

V.

THE ROMAN FORT AND TEMPORARY CAMP AT OAKWOOD,
SELKIRKSHIRE.

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INTRODUCTION.

In 1949 a routine examination of the National Survey air-photographs of Selkirkshire, undertaken by the second writer in preparation for the Royal Commission's forthcoming Inventory of that county, brought to light a Roman fort and an adjacent temporary camp close to the farm of Oakwood, on the S. side of the Ettrick valley, $3\frac{1}{2}$ miles SW. of Selkirk (fig. 1).¹ The discovery of these works was entirely unexpected, for although considerable portions of their defences are still visible on the ground, admittedly in a heavily denuded condition, there is no record or tradition of their existence. Moreover, they do not lie on any known, or presumed, Roman route, nor have any Roman objects been reported from the vicinity. Surface inspection of the remains added very little to the information already given by the air-photographs, although a fragment of Flavian pottery was found at the mouth of a fox's earth near the centre of the fort. But as both sites lie in rough pasture, and are unencumbered by buildings, it seemed probable that a comparatively small amount of excavation would suffice to determine their extent, and to establish the main outlines of the occupational history of the fort. Accordingly, on the instructions of the Commissioners, excavation directed by the writers was carried out from 25th June to 14th July 1951, and again from 7th to 26th July 1952. Financial support was generously provided by the Society of Antiquaries of Scotland and by other sources, and labour was supplied by students and by other voluntary helpers.²

The Commissioners desire to express their thanks to all those who made the excavation possible, or who have collaborated in the preparation of this report. Permission to excavate was readily granted by the former owner of Oakwood, the Hon. Francis Scott; by the present owners, the Buccleuch Estates Ltd.; and by the tenant, Mr Alexander Scott. Much essential

¹ O.S. 6-inch map, Selkirkshire, XI SE.; Nat. Grid. Refs. NT(36)/425249 (fort) and /425255 (camp). The air-photographs in question are 106G/SCOT/UK 86, 3435-6 and 4436-7.

² Messrs W. Glen Aitken, A. C. McLaren, W. J. Scott, G. G. Simpson, M. S. Smith, J. C. Wallace and R. Winter were present throughout the excavation, while Messrs D. Baird, L. N. W. Flanagan, P. Gouldsbrough, J. McClory, G. H. Mackley, W. A. Meek and S. McR. Simpson assisted for shorter periods.

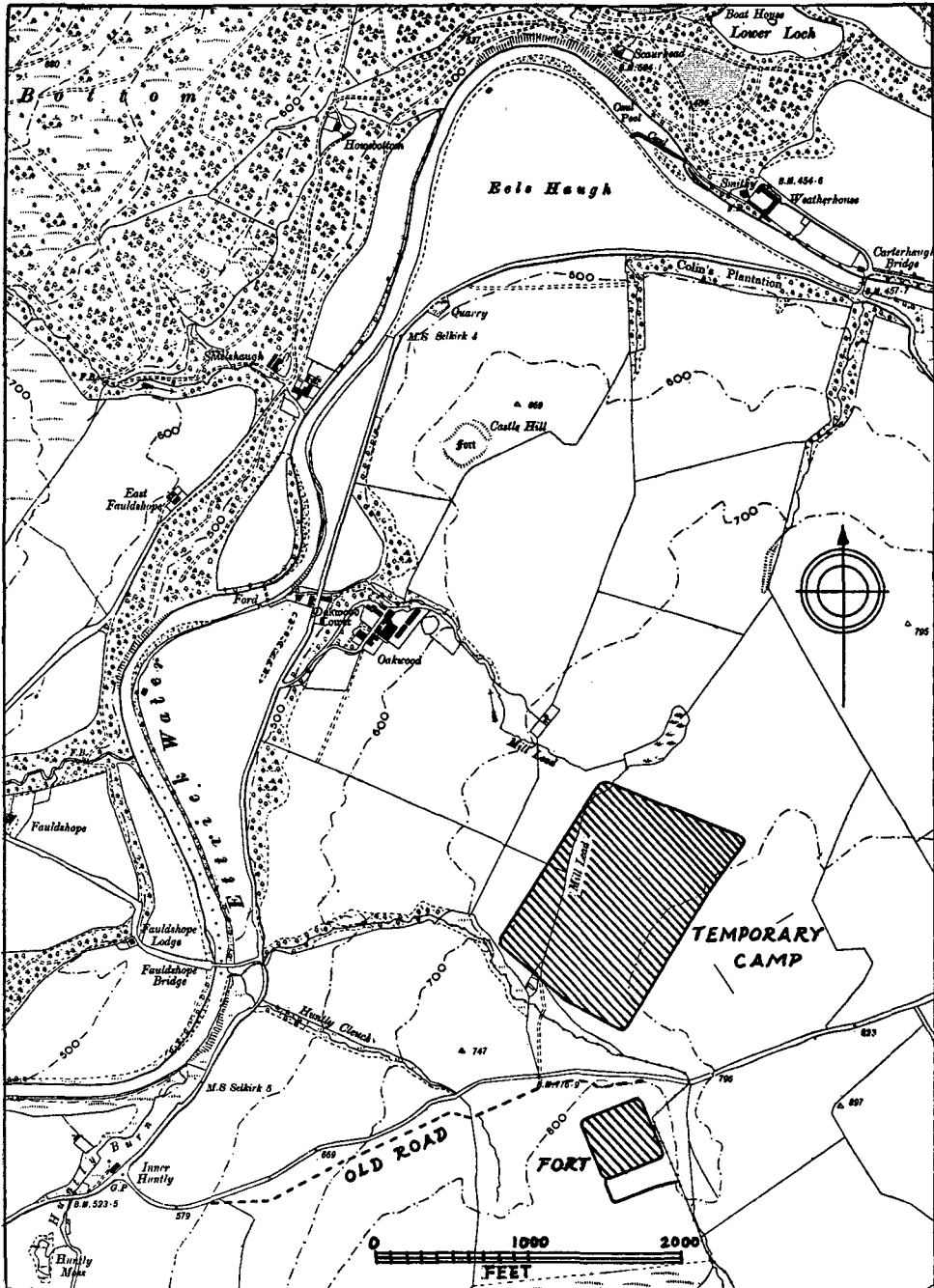


Fig. 1. The Site of Oakwood Fort and Camp.

(Based upon the Ordnance Map, with the sanction of the Controller of H.M. Stationery Office.)

equipment, including fencing, was lent by the Buccleuch Estates through the good offices of the factor, Major P. D. H. Fox; and Mr J. Jamieson, the County Road Surveyor, and his predecessor, Mr A. S. Macvey, kindly lent surveying instruments. Reports on the finds, and other technical information, have been contributed by Miss Grace Simpson (on the Samian ware), by Dr E. M. Knox (on earth samples), by Mr J. P. Gillam (on the coarse pottery), by Dr John Allan (on the coin), by Messrs F. W. Anderson and R. J. A. Eckford (on the local geology), by Mr P. S. Green and the late Mr M. Y. Orr (on the wood), by Dr D. B. Harden (on the glass), and by Mr P. R. Ritchie (on the quern). Valuable suggestions regarding the type of derrick employed by the Romans at Oakwood have been received from Mr G. J. Cameron, Head-Forester to the Buccleuch Estates, and from Mr W. Bulmer; while Mr W. Glen Aitken has kindly drawn the reconstruction of one of these derricks (Pl. XIX), and also the reconstruction of the original aspect of the W. gate (Pl. XVIII). Lastly, the writers wish to acknowledge their indebtedness to the late Mr R. Miles and to Mrs Miles, and to Mr and Mrs J. McClory, for assistance in making local arrangements for the excavation, and for hospitality received on many occasions.

THE TEMPORARY CAMP.

The camp (fig. 2) lies 600 yds. from the Ettrick Water, on the W. side of a broad, flat-topped spur that projects northwards from the base of Huntly Rig. Former cultivation has totally obliterated the defences to the S. of the E. and W. gates, and elsewhere has reduced them to low features, which, under their present mantle of tussocky grass, can only be discerned by a trained eye. The rampart is nowhere more than 18 ins. high, while the ditch is only revealed intermittently by a growth of bent. In addition to these defences, however, traces of an outer mound can be seen in places, notably for a distance of 400 ft. between the W. gate and the NW. corner, and for a similar distance southwards from the NE. corner. In 1951 a section was cut across the W. defences, 200 ft. from the NW. corner (fig. 2, section A-B, and fig. 4, III), and in the following year it was found possible to complete the circuit by tracing the ditch of the missing S. portion in the series of cuttings marked on the plan.

The camp was intended to be rectangular, and of the tertiate form recommended for large forces by the *de munitionibus castrorum*¹ and by Vegetius,² but it has been slightly distorted in the process of laying it out. The E. and W. sides are respectively 1475 ft. and 1250 ft. long, the N. side 1000 ft., and the S. side, which borders a gully drained by a nameless burn, is 985 ft. long. On the somewhat more generous Scottish scale, the enclosed area of 31 acres would afford accommodation for a marching legion. In

¹ *De mun. castr.*, 21.

² Vegetius, iii, 8.

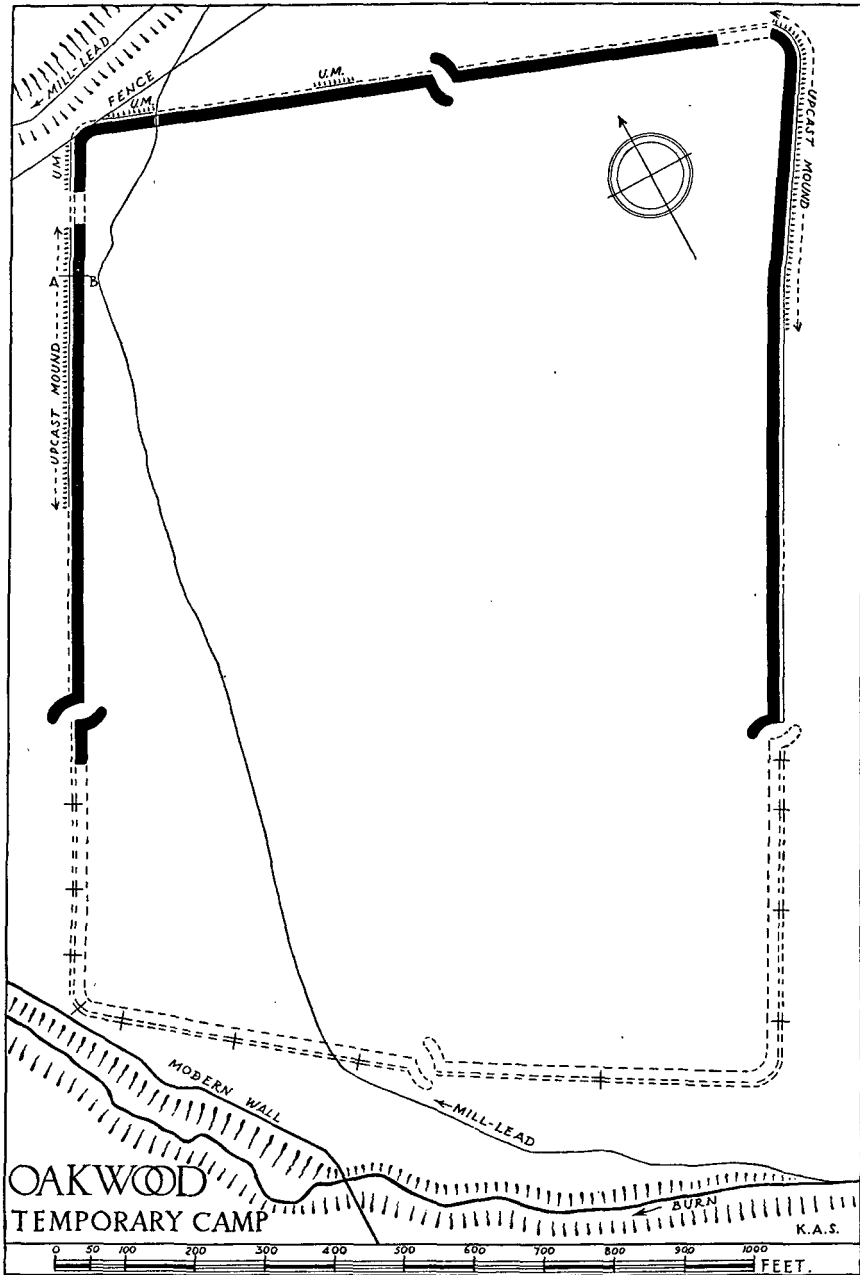


Fig. 2.

addition to possessing a convenient water supply, the site enjoys the advantage of a long prospect westwards up the Ettrick valley. Furthermore, as Dr Knox's analyses show (Appendix VI), the ground was well drained and was only lightly clothed with scrub in Roman times, although in the immediate post-Roman period, when silt was accumulating in the ditch, the scrub increased considerably both in amount and in variety. On the other hand, the disposition of the work is not entirely happy, since the SE. corner dips sharply towards the burn and is out of sight of the rest of the camp, while the E. side lies a short distance below the brow of the spur, whence it could easily be rushed. There are four gateways, those in the N. and S. sides being approximately central, whereas the E. and W. gates leave two-thirds of the interior to the N., showing that the camp faced southwards. The N. and W. gates are each 20 ft. wide and are protected by both internal and external *claviculae*, while the E. gate, of which the internal *clavicula* alone survives, and the vanished S. gate may be assumed to have been similarly designed. Double *claviculae* are much less common than single *claviculae*, but they occur at one of the semi-permanent camps at Cawthorn,¹ which is dated to about A.D. 100; at a camp planned by General Roy, but since destroyed, at Dalginross, in Perthshire;² and, Professor Richmond informs us, at a recently rediscovered camp near York.

The section (fig. 4, III) showed that the rampart was built of puddled clay with the random addition of a few turves: it was no less than 15 ft. thick at the base, and was laid directly on the boulder-clay subsoil. In contrast, the ditch was of small proportions, measuring only 6 ft. wide by 2 ft. deep, but its effectiveness had been increased by dumping the upcast on the outer margin, and in this case on top of the existing turf, to form the mound referred to above. Since the subsoil hereabouts rapidly loses its cohesion on exposure, owing to a high content of sand and stones, the side of the mound facing the ditch was kept in place by a small kerb or cheek of clay.

The substantial scale and careful preparation of these defences clearly indicates that the camp was not simply a transitory bivouac erected by a force on the march, but was intended to be a base for troops engaged on local military operations or engineering works of some duration. And a clue to its precise function is perhaps afforded by the close connexion which appears to exist between it and the adjacent fort. As has already been remarked, the position of the camp is not an ideal one, and, since less vulnerable sites are available in the immediate vicinity, it would seem that tactical considerations were, to some extent, subordinated to the need to place the camp as near as possible to the site of the fort. Moreover, this conclusion is strengthened by the fact that the main gate of the camp, in the S. side, is also the one that provides the most direct access to the fort. Thus, although no dating evidence was found in any of the sections, it seems

¹ *Arch. J.*, LXXXIX (1932), pl. xx.

² *Military Antiquities*, pl. xi.

likely that the camp was erected to house the labour-force employed on building the fort which is now to be described.

THE FORT.

The fort is situated 150 yds. to the S. of the temporary camp, on a small, but conspicuous, knoll which attains a height of 830 ft. O.D. Tactically the site chosen is a good one, since the E. and N. flanks of the knoll fall sharply to the minor burn that threads its way, in a marshy gully, between the two Roman works, while the easier slope to the W. is bounded by the head of a similar gully, the Huntly Cleuch. The only unimpeded approach to the fort is therefore from the S., across open and gently rising ground. The main outlook is to the W. up the Ettrick Water, and there is also an extensive view northwards as far as the junction of the valleys of the Ettrick and Yarrow. To S. and E. the view is more restricted, except that, on the latter side, the tops of the Eildons, 9 miles distant, can be seen in a gap in the adjacent ridge. And that the fort was deliberately sited to include this vista cannot be doubted now that a signal station, linking Oakwood with the key-fort at Newstead, has been discovered on the summit of Eildon Hill North.¹ Like the temporary camp, the fort has suffered severely from rig-ploughing, but has not been completely obliterated. The rampart is still indicated by a crest-line on all sides except the S., and on the W. there are manifest traces of double ditches interrupted by a central causeway. An isolated length of a third, outermost ditch can also be seen covering the southern half of the W. side, and the existence of an annexe is revealed by a single ditch which runs southwards for 200 ft. from the SW. corner of the fort, and thence eastwards as far as the boundary wall between Oakwood and Hartwoodmyres. Apart from this wall, the only obstacle to excavation is a small plantation of conifers situated approximately in the centre of the fort.

At the present time there is little depth of humus on the site, and the subsoil, a thick capping of boulder clay, is rarely more than 18 ins. below the turf. By using a steel probe, 3 ft. 6 ins. long, it was therefore a comparatively easy matter to trace the ditch-system and the entrance-causeways on the other three sides of the fort. These soundings were checked by cuttings, spaced at regular intervals, and while this work was in progress the structure of the defences was examined in a section cut 50 ft. N. of the centre of the W. gate. The results (fig. 3) showed that the fort is square on plan and measures 400 ft. each way within the rampart; the size of the enclosure, some $3\frac{1}{2}$ acres, is closely matched at Slack and Gellygaer, and is appropriate to a quingenary cohort probably reinforced by a mounted detachment. Somewhat surprisingly, the arrangement of the gates reveals that the fort does not look westwards up Ettrick Water, but faces eastwards towards Newstead.

¹ *Infra*, p. 202.

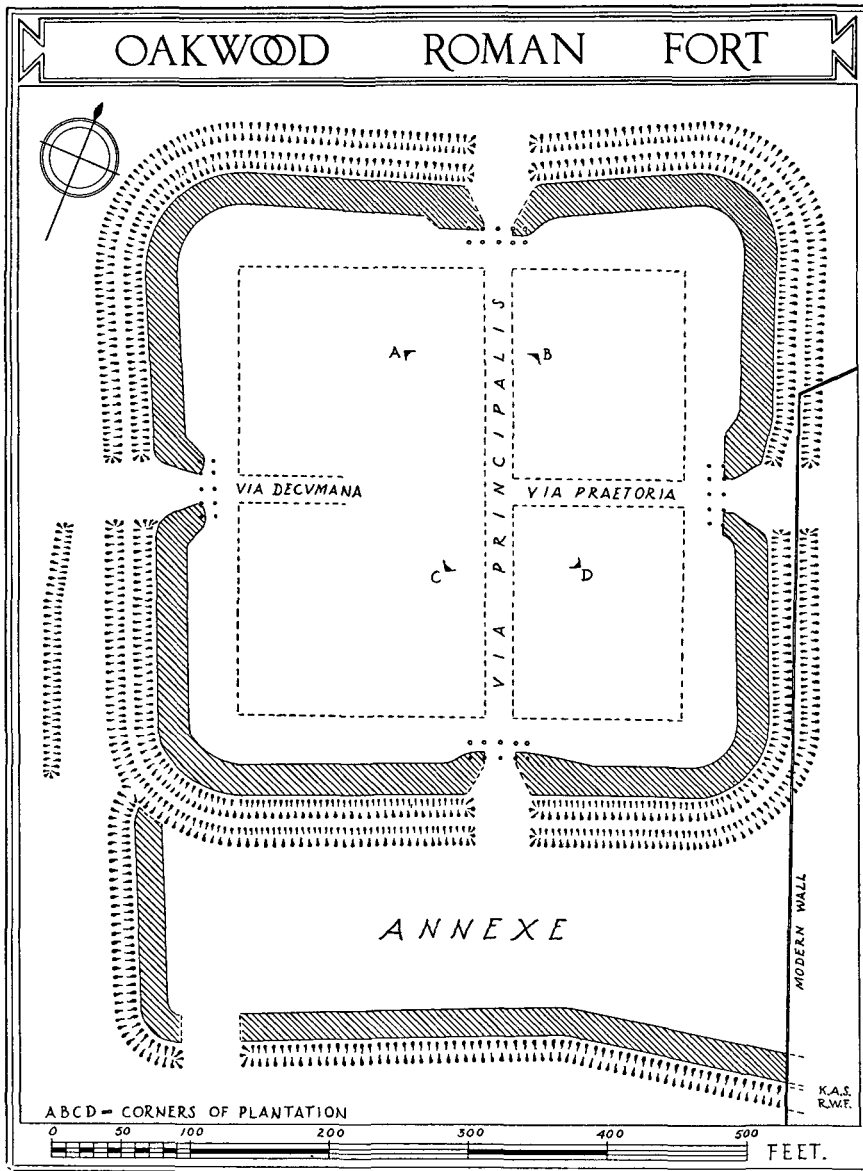


Fig. 3.

The Defences.

In the main section (fig. 4, I) the rampart was less than one foot high. It was of composite construction, the rearward portion, 16 ft. 3 ins. wide, being built of turf, and the front of puddled clay. Weathering had destroyed the outer face, but at other points on the perimeter the berm was found to be from 2 to 4 ft. in width, so that the rampart must have been about 23 ft. broad at the base. Although there was nothing in the section to suggest that the turf and clay represented different structural periods, the clay facing was not present in control trenches dug into the front of the rampart on the N. side of the fort (fig. 4, IV), and on either side of the E. gate; and subsequent examination of the W. gate made it clear that this clay facing is, in fact, secondary, and has replaced an original turf front. No footings had been provided, the turves being laid, grass downwards, directly on the subsoil. On the N. side, however, where the rampart is carried along the face of a slope, the front had been set on an artificial step or terrace, 8 ft. wide, in order to ensure its stability (fig. 4, IV).

The innermost of the two ditches which completely surround the fort was 13 ft. 3 ins. wide and 4 ft. 3 ins. deep, and the other, 7 ft. from the first, was 12 ft. 9 ins. wide and 3 ft. deep. Both ditches were V-shaped, but whereas the outer one was flat-bottomed, the bottom of the inner ditch, which lies below the present water-table, consisted of a broad, shallow channel with vertical sides. Neither ditch exhibited any sign of recutting or yielded any datable finds. Behind the rampart, and between it and the *intervallum* road, there was the usual open space which was reserved for ovens and other minor structures. One such oven was evidently narrowly missed by the section, since the edge of an ash-pit was found in the N. side of the trench, while a thick layer of ash, incorporating burnt clay from the dome of the oven, and stones from the platform or hob, extended from the back of the rampart to the edge of the contemporary *intervallum* road. This road was only lightly metalled, but immediately overlying it there was a second road composed of two or three layers of 6-inch cobbles (Pl. XVII, 2). The W. edge of the later road overlapped the earlier road by 5 ft. 6 ins., but the E. margins of both roads had been destroyed by the plough so that their widths are uncertain.

The main result of this section was thus the discovery that at least two structural phases were represented in the defences. Nothing was found to date the later of these phases, but the original defences were securely linked with Agricola by a somewhat worn *denarius* of Vespasian, minted in A.D. 69-70,¹ which was found, together with minute scraps of Flavian coarse pottery, in the tail of the ash deposit underneath the second *intervallum* road.

Probing established that the isolated length of a third ditch, which is

¹ *B.M. Cat.*, no. 11.

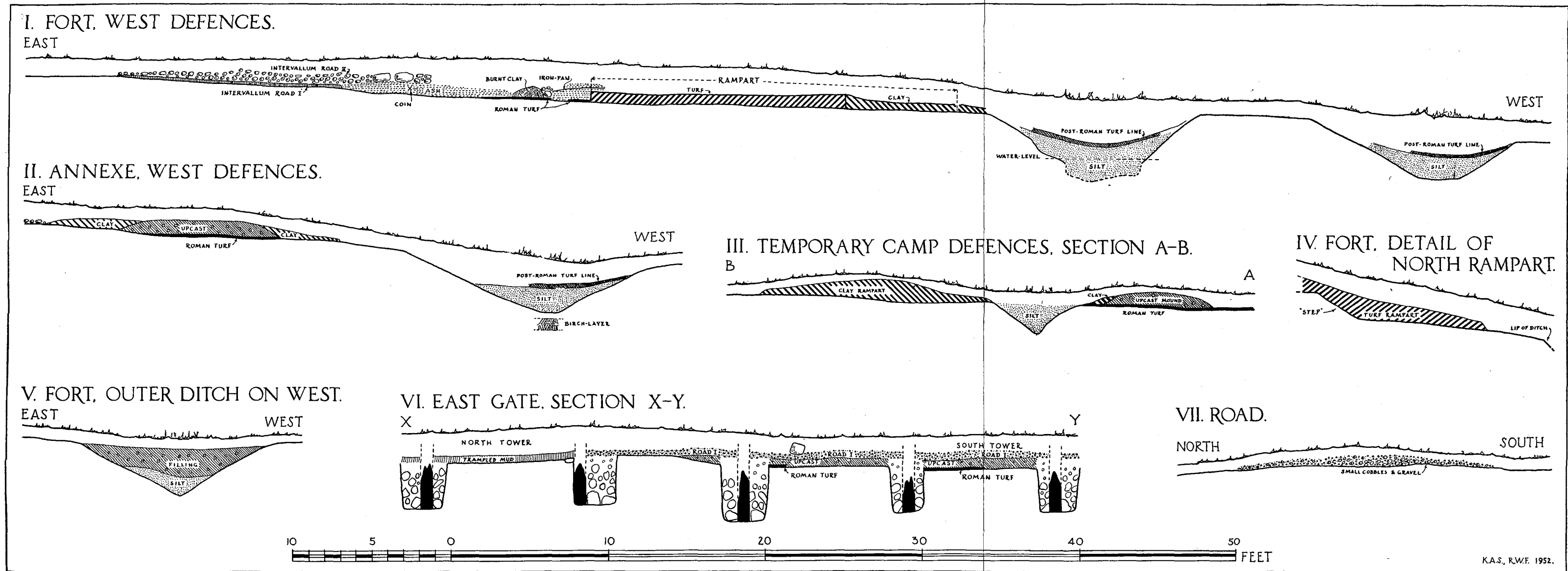


Fig. 4.

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[To face p. 88.]

visible on the W. side of the fort, does not extend further in either direction. And as the N. end of this ditch is exactly in line with the terminals of the inner pair of ditches on the S. side of the W. gate, there can be little doubt that it belongs to the same defensive system. In section (fig. 4, v) it proved to be a typical *fossa fastigata*, measuring 12 ft. in width by 3 ft. 3 ins. in depth. Unlike the other ditches it had been deliberately filled up in Roman times, but not before a considerable quantity of silt had accumulated in the bottom.

The Gates.

All the four gates were of timber, and were basically of the same design although they showed some variation in detail. Each was set back about 30 ft. from the front of the rampart, and comprised twin portals placed side by side and flanked by square towers. On either side of the entrance the rampart-terminals were in-turned, or thickened, in order to bring them into contact with the fronts of the towers; and the gap between the terminals, which was only wide enough at the inner end to accommodate the portals, splayed out to double this width at the front of the rampart, where it was matched by a correspondingly wide gap in the ditch-system. The framework of the gate consisted of ten vertical posts, arranged in two parallel rows of five each, and bedded in large, rectangular pits. Eight of these uprights formed the corner-posts of the towers, while the central member in each row supported the gangway that spanned the gate at the level of the rampart-walk. Although it is unlikely that this type of gateway is unique, no precise analogies appear to have been recorded to date. At all four gates of the legionary fortress of Vetera¹ (Xanten) on the Rhine, and at two of the gates of the small Trajanic fort at Haltwhistle Burn,² close to Hadrian's Wall, the rampart-terminals are in-turned; but in the former case the terminals abut against the side walls of the towers, while at Haltwhistle Burn the gates in question only had single portals and were not seemingly equipped with guard-towers.

(a) *The West Gate (porta decumana)* was examined in detail, and, although the remains were nowhere standing more than 10 ins. high, it was found possible to recover the ground plan and to identify two phases of construction. In the first phase (fig. 5, centre) the rampart-terminals were built wholly of turf, were both in-turned, and were more or less symmetrical on plan, while the road was composed of fine, quarried gravel, 6 ins. thick. All the ten pits which had held the main supports of the gate were located, and six of them, including the entire back range, still contained the stumps of the original oak timbers (Pl. XVII, 4):³ the dimensions of the gate could thus be precisely established. The portals were each 9 ft. 6 ins. wide and 10 ft. 6 ins. deep, but the S. portal had evidently been blocked up before the gate

¹ *Vetera* (Römisch-Germanische Forschungen, iv), figs. 22-3.

² *Arch. Ael.*, 3 ser., v (1909), 236-41 and pl. iv.

³ Cf. Appendix V.

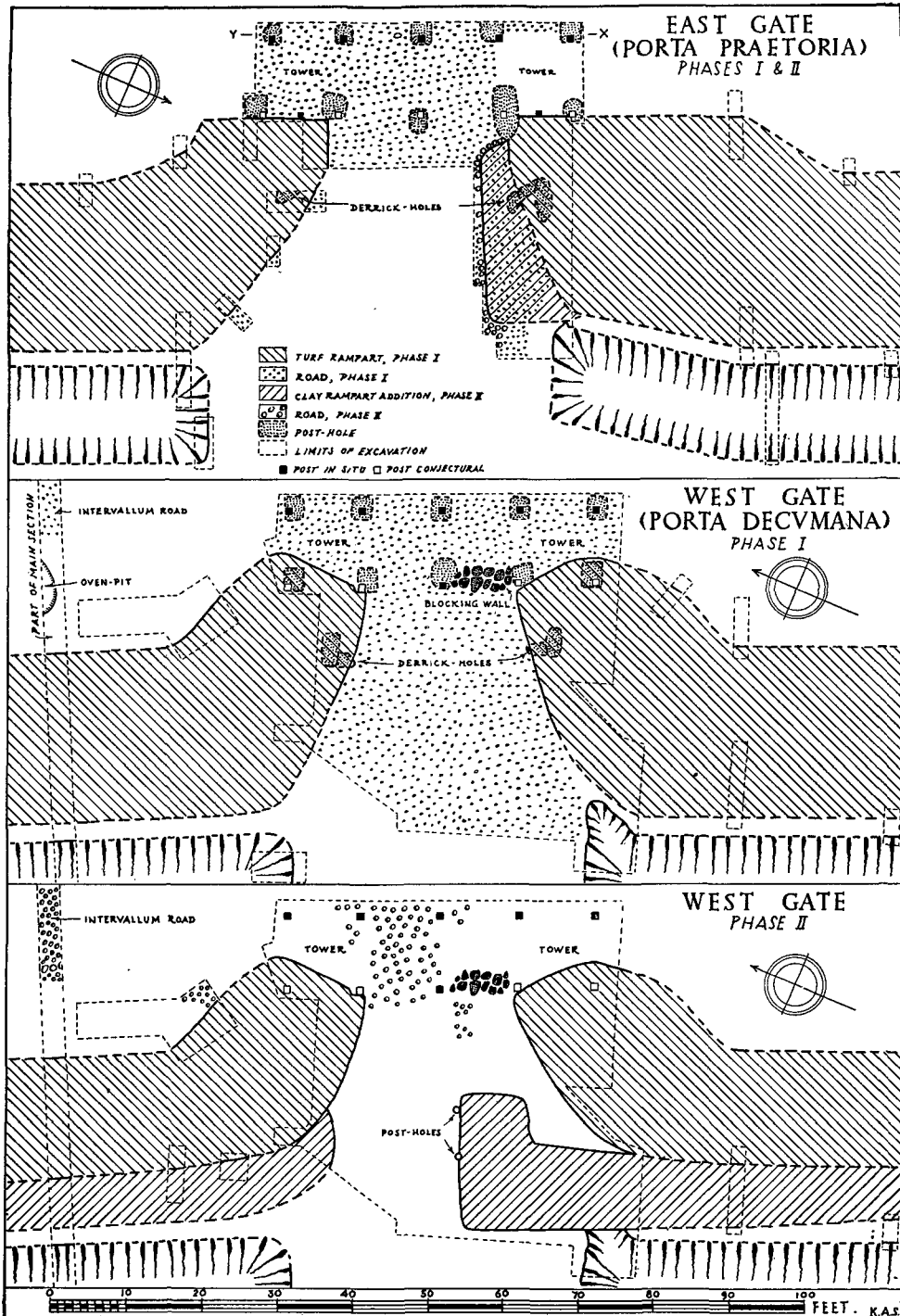


Fig. 5.

was used, since a foundation of large boulders, 3 ft. wide and laid directly on the subsoil, extended across the front. Double doors would be required for the N. portal, and must have been hung on a framework fixed to the forward uprights, but careful search revealed no trace of a sill or door-stop. The N. and S. towers were of the same depth as the portals and measured overall 10 ft. 9 ins. and 11 ft. 4 ins. in width respectively. Although the heel of the rampart projected into the base of each tower, the fronts of the towers must have been boarded up practically from ground level to the height of the rampart-walk—not only in order to retain the turfwork in position, but also to close the gap which would otherwise develop between the battered outer face of the rampart and the adjacent vertical corner-post of the tower. On the other hand, the towers were evidently open on the other three sides, since the spaces underneath them, where not occupied by rampart material, were metalled in exactly the same way as the portals and entrance-passage. It must therefore be concluded that the towers were not solid structures, but simply frameworks for fighting-platforms such as are frequently depicted on Trajan's Column.¹

In the light of the above evidence, it is possible to attempt a reconstruction of the original aspect of the gateway (Pl. XVIII). Where it abuts against the fronts of the towers, the rampart is about 18 ft. wide at the base, so that, on the basis of Professor Richmond's calculations at Fendoch,² its height will have been approximately 12 ft. The rampart-walk would doubtless be surfaced with corduroy, but, in view of the need to economise in dressed timber, it is probable that the battlemented parapet, about 5 ft. high, would be wattled rather than boarded. Each tower must have had two platforms, the lower of which would require to be level with the top of the rampart so as to provide communication between the rampart-walk and the gangway spanning the gate. It is likely that this platform could be reached directly from ground-level by means of a ladder, while a ladder would certainly be needed to give access to the upper platform, some 10 ft. above the first. The illustrations on Trajan's Column make it clear that, in order to give the defenders complete freedom of action, the upper platforms at least were not furnished with crenellated parapets, but were merely enclosed by low, cross-braced rails, above which the tops of the corner-posts of the towers projected for several feet. Allowing for the fact that they were sunk about 3 ft. into the ground, the main timbers of the towers will thus have been not less than 30 ft. in length. Lastly, whether the blocking wall in the S. portal was of dry-stone or of turf, it cannot have stood to a height of more than 8 ft. at the most on a 3-ft. foundation: it has therefore been assumed that the upper part of the front of this portal was boarded over.

Two minor features remain to be mentioned in connexion with this

¹ Cichorius, *Die Reliefs der Traiansäule*, sc. xv, xxxi, cxxxiv, etc.

² *P.S.A.S.*, LXXIII (1938-9), 113.

phase of the gateway. Some 7 ft. in front of the centre of each tower, and sealed by the rampart, there was an oval pit with a sloping runway leading into it at right angles from the direction of the road. The pits, which were bowl-shaped in section and 1 ft. 9 ins. deep, were filled with stones, while the runways were tightly packed with turf. The symmetrical arrangement of these pits in relation to the lay-out of the gate clearly implies that they are of Roman origin, and a large piece of an amphora was, in fact, found in the filling of one of them. But discussion of their purpose will best be deferred until the excavations at the E. gate have been described.

In the second phase (fig. 5, bottom) no alteration had been made at the gateway itself, apart from resurfacing the road with cobbles. This later metalling, which was identical in character with that of the second *intervalum* road in the main section, had largely been removed by the plough, but it was well preserved in the N. carriageway, while patches survived under the adjacent tower and in front of the blocked portal. The principal changes concerned the approach to the gate. Here, for a distance of at least 40 ft. on either side of the entrance, the front of the turf rampart was cut back to a depth of about 7 ft. and was replaced in puddled clay. As the W. side of the fort is, by nature, particularly exposed to the erosive action of wind and rain, this local reconstruction obviously implies nothing more than the repair of damage caused by weathering. And the decision to employ clay rather than turf for the new facing is understandable, since the former would bind more readily with the existing turfwork. On the N. side of the gate, the clay facing, which had already been encountered in the main section (p. 88), appears to have observed the limits of the original front, except that its S. end projected a few feet further into the entrance-passage before tapering off against the undisturbed turfwork. On the S. side of the gate, however, the new facing parted company with the rampart opposite the end of the ditch, and extended in a straight line as far as the middle of the entrance-passage where it returned inwards for a further 6 ft. This extension, which was clearly designed to strengthen the gateway defences by restricting the width of the approach, was laid on a cobble foundation whose W. margin was neatly kerbed; and its secondary nature was demonstrated by the fact that the kerb had been built over a gully at the corner of the first-phase ditch, into which it had later subsided (Pl. XVII, 3).

Two post-holes, each containing fragments of alder posts, showed that the side of this reducing wall flanking the entrance had been vertical, and had been retained by boarding. But although careful search was made, no post-holes were detected along any of the other sides, so that these were presumably battered. The height of the work was probably about 8 ft., while the top was no doubt surmounted by a palisade.

A number of sherds assignable to the first structural phase, and all of Agricola date, were recovered from a trench cut behind the rampart

between the N. tower and the main section, from the filling of the major post-holes, and from the surface of the gravel road. On the other hand, the only finds which could be attributed with any degree of confidence to the second phase were a mortarium rim (fig. 8, 6), and numerous fragments of a globular amphora, all of which were embedded in the surface of the later road.

(b) *The East, or Main, Gate* of the fort, the *porta praetoria*, was examined in 1952. It had been ploughed down to the same extent as the W. gate, but, partly by stripping selected areas, and partly by trial-trenching, it was again possible to recover the plan and to detect two phases of construction (fig. 5, top). In the first phase the rampart-terminals were of turf and the road of gravel, but the symmetrical design of the W. gate was not repeated. Thus the ends of the inner ditch were not in alignment, nor were they equidistant from the centre of the gate, and consequently the sides of the entrance-passage were of unequal lengths. These minor variations clearly represent nothing more than a certain lack of co-ordination between different working parties, but it is otherwise with the rampart-terminals which were totally dissimilar on plan. For whereas the S. terminal was in-turned, the N. terminal exhibited a rearward expansion, some 7 ft. thick, for a distance of 30 ft. N. of the gate. And that this expansion was an integral part of the original design, and not simply an adjustment made in course of construction, was shown by the fact that the corresponding terminals at the N. and S. gates were also thickened (fig. 3), while the opposite terminals were in-turned in each case. Time did not allow us to examine the expansion in detail, but on the assumption that the inner face of the rampart was almost vertical to a height of about 4 ft. above the ground, as in the case of Hadrian's Turf-Wall,¹ its purpose may well have been to provide a sloping base for a broad flight of steps cut in the turfwork and leading to the rampart-walk. The provision of some such means of ascent would be imperative if the gateway defences were to be manned promptly and effectively during an emergency; and the remains of ramps or staircases have, in fact, been identified in corresponding positions at Cawthorn² and at the Saalburg.³

By a remarkable coincidence, the stumps⁴ of all the five main uprights at the back of the gate were again preserved in their pits (fig. 4, VI), and, although no stumps survived in the forward range of pits, fragments of wood remained to mark the approximate positions of these timbers. Thus defined, the dimensions of the gate were found to correspond very closely to those of the *porta decumana*. The depth of the gate was again 10 ft. 6 ins., the portals were 9 ft. 7 ins. wide, and the N. and S. towers, neither of which was absolutely rectangular on plan, were respectively 10 ft. 4 ins. and 10 ft. 7 ins. wide. The fronts of the towers had been boarded up from ground-

¹ *T. Cumb. and West. A.S., N.S., xxxv* (1935), 222 and fig. 4.

² *Saalburg Jahrbuch*, iv (1913), pls. 4-6, 9.

³ *Loc. cit.*, 31-2.

⁴ *Cf.* Appendix V.

level, and, in each case, the boarding had been supported in the centre by a vertical birch post, 8 ins. square in section, which was rammed in the subsoil to a depth of 18 ins. There was, however, one notable difference between the towers, for whereas the S. tower was floored with road metal, the N. tower exhibited no such metalling: only a thin layer of trampled mud covered the surface (fig. 4, vi). While, therefore, the S. tower was evidently an open framework, like the towers of the W. gate, the N. tower must have had an enclosed basement which presumably served as a guard-chamber.

In the second phase, the width of the entrance-passage was reduced by the addition of a buttress of puddled clay to the N. jamb, and, as at the W. gate, the road was resurfaced with cobbles. Although the buttress partly obstructed access to the N. portal, there was no evidence that the portal itself was blocked up. In this case the turf rampart was not cut back, and the clay was laid directly on the gravel road whose surface significantly showed very little sign of wear. The later metalling had been almost completely ploughed away, but a few patches survived under the lee of the rampart on the N. side of the entrance-passage.

The only small finds encountered at this gate were a mortarium rim (fig. 8, 5) from the surface of the earlier road, a fragment of glass from the filling of one of the main post-holes, and a piece of amphora from the metalling of the second road.

(c) *The Derrick-Holes.*—In front of the N. tower of the E. gate, an oval pit, furnished with a sloping runway, was found beneath the rampart-terminal (fig. 6). The W. half of the pit was filled with stones and a piece of a 2-inch birch plank lay on the bottom, while the runway had been carefully sealed with turf. It will be recalled that similar pits were found in front of both towers at the W. gate (p.), and a fourth was subsequently located, but left unexcavated, in a corresponding position on the S. side of the E. gate. What was the purpose of these pits? In spite of the fact that they were not square-cut, but bowl-shaped in section, the stone packing and the runways¹ imply that they were post-holes, and their size indicates that the posts which they contained were at least of equal girth to the main timbers of the gateways. But whereas all the other post-holes encountered at both gates retained some remains of their timbers, no trace of uprights could be detected in the three pits in question—and this is all the more surprising since the plank on the bottom of the pit at the E. gate was in a fine state of preservation. The evidence thus suggests that the four timbers concerned had been erected for some purely temporary purpose connected with the building of the gates, and that they had been dismantled before the rampart was constructed. Only one explanation will fit these facts, namely that the

¹ Post-holes equipped with similar runways were found at the fort of Old Church, Brampton (*T. Cumb. and West. A.S.*, N.S., xxxvi (1936), 174 and fig. 10).

timbers were derricks employed to raise the framework of the gates. That some sort of derrick would be required is beyond doubt, since Mr Cameron assures us that an oak post of similar section to those found at Oakwood could not be erected by man-power alone if it was more than 20 ft. long at the outside—and our calculations (p. 91) have shown that the corner-posts of the towers were at least 30 ft. in length. As the two derrick-holes

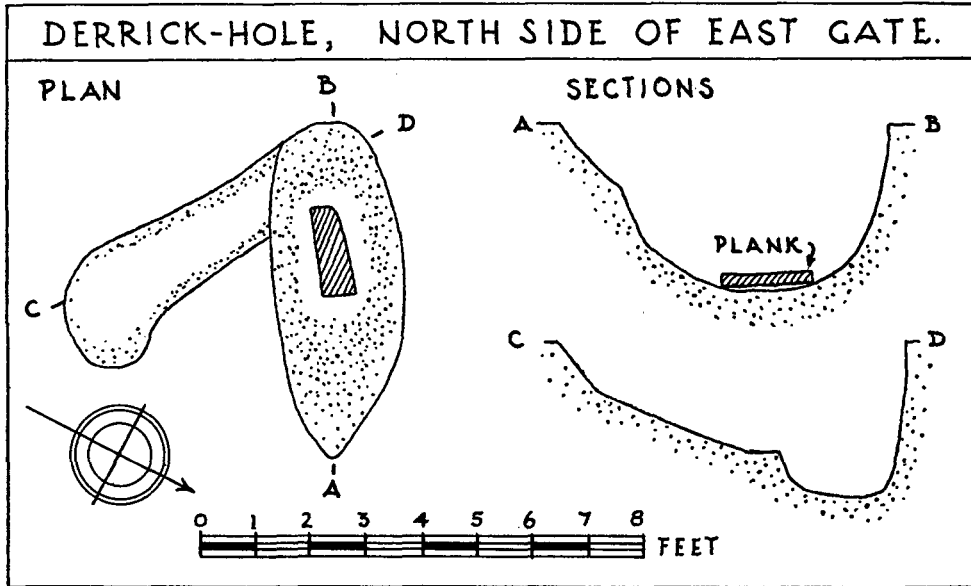


Fig. 6.

at each gate are too widely spaced for shear-legs, it must be assumed that each hole held a single standing derrick of the type which is still in use, particularly in forestry work,¹ and which is illustrated in operation in Pl. XIX. Although they have not been recorded hitherto, such derricks must have been commonly used by Roman engineers, and future excavation will doubtless reveal many more examples.²

(d) Trenching established that the *North and South Gates* had been generally similar on plan to the E. gate, and no further excavation seemed called for. Six of the main post-holes were located (one at the N. gate, and

¹ Mr Cameron informs us that it is still common practice to insert a piece of plank as a bed-plate under the base of a derrick of this kind.

² The credit for the interpretation of these derrick-holes is ultimately due to Mr F. A. Child, who had previously suggested to Professor Richmond that the two extra pits at the N. gate of Fendoch (*P.S.A.S.*, LXXIII (1938-9), 116, fig. 3), one in front of the W. tower and the other behind the E. tower, were erection-holes for derricks. Professor Richmond comments that this suggestion seems to him so valuably confirmed by the discoveries at Oakwood as to render it now certain and worth recording.

five, all in the front range, at the S. gate) but search was not made for the rest. A large fragment of a mortarium (fig. 8, 1) was found in the filling of one of the post-holes at the S. gate.

The Annexe.

A section cut across the W. defences of the annexe (fig. 4, II) showed that the rampart was 19 ft. thick, and was composed of a core of ditch upcast which had been laid on top of the existing turf and revetted with cheeks of puddled clay. The single ditch, 4 ft. in front of the rampart, was 16 ft. wide and 3 ft. 3 ins. deep, and exhibited no sign of recutting. An unusual discovery in this section was that of a birch layer, 9 ins. thick, which was found, intercalated between layers of boulder clay, 5 ins. below the bottom of the ditch.¹ Probing confirmed surface indications of an entrance, 40 ft. wide, at the SW. corner of the annexe, but no excavation was undertaken. Nor did time permit us to look for the continuation of the S. defences on the E. side of the boundary wall between Oakwood and Hartwoodmyres, where probing yielded negative results. It is thus uncertain whether the defences returned hereabouts to those of the fort, or whether, in view of the natural protection afforded by the marshy gully, some minor feature took their place on this side. A cutting revealed that the bottom of the annexe ditch is not flush with that of the fort ditch, where the two intersect, but is one foot above it; and this fact, coupled with the dissimilarity between the materials employed in their ramparts, may perhaps suggest that the annexe was not strictly coeval with the fort but was added at a later date. It does not necessarily follow, however, that it belongs to the second phase observed in the fort defences.

Internal Buildings.

From the evidence of the main rampart section, and of trial-holes dug at various points, it was clear that all stratification within the circuit of the *intervallum* road has been destroyed by ploughing. While, therefore, it would doubtless be possible to recover the lay-out of the internal buildings by tracing post-holes or sleeper-trenches, this was not attempted since it seemed unlikely that the results would add materially to the knowledge already gained of the history of the fort. For the same reason, no search was made for angle- or interval-towers.

¹ Dr Anderson points out that the birch layer is either lying between two distinct boulder clays, in which case it could represent an interglacial amelioration of climate, or it is entirely subsequent to the boulder clay, lying on the surface of the original clay deposit and at a later date being covered by slumped masses of similar material. If the latter is the case, the birch layer is in the position in which it is normally found, *i.e.* it represents the climatic improvement which followed the main glaciation and resulted in widespread retreat of the glaciers. Which of these two relationships actually obtains can only be determined by detailed observation of similar occurrences over a wide area.

CONCLUSIONS.

The historical conclusions to be drawn from the excavations may be summarised as follows:—

1. The fort was built, possibly by troops quartered in the adjacent camp, within a year or so of Agricola's invasion of Scotland in A.D. 80.

2. Subsequently the fort defences were reconditioned on one occasion when the weathered W. front of the rampart was repaired, the roads were resurfaced and the approaches to the E. and W. gates were reduced in width. It is also possible, though unproven, that the isolated length of ditch on the W. side of the fort was filled up, and the annexe constructed, in the course of this general overhaul. The fact that the original road showed scarcely any sign of wear, and that, with one doubtful exception, all the figured Samian ware recovered from first-phase deposits is of Dragendorff's form 29—which was practically obsolete by A.D. 85—suggests that this reconstruction took place within a few years of the initial occupation of the site.

3. Although small in quantity, the pottery includes nothing which need necessarily be later than the turn of the first century A.D., while the appearance of the timbers from the E. and W. gates suggests that, when the fort was finally abandoned, these gates were destroyed by fire.

4. There is no evidence for reoccupation of the site in the Antonine period.

Apart from the absence of Antonine occupation, the history of Oakwood thus runs parallel to that of Newstead where excavation has revealed two Flavian periods—the first of which began in A.D. 81 and ended soon after A.D. 86, while the second ended in a hurried evacuation, attended by the burning down of the internal buildings, about A.D. 100.¹ Furthermore, it is evident that, as Professor Richmond inferred at Newstead,² there was no break in the occupation of the site between these periods. For not only did the ditches show no trace of recutting, but the main timbers of the E. and W. gates remained in service throughout both structural phases. If, however, the fort had been deliberately abandoned according to plan at the end of the first phase, these timbers would presumably have been dismantled for use elsewhere—as was done at Fendoch.³ And if the site had been temporarily evacuated in the face of enemy pressure, the gates would surely have been destroyed by the barbarian invaders if not by the retreating garrison. Thus the fact that the renovation of the defences did not include the erection of new gates, or any modification of the existing ditch-system, implies continuity of occupation.

Lastly, the strategic purpose of the fort remains to be considered. The speed with which the Agricolan armies reached the Tay is only explicable on the assumption that no organised resistance was offered by the Lowland

¹ *P.S.A.S.*, LXXXIV (1949–50), 26.
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² *Ibid.*, 7.

³ *Loc. cit.*, 153.
7

tribes, and, indeed, the later history of two of the principal tribes concerned—the Votadini of Northumberland, Berwickshire and Lothian, and the Damnonii of upper Clydesdale and Ayrshire—suggests that both were long-standing allies of Rome. On the other hand, it is evident that the Selgovæ, dwelling in the foothills on either side of the central massif, were tacitly, if not overtly, opposed to the Roman advance, for the two main routes of Agricolan penetration (*i.e.* Dere Street and the road from Carlisle to Inveresk by Annandale and upper Clydesdale) were obviously designed to isolate this tribe, cutting them off from the Votadini on the E. and from the Novantæ of Nithsdale on the W. But in view of the size of the area, and the difficult nature of the country, effective control over the Selgovæ could not be achieved simply by cordoning them off; and consequently as soon as the region came under permanent occupation the forts of Oakwood, Lyne, and possibly Raeburnfoot¹ were planted deeply within their territory. Each of these forts is situated in close proximity to local concentrations of native forts and settlements of Early Iron Age type, and it is noteworthy that both Oakwood and Raeburnfoot are placed at the furthest points reached by the native settlements up their respective valleys: thus they would be in a position to dominate major escape routes to the mountainous hinterland beyond.

On general grounds it is reasonable to assume that Oakwood would be linked by a service-road with the great strategic centre of Newstead, 10 miles to the NE., and the absence of any definite evidence for such a road is of little account in view of the fact that most of the intervening ground has long been under cultivation.² On the other hand, there is no reason to suppose that this presumed road continued south-westwards either to Raeburnfoot, in Eskdale, or to Milton, in Annandale. The only known road that traverses the central massif in this area, the Craik Moor road from Raeburnfoot to Newstead,³ cannot now be traced further than the head of Borthwick Water. Nevertheless, the negative results of intensive field-work suggest that, beyond this point, the road did not diverge to cross over to the Ettrick valley, since some traces of such a divergence should still have been preserved on the open moorland, but that it continued in a more or less direct line to Newstead through ground at present cultivated. Such a course would pass at least 3 miles to the S. of Oakwood, and although there is enough open moorland hereabouts to have given investigators a fair chance of finding

¹ The earlier of the two superimposed works at Raeburnfoot, a 6-acre fort, has not been dated but is probably Flavian. The later fortlet is Antonine (*T. Dumf. and Gall. A.S.*, 3 ser. xxiv (1947), 154).

² It is possible that this road did not originate at Newstead itself, but that it branched off Dere Street further S. and ran along the S. side of the Eildon Hills. If so, its starting-point may be represented by a fragment of a causeway, identified as Roman by Dr James Curle, which was unearthed in Eildon Terrace, Newtown St Boswells, when house foundations were excavated there in 1921. In 1941 a witness of the excavations stated that to the best of his recollection the remains underlay the houses nos. 5 and 6 on opposite sides of the Terrace; this would appear to align the causeway from ENE, to WSW., *i.e.* at right angles to Dere Street.

³ *P.S.A.S.*, lxxx (1945-6), 103-17.

any connecting link with the fort, no such link has in fact been discovered. Nor can cultivation be held responsible for the entire absence of any visible or recorded remains of a Roman road running from Oakwood to Milton, by way of Ettrick Water and Moffat Water, or to Raeburnfoot, by way of Ettrick Water and Tima Water.¹ It must be concluded, therefore, that Oakwood was not an intermediate station on a lateral road, but a terminal point on a branch-road from Newstead, and this lack of through communication no doubt explains why, in the Antonine period, when the power of the Selgovæ had evidently been broken, the site was not even occupied by a road-post. Yet the fact that the Antonine reorganisation involved not only the abandonment of Oakwood but also the replacement of the former forts at Milton and Raeburnfoot by small patrol-posts, would seem to demand a more permanent link across Ettrick Forest than was necessary during the Flavian occupation. Hence the Antonine period would appear to provide the most suitable context for the construction of the Craik Moor road.

APPENDIX I.

SAMIAN WARE.² BY GRACE SIMPSON.*Flavian I. West gate, behind rampart.*

1. One-third of a Dr. 18. Part of the stamp remains, reading OF B. . . . or OF PA. This could be either OF BASSI, OF BASSICO, or OF PASSIENI, and no other stamps on S. Gaulish ware as far as I know. Of the three OF PASSIENI seems to be the likeliest, and if this reading is accepted it may be noted that PASSIENVS stamped wares have been found in N. Britain at Carlisle (Dr. 29), Templebrough (Dr. 18), Wroxeter, Holt and Chester; while continental examples occur at Aislingen (Dr. 18), Cannstatt, Rottweil and Hofheim II. Knorr suggests that his working life was *circa* A.D. 55–80 (*Knorr* 1919, 7). On form Dr. 29 his later decorative style is similar to those of other potters found in the destruction of Pompeii (*Atkinson*), and to two bowls found at Inchtuthil (one in 1952) on which the upper friezes are broken into small metopes. Thus it is his latest work that appears to have reached Scotland.

2. Fourteen scraps include: 5 indeterminate pieces, probably Dr. 29; 1 indeterminate piece, definitely Dr. 29; 3 rim sherds of Dr. 18; 1 portion of a basal wreath (fig. 7, 4), form uncertain (cf. *Atkinson*, no. 15, stamped MOMMO); 1 sherd from the lower frieze of a Dr. 29 (fig. 7, 1), showing straight godroons (cf. *Atkinson*, nos. 26 and 29); 2 pieces joining and 1 other sherd all from the upper frieze of a Dr. 29, and possibly from the same bowl (fig. 7, 2–3), showing leaf-tips filling the lower concavity of a rinceau (cf. *Atkinson*, no. 22, *circa* A.D. 80).

¹ On the hypothesis that the 18th-cent. road from Selkirk to the head of the Ettrick Water might preserve the line of a Roman road, since it passes between the fort and the camp (fig. 1), a section was cut across it near the W. corner of the fort in 1951 (fig. 4, VII). No trace was found, however, of any earlier road, the metalling consisting merely of a thin band of small cobbles and gravel, 16 ft. wide, which rested on the natural surface.

² The following abbreviations are used: *Knorr* 1919=R. Knorr, *Töpfer und Fabriken verzierter Terra-Sigillata des Ersten Jahrhunderts*; *Atkinson*=D. Atkinson, *JRS.*, iv (1914), 27–64; O. followed by a number=F. Oswald, *Index of Figure-types on Terra Sigillata*; *Hermet*=F. Hermet, *La Graufesenque*; *Knorr* 1952=R. Knorr, *Terra-Sigillata Gefässe des Ersten Jahrhunderts mit Töpfernamen*.

Flavian I. West gate, post-hole filling.

1. Three rim sherds of Dr. 29, probably from the same vessel.

Flavian I or II. West gate, behind rampart.

1. One piece from rim of Dr. 18.
2. Dr. 29, two pieces giving the complete profile save for the foot-ring (fig. 7, 5). The figure-type is clearly the Goat (O. 1823) used by OF PASSEN (B.M.), IVVENTI (L.M.), and CVNASVS (*Hermet*, pl. 117, 2). Unfortunately the bowl has suffered very severely from the soil conditions prevailing at Oakwood, and the

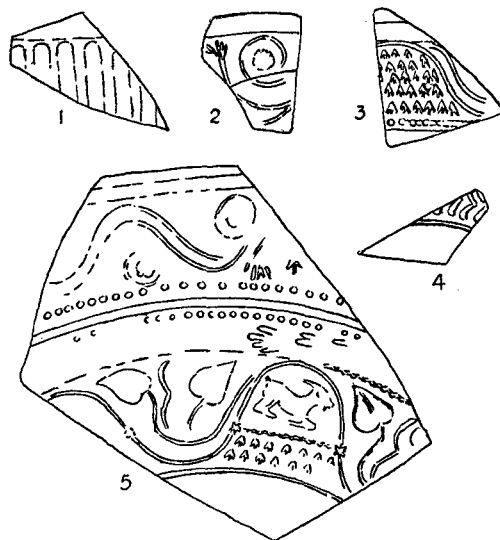


Fig. 7. Fragments of Samian Ware from Oakwood. (4.)

upper frieze has almost disappeared, though the general scheme of a *rinceau* may just be discerned. The lower frieze consists of a straight wreath (details indecipherable) below the moulding, and above a design which can be reconstructed with certainty. The design is an uncommon one, and very like (except for different figure-types) a bowl stamped OF CELADVS (*Knorr* 1952, pl. 15, B) found in 1928 in London, and now in the Guildhall Museum. The upper concavities of the scroll contain two cordate buds with a tendril between them, and the lower concavities hold the figure-type with a small panel below filled with two rows of leaf-tips. A somewhat similar design was used by OF COELI (*Knorr* 1919, pl. 23, A), but using leaves instead of buds in the upper concavities. *Knorr* would probably be prepared to give OF CELADVS a rather longer working life than he suggested for him in 1919 (*i.e.* A.D. 50-65); and, indeed, OF CELADVS may be a different potter from CELADI-MAN. The upper frieze of the Guildhall bowl is very like the two Inchtuthil Dr. 29's already mentioned, and the period *circa* A.D. 75-85 is probably the one in which such designs were being made.

Unstratified.

1. Piece of plain Samian, probably Dr. 18.¹

¹ Mr Eric Birley has kindly read these notes and concurs in the identifications proposed.

APPENDIX II.

COARSE POTTERY.¹ BY J. P. GILLAM.

The small amount of coarse pottery found at Oakwood adds little to what has been ascertained about the site from the study of its structural remains, and of the figured Samian ware, against the background of the known history of Roman Scotland. Nevertheless, the fact that, even divorced from its context, the coarse pottery would be unhesitatingly pronounced Flavian has some corroborative value. Every piece might well have been made before *circa* A.D. 100. Apart from numerous fragments of amphoræ, only one Flavian II piece (no. 6) was found; and as, in any case, the typology of coarse wares between Vespasian and Hadrian cannot yet be worked out in full detail, this throws scarcely any light on the date of the final abandonment of the fort. It does, however, make it as certain as the negative evidence of so small a yield can, that there was no Antonine occupation of the site.

The individual pieces are as follows (fig. 8).

Flavian I. South gate, post-hole filling.

1. Large fragment of a mortarium in hard bright orange fabric, with an unoxidised blue-grey core. Small opaque white, or light grey, grit appears on the upper outer surface of the rim, as well as inside the vessel; both rim and interior are scored by use, and there are holes from which the grit is now missing. This type of mortarium differs both in shape and fabric from the earliest types commonly found in N. Britain (*Wroxeter* I types 14/18 and 34/38), and seems to be mainly pre-Agricolan. Thus it occurs at *Malton* (fig. 1, no. 1; and fig. 15, no. 9), but it has not so far been recorded from Corbridge where the other types are very common. On the other hand, two vessels of similar shape to the present example, but in different fabrics, have been found in Agricolan contexts in Scotland, *i.e.* at *Fendoch* (no. 3) and *Castledykes* (pl. LIV, no. 2).

Two small rim fragments, identical with the large fragment in fabric and form, and almost certainly from the same vessel, were found unstratified on the site.

Four fragments from a fairly thin-walled bulbous vessel, a jar or flagon, in light orange fabric with a black deposit on the surface, were also found in the filling of the same post-hole at the S. gate.

Flavian I. West gate, behind rampart.

2. Large number of conjoined fragments from the uppermost part of a ring-necked flagon with a three-ribbed handle; it is a fine sandy orange fabric which has been softened by the damp soil. A base fragment and three wall fragments in closely similar fabric, and from the same deposit, are almost certainly from the same vessel.

¹ The following abbreviations are used: *Aspects* = *Aspects of Archaeology in Britain and Beyond*: Essays presented to O. G. S. Crawford; *Castledykes* = *The Roman Occupation of South-western Scotland* (ed. Miller); *Chesterholm* = *Arch. Ael.*, 4 ser., xv, 222; *Corbridge* = *Arch. Ael.*, 3 ser., viii, 137; *Fendoch* = *P.S.A.S.*, lxxiii (1938-9), 144; *Leicester* = K. M. Kenyon, *Excavations at the Jewry Wall Site, Leicester*; *Malton* = P. Corder, *The Defences of the Roman Fort at Malton*; *Newstead* = J. Curle, *A Roman Frontier Post and its People*; *Richborough* II = J. P. Bushe-Fox, *Second Report on the Excavations of the Roman Fort at Richborough, Kent*; *Wroxeter* I, II = J. P. Bushe-Fox, *First and Second Reports on the Excavations on the site of the Roman Forum at Wroxeter, Shropshire*.

The ring- and screw-neck flagon series lasted from *circa* A.D. 70 until *circa* A.D. 180. The present piece has a peaked handle, a shallow, though wide, lip with deeper lower rings, and a thin-walled neck; these are all features which mark it off as definitely early in the series. It is rather nearer in form to *Richborough* II, no. 139, than to *Newstead* type 33, both of which are Flavian.

3. Several conjoined fragments from a jar in smooth light fawn fabric, decorated with circles and blobs of brown paint or slip. The slip was presumably applied with the fingers, and the centre of each blob rises to a sharp point where the finger

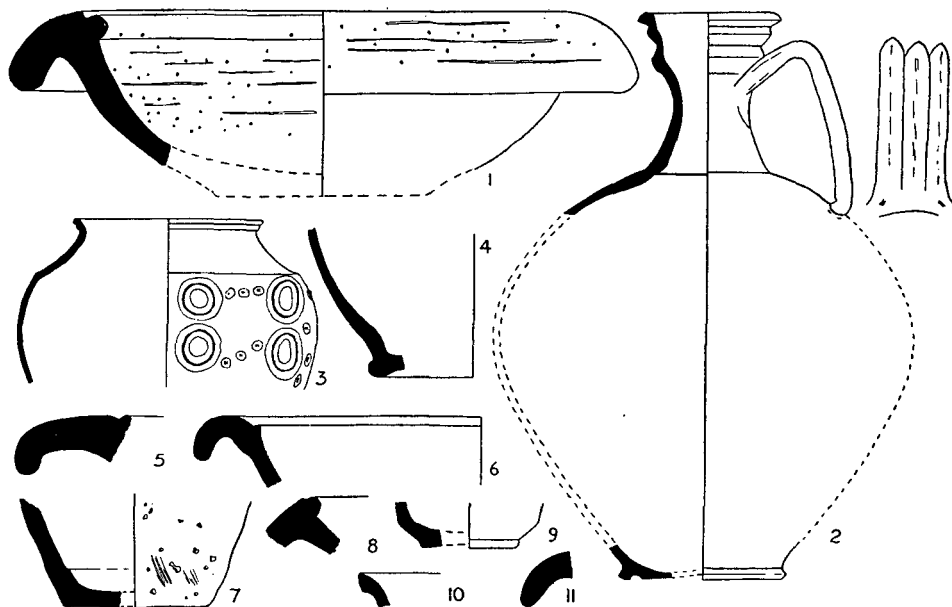


Fig. 8. Fragments of coarse pottery from Oakwood. ($\frac{1}{4}$)

was pulled away; in the same way a sharp ridge runs along the middle of each circular stroke.

Neither the technique nor the combination of blobs and circles is rare; they are to be found, for instance, on *Corbridge*, no. 20 (post-Agricolan), *Leicester*, fig. 40, no. 24 (Trajanic), *Malton*, fig. 15, no. 17 (pre-Agricolan), and *Wroxeter* II, pl. xv, no. 9 (assigned to an "early period"). It is, however, unusual to find the decoration darker in colour than the body; it is usually either the same colour or very much lighter. The unpublished *Corbridge* examples are all grey on grey, while some examples in Midland museums are white on orange. The vessel is also unusual in form: the examples from *Corbridge*, *Leicester* and *Malton* are all normal pre-Hadrianic jar forms, while the present vessel, with its sharp shoulder, concave neck and almost upright rim, seems to be derived from a biconical form.

Flavian I. West gate, early road.

4. Fragment of a jar in soft bright orange fabric. Light-coloured jars with neatly moulded bases are common in Flavian deposits.

Flavian I. East gate, early road.

5. Fragment of a light brown mortarium with a broad flat rim, slightly hooked at the end, and a rudimentary bead. This is a well-established Flavian type (cf. *P.S.A.S.*, LXXXIV (1949-50), 33, and fig. 7, no. 4).

Flavian II. West gate, later road.

6. Fragment of a mortarium in muddy yellow fabric, flaked by heat and blackened by smoke. This is a small version of *Wroxeter* I type 34/38, which was in common use in the closing years of the first century and survived but rarely into the second.

Flavian I or II. West gate, behind rampart.

7. Fragment of a large wheel-made jar in coarse gritty ill-fired fabric, varying from muddy grey to light brown in colour; the surface is pitted here and there where the grit has come away; the surviving grit does not appear to be calcite. While such poor quality pottery is not normally found in Flavian deposits on Roman military sites in N. Britain, it would be rash to deny that this piece is of Roman manufacture and of Flavian date; it has a rather more finished appearance than the native pottery from Traprain Law (cf. *Aspects*, fig. 55, no. 4).

Unstratified.

8. Small scrap of a mortarium of uncertain diameter in bright orange self-coloured fabric. At first sight this piece was thought to be of Antonine date (*JRS.*, XLII (1952), 89), for mortaria in orange or brick-red fabrics are commoner in Antonine deposits than in Flavian, and, in its fractured state, it might have come from any one of several Antonine forms. A comparison between this fragment and no. 1; shows, however, that it could more easily have come from a vessel of that type, though it is not from the same vessel. It cannot be seriously doubted that the piece is of early Flavian date.

9. Small fragment from a cup-like vessel, somewhat distorted before firing; hard, smooth grey fabric.

10. Very small fragment from the rim of a jar of uncertain diameter, in dark grey fabric. The fragment is awkwardly broken, and it is difficult to find a precise parallel; it seems probable, however, that it comes from a vessel generally similar to *Chesterholm*, no. 29, datable to some time in the period from Agricola to Hadrian.

11. Small fragment from the rim of a mortarium of *Wroxeter* I type 34/38, in fawn sandy fabric. This is undoubtedly Flavian.

APPENDIX III.

GLASS.

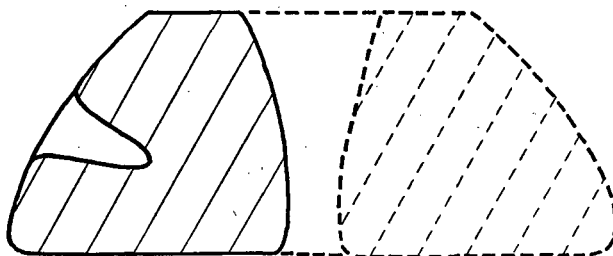
Apart from fragments of two melon beads, only two pieces of Roman glass were found, both in Flavian I deposits. Dr Harden reports that one is part of an ordinary blue-green bottle, and the other—a piece of green glass with a white marvered trail—is from the bottom of a vessel, and probably from an unguentarium similar to that illustrated in Fossing, *Glass before Glass-blowing*, fig. 108. Dr Harden adds that he would have no hesitation in accepting an Agricolan date for both these pieces.

APPENDIX IV.

OTHER OBJECTS.

Flavian I.

1. A broken piece of a quern (fig. 9) was found, reused as a kerbstone, in the metalling of the Flavian II road at the W. gate. Mr Ritchie reports that it is "a fragment of a low beehive or bun-shaped quern of tuff. It is 5 ins. high, and was probably about 13 ins. in diameter originally. One horizontal handle-hole remains, and is set about half-way up the side of the quern. The feed-pipe seems to have been broad and to have expanded at the top, hopper and feed-pipe being all in one. It is good to find a dated quern of this type, since such are not as

Fig. 9. Quern. ($\frac{1}{4}$.)

frequent as might be expected. The Oakwood example fits well with the group of bun-shaped querns which first appeared in Scotland in the latter part of the first century A.D. Similar querns, but with distinct hoppers, were found at Newstead in a context which suggests a date prior to 90 A.D. Another, from Lochlee crannog, may belong to the first half of the second century A.D. This group is found most frequently in the S. of Scotland and in the Midland valley, although examples are known from further N. and from the Islands. More generally, the Oakwood quern must be related to those querns of medium thickness of upper stone and with flat grinding surfaces: these are found from E. Anglia northwards through Yorkshire into Scotland."

Unstratified.

1. Part of an iron chain with figure-of-eight links.

APPENDIX V.

GATEWAY TIMBERS.

The stumps of eleven of the twenty main timbers of the E. and W. gates were preserved in their waterlogged pits, the E. gate furnishing five and the W. gate six. Five of the best specimens, ranging from 2 ft. 4½ ins. to 3 ft. 2 ins. in height, have been deposited in the National Museum of Antiquities and are illustrated in Pl. XVII, 1. All the timbers are of oak, and each one has been fashioned from a tree not much greater in girth than the finished timber: in one case, where the radius of the tree can be seen in section, a count of the growth-rings indicates that it



[Photo: *The Scotsman*.]

1. Stumps of Roman timbers from the East and West Gates.



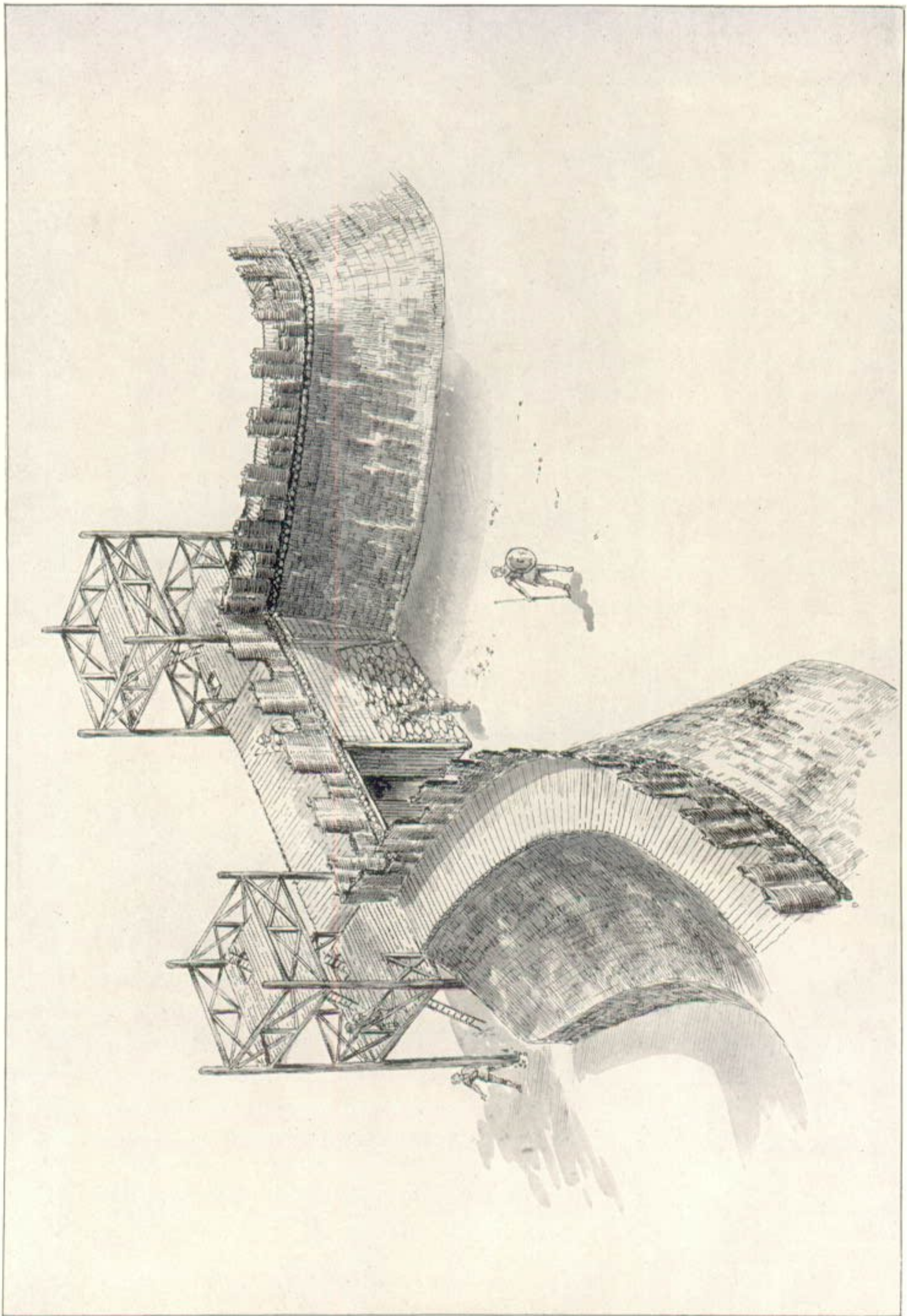
2. East end of main section, showing ash-pit in foreground and *intervallum* road II behind.



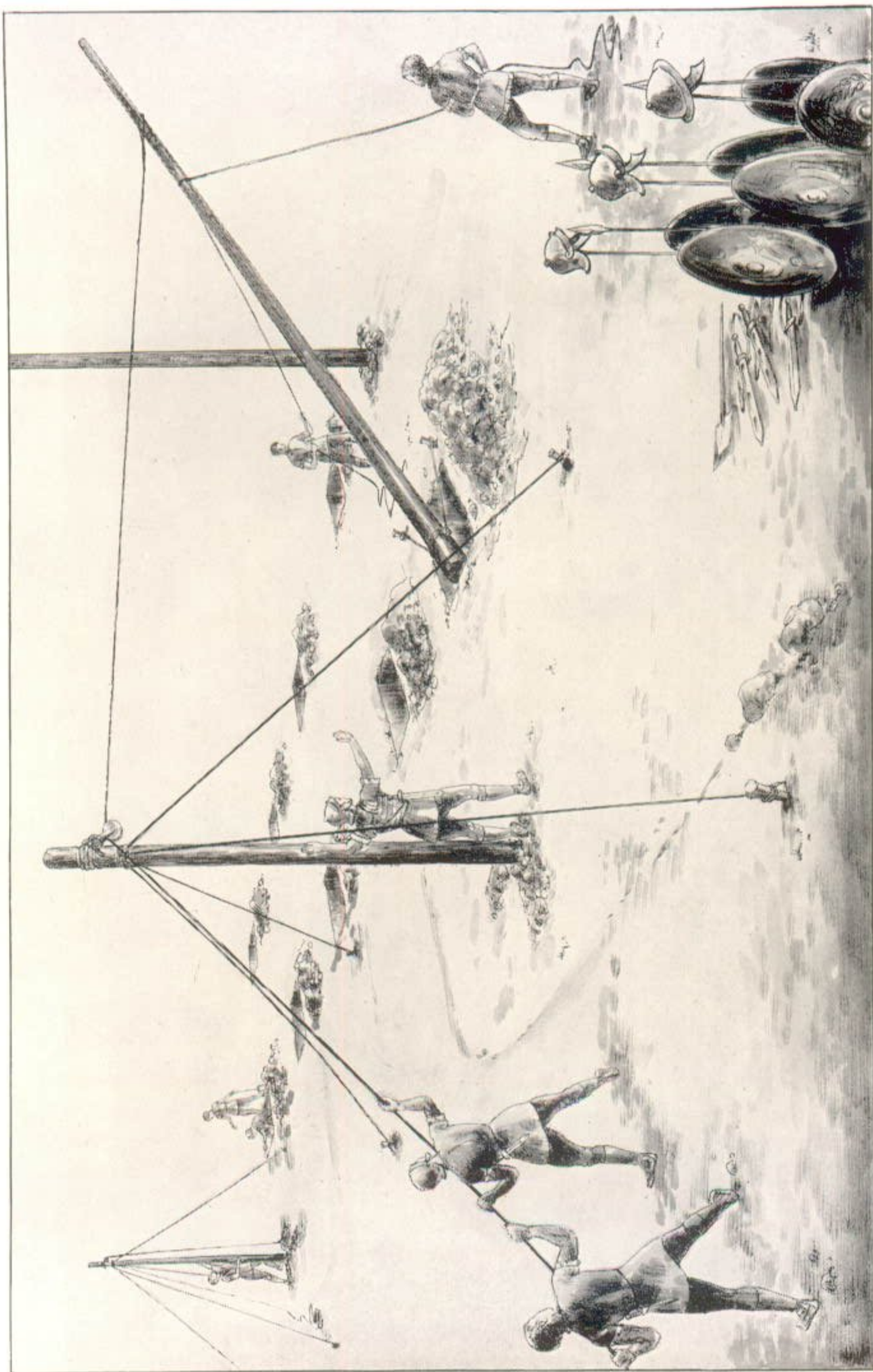
3. West Gate; cobble foundation of the reducing wall from the South. Note subsidence into an earlier (Agricolan) gully in the foreground.



4. West Gate, showing stump of gateway timber *in situ*.



Conjectural reconstruction of the West Gate of the Agricolan fort at Oakwood.



Conjectural reconstruction of the type of derrick employed in the erection of the gates at Oakwood.

K. A. STEER AND R. W. FEACHEM.

was about seventy years old. Some of the trees used have been felled entirely by the axe, but others have been first notched with the axe and then sawn through; the subsequent dressing appears to have been done with the adze. The bases of the timbers are generally flat, but, doubtless because they were to be buried in the ground, the stumps are not dressed to a uniform size or shape. Thus, whereas five are approximately rectangular in section, three exhibit a combination of flat and curved sides, while the remaining three, from which little more than the bark has been removed, are nearly circular. The largest stump measures 10 by $8\frac{1}{2}$ ins. at the base, and the smallest $8\frac{1}{2}$ by $7\frac{1}{2}$ ins., but as all the stumps show a slight tapering above the base, which is more pronounced in the larger examples, it seems probable that above ground the timbers were more or less uniform in section and averaged 7 or 8 ins. square. Lastly, it is worth noting that the best preserved stumps are all pointed at the top; and this suggests that the timbers in question did not simply rot away, since the heart wood is more vulnerable to decay than the surrounding sap wood, but that they were destroyed by fire. A simple analogy is furnished by a partly burnt matchstick, while it may be remarked that the charring of the tops would help to account for the preservation of these stumps.

APPENDIX VI.

REPORT ON EARTH SAMPLES. BY DR ELIZABETH M. KNOX.

1. *Temporary Camp, Roman turf.*

This sample contained few pollen grains, mainly Ericaceæ, Hazel, and a few spores of Sphagnum.

2. *Temporary Camp, ditch filling.*

This sample contained a greater number of pollen grains and of considerable variety. The commonest noted were: Betula (Birch) *circa* 30%; Corylus (Hazel) 16%; Ericaceæ 19%; Alnus (Alder) 12%; Salix (Willow) 6%; Quercus (Oak) 5%; Sphagnum 6%.

Various other pollen grains included Composites (*e.g.* Thistle), Scabious, Caryophyllaceæ, etc.

3. *Fort, turf rampart.*

Pollen grains very scarce. Amongst those identified were Ericaceæ, Hazel and Sphagnum.