



## On the Roman Earthenware Waterpipes in the Grosvenor Museum

BY GEORGE W. SHRUBSOLE, F.G.S.

(Read December 12th, 1892.)



IN laying out the Grosvenor Park in 1867, a line of earthen cylindrical pipes was found, and by the forethought of Alderman Littler, four pipes were secured which ultimately found their way into the Grosvenor Museum.

They are all of one pattern, having one end larger than the other, so that the smaller end of one pipe fits into the larger end of another to the extent of two or three inches. A little clay completes the junction. The dimensions are as follows in two of the pipes:—

- (a) Length, 23 inches; diameter, wide end 7 inches, narrow end 5 inches; thickness, wide end  $\frac{3}{4}$ -inch, and narrow end  $\frac{1}{2}$ -inch.
- (b) Length,  $21\frac{1}{2}$  inches; diameter,  $6\frac{1}{4}$  inches and  $5\frac{1}{4}$  inches; thickness,  $\frac{3}{4}$ -inch and  $\frac{1}{2}$ -inch.

Assuming that the pipes have been associated with a water supply—a point I hope to prove—a question arises as to their age; clearly they are not modern, nor do they belong to a preceding period, when hollow logs of wood were in vogue. The Middle Ages produced no fictile ware to compare with these pipes—I say this after

examining the few examples in the British Museum. No, we may take it that neither Saxons, Normans, nor the Middle Ages were equal to producing the pipes in question. The plastic art, over the period mentioned, was at a very low ebb. The manufacture of sanitary water-pipes in this country is no older than the century.

The pipes in question are made from a superior kind of clay, probably fire-clay, found along the North Wales border, Buckley being the nearest point; and from their clear bright red colour, are of the nature of terra-cotta, as is so generally the case with Roman bricks and tiles.

This, and the workmanship of the pipes, clearly points to their being of Roman manufacture, since, from the third or fourth century to comparatively recent times, nothing equal to them in quality has been produced in this country. The only instance of similar Roman work I have met with was in the Guildhall Museum, London. The construction of the pipes was similar in principle, only there was a flange at the tapering end, and altogether much smaller, as if it was intended to supply a large building from the fresh-water supply of the Fleet.

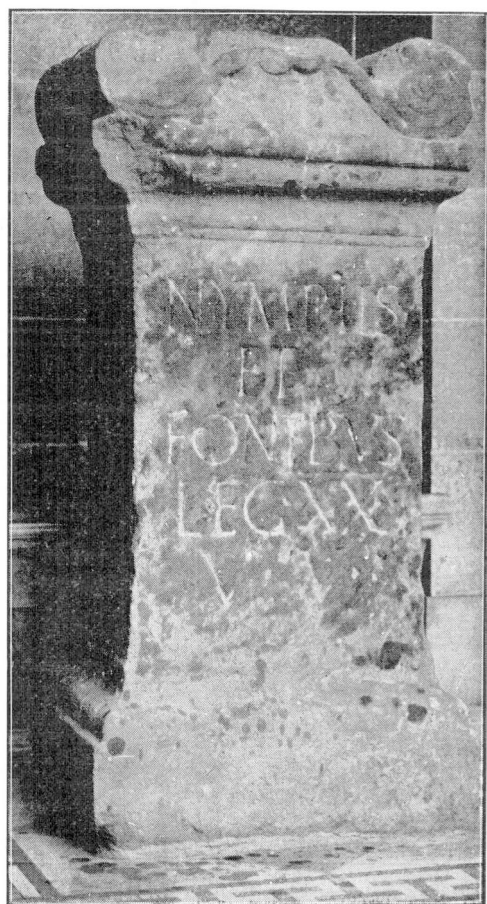
It will be interesting to inquire into the use of these pipes. Hemingway mentions a similar find in 1814 of a long line of pipes (in an east and west direction), when levelling the ground in the neighbourhood of Dee Hills, Boughton. He describes them as varying in diameter, one end being smaller than the other, as if for the purpose of insertion, and in colour approaching to our modern flowerpots, adding, "the pipes bear a strong resemblance in colour and texture to the tiles and urns of the Romans." Hemingway, after mentioning their resemblance to Roman pottery, goes on to argue that they were used to bring water from the Abbot's Well at

Christleton, in the time of Edward I., and during the Abbacy of the 13th Abbot, Simon de Albo Monasterio. Such may have been the use, but I do not think it probable, or, if so, that the same pipes were made and used to convey water ten centuries prior to this by the Romans.

It may be thought that, with an ample river flowing by the walls of the camp, the Romans had little need for a supply of spring water. It must be borne in mind, however, that at this time there was no such artificial obstruction as the causeway; that the volume of water in the river was much greater, flowing regularly for miles above Chester, and consequently only at dead low water would the water be fresh—say for four hours out of the twenty-four—at other times it would be more or less mixed with sea-water; so that the brackish water of the Dee, while suitable for many purposes, left a good drinking water still a desideratum.

Where was this to be had? Spring water in this district is only found in the sand and gravels which underlie the Upper Boulder Clay. Boughton and Christleton are favoured in this respect. There the water-bearing sand strata occur at reasonable depths, and at both places we find springs, especially at Boughton, where the water came to the surface, and its overflowing at one time sufficed to fill the Flookersbrook Pits and Bache Pool. Flookersbrook bridge, over the stream, disappeared fifty years ago, at the advent of the Railway. Since the construction of the Crewe Railway, this overflow of water has necessarily diminished, as the water is used by the Railway Company for their entire supply. Some few years ago, Chester Railway Station was flooded from end to end with water two or three feet deep. At first it was thought that the canal at





Christleton had burst through its bank. It proved, however, to proceed from the water-bearing strata exposed in the railway cutting by Boughton, heavily charged from a downfall of rain.

We have this much to guide us: the Romans venerated the source of springs and water, whether potable or medicinal, as at Bath and Buxton, to the extent of making them a matter of worship. The rites peculiar to the worship were called Fontinalia, the votive offerings to the Nymph or Genius Loci, who was supposed to preside over the water of the springs, where we find altars or coins scattered, or in vases. We have several illustrations of this practice in Britain. The first-brass denarii found in the bed of the river near the Groves, we may regard as an offering of this nature to the water-god. Hence in deciding upon the Roman source of this fresh-water supply we are in no doubt. At Christleton no Roman relics have been found, but in Boughton, a massive votive altar, together with coins and vases now in the Museum, has been discovered during the present century, while as confirming the idea of a Roman site, there have been found traces of villas, and also of an extensive cemetery; in some of the gardens, at a depth of two feet, fragments of black pottery are abundant. The fact that Boughton was a Roman suburb of Deva has not received sufficient recognition.

Reverting again to the pipes. Each find was pointing east and west, clearly parts of one continuous line, and leading to the site in Boughton where was found in 1821 the fine altar now at Eaton. It is dedicated, it will be remembered, by the XXth Legion "Nymphis et Fontibus." "To the Fountains" is singularly appropriate as applying to a spot where we have shown there existed a supply of spring water equal to filling

many fountains. If the altar had been found in the city, the reference to the fountains would have been obscure, but at Boughton it is intelligible.

We have found these pipes at Boughton and at the Grosvenor Park. It would have been an interesting fact if we could have recorded their further progress citywards, say towards the site of the post-office. The ground in question is covered with houses, and the prospect of finding any more is remote. The direction of the pipes is clearly east and west, and on the south side of the Roman road out of the Eastgate. The lower level in this direction would seem to indicate hereabouts as the site of the reservoir of fresh water for the use of the camp. We are not, however, quite without a clue. Some years ago, twenty feet of lead pipe was found crossing Newgate Street—that is, east and west; a portion of it is now in the Museum. It was undoubtedly of Roman manufacture, hammered out of a strip of lead with the seam forming a square flange; if there was any doubt about its age, it is settled by the seam or joint being identical with that of the Roman leaden cinerary urn found in the Eaton Road. It will be seen that this leaden pipe was in a continuous line with the earthenware ones, and also of the presumed site of the reservoir outside of the camp; and not only pointing for, but in the immediate rear of the principal buildings in Deva, discovered in the year 1863.

These discoveries tempt one to remark upon the height of sanitation in Roman Deva. Then Dee water did not suffice for all purposes. Spring water must be brought to the camp; the main supply in earthenware pipes, and afterwards distributed in leaden ones.

In Chester 300 years ago we were content with logs of wood and young trees, having rudely-bored holes to

convey the unfiltered water of the Dee for the use of the city. Some of these, found in Chester, are still preserved, and will, I hope, soon be in the Museum. The same with drainage: a Roman sewer, twenty feet deep, was found in Pepper Street, draining the camp on the south side. Sixty years ago Chester had no underground sewers.

As to the wooden water-pipes, Mr. Edwin Lloyd, the Secretary to the Waterworks Company, obligingly informs me that the last find of wooden pipes was ten years ago; also, that forty years ago a long length of wooden pipes were found in Nicholas Street, and were sold to the Railway Company for making sleepers. These wooden pipes, I take it, were used in connection with the water supply originated by John Tyrer, who in 1600 erected on the Dee Bridge an octagonal tower with a cistern on the top, from which the river water was distributed or gravitated in pipes to various parts of the city. The material of the pipes is not stated, but as this was one of the earliest attempts at a public supply, and seeing that later on iron pipes came into use, it is fair to assume that these were made from wood, as in London.

The weak point in this scheme was the low level of the tower, and the power that would be lost in forcing the water up Lower Bridge Street. In the higher levels of Northgate and adjoining streets, the supply would be very weak; therefore, we are not surprised to read that twenty years later another water tower was erected on higher ground, by some eighty feet, at Spital Boughton. A wooden pipe, which conveyed this later supply, was found a few years ago near the weighing-machine at Boughton.

One more suggestion: Was the amphitheatre located here? There assuredly would be one at a Legionary Station like Chester. Between the Bowling Green and



Egerton Street has been suggested as a likely site ; the spot afterwards became the tilting croft. The situation is low and would be damp, and not to be compared with the dry and pleasant surroundings of the Boughton plateau overlooking the Dee.

