east gate, however, much larger stones are found. Thus a pier stone may be seen measuring 2 ft. 11½ in. by 2 ft. 7 in. by 8 in., while the splayed impost of the adjacent pier measures 3 ft. 1½ in. by 2 ft. 1 in. by 10 in. The largest I have measured is lying (now broken) on the heap of stones just inside the east gate. Roughly its dimensions are 3 ft. 3 in. by 2 ft. 10 in. by 9 in. Each of these blocks, which are of the finest millstone grit, would require several men to place it in position. The last two mentioned might weigh as much as seven or eight cwt. each before the splays and sinkings were worked upon them. In other Roman work, (*e.g.*, in the remains of the piers of the Roman bridge across the Tyne at Cilurnum) all the large stones have lewis holes neatly worked in them. Lewis holes have not been found in any of the stones at Melandra, nor is there any indication that mechanical appliances were used for raising them.

Of the tiles it need only be said here that the roofing tiles, of which a large number have been found, are of the usual pattern, *i.e.*, they consist of flat flanged *tegulae* and

70. A section appears on the plate facing p. 45.

curved tapering *imbrices*. In the *tegulae* nailholes are found which seem to show that nails of oblong section were used, and an abundance of iron nails has been found on the site. Some of the bricks measure $10\frac{7}{8}$ in. by $10\frac{3}{4}$ in. by $2\frac{3}{8}$ in.

Under one of the large blocks at the west gate an excellent specimen of the mortar (still white and hard, though deteriorating) may be seen *in situ*. I submitted a specimen to Professor Boyd Dawkins, and he pronounces it to be made with sand from the millstone grit of the neighbourhood.[71] Mr. Francis Jones has made an analysis of this mortar. The analysis gives the following results:—

Silica	85·47
Lime (CaO)	5·08
Iron and Alumina (Fe_2O_3 and Al_2O_3)	2·66
Carbon dioxide	2·82
Water (dried at 200°C.)	1·04
Magnesia (MgO)	Trace.
Alkalies, etc. (not det.)	2·93
	100·00

There was more lime than corresponded to the amount of carbon dioxide found, but as sulphuric acid is also present, the remaining lime is no doubt present as sulphate and also as silicate.[72]

It is interesting to remember, in this connection, that

71. Vitruvius devoted a whole chapter to the question of the selection of sand. *De Arch.*, ii., 4.

72. As affording an interesting case for comparison I give the figures of the analysis of the mortar found in the walls of Hadrian's villa. They are as follows:—Silica 41·10, Alumina 14·70, Lime 15·50, Ferric oxide 4·92, Magnesia 0·30, Carbon dioxide 11·80, Potash 1·01, Soda 2·12, Organic matter 2·28, Water 5·20, Total 98·73. (See W. Wallace: On ancient mortars, *Chem. News*, 1865, vol. xi., p. 185, and *Dingler's Polytech. Jrnl.*, 1865, vol. clxxviii., p. 372. See also Thorpe, *Dict. Appl. Chem.*, vol. i., p. 467.) The cement of the mosaic on the Baths of Caracalla at Rome contains 25·19 per cent. of lime. Mortar from the Pnyx at Athens has 45·70 per cent. of lime. It is not easy to say if any of the original lime has been washed away from the specimen of Melandra mortar analysed by Mr. Jones.

a specimen of the mortar from the fragment of a Roman wall still to be seen in Manchester, was analysed in 1828 by no less an authority than Dr. Dalton, who found that it contained 15 to 20 per cent. of carbonate of lime, some clay and iron, and about 80 per cent. of sand.[73]

A comparison of specimens of mortar from Manchester and Melandra is of special interest, for this reason: It is more than probable that the Roman soldiers who built Mancunium obtained the lime for their mortar from the well-known Ardwick beds.[74] The existence of limestone close at hand may account for the better quality of the Manchester mortar. Melandra, on the other hand, lay on the boulder clay, in the midst of the gritstone country, and its builders could not (I think) have obtained limestone nearer than at Ardwick or at Castleton, *i.e.*, about twelve or fourteen miles away. In the excavation of the wall last year, especially on the east side, many pieces of limestone were thrown out. I brought away a number of these for Professor Boyd Dawkins to examine, and he writes: "The limestones are hard masses of burnt limestone[75] left when the lime was used for mortar. They are crinoidal limestones, like those of Castleton, and other places in Derbyshire." We thus obtain an interesting glimpse into the past. We see the Roman carts,[76] loaded

73. Baines. *Hist. Manch.*, vol. ii., p. 152.

74. Rœder actually found in the limestone at Mancunium the *Spirorbis* which is characteristic of the Ardwick beds. (*Rom. Man.*, p. 79, *seq.*). See also Mr. Pettigrew's analysis (p. 83) which, however, is perhaps not so conclusive.

75. Vitruvius has a separate chapter on the burning and slaking of lime. His explanation of the binding effect of lime is interesting. (*De Arch.*, ii., 5.)

76. May we not actually hear the creaking of the axles?

montesque per altos
Contenta cervice trahunt stridentia plaustra.
Verg. *Georg.* iii. 536.

Nec plaustris cessant vectare gementibus ornos.
Verg. *Aen.* xi. 138.

with limestone, climbing the steep road from the Snake, past the beautiful Lady Clough, then turning down the famous Doctor's Gate (where the road drains were still visible in 1722,[77] and may yet be discernible), and so across the moors—as wild now as they were then—for the new fort building at Melandra.

WORK REMAINING TO BE DONE.

It would be easy to fill pages with suggestions as to work that remains to be done. A number of indications have already been given. In addition to these there are the questions of the excavation of the roads approaching the camp, the search for baths and a cemetery, and the examination of buildings outside, traces of which are visible. The example set by those who have had in hand the excavation of other forts would seem to suggest that the first task should be a systematic stripping of the site with the object of obtaining a complete plan of the fort as it once existed. Such a task—owing to the nature of the soil—would be one of great difficulty and would entail considerable expense. It would, however, throw some interesting light on the early history of Manchester.

Meanwhile, if members of the Classical Association have been expecting that more would be accomplished as the result of the first year's work, we can only point to the motto given to us by Canon Hicks, the newly elected President of the Association, when we began work in February, 1905: "In excavation it is the *unexpected* that always happens."

F. A. Bruton.

77. *Archaeologia* iii., p. 237.

Some Features of Roman Forts in Britain.

THE excavation, during the years 1894—8, of several forts on the Wall of Hadrian (one result of which has been Mr. Bosanquet's admirable plan of Borcovicium), the completion in 1901 of the work at Gellygaer, and the interesting investigations now in progress on the Wall of Antonine under the auspices of the Society of Antiquaries of Scotland, have turned the attention of archæologists during the last few years to the subject of the particular form of defence known as the *castellum*, which seems to have been used by the Romans for the purpose of watching the tribes of the hill country, or holding the lines of fortifications that marked for the time being the limits of the empire.

Manchester, as it happens, is not unfavourably situated for this particular study. There may still be seen in the neighbourhood of Knott Mill[1] the remains of the fort which has given its name to the city, and which a writer who visited Manchester about 1540 described[2] as "almost ii. flyte shottes without the towne." The plan of Mancunium is now lost beyond recovery, but about twelve miles to the east lay the sister fort now known as Melandra, which is shown by the inscriptions[3] on four

1. Rœder: *Roman Manchester*, p. 11. Watkin: *Roman Lancashire*, p. 104. An excellent specimen of the core of one of the walls is preserved *in situ* under one of the Railway arches.

2. *Hearne's Leland*, vol. v., p. 94 (edit. 1769–70).

3. *C.I.L.*, vii., Nos. 178, 213, 214. A fourth is figured in *Mem. Lit. Phil. Soc. Manch.*, vol. v., plate vii., opp. p. 534, which does not appear in the *Corp. Ins. Lat.*, vol. vii. The explanation seems to be that the Editor of the *Corpus*, as he states on p. 56, only consulted these memoirs as far back as 1805. Vol. v. is dated several years earlier. The pattern of the border on this stone is similar to that of the Melandra stone.

centurial stones to have been garrisoned by the same cohort that assisted in building the fort at Manchester. Twelve or fourteen miles south-east of Melandra, we have a smaller fort at Brough, the treasures of which are in the safe keeping of the Derbyshire Archæological Society, and further to the west, on the Cheshire hills just above Macclesfield, is the little earthwork known as the Toot Hill Camp, which may yet have a story to tell. Finally, some nine miles to the north of Melandra, on the main road[4] that ran from Chester to York by way of Manchester, lies the rather unique station of Castleshaw, sometimes referred to as an example of the *castra unius diei*, whose secrets have certainly not yet been fully unearthed.

As Mr. Haverfield has written:[5] "A peculiar and additional interest attaches to Melandra, in consequence of its connection with the Roman fort which constituted the earliest beginnings of Manchester. . . . At Melandra we can win some picture of what Manchester was in the dim days of its birth under Roman rule." How far is it possible already to recover this picture? Not to mention a number of forts the excavation of which is still in progress, we now have more or less complete plans of Borcovicium,[6] Cilurnum,[7] Aesica,[8] Bremenium,[9] Ardoch,[10] Birrens,[11] Camelon,[12] Lyne,[13] and Gellygaer;[14] and to come nearer

4. The second *Iter* of Antonine.
5. Unpublished note on Melandra.
6. *Arch. Ælian.*, xxv., p. 193.
7. *Ib.* x., etc.
8. *Ib.* xxiv., p. 19.
9. *Jour. Roy. Arch. Inst.*, i.
10. *Proc. Soc. Ant. Scot.*, xxxii.
11. *Ib.* xxx.
12. *Ib.* xxxv.
13. *Ib.* xxxix.
14. Ward: *The Roman Fort of Gellygaer.*

home we have the results of the excavations at Hard Knott,[15] and of Mr. Garstang's work at Brough[16] and Ribchester.[17] As illustrations of later work we may mention the Roman Coast Fortresses of Kent.[18] A comparison of these plans with one another, and with the plans of the continental examples of similar works, shows that while certain features are common to all, it would be rash to predict in the case of any fort not fully excavated, what would be the lie of the buildings and the character of the interior arrangements.

Let us consider for a moment the points in which the plans are almost invariably similar. It is not uninteresting to reflect that, roughly speaking, these forts were laid out, as far as their general features are concerned, mainly on the same lines and by the same methods as were the camps of the younger Scipio Africanus in his campaign against Carthage. Of course, that is not meant to imply for a moment that the names applied to the various parts were identical in the two cases. We should perhaps be nearer the truth if we said that in their general features the forts resembled the temporary legionary camps occupied by Agricola in his campaigns in Britain. Whether excavation will ever throw light on these temporary camps remains to be seen. General Roy devoted a whole chapter[19] in his famous work to an account of Agricola's camps in Scotland, but his theories were not verified by excavation. Perhaps a fuller examination of the large camp at Inchtuthill, in Perthshire, partly excavated in 1901,[20] may

15. *Trans. Ant. Soc. Cumb. and West.*, xii.
16. *Proc. Derb. Arch. Soc.*, 1904.
17. Garstang: *Roman Ribchester* (Preston: Toulmin).
18. *Arch. Cant.* and Fox in *Arch. Jour.*, 1896.
19. *Milit. Antiq. of Brit.*, ch. ii.
20. *Proc. Soc. Ant. Scot.*, xxxvi., p. 182, seq.

give information on this interesting point, though this camp (which is about 500 yards square, covered some 55 acres, and may have accommodated as many as 11,000 men) would seem to afford evidence of more than temporary occupation.

The very fact that at least three plans recently obtained by careful survey (Melandra, Gellygaer and Newstead)[21] have come out askew, can be fully explained if we assume (as no doubt was the case) that the foundations were set out and measured off in precisely the way described by Polybius,[22] who was himself present at the destruction of Carthage. We may perhaps stand at Melandra on the very spot where the *metator*—acting possibly under the eye of Agricola—placed the standard or the *groma* and proceeded to make the necessary measurements. An error of two degrees in setting off the right angle with the *groma* would account for the skew appearance of the Melandra survey. When once the *cardo maximus* and the *decumanus maximus* were laid down, the method followed in completing the plan would ensure that the error would be repeated throughout.

The other points in which the plan of a fort like Melandra would seem to resemble that of the consular camp are the rectangular shape, the existence of four gates at points dividing the sides similarly, the lie of the roads connecting them, and the shape of what we may call for the moment the headquarters building; for the shape of this building in practically all the forts more nearly resembles the prætorium of the Polybian than of the Hyginian camp. The rounding of the corners is of course a feature of the camps of the early empire, while the

21. Perhaps Cardiff should be added. The plan of Brough is also out of truth, but with less regularity.

22. Polyb. *Hist.*, vi. 27.

position of the angle turrets within the line of the rampart points at any rate to the earlier period of the Roman occupation of Britain: the towers of the forts on the Saxon shore are nearly always external.[23]

The existence in all cases of at least four gates leads to the interesting question as to why these should have been considered necessary. Josephus[24] expressly states that the gates were "wide enough for making excursions should occasion require." There are just three passages in Livy which throw light on this matter, two of which are worth referring to here. In the first of these two legions are represented as receiving the command to march out by the two principal gates;[25] in the other the signal is given to make a sally from all four gates at once.[26] The fact that the gates are invariably present, even when they face a steep descent, would seem to show that the construction of them was looked upon as an important point.

The selection of the site of the camp is a point of special interest in the case of Melandra, because it is within the bounds of possibility that this particular site may have been chosen by Agricola himself. The importance of the matter is shown by the fact that the duty was not unfrequently performed by the commander. Thus, to take only two instances out of many, we read that Vespasian went in person to mark out the ground of his camp,[27] and in two striking passages in the life of Agricola it is stated that that general would himself choose the position of the

23. It is remarkable that Vitruvius, who is supposed to have served under Julius Cæsar, B.C. 46, recommends *external* towers (Vitruv, *de Architect*, i. 5).

24. *Bell: Jud.* III., v.

25. Liv. xxxiv., 46. Cf. also Caes. *B.G* v., 58.

26. Liv. xl., 27.

27. Tac. *Hist.* ii., 5.

camp,[28] and further, that "it was noted by experienced officers that no general had ever shown more judgment in choosing suitable positions, and that not a single fort established by Agricola was either stormed by the enemy or abandoned by capitulation or flight."[29] The position of Melandra (a good idea of its strategical position may be obtained by viewing it from Mottram churchyard) would not seem to be wanting in any of the points named as essential by Vegetius, viz., "abundance of wood, food and water;"[30] nor will those who have spent many hours at Melandra deny that the other condition laid down by Vegetius is fulfilled: "*Et si diutius commorandum sit, loci salubritas eligetur.*"

Of the main streets that crossed the forts at right angles, we have only so far found the roads that always connected the gates, but these are in an excellent state of preservation. The central position of the street known as the *Via Principalis* is a feature in which Melandra resembles Gellygaer, and possibly Brough; in the Hyginian camp, and in most of the other British forts (so far as I have been able to discover), this main street is pushed further forward; in the Polybian camp it lay, of course, much farther back.

Turning now to the buildings within the enclosure, the one structure which unfailingly appears in all the forts is fortunately well shown at Melandra. Its plan is, moreover, of a fairly normal, though simple, type. The corresponding structure at Brough presents some unusual features; and its further excavation by the Derbyshire Archæological Society will be awaited with interest. It is just possible that part of the Headquarters Building at

28. Tac. *Agric.*, xx.
29. Ib. xxii.
30. Veget. *De re milit.* i., 22.

Manchester is still standing,[31] and it would be safe to say that no fort was without this structure. Even at the little camp at Toot Hill, which may have been only an earthwork (though that is a point yet to be decided), a careful examination of the central area will show the outline of the central structure.[32] The name by which this building has hitherto been known, will, however, probably have to go. "Prætorian here, Prætorian there, I mind the bigging o't"[33] might perhaps be repeated to-day with a different meaning from that which the words have hitherto conveyed. It is well known that the Prætorium of the legionary camps fulfilled a somewhat different purpose from that for which the central building of the forts was constructed. "Possibly it reproduces in some way the altars, *auguratorium*, and tribunal, which formed (as it were) an official *annexe* to the Hyginian prætorium, but in that case the *annexe* has usurped the site of the proper prætorium. What it was called we do not know for certain. . . . No direct evidence exists to prove that the term Prætorium was applied to any edifice in the small forts."[34] *Porta Praetoria* appears to have been found once, but it seems impossible to decide which gate was intended.

Only last year an inscription was published which may throw light on the nomenclature of the buildings of the forts. In the excavation in 1903 of the headquarters building of the fort called Rough Castle on the Antonine

31. Rœder. *Roman Manchester*, p. 22. The piece of walling already referred to in a previous note may have been part of this building.

32. Curiously this does not appear to have been noticed by Watkin, who makes no reference to it, and does not show it in his plan. Mr. T. C. Horsfall and I measured it in 1905, and found it to be about 54 feet square.

33. Scott, *Antiq.* ch. 4.

34. Mr. Haverfield in Appendix to *The Roman Fort of Gellygaer*. I have to thank Mr. Haverfield for kindly giving me permission to use his notes on this and other forts.

Vallum an inscription was found, the last five words of which read: *Cohors sexta Nerviorum principia fecit.*[35] This is the first time the word *principia* has been found in Scotland as apparently describing the headquarters buildings. We have two examples of it in inscriptions found in England. One discovered near Bath reads: *Naevius . . . . principia ruina opressa a solo restituit.*[36] Another found at Lanchester runs: *Imperator Caesar . . . principia et armamentaria conlapsa restituit per Maecilium Fuscum . . .*[37] This is important evidence, but I am not able to say if more than one building was indicated by the word *principia.*

Whatever may have been the special uses to which the various divisions of the central building were put, there seems little doubt that the centre room of the three or five that face the court served the purpose of a *sacellum,* or sanctuary, in which the standards[38]—not flags, but clusters of emblems—were deposited and worshipped. The occurrence of what appears to be a strong room in connection with the *sacellum* in several forts (*e.g.,* at Bremenium, Cilurnum and South Shields) has confirmed the theory that this part of the building also served the purpose of a treasure house or bank. This is a point of special interest for us, because one of the most interesting of these chambers has been unearthed at Brough. Concerning this Mr. Haverfield writes:[39] "In its details—size, shape, steps, position and date—the Brough pit agrees

35. *Proc. Soc. Antiq. Scot.,* May, 1905, p. 30.

36. *C.I.L.,* vii., No. 62.

37. *C.I.L.,* vii., No. 446.

38. Is it not at least possible that the small figure of a horse (?) found at Melandra may have formed part of these symbols? A horse was one of the figures mentioned by Pliny: *H.N.* x. 4, s. 5. A small bronze figure of a horse found at the Saalburg is shown in Jacobi's account of that fort. *Cf.* also object 1905 [No. 1348] in Chesters museum.

39. *Vict. Hist. Derb.,* p. 205.

well with other specimens of these vaults, and we may fairly consider that it was built as a strong room."

So far we are on safe ground. If now, by a comparative study of the plans of forts already excavated, we attempt to reconstruct the interior of the fort at Melandra, we shall find the task quite impossible. Even the order of the important buildings that faced the principal street would not seem to be the same in any two cases. A careful examination of a number of plans will, however, enable us to make certain predictions with a tolerable degree of safety. The existence of a strongly buttressed building with a raised floor, which there is good reason to suppose was used as a storehouse or granary is very common. The position varies so much that it is quite impossible to say where this building stood at Melandra. At Borcovicium, Camelon and Castlecary, it stands on one side of the so-called Prætorium, at Lyne such buildings stand on both sides of it, at Cilurnum it is behind, and at Gellygaer it is separated from it by other buildings. At Birrens again there are three such buildings, unsymmetrically placed on both sides of the *Via Principalis*. The importance of the building is clearly shown by the references to it in the classical writers. In the *Agricola* there is an exceedingly graphic passage, which may well apply to a fort situated as Melandra was. The Britons are represented as being "compelled to endure the farce of waiting by the closed granary and of purchasing corn unnecessarily and raising it to a fictitious price."[40] Agricola not only removed this abuse, but also put a stop to the practice of compelling those Britons who had a winter camp close to them to carry their tribute by

40. *Tac. Agric.*, 19. The meaning seems to be that if they had no corn they had first to buy the corn at an exorbitant price, and then pay it as tribute; the corn never leaving the granary at all. The passage, however, is one that has given considerable trouble to the commentators.

"difficult by-roads" to "remote and inaccessible parts of the country." [41]

Two other classes of buildings, the use of which it would be comparatively safe to conjecture, are the commandant's or officers' quarters, generally containing hypocausts, which in most forts appear to have faced the *Via Principalis;* and the long rows of double buildings, either placed back to back, as at Birrens and (in some cases) at Borcovicium, or facing a common street, as at Gellygaer; sometimes opening towards the rampart, sometimes away from it. There seems little reason to doubt that these take the place in the forts of the *strigae* or double rows of tents of the Hyginian camp, in which the centuries were quartered. It is possible that the fragments of red floors and the oak posts already discovered at Melandra give a clue to the position of these barrack-like buildings, the foundations of which are found so clearly marked in other forts, though there is so far little to indicate whether the buildings themselves, in any of the forts, were of stone or of wood.[42] In some cases, as at Birrens, Lyne, and Gellygaer, they run parallel to the *Via Principalis;* in others, as at Borcovicium and Camelon, they are at right angles to it.

The question of the rampart is so fully dealt with elsewhere that we will pass it over here, only referring to a remarkable feature which is shown by the outer defences of the Scottish forts now and recently under examination. Even a cursory glance at the plans of these forts will show how enormously strong were the earthworks that sur-

41. *Ib.* This again seems to have been done in order to compel the Britons to pay a heavy money tribute in lieu of corn; [and to enrich the providers of transport who would of course pay over part of their gains to the sub-officials who had framed the oppressive requisitions. This I take to be implied in *paucis lucrosum fieret.*—ED.]

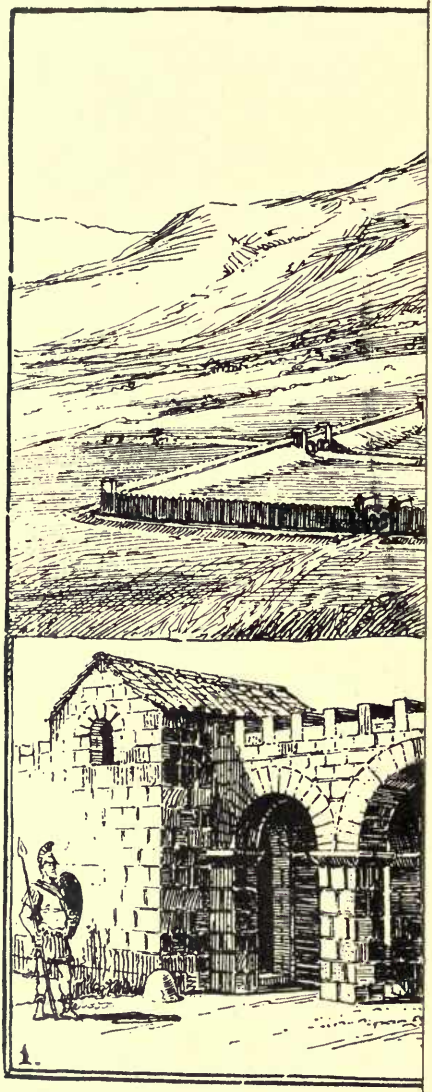
42. At Ardoch the outlines of the principal buildings are defined mainly by lines of post holes.

rounded them and defended the approaches to them. It is stated on good authority that there are perhaps no such defences in any other part of the Roman empire. The explanation suggested by Mr. Haverfield[43] is of great interest. "We may be tempted," he says, "to think that even in Roman days the Highland charge was uniquely fierce and irresistible."

If we turn from the defences and the buildings to the life of the fort, whether military or social, there is much that is suggested by merely reading over the list of finds that appears on another page, and which need not be entered into here. There is one graphic detail of the military life of a Roman camp, given by Polybius, which it will be quite safe to assume had its place in the life of the garrison at Melandra. In the little museum of antiquities at Caerleon-upon-Usk there is an inscribed stone bearing two words only: *Primus Tesera.*[44] *Tesera* here (as explained in the *Corpus*) probably stands for *Tesserarius.* In a fort situated as Melandra was, with the special function of watching the hill tribes, it may be safely said that sentry duty was rigorously carried out. According to the account given by Polybius,[45] a new watch-word was given out every night. To avoid detection the word was never said aloud, but written on a wooden tablet *(tessera),* and handed by the commander-in-chief to a tribune. The tribune in his turn handed the *tessera* to the *tesserarius,* who returned with it to his maniple, in order that it might be passed along the whole line.

While spearheads have been found at Melandra, no evidence exists of the use of military engines, as is the case in the forts on the Wall of Hadrian, where heaps of *ballista*

43. *Vict. Hist. Derb.*, p. 197.
44. *C.I.L.*, vii., No. 117.
45. Polyb. *Hist.* vi., 36.



Conjectural Reste

stones are sometimes met with. These catapult stones have also been found at Brough.[46] The clay on which the fort is built, however, abounds in small boulders, which may easily have been used as missiles. Professor Boyd Dawkins writes that if these were found in numbers together, they must have been collected. They have not, however, been so found.

Some idea of the position of the fort, and the way in which it was protected by the natural features of the site, may be obtained from the attempted restoration which is appended, and which is here reproduced by permission of the proprietors of the *Manchester Guardian*. The view is taken in the direction in which the visitor of to-day approaches Melandra, that is, looking across the river Etherow (which protects two sides of the fort), just below the point where that stream is joined by the Glossop Brook. Cown Edge and Coombs Rocks rise in the background to the south-east.

As only the central building has so far been discovered, no other is inserted. The restoration of the gateway,[47] (in which, however, the arches should probably be equal), is made possible by the completeness of the foundations recently uncovered, and the finding of the actual voussoirs, and chamfered and mortised imposts, as well as perfect specimens of the *imbrices* and rimmed *tegulae*, and the nails that fixed them. The second inset is an attempted restoration of the colonnade which almost certainly surrounded the courtyard of the central building, as evidenced by the column bases recently found, and the remains of foundations. It is based upon a restoration of the

46. *Jour. Derb. Arch. Soc.*, 1904, p. 20. "Balls of gritstone, of diameters 1½, 3½, 4, and 6 inches respectively."

47. As all doorsills and jambs have been stripped from the Melandra gates, no attempt has been made to restore the doors themselves, indications of which, of course, exist at other forts.

colonnade at Borcovicium, made by Mr. Bosanquet with much more ample materials.

In attempting to form a picture of the fort as it was under Roman occupation, it is well to remember how different were the surroundings at that time. Melandra lay in an amphitheatre of hills, from which the river Etherow, that flowed at its foot (and was certainly not then confined within such narrow bounds) seems with difficulty to find an exit. To the south-east stretched the wilds of the outliers of the Peak, while to the north-east opened the jaws of Longdendale, concerning which it was reported a thousand years later in Domesday book: "The whole of Langedenedale[48] is waste. Wood(land) is there, not for pannage (but) suitable for hunting."

"The work of reclaiming the wilderness began in the days of Agricola. The Romans felled the woods along the lines of their military roads; they embanked the rivers and threw causeways across the morasses."[49] A graphic picture of these labours is presented to us in the impassioned words which Tacitus puts into the mouth of the Caledonian chief, Calgacus: *corpora ipsa ac manus silvis ac paludibus emuniendis inter verbera ac contumelias conteruntur.*[50]

F. A. Bruton.

48. [Cf. also p. 2. Ed.]
49. Elton: *Origins of English History*, 2nd ed., p. 218.
50. Tac. *Agric.* xxxi., 2.

The Pottery.

On nearly all sites of classical antiquity the pottery and other objects of earthenware form one of the most important parts of the excavator's harvest. This is due partly to the fact that in early times clay was commonly employed for almost all utensils of household use and furniture, and partly to the fact that, however fragile an earthenware vessel may be in itself, its fragments, if only it has been properly fired, are practically indestructible. They offer little temptation to the treasure-hunter and are far less liable to destruction by time and the elements than are wood and most of the metals. One may therefore be sure of finding abundance of pottery on almost all ancient sites, and it thus becomes one of the best sources of evidence for determining the date of the site and its relations to contemporary civilization.

At Melandra, indeed, the importance of the pottery is limited by the fact that we are dealing with a fortified camp occupied merely by an Auxiliary cohort (see pp. 12 f.) where one cannot expect to find either any distinctive local fabric or any considerable number of vases of the finest type. Moreover, the length of time during which the camp was occupied prevents one from having any such fixed date to assign to the vases found as one has for example in the case of the camps recently excavated at Haltern and Hofheim in Germany. What we do get is just a representative collection of vases or fragments illustrating the fabrics commonly in use during the Roman military occupation of Britain, and its interest lies not in any beauty or variety of ware but rather in its forcible

illustration of the homogeneity of Roman civilization even in the small details of common life and at the far outposts of the Empire.

For the general study of Roman pottery in Britain it is convenient to refer to Mr. H. B. Walters' *History of Ancient Pottery* and to Mr. F. Haverfield's articles on the *Roman Remains* in the various volumes of the Victoria County History of England. Of foreign works the most important are Déchelette's *Les vases céramiques ornés de la Gaule romaine* and the articles of Dragendorff in the *Bonner Jahrbücher* and *Bericht über die Fortschritte der römisch-germanischen Forschung* (1904). The latter works treat of Roman provincial pottery in general and of Britain only incidentally. In the present article nothing more has been attempted than a provisional classification of the fabrics represented at Melandra with a brief account of each fabric and of the more important fragments.[1] In a later report it is hoped that this present account may be supplemented by the analyses of clays and glazes which have been most kindly promised by Mr. William Burton, whose researches in ceramic chemistry and wide practical experience will give them an unusual authority. It has been impossible to illustrate many fragments by photographic reproductions since the damp, clayey soil of Melandra has had a most destructive effect upon the pottery, not only spoiling the surface but even in many cases rotting the clay body itself.[2]

1. All the laborious task of first sorting the fragments was carried out by Mr. Hamnett with his usual indefatigable zeal. To Mr. Walters' book the indebtedness of the present article is too obvious to require statement, but I would gratefully acknowledge the personal help given by the author in dealing with the Melandra pottery.

2. The line drawings of the fragments here reproduced are by Mr. Robert Duddle of the Manchester School of Art. The more complete vases are shown in section also by means of heavier black lines.

The pottery at Melandra falls naturally into two main divisions: (*A*) the fine red ware with embossed ornamentation, known as *Terra Sigillata*, which is certainly imported, and (*B*) the plainer wares which to a very large extent at any rate were made in Britain itself and may be loosely termed *Roman-British*. To these are appended in the present article notices of the *Tiles* and of the *Glass*.

A. Terra Sigillata.

This is the ware long known as *Samian* and identified with the "vasa Samia" of Latin literature.[3] The old name has now been abandoned, since it wrongly suggests that Samos was the chief centre in which the vases were made, and the new term *Terra Sigillata* (seal clay), denoting the fine, consistent, red clay of which the ware is made, has been generally adopted. The characteristics of the ware are (1) the red clay, which was no doubt originally a natural ferruginous clay but was probably later coloured artificially by an admixture of certain ochres, (2) the fine transparent varnish in which the vases were dipped to give them their smooth lustrous surface, (3) the embossed ornamentation, produced by pressing the vase into a mould while the clay was still soft, with occasional variations such as casting small pieces of the design separately and applying them to the vase with slip. The real origin of the ware is perhaps to be sought on the coast of Asia Minor. Recent excavations at Priene and Pergamon have shown that vases of similar technique were there manufactured in direct continuance of the late Hellenistic pottery imitative of metal-work. It is even possible that further excavation may show some real historical justification for Pliny's use of the word "Samia."

3. Cf. Pliny, *Nat. Hist.* xxxv. 46; Plautus, *Menaechmi* i. 2, 65 and *Bacchides* ii. 2, 22, etc.

In Italy the manufacture of Terra Sigillata seems to date from about 40—30 B.C. and had its principal centre at the Etruscan town of Arretium, whence is derived the name of *Arretine* ("vasa Arretina") given to the Italian vases in general. This Italian fabric produced by far the finest examples known to us of red relief vases, and in the Augustan period the Arretine vases were not only used in Rome and Italy but were exported throughout Gaul and Germany.

The manufacture of Terra Sigillata in the Western provinces (*Provincial Terra Sigillata*) began about the close of the first quarter of the 1st century A.D., and developed with extraordinary rapidity. Partly by the greater convenience of the provincial factories as centres of distribution, and partly by the greater cheapness of the ware, it rapidly ousted the finer Arretine vases from the markets of Western Europe.[4] The earliest factories were in the territory of the Ruteni[5] (Southern Gaul) at the modern Graufesenque, Montans and Banassac, and until the later part of the 1st century A.D. this "Graufesenque ware" is predominant throughout Gaul and Germany. It is found even in Italy, at Rome, Pompeii and elsewhere, and reached as far as Britain to the north-west. By the time of Hadrian, however, the factories of what is now Lezoux, somewhat to the north of Graufesenque, were rapidly overtaking it in public favour, and during the 2nd century

4. Thus at Haltern (dated 11 B.C.—17 A.D.) there is, according to Dragendorff, nothing but Arretine with the exception of a few fragments which may be from a provincial branch of some Italian factory At Hofheim (dated 40—60 A.D.), to judge by the potters' names, Arretine has wholly ceased and there is nothing but Gallic ware of the "Graufesenque" type.

5. The views here put forward are those of M. Déchelette, l.c., which are based upon an unequalled knowledge of the local remains and museums of Southern France.

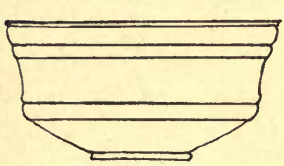
and the first half of the 3rd the Lezoux ware must have been manufactured and exported in enormous quantities. There were other factories at Rheinzabern and Westerndorf in the Rhine valley, but the potters' names are conclusive evidence that the bulk of the good Terra Sigillata vases in Western Europe came from the workshops of Southern and Central Gaul. The manufacture of the ware seems to end about 260—270 A.D., probably when Gaul was overrun by ruder Teutonic invaders.[6]

This Gallic ware, as a whole, is coarser than the Arretine both in technique and design, although the classical forms of ornament still survive unaffected by the late Celtic art of Gaul. The distinction between the *Graufesenque* and the *Lezoux* fabric can be drawn by comparison of the potters' names, which are often impressed with a stamp on either the inside or the outside of the vases, by the types of ornament, and by the characteristic shapes of the vases most commonly made at the two centres. The method of ornamenting the vases with reliefs by pressing them into a mould necessitates that the common form should always be that of an open bowl decorated on the outside. Three principal types of bowls are found, outlined in Fig. 1, which in accordance with Dragendorff's enumeration of shapes are known as nos. 29, 30 and 37. No. 29 is characteristic of Graufesenque; no. 30 is common in the first century B.C., but also is used later; no. 37 is in general characteristic of Lezoux, though early forms appear at Graufesenque.

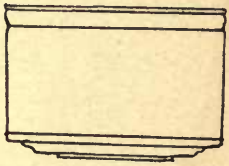
There is no evidence for any manufacture of Terra Sigillata in Britain, and the examples of the ware that have been found at Melandra probably all come from Gaul. Bowls of shape 29 are found in Britain as far north

6. Cf., e.g., Gibbon, *Decline and Fall*, chapter 10.

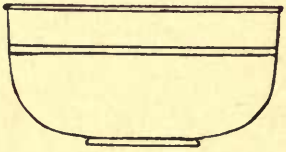
as York, but beyond York (*i.e.*, in the parts of Britain occupied later than 80 A.D.) only bowls of shape 37. As this agrees with the evidence from Gaul and Germany one is justified in assuming that the occurrence of shape 29 on any site is good evidence for its occupation as early as 80 A.D. In the following list of Terra Sigillata fragments from Melandra nos. 1—4 are of shape 29; no. 7 is of shape 30; nos. 8—14 seem all to belong to bowls of shape 37, though the fragments are not in all cases large enough to give the shape with certainty. The evidence of these



No. 29.



No. 30.



No. 37.

Fig. 1.—Shapes of Terra Sigillata Bowls.

shapes for determining the date of the camp is important. Nos. 1—4 of the list are of shape 29 but belong to its later period when it is already tending to the less elaborate form of shape 37. The exterior mouldings of the vase are less pronounced than in the earlier examples, and the frieze of animals and plants has succeeded to the purely formal designs of the earlier period. On the other hand no. 8 in the list is certainly a very early form of shape 37. In the more fully developed examples of the shape the plain band below the rim is quite flat and usually much