

REMARKS ON THE PRIMITIVE SITE OF LONDON.

By F. W. READER.

Without venturing upon the obscure question of primitive Roman London, which by different authorities has been variously placed either to the east or to the west of the Walbrook, we have perhaps sufficient data for concluding that *Londinium*, whatever may have been its original boundaries, had by the second century already extended not only as far as the limits of its ultimate circumvallation, but even beyond it on the northern side.

It has been stated by A. T. Kempe¹ that

we may fairly conclude that London in the time of the Emperor Claudius, that is, in the first century of Christ, had spread itself out (probably as an open town, consisting chiefly of insulated buildings pleasantly situated on a rising green bank) from Tower Hill to St. Paul's.

The growth of the city therefore would seem to have been very rapid in the early days of the Roman occupation, and this quite disposes of the argument that the great extent of the area enclosed points to a late date in the erection of the wall.

From the great scarcity of earlier relics actually found in the soil underlying London, it seems almost certain that no settlement of importance existed on the site in pre-Roman times. Many earlier objects have been procured from the bed of the Thames, and remains of earlier settlements have been discovered beyond London, but it is difficult to conceive that if any considerable British town preceded *Londinium*, all traces of it in the shape of pottery fragments, etc. should, by reason of subsequent occupation, have been so entirely obliterated, while, as some would have us believe, the place-names have survived.

The so-called Late Celtic pottery can hardly be considered to point to an earlier period than the Romano-

¹ *Archæologia*, XXIV. 193.

British. These shapes are so often found in association with distinctly Roman objects that, in such cases, they seem rather to indicate the survival of an earlier culture.

The opinion generally held, that London first sprang up as a fort defending the passage of the Thames on the trade route to the north, seems reasonable, and to be supported by what evidence has come to light. There is also evidence that in the time of the first Empire the passage of the Thames, either by a *trajectus* or bridge, was situated in about the same position as that occupied by the bridge of later times.¹

The first colony therefore might naturally be expected to have grown up at this point on the east bank of the Walbrook. But however probable this may be, it cannot be regarded as more than a surmise resting on very slender evidence. It is rather necessary to lay stress on this, as recent writers of popular books on this subject are apt to confidently assert that the earlier London occupied this site as a fact that has been proved beyond doubt.

So far as is warranted by the evidence, both banks of the Walbrook seem to have been thickly inhabited at an early period in the history of the city, and this stream, it will be seen, formed the centre of the later *Londinium*. If, as has been presumed, the city commenced its existence on the line of the northern highway, it must have soon shifted considerably to the west.

This westward movement would no doubt have been largely influenced by the proximity of the stream of the Walbrook. The importance of such a stream to the rising colony can scarcely be over-estimated, and it is easy to see that the inhabitants would not have been slow to avail themselves of the advantages of occupying its banks. Even in the Middle Ages, when its dimensions had shrunk to that of a mere brook, it played an important part in the industries and drainage of the city, as is seen by the city records; but in its earlier and more vigorous days it must have been of vastly greater importance, so as to lead the inhabitants not only to cluster on its banks, but also to occupy the bed of the stream for a distance extending to nearly three-

¹ *Archæologia*, XXV. 600; and XXIX. 147.

quarters of a mile northwards from the Thames. In fact, the settlement may have extended even further, remains having been found as far as Broad Street Station, but more may yet remain under the ground occupied by the rails of the North London and Great Eastern Railways.

Many errors and illusive conjectures have been made by various writers who have attempted to locate the position of the embryonic *Londinium*, through their having failed to recognise the importance of this stream and the nature of the conditions that were then existing. The one man who had a clear understanding of this was Sir William Tite. His views, however, never seem to have met with the recognition they deserved, owing probably to the conclusions having been arrived at from observations made of excavations in the soil. This method of inquiry was not in favour in his time, and the bulk of opinion not being in agreement with his views, the importance of his remarks appears to have been disregarded and overlooked. Subsequent excavations show, however, that Sir William Tite's deductions were correct, and this serves to illustrate how much more reliable is the evidence contained in the soil when properly observed, than that produced by scholars struggling with etymology and the writings of the ancients.

It may be of interest just to notice the opinions of some of those who have attempted to solve the question of the original site of Roman London. Arthur Taylor, in a learned paper, proposes to show that its position was to the east of the Walbrook, with Cannon Street as the principal west to east highway, having smaller north and south streets running from it. In speaking of the Walbrook, he says :

There is reason to believe that the channel of the Walbrook in this part of its course was a deep gully or ravine, scoured with considerable force by floods from the undrained moors above [*sic*]. The notoriety of this little river in early times is sufficiently manifested by the fact that the wards of the city were long divided into two classes, those east and those west of the Walbrook. A thousand years before, struggling through bog and morass, it would have afforded no slight impediment to a hostile movement, no little security to a station on the dry plain above.

The writer supposes the settlement to have been quadrilateral, and surrounded by an earthen *vallum*, the

stream forming a natural fosse on the west, and from this bank or wall he derives the name of Wall-brook. He goes on to say¹:

Along the northern side of the station, whose extremities we have now explored, was a tract of comparatively high ground, the ridge of Cornhill, backed by an extensive fen or morass, Finsbury or Moorfields.

In all probability the Langbourne was carried directly west, passing under the present Mansion House, the foundations of which, though not in the channel of the Walbrook, are known to have been laid upon piles and planking, a sufficient proof of the condition of the soil.

From these extracts it will be seen that there is confusion of early and late conditions. In a further communication² he admits that the great width of the channel of the stream, which he describes as "the sedgy confines of the Walbrook," was unknown to him when he first wrote, and that he was not then aware that it had been ascertained to have been 248 feet wide in the neighbourhood of Tower Royal and Little St. Thomas Apostle, evidently referring to the record of Sir William Tite, but he does not seem to have learnt also that at that time "the surrounding land was dry and substantial," which he refers to as the "Finsbury pools."

Whatever may be thought of his explanation of the mythical Langbourne representing the ditch of the northern boundary of this early site, and which he makes to run under the Mansion House and into the Walbrook, the statement that the Mansion House was not in the bed of the stream is certainly incorrect. Here again the writer evidently had the mediaeval stream in his mind. The fantastic Dr. Stukeley could not, perhaps, have been expected to recognize the cause of the conditions found in digging the foundations of the Mansion House, and which he accounted for by supposing a ditch to have existed there.³

The discoveries then made are quite consistent with those that have been observed throughout the course of the Walbrook, and there is no doubt that the greater part at least of the ground occupied by the Mansion House forms a part of the bed of the ancient stream.

¹ *Archaeologia*, XXXIII. 101.

² *Ibid.* 112.

³ *Itinerarium Curiosum*, "The Brill," 12.

The Walbrook is shown as an important stream in the map which accompanies a paper by William Henry Black,¹ in which he endeavours to show that the original site of London must have been between that stream and the Fleet.

The principal reason advanced in favour of this site is the strength of the position of the ground naturally protected on three sides by rivers. This theory would of course demand that the Walbrook should be a considerable stream, though nothing that the writer says goes to show that this view had been arrived at by anything except conjecture and the exigencies of the argument. In speaking of the district north of the city he says :

Our author Pennant is clearly wrong in describing that as part of the forest which for ages afterwards was a moor and meadows, the overflow of whose watercourses supplied the Walbrook, and he might have recollected the words of John Stowe of this Moorfield, etc.

He, however, remarks that the stream was large enough to form a little harbour at its mouth, namely, at Dowgate.

On the unsatisfactory evidence of place-names, Thomas Lewin² claims to have discovered the site of an aboriginal British city, which he proposes to place "upon the hill which lay between the river Flete on the west and Walbrook on the east."

With regard to the Roman city, he says that the extension of the city westward was difficult, owing to the Fleet valley,

but on the east side was the small and comparatively insignificant stream of Walbrook, running along a shallow valley, and easily spanned by bridges. It was in this quarter that the Roman merchants first began to erect their villas.

Here again no observed facts are given by which we may understand the description of the "shallow valley" of the Walbrook, which is stated by A. Taylor to have been a "deep gully or ravine." Such terms, in the absence of more precise details, may mean very little, and might be used according to the view which the author wished to advance. We have, however, means of computing fairly precisely what was the depth of the channel. It has been shown above that the stream in

¹ *Archaeologia*, XL. 41.

² *Ibid.* XL. 50.

the district of Moorfields had slight banks only discernible in places where they were three or four feet high, but on reaching the city it had to cut its way through the high ridge of ground skirting the Thames.

The original surface was found at Lombard Street, at a depth of 16 feet,¹ and the filling of the bed of the stream at this part extends to 30 feet, which gives a fall of 14 feet. As the soil forming the banks was of gravel, and subjected to the action of the tides, its sides would shelve gradually, as appears from the excavations in the filling up of its bed, and while its channel might have formed a good natural defence, it would scarcely be described as "a deep gully or ravine."

Roach Smith hesitates to pronounce any decided opinion upon the original site of the city, but expresses his agreement with much that is contained in the papers by Taylor; he is unwilling, however, to allow so restricted an area as is there defined. The difficulties attending this question are clearly stated by him :

If there be difficulty in recovering the plan of the internal arrangements of Londinium in its enlarged and full extent, as indicated by the wall yet partially standing, there are still more serious impediments to a satisfactory comprehension of the bounds of the primitive town. Here and there, during the late excavations for sewerage, for new streets and for other purposes, walls of great thickness, such as may be referred to a circumvallation, were intersected; but as no effort was made on the part of the Corporation to ascertain their course, the favourable opportunities thus afforded of making research were lost; and the question remains a matter of speculation, unsolved by any conclusive facts. The extraordinary substructures which were cut through in Bush Lane and in Scot's Yard may indicate a south-eastern boundary wall with a flanking tower. In Cornhill another thick wall, which seemed to point towards the Bank of England, was met with. Now if we assume, as probably with reason we may, that old London Bridge marked the centre of the earlier Londinium, the top of Fish Street Hill, at its junction with Gracechurch Street, Eastcheap and Cannon Street, may have been that centre.

There is greater difficulty in fixing the limits; and without the assistance of remains, and of any historical notices such as can be relied upon as bearing upon the question, every attempt must be almost wholly speculative. I should be inclined to place the northern wall somewhere along the course of Cornhill and Leadenhall Street; the eastern, in the direction of Billiter Street and Mark Lane; the southern, in the line of Upper and Lower Thames Street; and the western, on the eastern side of Walbrook. This suggested plan will give the form

¹ Pennant.

² *Illustrations of Roman London*, 14.

of an irregular square, in about the centre of each side of which may be placed the four main gates corresponding with Bridge Gate, Ludgate, Bishopsgate, and Aldgate.

J. E. Price admits the absence of evidence that a British city existed on the site of London, and says :¹

It has, however, still been sought by some to bestow upon London a British or Gaulish origin—to view it as a position of magnitude and importance long prior to the arrival of Julius Caesar. The evidence for this is, to say the least, most incomplete. The arguments in favour of it are such as will equally apply to the subsequent colonisation of the spot by Romanised Britons.

He, however, strongly urges the case for the early Roman city on the east of the Walbrook. Of this he says :

If we select the wards of Tower, Billingsgate, Bridge, Dowgate, Langbourne, Candlewick, Walbrook, and that portion of Bishopsgate Within which at one corner is bounded by St. Michael's Church, and may be extended for our purpose to the church of St. Peter on Cornhill, traditionally said to be the most ancient of the City churches, we shall inclose a space of ground twice as long as it is broad, and which possesses highways, parallel streets and roads strictly in accordance with Roman practice. It excludes the Tower, which was a detached fort and the whole of it probably external to the city at this early period.

In support of this view, however, Price gives no proofs of a satisfactory nature further than those put forward by his predecessors.

He makes a great point of the discovery of the *Arcus* at Bucklersbury,² which he assumes to be a boundary mark of the earlier city.

In the discovery at the Swan's Nest, he seeks to see another boundary mark east of the Walbrook. His evident desire to establish this point seems to have led him to consider himself justified in placing its position considerably to the east of the existing Swan's Nest on the map accompanying his remarks. He states that there is difficulty in exactly locating the spot, and says :

anywhere in the vicinity of the Swan's Nest could not have been far from the natural boundary marked by the bank of the ancient stream.

From Roach Smith's description of the discovery,

¹ National Safe Deposit, 11.

² National Safe Deposit, 32.

however, it would seem rather to be more to the west of it, for he says clearly that it was

on the Coleman Street side near the public house called the Swan's Nest.¹

On the map (Plate VIII.) I have indicated the position of the present Swan's Nest (No. 8), but the actual site of the discovery should, I think, be still further from the stream and nearer to Coleman Street, which is the more important on account of the coin of *Allectus* associated with this find.

With regard to the *Arcus* at Bucklersbury there seems nothing to show what was its signification, but its position, well into the bed of the ancient stream and under a mass of wooden piling, hardly seems to favour the supposition that it marked the boundary of the earlier settlement east of the Walbrook, unless the writer had the mediaeval stream in his mind.

Still more recently Mr. Loftie,² apparently adopting the views of Price, refers to the question as a matter beyond doubt, and goes so far as to represent the shape of the early Roman settlement in some detail on a map.

This he shows as a snug little rectangular fort, having a curious triple apsidal termination at the west. The particularity with which the form is given, taken in conjunction with his statement that "its site has been thoroughly examined within the past few years," is quite misleading, and is apt to give the impression that the actual boundaries of the early city have been discovered.

To speak of any part of London as having been "thoroughly examined" sounds like pure satire to anyone at all acquainted with the melancholy history of London antiquities.

The authorities have, with few exceptions, consistently discouraged anything like investigation, and observers have failed, perhaps from lack of opportunity, to distinguish between objects coming from the lower deposits and those which have occurred higher in the Roman level. It is only in rare instances that the precise locality of relics has been recorded. For the most part, after passing from the workmen to the dealers, objects have come into

¹ *Archaeologia*, XXVII. 148.

² "London," *Historic Town Series*, 1890.

the possession of collectors with the more or less doubtful tradition of having been "found in London," devoid of any record as to the condition of their discovery.

Under these circumstances it is no wonder that those who have written on such things have regarded them more as a pretext for displaying their knowledge of every habitable portion of the earth except London, rather than as being the most trustworthy witnesses of matters relating to the early history of our venerable city.

It is apparent, therefore, that to speak of earlier Roman London is still a matter of great doubt and difficulty. How much light would have been thrown on this and many other questions relating to London had the site recently excavated been "thoroughly examined," perhaps the few imperfect notes that are here given may serve to show.

In many respects these excavations provided one of the most valuable sections that has been disclosed in London, on account of the gradual deposition and undisturbed state of the soil, and its containing such numerous relics, the great mass of which have been disregarded, lost, or rendered useless. As a large portion of the deposit remained untouched for weeks, the authorities had ample opportunity of making an investigation, without in any way interfering with the progress of the work, had they been so disposed.

A most valuable portion of the present evidence is provided by Mr. Kennard's examination of the organic remains, and his remarks on the nature of the soils. His great reputation as an authority on this branch of science makes it a matter for congratulation that he found a means of undertaking its investigation. It is the more necessary to lay stress on this owing to the exaggerated importance that has been attached to a letter which appeared in *The City Press* in which the writer has expressed the opinion that this deposit at Moorfields is not peat but "stable dung." It would have been unnecessary to refer to this letter but for the wide prominence given to it by writers on scientific matters,¹ who on the strength of these irresponsible

¹ "Excavations at the Glastonbury Somerset Archaeological and Natural Lake Village." *Proceedings of the History Society*, 3rd S. VIII. 102, and

statements have calmly swept aside the prolonged observations of an explorer of such great ability as General Pitt-Rivers, whose opinion was, moreover, supported by several competent authorities. It is quite inconceivable that anyone who had read General Pitt-Rivers's account, or who had even cursorily examined the deposit, would have given any consideration to such a view, unless to show the indifference with which London's antiquities are regarded and the anxiety displayed by the public to belittle their importance. Concerning this Roach Smith has said :

They seem rather pleased to find some daring champion who will deny the glory and honour of Roman London, because he helps to shield them from their share of reproach, under the pretext that what never existed could never have been destroyed.¹

The greater number of the relics also were discovered by Mr. Kennard.

THE RELICS.

The relics found by us represent an altogether insignificant proportion of what was produced from this site. Many of these objects also may be considered unworthy of the detail with which they have been described in the subjoined list. But trifling as many of them may be, compared with more striking relics frequently brought to light in London excavations, their value is enhanced by the record of their discovery in association with the pile structures. In view of future discoveries that may be made also their record may prove of value.

The greater number of the relics were doubtless carted away with the rubbish, but a great many were sold by the workmen, and have found their way into museums and private collections, some hundreds of which I have myself seen.

Private collectors and museum authorities usually care very little about the conditions under which relics are found, provided they look imposing in glass cases, and excite wonder from an uninformed public; so unfortunately most objects thus preserved possess very little

Quarterly Journal of the Geological Society, LIX. (1903), 89.

¹ *Illustrations of Roman London*, 6.

scientific value. As, however, the far larger proportion of Roman relics from this site came from the level of the piles, those in the possession of the Guildhall Museum may have some claims to consideration; a list of these, which has been kindly prepared for me by Mr. George Lawrence, has therefore been added.

It is interesting to note that only one object of the Anglo-Saxon period has been recorded; this is a bronze tag-end of a belt, and is in the Guildhall collection.

To Dr. Munro are due the best thanks of both Mr. Kennard and myself for the kindly interest he has taken in the result of our investigations from the first moment the evidence was brought to his notice, and the great encouragement he has given us to fully publish the record.

My thanks are due also to Mr. George Clinch, and to Mr. Charles Welch, the librarian at the Guildhall, for the kind assistance they have given me in my endeavours to collect the record of former discoveries: also to Mr. Peers for valuable help and suggestions.

LIST OF RELICS FOUND ASSOCIATED WITH THE PILE STRUCTURES.

Bronze Objects.

Fibula, in form of a fish, ornamented with black and white enamel, length, Plate V. Fig. 1.

A similar fibula was found by General Pitt-Rivers in the Romano-British village of Rotherley, Wilts. See Vol. II. *Cranborne Chase*, Plate XCII. fig. 8, p. 118.

A note on this object will be found in *The Reliquary* for October, 1902.

Pin of *fibula*, $1\frac{3}{8}$ inch long.

Pin of *fibula* with spiral hinge, $1\frac{3}{4}$ inch long.

Ferrule, sealed at the end, $\frac{1}{12}$ inch long by $\frac{1}{4}$ inch wide at the opening.

Fig. 14 (c).

Four pieces of twisted bronze wire.

Lower portion of a seal case, Fig. 11 (4), pierced with four holes. It has a hinge, attached to which is a portion of the cover $\frac{1}{16}$ inch in diameter.

Piece of bronze band, pierced with a small hole in the centre, 1 inch from end, $4\frac{1}{2}$ inches long, $\frac{1}{8}$ inch wide.

Ring, probably a portion of horse trapping, $1\frac{3}{4}$ inch by $1\frac{1}{2}$ inch and $\frac{1}{8}$ inch in thickness, Fig. 14 (2).

Very thin band, bent flat; if straightened out would measure $2\frac{1}{2}$ inches, perforated with a small hole at one end $\frac{3}{8}$ inch wide.

Iron Objects.

Faying knife, or implement for cutting leather, Fig. 12 (7). It is inserted in an iron handle, the end of which is turned up as though to retain it in a wooden covering. The blade is 4 inches by $3\frac{1}{4}$ inches.

Small *fibula* with coiled spring $1\frac{1}{2}$ inch long, Fig. 11 (1).

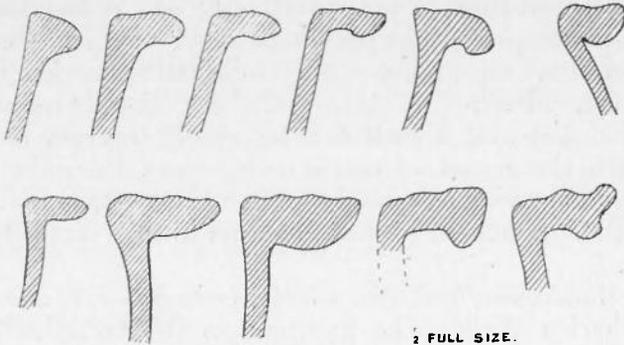


FIG. 13.—SECTIONS OF POTTERY RIMS FOUND WITH THE PILE STRUCTURES.

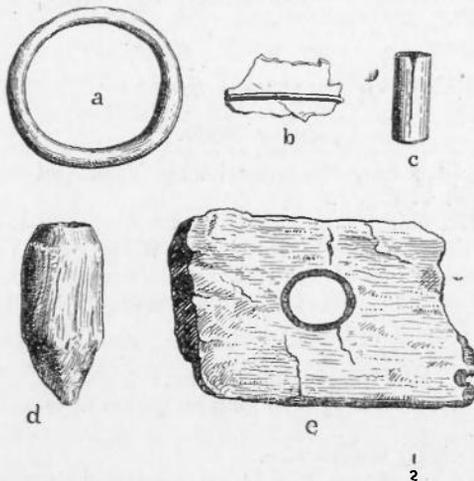


FIG. 14.—SUPPLEMENTARY OBJECTS FOUND WITH THE PILE STRUCTURES.

Hook, one return of which is flattened, 4 inches long; breadth at the flattened end $\frac{1}{2}$ inch, Fig. 12 (3).

Iron object, which probably formed the tang of a tool, to which is affixed a loop at the end. It appears to have been fastened to a wooden handle, having two holes, in one of which the head of a stud remains, Fig. 12 (5).

Pointed instrument of iron, 11 inches long, the blunt end is grooved for attachment, circular in section, $\frac{1}{4}$ inch in diameter at the thick end, and tapering to a point, Fig. 12 (11).

Thirteen needles, the largest of which is 5 inches long.

In most of them the eye is broken, but the groove still remains.

A thin iron hook 3 inches long, pierced at the broad end, with a hole for attachment, $\frac{1}{4}$ inch wide, tapering to a point 1 millimetre thick.

Object of unknown use, $6\frac{1}{4}$ inches long, $\frac{1}{2}$ inch wide at broad end, which is bent over to form an eye; it tapers to a point at the other end. Fig. 12 (4).

Frame of a buckle, $2\frac{3}{4}$ inches by 2 inches, Fig. 12 (1).

Object with a globular end, $5\frac{1}{4}$ inches long.

Piece of iron rod, flattened at one end, $4\frac{1}{4}$ inches long, $\frac{1}{12}$ inch thick.

Portions of an iron band, pierced with circular and square holes; the combined length measures $11\frac{1}{2}$ inches, but it is not complete; 1 inch wide, tapering to $\frac{3}{8}$ inch.

Two staples or dogs for fastening timber, (1) $2\frac{1}{2}$ inches long, flattened in its length to $\frac{5}{16}$ inch wide, the points 1 inch long and square in section, Fig. 12 (8); (2) $1\frac{1}{4}$ inch long, the points are chisel shaped, the broad axes being at right angles to each other, Fig. 12 (10).

Similar objects to No. 1 were found by General Pitt-Rivers in his Romano-British villages, see *Cranborne Chase*, Vols. II. and III. and *Essex Naturalist*, XI. 218, where this form is referred to as probably being a "strike-a-light."

Staple, with an eye formed by bending back a single rod of iron 2 inches long, Fig. 12 (6).

Another similar, $1\frac{3}{4}$ inch long, Fig. 12 (9).

Three hundred and sixty iron nails were found; the majority came from the level just overlying the tops of the piles.

The longest of these is 6 inches, the larger number average about 2 inches in length. One has three cuts to prevent slipping, a practice which is still resorted to by carpenters, Fig. 12 (2). One has a large flat head $\frac{3}{4}$ inch in diameter, the nail portion being only $\frac{3}{4}$ inch long.

Some hob nails also occurred.

Bone and Horn Objects.

Carved handle of knife or tool, with iron tang remaining. At the end it is pierced with a hole for suspension. Rectangular in section, $\frac{1}{2}$ inch by $\frac{3}{16}$ inch, Fig. 11 (3).

Butt end of a bone pin, $2\frac{1}{2}$ inches long by $\frac{1}{16}$ inch thick.

Point of another, $1\frac{1}{2}$ inch long by $\frac{1}{16}$ inch thick.

Portion of another, $2\frac{1}{4}$ inches long.

Tooth of a comb, 1 inch long.

Metacarpal bone of ox, with a circular hole drilled longitudinally, $\frac{1}{2}$ inch in diameter, apparently to receive the tang of a tool.

Tool known as a "pin polisher," see Plate VI. Figs. 1, 1a.

Tool apparently a rough form of "pin polisher," see Plate VI. Fig. 2.

Portion of a rib cut at both ends, and having marks of use by scraping, length 5 inches.

Six fragments of bone showing cutting marks.

Brow tine of red deer, with the burr, which has been cut from the main antler and from the skull, $5\frac{1}{2}$ inches long.

Brow tine and portion of main antler sawn from the skull. The main antler has been partially sawn through and broken.

Small horn core of an ox, cut from the skull, and rubbed down considerably on one side.

Lead Objects.

Seal, impressed with the letters "L. V." It was originally formed on a string, the hole through which this passed remaining; 1 inch long, $\frac{1}{4}$ inch deep, $\frac{1}{16}$ inch thick, Fig. 11 (2). See *Remarks on the Roman Military Signacula found in Britain*, by Alfred White, *Proceedings of the London and Middlesex Archaeological Society*, 1873, p. 120.

Piece of lead, roughly shaped and cut, length $2\frac{1}{2}$ inches.

Glass.

Three fragments of green glass, $\frac{1}{6}$ inch to $\frac{1}{8}$ inch in thickness.

A portion of rim of a white glass vessel, 2 inches wide.

A fragment of blue glass $\frac{1}{16}$ inch thick.

A fragment of green glass $\frac{3}{16}$ inch thick.

Several fragments of thin white glass ornamented with a raised band $\frac{1}{12}$ inch thick, Fig. 14 (b).

Piece of rough glass of irregular shape 2 inches long by $1\frac{1}{4}$ inch thick.

Several pieces of glass slag.

Stone Objects.

Whetstone, $4\frac{1}{2}$ inches long, about $1\frac{1}{4}$ inch square.

The stone is probably from the Forest of Dean.

No flint implements occurred, but two flakes were found.

Objects of Wood.

Pointed piece of oak $7\frac{1}{2}$ inches long, $\frac{1}{2}$ inch wide.

Wooden pin, $3\frac{3}{4}$ inches long, $\frac{1}{4}$ inch thick at butt end.

Wooden pin, $2\frac{1}{2}$ inches long, $\frac{1}{4}$ inch thick at butt end.

Piece of shaped wood, apparently a tool, 1 foot $5\frac{1}{2}$ inches long, about $1\frac{1}{2}$ inch wide, and $\frac{1}{2}$ inch thick. The grasping end cut and worn by use.

Wooden peg, sharpened at both ends, $2\frac{1}{2}$ inches long, $\frac{3}{4}$ inch thick, Fig. 14 (a).

Piece of flat board with grooves, 11 inches long, $4\frac{3}{4}$ inches wide, and 1 inch thick in thickest part. The grooves are about $\frac{1}{2}$ inch square. This is probably a portion of the superstructure of the dwellings, Fig. 9.

Piece of timber with tenoned ends, probably a portion of a window frame. 1 foot 5 inches long by $4\frac{1}{4}$ inches by 3 inches. A portion of a nail still remains in one of the tenons. The wood is cut away

on one side $1\frac{1}{2}$ inch in length and $\frac{1}{2}$ inch deep, to form the tenon, Fig. 9.

Piece of wood $\frac{1}{2}$ inch thick, pierced with a hole $\frac{3}{4}$ inch in diameter. It has the remains of a nail hole in one corner.

A number of specimens of the wood have been submitted to Mr. George Ellis, who pronounces all the portions of piles, planks and the great majority of other fragments to be oak; a few small pieces are willow.

Leather Objects.

Sole of a *caliga* studded with hob nails. Plate V.

Portion of a child's shoe, $3\frac{1}{2}$ inches by 2 inches.

Small piece of thin leather, $5\frac{1}{4}$ inches long.

Pottery.

Considerable quantities of pottery fragments of the usual Romano-British wares were found, but no perfect vessels.

No instance of hand-made pottery occurred.

The larger proportion of the fragments came from the upper portion of the platforms, but were fairly plentiful throughout the filling at the level of the piles.

A few pieces were also found in the deposit immediately overlying the gravel. A selection of characteristic specimens is given on Plate VII.

Of the various descriptions the black ware, ornamented with slightly impressed diagonal lines, was the most common. See Nos. 1, 2 and 3. A small series of sections of rims is also given, Fig. 13. The majority of these are the basin shaped vessels of this black ware, most of which are of the simpler type.

Varieties of the grey, buff and brick-red wares were also plentiful, Nos. 4, 5, 7 and 8, Plate VII.

The coarser wares were uncommon, only five fragments of the description of No. 9 occurred: this is a grey ware having grains of quartz or flint, ornamented with a band of thumb-nail marks.

Only two or three small fragments were found of the fine thin ware ornamented with parallel rows of dots of slip, of which No. 6 is one. The slip painted pottery known as "New Forest" was totally absent. Considering the large quantity of pottery which occurred, this is noteworthy, and may indicate that this slip painted ware belongs to the later portion of the Roman period.

Several large fragments of *amphorae* and many portions of *mortaria*, such as No. 10, were discovered.

Red "Samian" was abundant, but the larger proportion of that from the level of the piles was of the plain description, while in the higher portion of the Roman deposit, although a comparatively smaller quantity was found, the proportion of richly figured ware was far larger.

The ornamental "Samian" found associated with the piles was mostly of that description in which the whole surface of the vessel has been decorated with delicate filigree and diaper ornament in low relief,

the design being for the most part of a conventional nature and having the mouldings slightly impressed with lines formed by a milling wheel. The glaze is hard and bright (Plate IX).

In the upper levels there was a predominance of the ware in which the decoration is of a broader treatment, in which a more frequent use is made of natural forms and is modelled in higher relief. The design is contrasted with broad plain bands and spaces. The body of this ware is rather thicker, the glaze generally softer and less brilliant than the former class.

The objects from the site of the National Safe Deposit, which are preserved in the Guildhall Museum, have the distinction of forming one of the few instances of Roman discoveries in London in which some care has been exercised in their record, and they have fortunately been kept together. Many of the conditions of their discovery are similar to those of the site under notice, among others the fact that by far the larger proportion of the relics occurred in the lower levels, and owing to this happy chance we have a varied collection of objects bearing a fairly reliable and restricted locality.

Their position and the large number of coins found, none of which is later than the reign of Antoninus Pius, show that this discovery relates to the earlier period of the Roman occupation.

It is interesting therefore to find that the "Samian" ware from this site is mostly of the former quality referred to above. This taken in conjunction with that discovered recently with the piles, seems to show that this class of the glazed red ware is referable to the time before the end of the second century, while the latter description belongs mostly to the subsequent period.

The following potters' names occurred :

KJF(V)FK,—ALBVCI . M.,—CACASI M., CIRRVVS F., COMPRINNI . M.,—MINETTA,—PECULIAR.F (ÆCVIÆ) RUFFI M.

All these, with the exception of the first and the sixth, are included in Roach Smith's list.¹

Several fragments of roofing and flooring tiles occurred in the soil about the piles. No perfect specimen was found, though several portions of both the *tegula* and *imbrex* were among the fragments. Gen. Pitts-Rivers also records that no entire tiles were found on the site south of the wall.

Many of the fragments showed marks of fire, as if they had been used as hearths, and others had traces of molten matter or glaze.

LIST OF OBJECTS IN THE GUILDHALL MUSEUM.

From the site of the warehouse of Messrs. Gooch and Cousens, where Gen. Pitt-Rivers's observations were made :

Spear-head, iron, 10½ inches long.

Horse-bell, iron, 2½ inches by 2¾ inches globular form, pierced with four circular holes and oblong slit in lower portion (loop missing).

Iron knife.

¹ *Illustrations of Roman London*, 102.

To face page 228.



FRAGMENTS OF SAMIAN WARE.
1 AND 2 FROM LEVEL OF PILES. 3 AND 4 FROM UPPER ROMAN LEVEL.

Vase, four-lobed, on circular tubular stand $3\frac{1}{2}$ inches high by $4\frac{1}{4}$ inches diameter.

Handle, formed from leg-bone of deer or ox.

Site of London Wall Estate Offices :

Two bronze bowls.

A quantity of bronze wire.

Neck-chain of fine twisted bronze wire.

Bronze-piercer, flat tang, pierced with three rivet holes for handle plates. Upper portion of handle ornamented with incised crossed lines, $3\frac{1}{4}$ inches long.

Iron piercer, with deep grooves.

Iron piercer.

Iron piercer, of slender form, pointed at each end, $4\frac{7}{8}$ inches long.

Five hippo-sandals.

Lamp of pottery.

Lamp mould.

Spindle-whorl of pottery.

Bone implement, flat, probably for weaving.

Ring (portion of), iron, with jasper intaglio, on which is engraved a nude male figure, bearing a patera in right hand, cornucopia in left.

Twelve human skulls.

Coins.

From Gooch and Cousins ...	Nero	2nd Brass.
" " "	Vespasian	"
" " "	Trajan	"
" " "	Faustina	"
" " "	Antoninus Pius		"
" London Wall Estate Offices.	" "		"
" Walbrook (locality not recorded).	" "		"
" Walbrook (locality not recorded).	Trajan	1st Brass.
" Walbrook (locality not recorded).	Mons Agrippa...		—
" Moorfields, Eldon Street.	Clodius Albinus.		—

The objects from the site of the National Safe Deposit are also from the Walbrook and are preserved by themselves in the Guildhall Museum.

Among other objects from the site recently excavated, in the collection of Mr. W. M. Newton of Dartford, is a coin of Trajan, a fine bronze *fibula* with blue enamel and 12 hippo-sandals.

These last objects, whose use has never been satisfactorily explained, demand some notice.

They are supposed to have formed a shoeing for horses, and on account of the large proportion of them having been found at

Moorfields, which has generally been held to have always been a marsh, it has been argued that the special use of these objects was for horses on soft and quaggy ground.

Those having a practical knowledge of horses say that the use of such objects, so far from being of any assistance to animals on soft ground, would rather tend to impede them, and that more probably they were for occasional use for animals generally on fields and unshod, when taken on the hard roads.

Although no record seems to have been made of the depth at which these objects have been found, most of them bear traces of having come from the gravel which by corrosion still adheres to their surfaces.

The great probability seems to be, therefore, that they were in use before the formation of the swamp, and that the explanation of their use on soft ground is only another error caused by the general misconception of the marsh conditions in early Roman times on Moorfields.

APPENDIX.

THE ORGANIC REMAINS AND NATURE OF THE SOIL.

By A. S. KENNARD.

The sections exposed in the excavations were of great importance, since it is not often that so large an area is excavated in London.

Over the larger part the details were constant, viz.

- (1) Made earth, 6 to 8 feet ; passing into
- (2) peaty loam and peat, 6 to 9 feet.
- (3) Coarse gravel resting on London clay, which was only reached in the deeper trenches.

There was sometimes a layer of sand or sandy gravel between 2 and 3, whilst the upper part of the gravel was always stained by the overlying peat.

The made earth was of the character so well known in London, and contained broken greybeards, slip, delft, Chinese porcelain, and other pottery used during the last three centuries, numerous tobacco pipes, articles of metal, and numerous bones.

The following initials were noted on the tobacco pipes :

On the base "H."

On the sides of the foot "P," "W," "S. E." "H," "S" (three specimens) and "A. I.," surmounted by a crown.

Shells of the mussel (*mytilus edulis*), cockle (*cardium edule*), winkle (*littorina littorea*) and oyster (*ostrea edulis*) also occurred.

The species of animals represented were :

Hare (*lepus europaeus*).

Sheep (*ovis aries*).

Roebuck (*capreolus capra*).

Pig (*sus scrofa domestica*).

Red deer (*cervus elaphus*).

Fallow deer (*cervus dama*).

Dog (*canis familiaris*.)

Ox (*bos longifrons*).

Cat (*felis catus*).

Urus (*bos primigenius*).

Rabbit (*lepus cuniculus*).

The bones were as a rule scattered, but occasionally a large mass of ox bones would occur, evidently the refuse of the slaughter houses. No perfect skull of the ox was noted, but numerous horn cores, with portions of the skull still attached, were very common. In nearly every case the point of the horn core had been removed by sawing. The urus (*bos primigenius*) was represented by a single horn core, and was identified for us by Professor N. Duerst, of Zurich, whose researches in the *bovidae* are so well known. In all probability the individual to which the horn core belonged had been imported into this country. The red deer was represented by a frontal with the antlers still attached, whilst of the fallow deer only metacarpals and metatarsals were noted.

The made earth passed gradually into the peat, there being in no section a sharp line of demarcation between them; but the passage was often well marked by a layer of Tudor leather and an abundance of perfect and broken bones, some of which were stained a beautiful green by vivianite.

Since this passage bed is of great importance, it is advisable to consider the remains found in it apart from the upper and lower layers into which it passes.

The animals noted were :

Sheep (*ovis aries*).

Pig (*sus scrofa domestica*).

Dog (*canis familiaris*).

Rabbit (*lepus cuniculus*).

Hare (*lepus europaeus*).

Horse (*equus caballus*).

Ox (*bos longifrons*).

Red deer (*cervus elaphus*).

Fallow deer (*cervus dama*),
and numerous bird and fish bones.

The same species of edible *mollusca* as in the made earth were also present, and we also noted one valve of the scallop (*pecten maximus*), one of *macoma bathica*, and a few shells of the whelk (*buccinum undatum*). It is noteworthy that although the last species was a favourite article of food in the Middle Ages, no less than 8,000 being supplied at the enthronization feast of William Warham, Archbishop of Canterbury, in 1504, less than a dozen examples were found by us.

Fragments of pottery with green and brown glaze also occurred, as well as shells of the walnut and hazel nut, and broken egg shells.

From the nature of this passage bed, and the absence of all fresh-water shells, it is evident that at the time it was accumulated there was not a permanent swamp, but only wet ground during rainy weather, and that it was the dumping ground for the refuse of the city.

The peat, so called, was by no means a homogeneous deposit. At the base it was a carbonaceous silt containing many fresh water and a few land shells, the bivalves being often in the position of life, and having their valves united. Its whole character clearly indicated that it had been deposited by a slow stream. In the middle part, however, a gradual change was seen to take place, the vegetable remains becoming more and more numerous, until in the upper part it became a true peat, being composed almost entirely of vegetable matter. Many of these vegetable remains were well preserved, and were obviously those of aquatic plants. It is noteworthy that the semi-aquatic mollusc *succinea elegans* [Risso.] was not common in the lower part, but increased in numbers in the middle portion, until in the true peat it was almost the sole representative. Caddis worm cases and wing cases of beetles occurred.

The following animals were noted :

- Sheep (*ovis aries*).
- Dog (*canis familiaris*).
- Pig (*sus scrofa*).
- Rabbit (*lepus cuniculus*).
- Horse (*equus caballus*).
- Ox (*bos longifrons*).
- Red deer (*cervus elaphus*).
- Roebuck (*capreolus capra*).
- Water-rat (*microtus amphibius*).
- Frog (*rana temporaria*).

It is also possible that the wolf was represented by a skull, but it is extremely difficult, if not impossible, to differentiate between the dog and wolf. The remains of the horse were very common, in many cases the whole skeleton being present. In one place was a very large accumulation of broken bones of ox and sheep, with a few bones of rabbit and fragments of Romano-British pottery at the base of the peat and resting on the gravel,¹ obviously the refuse of meals.

The roebuck was represented by a much worn antler with part of the skull attached. It probably had been used as a tool, and bore the marks of hacking on the pedicle which is nearly always present in examples from London.

It may be noticed that the fallow deer is absent from the peat, thus confirming the view that this form is a late introduction in these islands.

The species of non-marine *mollusca* occurring in the peat were² :

- Agriolimax agrestis* (Linn.)
- Vitrea cellaria* (Mull.)
- Vitrea nitida* (Mull.)
- Hygromia hispida* (Linn.)
- Vallonia pulchella* (Müll.)
- Helix aspersa* (Mull.)
- Helix nemoralis* (Linn.)
- Cochlicopa lubrica* (Müll.)

¹ See *Science Gossip*, N.S. VII. 319.

² See *Proc. Malac. Soc. Lond.*, V. 180-182.

Succinea elegans (Risso.)
Carychium minimum (Mull.)
Velletia lacustris (Linn.)
Limnaea pereger (Müll.)
Limnaea palustris (Mull.)
Limnaea stagnalis (Linn.)
Physa fontinalis (Linn.)
Physa hypnorum (Linn.)
Planorbis corneus (Linn.)
Planorbis albus (Müll.)
Planorbis glaber (Jeff.)
Planorbis navitileus (Linn.)
Planorbis complanatus (Müll.)
Planorbis vortex (Linn.)
Planorbis spirorbis (Müll.)
Planorbis contortus (Linn.)
Planorbis fontanus (Light.)
Bithynia tentaculata (Linn.)
Bithynia leachii (Shepp.)
Valvata piscinalis (Mull.)
Valvata cristata (Mull.)
Sphaerium corneum (Linn.)
Sphaerium lacustre (Mull.)
Pisidium pusillum (Gmel.)
Pisidium nitidum (Jenyns.)
Pisidium milium ("Auct.")

Of these twenty-four species are aquatic, one semi-aquatic, and nine land shells. Characteristic Roman and Romano-British pottery occurred from the base to a considerable height. Numerous flint pebbles were to be seen in the peat, doubtless thrown in by the juveniles of the period. Two artificial flint flakes were found in the lower part. Fragments of charcoal also occurred scattered throughout.

The shells of marine *mollusca* were by no means uncommon in the lower peat though less so in the middle, the most abundant form being the oyster (*ostrea edulis*).

We also noted numerous mussels (*mytilus edulis*), a few winkles (*littorina littorea*) and cockles (*cardium edule*).

Though no bone skates were found by us, yet two bone spikes were found in the upper peat. These objects which are well known to all collectors of London antiquities, always occur associated with bone skates, and are only known from Moorfields and its vicinity. Fitzstephen states that the skater propelled himself by means of an iron-shod pole, and in all probability bone spikes were often substituted for iron, for obvious reasons, and were used in a similar manner. Additional evidence is thus furnished of the post-Roman age of these objects.¹

The gravel on which the peat rested is the well known middle terrace gravel, and is of pleistocene age, and no worked flints were found, though careful search was made.

¹ See Dr. R. Munro, *Prehistoric Problems*, 287-307.

In the eastern portion of the area the sections were different. Here was the old bed of the Walbrook, and besides the peat of the marsh true stream deposits had accumulated.

One section noted cut through the bank of gravel, the contrast between this and the sand and peaty loam of the stream bed being very marked. It was impossible to trace the exact height of the bank, since the bottom was not exposed, but the bank was seen to be $3\frac{1}{2}$ feet high. The stream deposits consisted of gravel, fine sand, and peaty loam, the action of the piles in checking the flow of the stream and causing the deposition of the coarser material being well shown. At times these deposits gradually passed into the overlying peat, but there was sometimes a well marked break between the fine sand and the peat.

Besides the objects of human origin and the human *crania* found associated with the piles, we noted the following animals :

- Pig (*sus scrofa ferus*).
 - Ox (*bos longifrons*).
 - Horse (*equus caballus*).
 - Sheep (*ovis aries*).
 - Goat (*capra hircus*).
 - Rabbit (*lepus cuniculus*).
 - Red deer (*cervus elaphus*).
 - Fowl (*gallus domesticus*),
- and the lower jaw of a small cetacean.

Many of the bones were broken, as though to obtain the marrow, and in some instances the broken ends were blunt. The sheep was represented by a nearly complete skull, several imperfect *rami*, and an imperfect metacarpal, rather larger than any of the Roman examples figured by General Pitt-Rivers. Besides several limb bones belonging to young examples of the pig, one fine tusk of the wild boar was also obtained, which had been hacked from the *ramus*.

Shells of the mussel (*mytilus edulis*) and oyster (*ostrea edulis*) were also found.

From the above facts it is easy to read the history of the locality. From the occurrence of the heap of broken bones and pottery of the Roman age resting on the gravel, it is evident that there could not have been any marsh in pre-Roman or early Roman times, the Walbrook flowing normally in its bed, and the surrounding country being dry land. The probable cause of the marsh was the obstructions to the course of the stream, first by the pile structures, and then by the building of the wall. Deposition would take place at first in the stream bed, and as this was gradually silted up, the stream would overflow its banks and a large mere would be the result. This condition of things lasted for several centuries, certainly from Roman times to the Middle Ages ; but gradually by drainage the mere became a marsh or morass, the fresh-water shells died out, and the semi-aquatic *succineae* living in myriads on the stems of the marsh plants, until the area became dry ground, and was the dumping ground for the refuse of the city. It has recently been suggested by Mr. E. Sloper, F.G.S. (*The City*

¹ *Excavations in Cranborne Chase*, II. plate CLXIII.

Press, 2nd April, 1902), that the peat in Moorfields is stable dung. He also adds with reference to the discovery of pile structures on the south side of London Wall by General Pitt-Rivers in 1866, "It is clear that this was another clay pit filled up with rubbish through which the foundations of houses had been laid in a modern period."

We venture to think that these views are quite at variance with the ascertained facts; the nature and the contained *fauna* of the deposit clearly show that it was a fresh-water accumulation, and not stable refuse, whilst the Roman age of the piles is beyond dispute.