

EXCAVATIONS AT AD PONTEM, THORPE PARISH, NOTTS.

By R. R. INSKEEP

SUMMARY

A single cutting made in 1952 determined the position of the western side of the Roman settlement at *Ad Pontem*. This information, with an aerial photograph of the site, enables us to determine the area of the primary settlement at about $4\frac{1}{2}$ acres, and to be reasonably certain of its shape. The cutting also throws light on the history and nature of the defences of the settlement, although at the point where the cutting was made there had existed a gateway or tower which interrupted the line of the rampart and made difficult the recovery of stratified finds. The structure in question was timber-framed, and recognised by the presence of post-holes. The defences seem to have consisted of an 8 ft. thick wall backed by an earthen rampart. The rampart shows signs of two successive rebuildings.

Cutting 1 in Oddhouse Closes (see below) and the present excavation have yielded imported roofing stones obtained from the Coal Measures, coal, lead slag which may have come from Trias beds near Nottingham, as well as clear signs of lead working. In 1952, in Oddhouse Closes, the side of an unfinished lead casket with a Chi-Rho monogram, and a pig of lead which had hardened in a bowl-shaped crucible, were discovered.

Such discoveries, combined with the position of *Ad Pontem*, astride a main road, and adjacent to the river, give the impression of a busy and important, though not necessarily highly civilized, small provincial town; the inhabitants, probably entirely Romanised Britons, engaged in industry and farming, and receiving travellers and raw materials both by road and by river.

SITUATION

The name *Ad Pontem* occurs in the Antonine Itinerary between *Margidunum* and *Crococolana*. *Margidunum* has been identified with the Roman site $9\frac{1}{2}$ miles south of Newark, on the Fosse Way, in the parish of East Bridgford, while *Crococolana* is assumed to be the site of Brough, a hamlet some $3\frac{1}{2}$ miles north of Newark on the road to Lincoln. Before the extent of the remains in Thorpe parish

was seriously considered, *Ad Pontem* had been identified with such places as Southwell, Farndon, and Mansfield, all in Nottinghamshire. It was not until Adrian Oswald published the results of his excavations in 1938¹ that the present site was established, with little doubt, as the Antonine *Ad Pontem*.

The settlement is situated on a gravel terrace rising to just over 50 ft. O.D., at a point where the Fosse Way leaves the Keuper Marl hills and enters the flat expanse of the Trent flood plain. It is also the point at which the river flows nearest to the road,² and is probably the only spot between Newark and East Stoke which, under present conditions, remains just above water at high flood level. It is interesting that the clean and well-drained gravel, despite its low elevation, was chosen in preference to the considerably higher, but stickier, hill of Keuper Marl about 400 yds. to the south.³

DESCRIPTION OF THE SITE

The map (Fig. 1) is based on the O.S. 25 in. plan, and on it are shown the crop marks revealed in air photographs taken by Dr. J. K. St. Joseph.⁴ These show clearly that the occupation lies almost entirely east of the road and within the boundaries of Thorpe parish. This is confirmed by the distribution of surface finds. There is no support from the air photograph for Mr. Oswald's suggestion that the mound in Mill Field is connected with a Roman encampment there, and it seems most likely that this feature is a monument in its own right.

The bank, marked on Oswald's plan as an old river bank, and which was the object of the excavation described below, is indicated in Stoke Wharf Field.

The crop marks suggest:

- (a) An enclosure in the field immediately north of Deadman's Grave, flanked on its north and east sides by multiple ditches. For the area enclosed by the innermost ditch the system of four widely spaced ditches would seem to be unnecessarily

¹*Trans. Thoroton Soc.* (XLII) (1938), 1-14.

²With the possible exception of Newark where, however, there have been several changes in the course of the river.

³At Margidunum the Keuper Marl was dressed with a layer of sand and gravel to make it more suitable for occupation.

⁴The photographs are oblique and perspective has been eliminated only by guesswork.

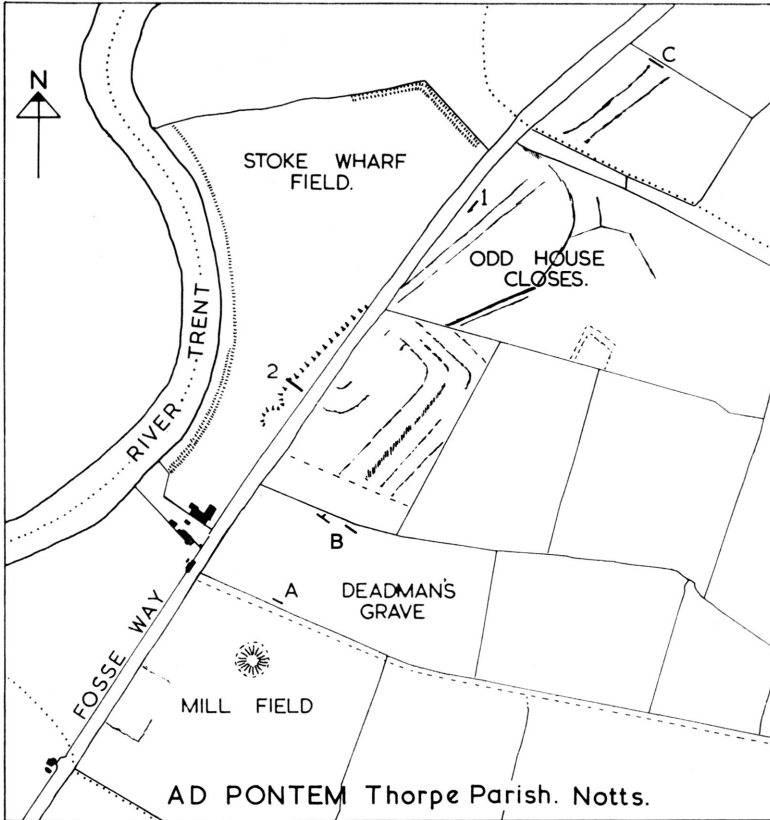


FIG. 1 *Ad Pontem* showing crop marks and the sites of excavations

extensive, and it is likely that multiplication of the ditches is connected with extension of the site on the north and east sides to enclose a larger area; the earlier ditches being filled in to make way for occupation.

The ditches end abruptly at the south end of the field and show no sign of turning west to form a southern limit to the site. This end of the field is much lower than the main area of occupation, is inclined to be frequently waterlogged, and is generally planted with crops other than corn. This was the case when the air photos were taken.

Within the central enclosed area is what appears to be a very wide roadway which runs from approximately the centre of the north side southwards, parallel to the east side, and

turns abruptly to the west about halfway down, as if to approach the river. The excavation here described is virtually on the projected line of *the south side* of this feature as it turns west.

- (b) An enclosure in Oddhouse Closes. Running across this enclosure from south-west to north-east, and continuing in the next field to the north is a former line of the Fosse Way. Outside the enclosure, and adjoining it in the north-eastern sector of the ditch are faint marks suggestive of field ditches.
- (c) Tumulus with ring ditch in Mill Field. Oswald connected this with the Roman settlement because 1st and 2nd century coins and pottery had been found in the field. There no longer seems to be any good reason for assigning a Roman origin to this feature.
- (d) An enclosure in Mill Field beside the present road. From its size and shape this is unlikely to be Roman and more probably belongs with the medieval complex visible in the pasture immediately to the south.

SUMMARY OF EARLIER EXCAVATIONS

With the exception of Oswald's excavations in the Oddhouse Closes, all cuttings are indicated on the map (Fig. 1). Oswald's excavations and the cutting A, on the south side of Deadman's Grave, were made before aerial photographs were available.

- 1 Oswald's excavations. These fell entirely within the complex visible in the Oddhouse Closes but his published plan does not enable us to locate the cuttings on the ground. The excavations revealed the presence of rather poor stone wall footings, post-holes, floors, ditches, sleeper beam trenches, and a metallised road. These features are said to fall into six datable stages ranging from c. 60 to c. 380 A.D. Oswald dates his ditch D.9 to the 3rd century (? late 3rd), and it is possible that this is the enclosing ditch visible on the aerial photograph.
- 2 Trench A, on the south side of Deadman's Grave, was cut in the summer of 1948 by members of the Newark Archaeological Committee¹ under the direction of M. W. Barley,² across a

¹Abbreviated henceforth to N.A.C.

²*Ant. Journ.*, XXX (1950), 65.

bank running approximately north-south, and thought to be an early line of the Fosse Way.¹ The bank proved to be post-Roman.

- 3 The cuttings at B in Deadman's Grave were made at Easter 1950 across the projected line of the ditches in the next field. The work was carried out by members of the N.A.C. under the direction of K. D. M. Dauncey.² No sign of the ditches was found. The trenches were generally flooded at a depth of 2 ft. 6 in. below the modern ground surface. The sections showed about 3 ft. of dark loam overlying gravel and sand.
- 4 Trench C was cut by members of the N.A.C. under the direction of M. W. Barley during the spring of 1951 to investigate the line of the Fosse Way as revealed in the aerial photographs. Waterlogged conditions were met with, and the excavation was inconclusive.
- 5 Cutting 1 in Oddhouse Closes was made by the N.A.C. during January to March 1952, under the direction of the writer, as a salvage operation. Farming activities had uncovered some large stones and a quantity of pottery. Evidence of two, and possibly three, periods of occupation were found; the lowest consisting of two sleeper trenches at right angles to one another. Flavian to 4th century pottery was found. Stone roofing tiles of fine sandstone from the Coal Measures were found as well as pieces of millstone grit, which must have come from well west of Nottingham. Coal was examined by a palaeobotanist in the hope of identifying likely sources, but the results were inconclusive.

The present excavation (No. 2 in Stoke Wharf Field) was made by members of N.A.C. under the direction of the writer, who was also responsible for choosing the site. Work was carried out weekends and evenings from 31st May until late in December. The site was visited twice by Dr. Philip Corder, and once by Dr. D. B. Harden.

¹See A. Oswald, *ibid.*

²At that time lecturer in archaeology at Birmingham University.

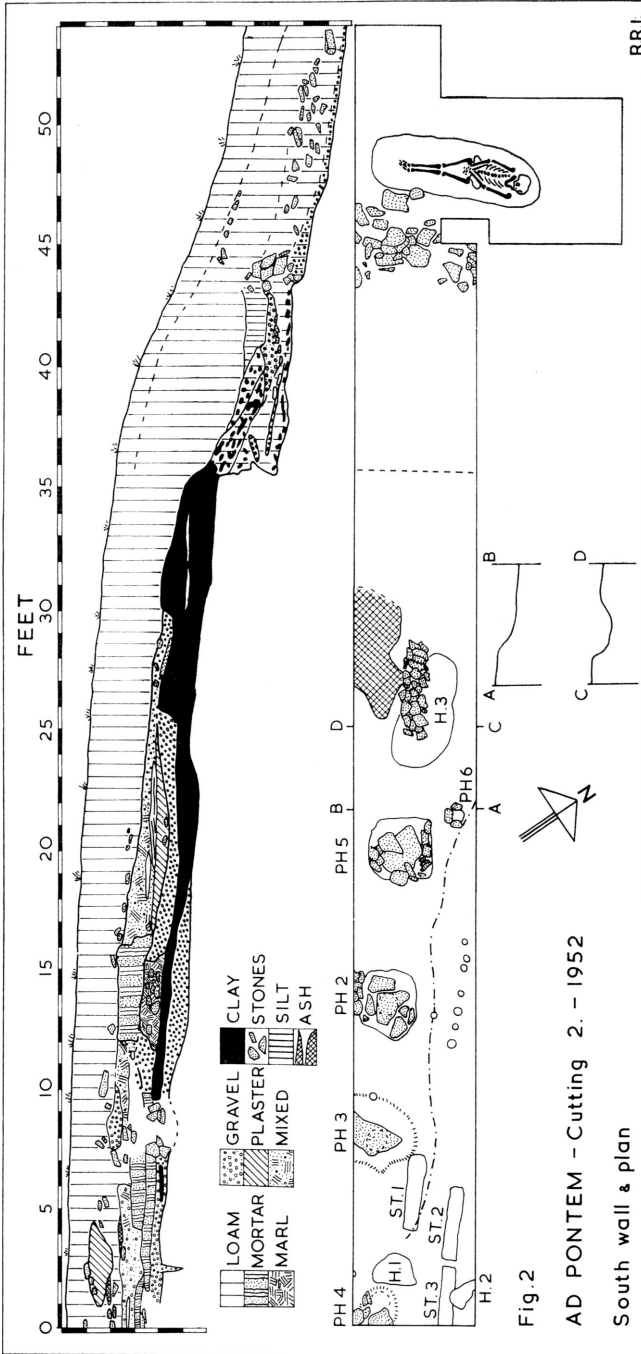


Fig. 2

AD PONTEM - Cutting 2. - 1952

South wall & plan

Fig. 2 Ad Pontem: plan and section of Cutting 2, 1952

CHOICE OF SITE

The object of the season's work was to determine the exact limits, and, if possible, the date, of the rectangular enclosure. The cuttings at B in Deadman's Grave had shown that there was little to be gained from further excavation there, and the field immediately to the north was not available. It was observed that the line of the bank in Stoke Wharf Field, and the 50 ft. contour approximated very closely to an area of 'Older River Gravel' shown on the 1 in. Geological Survey map, Drift edition. This line was also approximately parallel to the crop mark bounding the eastern side of the enclosure. It seemed possible that the bank was a natural feature accentuated by occupation and marked the western limit of the settlement. Auger sampling showed that the bank was made up of over 80 cm. of dark loam and stones.

For the greater part of its length the bank is straight and even, but at its southern end it appears considerably disturbed. The cutting, 30 ft. long and 5 ft. wide (later extended to 60 ft.) was placed across the widest part of the bank not showing signs of disturbance. In the drawing (Fig. 2), the final 6 ft., which revealed nothing of note, have been omitted.

The body of dark loam overlying the archaeological levels yielded nothing significant. At the base of this, however, a considerable scatter of stone and occupational debris, apparently from collapsed buildings, was removed. At a slightly lower level (about 2 ft. below M.G.S.), in the south-eastern corner of the cutting, occurred a group of large flat stones set loosely in the earth. These probably represented the corner foundation of a light structure. Their position in the section, and the fact that they overlay post-hole 4, belonging to a building which must have been in use until late in the settlement's history, shows that the building must belong very late in the history of the site; possibly when ordered settlement no longer existed and the settlement was largely in ruins. The lens of plaster indicated in the section (Fig. 2), between 0 ft. and 5 ft., consisted largely of burnt 'cob', probably from the walls of a mud-daubed, pole-built hut.

Of the complex of strata revealed in the south wall of the cutting the only one reflected in the north wall (and then only in its most westerly extremity) is the black clay, whose northern edge is shown on the plan (Fig. 2) by the broken-line-with-dots. The north face

of the cutting revealed simply a greater thickness of dark loam, becoming more sandy and gravelly towards the old ground surface. It appears that with the exception of the black clay the stratigraphy represented in the drawn section reached a northerly limit corresponding approximately to a line drawn through the post-holes 4, 3, 2 and 5.

THE BLACK CLAY

The most useful datum is undoubtedly the layer of black clay. This was easily distinguishable and proved a useful control during excavation. It was thinnest at the eastern end and along its northern edge; very few traces remaining over sleeper trench No. 1. Up to the 25 ft. mark the surface was fairly level, but the base dipped to the south, as shown by the section A-B across the floor of the cutting (Fig. 2). Towards the western end of the cutting, in the south face, the clay thickens and rises in two 'steps', attaining a maximum thickness of 2 ft. Between 30 and 34 ft., a thin layer of gravel divides the upper clay 'step' from the main body of the clay. The clay was cut through by post-holes 2, 3 and 5, but sealed sleeper trench No. 1, hollow 3, and post-hole 6. The band of stones overlying hollow 3 was *set in* the clay rather than intruded into it. A layer of ash adjacent to hollow 3 was also sealed below the black clay. At its western end the clay is terminated abruptly by the wall foundation-trench (35 ft. 6 in. to 43 ft. 6 in.).

THE SLEEPER TRENCHES

These were cut into the undisturbed gravel, and were distinguishable from it by a slightly darker filling of sand and gravel. The depths varied from 2 to 4 in. but it is possible that the upper parts had been cut away with disturbed gravel in which they were not perceptible. The orientation of these trenches is almost the same as that of the post-holes 4, 3, 2 and 5.

THE HOLLOW

All of these were cut into the undisturbed gravel. Hollow 1, about 3 in. deep and with a fairly flat bottom, was filled with a fine black silty material capped by a layer of red marl about 1 in. thick. Hollow 2 was slightly deeper than sleeper trench 3, into which it was partly cut (Fig. 2, C-D). The filling was of dirty gravel, and contained several pieces of grey pottery.

THE POST-HOLES¹

Post-hole 1 (not shown on the plan) was small and belonged to a late phase of the occupation represented by the mixed layers above the black clay. It could not be associated with any particular structure.

Post-holes 2, 3, 4 and 5, from their regular depth, size and spacing, appear to belong to a single large structure. The packing of posts 3 and 4 was reasonably intact and provided a good indication of the size of the posts. Each of the four holes contained a large base stone. Three of the posts showed signs of replacement, though the evidence is not conclusive. Post-holes 3 and 4 contained what appeared to be a smaller base stone below and slightly east of those from which measurements were taken. Post-hole 5 extended for at least a foot below the base stone and this space was filled with loose rubble, as if the packing of an earlier post had tumbled into the hole and been covered immediately by the later base stone. On the other hand the same conditions would result from the deliberate filling with odd stones of a hole dug too deep.

A number of clearly defined stake holes are indicated on the plan by circles. They may represent traces of flimsy structures of the earliest occupation, or be connected with the laying out of structural features.

Post-hole 6 lay about a foot to the north of post-hole 5. It was cut about 9 in. into the undisturbed gravel and had held a post about 4 in. in diameter. It was sealed by the black clay.

REVTMENTS

Resting on the black clay, between 12 and 16 ft., and adjoining post-hole 2 is a feature which in section appears to be a low wall of stones set in stiff red marl. The space between this and the step in

¹The following table shows the relative positions and sizes of the post-holes. The datum line for the cutting is represented on the drawing (Fig. 2) by the lower edge of the horizontal scale.

P.H.	Position on Plan	Depth below Datum		Diameter
		Top	Base	
1	33 ft. 11 in. × 1 ft. 3 in.	3 ft. 0 in.	3 ft. 10 in.	4 in.
2	13 ft. 6 in. × 1 ft. 3 in.	3 ft. 8 in.	4 ft. 4 in.	—
3	7 ft. 9 in. × 11 in.	c. 3 ft. 3 in.	4 ft. 8 in.	9 in.
4	1 ft. 0 in. × 1 ft. 0 in.	c. 3 ft. 10 in.	4 ft. 7 in.	9 in.
5	19 ft. 8 in. × 2 ft. 0 in.	4 ft. 5 in.	4 ft. 8 in.	—
6	21 ft. 4 in. × 4 ft. 3 in.	4 ft. 8 in.	5 ft. 4 in.	4 in.

the black clay, at 26 ft., is occupied by a layer of gravel about a foot thick; the two features together giving the impression of a gravel rampart which had been supported by a clay and stone revetment. Immediately above is a second revetment constructed of mortar, whilst the bank in front of it consists largely of building rubble.

THE WALL FOUNDATION TRENCH

Between 35 and 60 ft. the depth of dark loam with stones increased sharply. Occasionally, quite dense patches of small rubble were found in the loam. These are taken to represent earlier contours of the bank. The broken line just below the surface on the drawing (Fig. 2) represents the base of the humus or root soil. Below this, at the extreme west end of the trench, was a layer of light brown alluvium, apparently resulting from periodic flooding by the river. No eastern limit of this was clearly definable as it had obviously blended gradually with the downwash of dark soil from the bank.

At 35 ft. 6 in. a step had been cut into the gravel in order to obtain a level floor at the front of the bank on which to build a wall about 8 ft. thick. The wall had been completely robbed except for a detached raft of 'skerry' slabs and concrete, which had been tipped on edge on the west side of the robber-trench. The filling of the robber-trench consisted, from the base upwards, of:

- (a) Soil and clay with a lot of mortar and stones.
- (b) Patches of gravel; some quite clean and obviously lying as they had collapsed from the newly robbed 'step'.
- (c) On the eastern side a zone of soil and clay derived from the clay rampart.
- (d) On the western side (40 to 43 ft.) a layer of fine black silt, which had accumulated in a hollow at the back of the 'raft' of wall material.

To the west of the wall slot and overlying about a foot of dirty gravel and small stones was a zone of large stones apparently discarded by the robbers of the wall.

THE BURIAL (Fig. 2)

The grave was sealed completely by debris from the robbed wall. The filling was of sand and gravel, hardly different from the ground in which it was cut. Four iron nails were found and although the

shape of the grave did not suggest a coffin burial the condition of the skull supports the meagre evidence of the nails in favour of such. The lower jaw was separated from the cranium by a considerable gap and was in a completely different plane, while the atlas, which was fused to the occipital condyles, was twisted to the right of its true position. It is unlikely that such movement of the bones would take place if the body had been placed unprotected in the ground. The inhumation was extended with the hands crossed over the pelvis (Fig. 2). If any grave goods were deposited with the burial they have not survived. Several pieces of pottery were found, including rusticated ware, pieces of amphora, the base of a colour-coated vessel, and the rim of a 4th century mortarium. A bronze ring was found high up in the filling. The burial was of an elderly woman, about 5 ft. 1½ in. tall.

DISCUSSION

The significant features revealed in the excavation appear to be a timber-framed structure represented by a row of large post-holes; a massive stone wall represented now only by its foundation trench; and a series of ramparts represented by the black clay, and the two successive revetments above it.

The group of stones overlying hollow 3 appears to be built *into* the black clay as a part of this feature. This suggests that the clay was truly *in situ* above hollow 3 and the adjacent hearth, and that they belong to the earliest phase of occupation on the site. Post-hole 6 and sleeper trench 1 are covered only by a thin skimming of black clay which could have resulted from spreading of the clay. These features (and presumably sleeper trenches 2 and 3 go with sleeper trench 1) could belong either to a stage earlier than the black clay, or be contemporary with it. In the latter case they must have ceased to exist at the time when the black clay was superseded by the next stage; the clay being spread across them in subsequent building operations. It is clear that these features are not later than the black clay.

Post-holes 2, 3 and 5 were cut through the black clay into the underlying gravel and clearly belong to a later stage. The structure represented by the post-holes must have been a substantial building. The only stratum in the section which appears clearly to the north of a line joining the post-holes is the black clay, which belongs to an earlier period. The features revealed in the section above the

black clay must be either contemporary with, or later than, the timber structure, but none-the-less related to it. The building represented by the post-holes (2 to 5) intrudes right into the line of the defences and this suggests that it must have been either a tower or a gateway. If it were the former one would not expect the space below to be so completely devoid of features; either the ramparts would have continued unbroken, with the tower built into them, or if the space below were needed for some purpose then one would expect to find floors or other evidence of occupation. The complete absence of any apparent structures to the north of the post-holes suggests very strongly that the building was in fact a gateway. The probability is increased by the apparent alignment of a road within the settlement leading to the river (Fig. 1 and pp. 21-22).

The remaining feature of importance is the wall, and this is very difficult to place in the sequence. There is no direct stratigraphical evidence to show when it was constructed in relation to any of the other features; the foundation trench may have been cut *through* the black clay, or the clay may have been banked *against* the already existing wall. There is some evidence that a re-organisation of the defences took place, involving the building of a massive timber gateway at a stage subsequent to the black clay, and apparently associated with a rampart which, on the basis of the pottery contained in it, cannot be earlier than 145-165 A.D., and may well be early 3rd century. If we consider this in the light of Dr. Corder's remarks¹ on the building of town walls, it would seem reasonable to assume that the wall-building goes with the new gate-house structure and the rampart represented by the marl-and-stone revetment and gravel rampart core.

The sequence of events was probably as follows:

Stage I

Rather sparse occupation on the site prior to the construction of a formal rectangular settlement. This is represented by hollow 3, and the hearth beside it, and *possibly*, by the building erected on the sleeper trenches, and post-hole 6. A few sherds of pottery suggest that part of this stage may have fallen within the 1st century, though it undoubtedly continued well into the 2nd century until replaced by the formal layout of Stage II.

¹P. Corder, 'The Reorganisation of the Defences of Romano-British Towns in the Fourth Century', *Arch. J.*, CXII (1955), 24.

Stage II

This stage is represented by the black clay, probably associated with the laying out of the rectangular enclosure. The presence of a natural line formed by the inner (river) edge of the gravel terrace would suggest the orientation and position of the west side of the enclosure, and it appears that this determined the layout of the rest of the settlement. The aerial photograph shows that ditches are present on the northern and eastern sides, but we are uncertain what happens on the south side. There is no evidence of a ditch on top of the bank, nor was there any sign of one in the lower end of the cutting up to 17 ft. beyond the outer face of the wall. It seems possible, then, that the natural slope of the terrace edge was selected in order to obviate the need for a ditch on this side. The terrace edge was simply reinforced with a clay rampart which may or may not have had a timber palisade associated with it. No evidence for a palisade was found. The fact that the clay rampart ends in almost exactly the same position as its successors (a fact which is supported by the band of stones incorporated in the clay above hollow 3, which are by way of a terminal revetment) suggests the possibility of a gateway facing the river even in this initial layout. Post-hole 6 may be connected with such a gateway. The presence of two sherds of samian ware (Nos. 10 and 42) below the black clay provide a useful *terminus post quem* of 140-160 A.D. In all probability the formal establishment of this settlement, and the building of the clay bank took place during the third quarter of the 2nd century.

Stage III

It is tentatively suggested that the third stage saw the strengthening of the defences by the building of a stone wall and massive timber gateway. With the wall went a new rampart of gravel with a stone-and-clay revetment. Pottery from the rampart is not abundant, and was not recovered under the most favourable conditions, but whilst it appears to preclude a 2nd century date, none of the pieces need be far into the 3rd century, and an early 3rd century date seems possible for this stage.

Stage IV

Subsequently, probably in the late 3rd or early 4th century, the rampart seems to have been refurbished with a new revetment and additions to the bank material.

Fourth century pottery, mostly in disturbed levels, and also in the grave fill, shows that occupation continued well into the 4th century.

The above conclusions can only be regarded as an extremely tentative attempt at interpreting the evidence. The effective section of the rampart sequence varies in width from nothing to a maximum of just over 2 ft., and this can hardly be judged a safe sample on which to base a structural history and chronological conclusions. The most that one can claim with certainty is that the bank in Stoke Wharf Field represents the western side of the rectangular settlement, and that the earliest defensive bank was not laid down until after the mid-2nd century. Despite the absence of crop-marks at the southern end of the enclosure the size can be reasonably calculated. The southern end of the field adjacent to Deadman's Grave is lower than the rest of the field. The dip is quite pronounced and the east-west line projected along it into Stoke Wharf Field coincides approximately with the end of the bank there. As the ditches on the east side of the settlement did not continue southwards into Deadman's Grave it may be assumed that they turn along the line of the dip into Stoke Wharf Field. In this case the internal dimensions of the settlement, within the innermost ditch, would be approximately 360 ft. by 570 ft., giving an area of about 4½ acres.

THE POTTERY AND SMALL FINDS

Very few pieces can be regarded as securely stratified, and where doubt exists they have been treated as unstratified. A few pieces, however, are significant for dating purposes and for ease of reference these are referred to the following zones:

- Zone 1* The old ground surface where sealed securely by the black clay.
- Zone 2* The body of the black clay.
- Zone 3* The lower revetment and its accompanying rampart material.
- Zone 4* The pocket of gravel between 10 and 12 ft., immediately overlying the black clay (antedates the upper revetment).
- Zone 5* The upper revetment and its accompanying rampart material.

THE SAMIAN WARE

By B. R. HARTLEY

GENERAL

With the single exception of No. 1 (43)¹ every vessel in the group of material is of 2nd century date and none is necessarily earlier than 140 A.D. The label Antonine has to be used at present to give only an approximate idea of date as other terms are liable to be misleading and, in any case, closer dating is often risky in our present state of knowledge of Samian of this period.

I am inclined to think that the bulk of the material belongs to the period 160-185 A.D., with just one or two strays or earlier survivals.

It is interesting to note that there is a high proportion of forms common in East Gaul and, though no doubt that most of the material was made at Lezoux, this is often the case for sites relatively near the east coast.

- 1 (43) Unstratified. This fragment, with its superior fabric and glaze, stands out completely from the rest of the material. It is a piece from the base of a South Gaulish dish, possibly 15/17, as its extreme thinness can be matched by a vessel of that form from Heronbridge². Close dating of such a fragment is impossible, though the Heronbridge vessel, which had exactly similar fabric and glaze, belonged to the period 90-110 A.D. Date: 1st century.
- 2 (10) *Zone 1.* 33 ft. Form 31. Lezoux ware; Antonine, c. 140-160 A.D.
- 3 (42) *Zone 1.* 14-17 ft. Form 37. Probably Lezoux ware and Antonine.
- 4 (3) *Zone 3.* 18-24 ft. Form 79. Lezoux fabric, the form is typically Antonine.
- 5 (5) *Zone 3.* A fragment of a large platter, probably the large variant of form 18/31 with a flat base. The fabric suggests the possibility of East Gaulish origin.
- 6 (7) *Zone 3.* 18-24 ft. Form 37. The ovolo is square in outline with a plain, slightly wedge-shaped, tongue. A row of blurred rhomboidal beads occurs below the ovolo,

¹The figures in brackets refer to the original numbering of B. R. Hartley's report.

²C. A. J., V. 39, p. 12, No. 42.

but no decorative types survive. The piece is probably by PATERNUS of Lezoux, who used a similar ovolo and this type of bead row. Date Antonine, c. 145-165 A.D.

- 7 (8) *Zone 3.* 18-24 ft. Form 37. The ovolo tongue ends in a knobbed terminal. Decoration is in panels divided by rows of rhomboidal beads.

(a) (i) Double medallion enclosing centaur to right (cf. Déch. 433).

(ii) A small ring.

(b) Amphora (Déch. 1047) and large astragalus.

The bowl is in the style of PATERNUS and to be dated c. 140-160 A.D.

- 8 (34) *Zone 3.* 18-13 ft. Form 79. There is an internal lip groove (cf. Margidunum Samian XLVI No. 5 which apparently also has the groove, though this is not correctly shown). Date Antonine.

- 9 (35) *Zone 3.* Form 37. Fragment of a decorated bowl showing part of a bead row and a rosette. Both these features are consistent with an Antonine Date.

- 10 (38) *Zone 3.* Form 33. Date Antonine.

- 11 (39 and 40) *Zone 3.* Form 33. Date Hadrian-Antonine. The footstand shows a moderate degree of wear.

- 12 (29) *Zone 5.* 16-25 ft. Form 38. The piece is from the common variety of the form with a high flange and no lip (cf. O & P pl. LXXII No. 8 East Gaulish). Date Antonine.

- 13 (30) *Zone 5.* 16-25 ft. Form 33. The commonest cup of the 2nd century. Date Antonine.

THE GLASS FRAGMENTS

By DR. D. B. HARDEN, M.A., Ph.D.

- 1 *Zone 4.* 10-12 ft. Six contiguous fragments of a bowl, colourless, forming a complete section from rim to bottom (excluding the base ring): rim slightly out-bent and thickened in flame, vertical sides with rectangular bend at bottom, centre

of base and base-ring (which was tubular) missing. Dulled and faintly iridescent and heavily strain-cracked. The type is a well-known one of the 3rd century A.D. (running on into the 4th) and fragments are often included in groups from British sites.¹

- 2 *Zone 4.* 10-12 ft.
- 8 *Zone 5.* 15-20 ft.
- 11 *Zone 3.* 16-20 ft.

No. 2 is plain, No. 8 has traces of a band of horizontal wheel incisions, No. 11 has three thin horizontal trails (probably part of a single spiral trail). Date probably late 2nd-3rd century A.D.

- 3, 7, 16A. *Zone 5.* 12-20 ft. These three pieces are, I think, from the same vessel. No. 3 is a base of a flask (or jar?), greenish colourless, bubbly metal, heavily strain-cracked, but with no weathering. Concave bottom with pontil-mark on under side. Spiral trail of similar metal, very thin, on exterior. Nos. 7 and 16A are of similar metal (unweathered, bubbly and greenish colourless) and have the same thin trail: they could come from the sides of the vessel. Date uncertain, but probably 3rd-4th century A.D.
- 4 *Zone 4.* 10-12 ft. Elongated barrel-shaped bead, light purple (periwinkle) blue: iridescent surface. For similar beads in a necklace from a late Roman (? 4th century) burial at Verulamium².
- 5, 6 *Zone 3.* 15-20 ft.
- 10, 12 *Zone 3.* 18-24 ft.

Four fragments of rectangular bottles, green: Nos. 5 and 6 unweathered, Nos. 10 and 12 iridescent. Nos. 5, 6 and 10 are from the side of a bottle, 12 is probably part of a base with concentric circles moulded in relief on under side. Date, normally, 1st-2nd century A.D., but might remain in use until 3rd.

- 9 *Zone 5.* 15-20 ft. Fragment from shoulder of bulbous vessel (jar or flask), green: bubbly, unweathered. Date uncertain, but certainly Roman.

¹For a complete piece see W. A. Thorpe, *English Glass*, pl. VI b (from Airlie, Angus).

²cp. R. E. M. and T. V. Wheeler, 'Verulamium', *Res. Rept. Soc. Ant.*, XI, p. 214, fig. 47.

- 16 Unstratified in dark loam. Fragment of side of bowl of beaker, colour uncertain (perhaps wine-coloured or dark green: shows no transparency in ordinary light, owing to heavy iridescence, but it certainly was once transparent): on exterior remains of linear and floral (?) decoration which was, I think, originally enamel-painted, all that is left being the roughened surface of the glass where the enamel paint once was.¹ Date probably 3rd-4th century A.D. (but might be earlier).

There is nothing that is bound to belong to the 1st or early 2nd century A.D., and the group as a whole gives the impression of lateness.

THE COINS

By DR. C. H. V. SUTHERLAND

- 1 Unstratified. Hadrian: Sestertius (117-138 A.D.). Precise reverse type and date uncertain owing to worn condition.
- 2 Unstratified. Dark root soil. House of Valentinian I (Valentinian I, Valens, Gratian?) 364-378 A.D. Rev. *Securitas Reipublicae*. Mint-mark off flan.
- 3 Unstratified. Dark loam. Valens; mint of Lugdunum, 367-375 A.D. Rev. *Securitas Reipublicae*. Mint-mark (?) xii.
- 4 Unstratified. Dark root soil. House of Valentinian I (364-378 A.D.), and perhaps of Valentinian I himself. Rev. *Gloria Romanerum*. Mint-mark illegible.
- 5 Unstratified. Surface of Oddhouse Closes. Constantius II (337-361 A.D.). Rev. *VOTIS XXX MVLTI XXXX*. Mint-mark *LVG* = Lugdunum.

¹For a complete flask of wine-coloured glass with traces of a chariot-race design, see Bonn No. 17303 (Lehner, *Bonn Führer*² (1924), p. 80, pl. 18, 1-2.)

SLAG

By H. R. TUFNAIL
(The Steel Company of Wales Ltd.)

SLAG SAMPLES

Unstratified at base of dark loam, but certainly Roman.

Sample of Slag and Finely Divided Metal:

Sn	2·83	Al	1·07
Pb	54·47	Mn	·19
Cu	19·54	Ca	3·20
Zn	Traces	Mg	·41
Si	1·16	Ti	Traces
Fe	Traces	P	2·20

Metallic pellet with slag inclusions found in sample (Weight ·3752 gms):

Cu	33·57	Pb	12·52
----	-------	----	-------

Copper and lead ores are known to occur together in the Trias either as a cement to the sand grains or sometimes concentrated in local faults in the rocks. The best known examples are at Alderly Edge in Cheshire but similar deposits are known at Stapleford Mill near Beeston, Nottinghamshire. Here the rocks in the Bunter are reported to have been worked at one time.¹

The ore as mined would probably contain at least 50% of SiO₂ as sand. The chemical analysis of the slag shows only a small fraction of that so I consider that there has been some preliminary refinement to produce a copper-lead alloy. This alloy was then further refined to remove the lead and it is the slag from this operation which forms the sample. Its melting point is 1300°C but as it contains a high percentage of metallic globules it was probably a 'pasty' and not a fluid slag, and its working temperature is estimated as 1200°C.

To obtain such a temperature a furnace with a chimney of some sort would be essential.

¹*Special Report on the Mineral Resources of Great Britain*, Vol. XXX (1925), p. 23.

SMALL FINDS

- 1 Bronze Brooch. Heavily corroded but clearly of similar type to a specimen from the Stone Fort ditch, Richborough. The raised crest on the bow shows no sign of perforation. Two similar brooches in better condition exist in the Newark and Nottingham University museums; both unstratified finds. A parallel from Newstead is said to be possibly Antonine. Disturbed gravel of old ground surface on south side of sleeper trench 2.
- 2 Bronze Pin, probably of Kenyon's type J with ring head (cf. *Jewry Wall*, Fig. 89, No. 15). Date uncertain but 4th century at Traprain Law. Tumbled stone at base of dark loam.
- 3 Spindle whorl. Made from sherd of grey pottery. Unstratified.
- 4 Bronze boss with trefoil head, attached by iron nail (cf. *Jewry Wall*, Fig. 88, No. 18). Robbers' debris west of wall trench.
- 5 Bone pin. Probably of Kenyon's type A (cf. *Jewry Wall*, Fig. 90). Unstratified.
- 6 Heavy bronze shaft. Possibly part of a pin or handle of a spoon. Unstratified.
- 7 Part of bronze stud. Debris from robbed wall.
- 8 Part of bronze strap fitting? Debris from robbed wall.
- 9 Fragment from shaft of a bone needle. Disturbed deposits probably contemporary with third rampart.
- 10 Bronze pin shaft. Debris from robbed wall.
- 11 Lead strip. One edge shows clear signs of cutting with a gouge-like tool. Unstratified.
- 12 Bronze strip. Unstratified.

THE COARSE POTTERY

The excavations yielded a considerable quantity of coarse pottery which is deposited in the Newark Museum together with the other finds. As is the case with the other material very little of this coarse

¹*Richborough*, IV, Pl. XXVIII, No. 38.

ware is securely stratified, and in the absence of good dating associations it has been decided not to publish it. It is felt that the existing dating evidence is not secure enough to render published groups of value to future workers, nor could the sherds themselves provide additional dating evidence of value.

ACKNOWLEDGMENTS

The writer would like to express his sincerest thanks to Mr. Hall for permission to excavate in Stoke Wharf Field, and to all those people who assisted with the excavation; in particular Mr. D. J. Hurrell. My best thanks are due also to Dr. D. B. Harden, Dr. C. V. Sutherland, and Mr. Brian Hartley for their reports on the glass, the coins, and the samian ware. I am indebted to Mr. A. J. K. Honeyman and Mr. H. R. Tufnail for the analysis and comments on slag samples. I am especially grateful to Dr. Philip Corder for his kind help and encouragement both during the excavation, and afterwards with the preparation of the report. Thanks are also due to Mr. A. Smith, the curator of the Newark Museum (where the finds are now housed), and his assistant, Mrs. B. Waters, for constant help with the storing, cleaning and examination of the finds.