

OUR BOOKSHELF.

Warrington's Roman Remains. By Thos. May, F.E.I. Pp. 87. (Warrington: Mackie, 1904.) Price 5s. net.

ARCHÆOLOGISTS have long known that a Roman site existed near Wilderspool Brewery, close to the Mersey on the south side of Warrington. Discoveries have been made during the constructions of various canals, and remains have accumulated in Warrington Museum. Now a local antiquary, Mr. May, has attempted during the last eight or nine years to excavate a small portion of the site—some two or three acres out of an estimated total of thirty or thirty-five acres. In the volume before us he collects, revises, and illustrates various accounts of his work which he had previously published in scattered papers. The collection is a useful contribution to the local study of Roman remains. It has the merits and demerits of many books of the same kind. In his general attack on the problem of what Roman Warrington was, we think Mr. May has not succeeded. He calls it "a partly fortified industrial town" extending over a quarter of a mile on both sides of a Roman road; but his fortifications are puzzling, and his furnaces, smelting floors, &c., do not constitute an "industrial town" in any proper sense of that phrase. On the other hand, he records interesting minor discoveries in the way of pottery and small objects, and the traces noted by him of glass workers, iron workers, and potters are noteworthy, though it may be rash to call them "the earliest in Britain." The little volume is well illustrated, though printed on rather unpleasant paper.

The Experimental Bacterial Treatment of London Sewage. (London County Council.) By Prof. Frank Clowes, D.Sc., and A. C. Houston, M.B., D.Sc. Pp. xii+242. (London: P. S. King and Co.) Price 10s.

THIS report contains an account of the experiments carried out by the London County Council during the years 1902 and 1903. The main conclusions arrived at by Prof. Clowes in the first part (chemical and general) of the report are that coke is a suitable material for bacterial beds and does not disintegrate during use, that the bacterial effluent of settled sewage from such beds does not undergo offensive putrefaction and supports fish life, and that the use of chemicals is unnecessary when this mode of treatment is adopted. In the second part Dr. Houston deals with the bacteriological portion of the experimental work. His results seem to show that though the number of bacteria in the effluent from coke beds is less than in the corresponding crude sewage the reduction is not well marked, and while the bacterial effluent is chemically satisfactory, the bacteriological results are usually quite the reverse, because the microbes pass through the coke-beds. There seems to be small ground for belief that the typhoid bacillus would be destroyed in the beds; an important conclusion.

The report is copiously illustrated with diagrams and photomicrographs. R. T. HEWLETT.

Round the Coast. A Reading Book for Schools. By George F. Bosworth. Pp. viii+248. (London: George Routledge and Sons, Ltd., 1904.) Price 1s. 6d.

THESE short, miscellaneous reading lessons will serve to teach boys and girls many interesting facts about the geography and history of England. Numerous poetical pieces are included, and the maps and pictures much increase the book's attractiveness.

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LETTERS TO THE EDITOR.

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Synthesis of Radio-active Substance.

IN connection with the suggestive letter of Sir William Ramsay and Mr. Cooke, the following observation appears to be of some interest. My friend Prof. H. H. Dixon, in conjunction with Dr. Wigham, in the course of some experiments on the β and γ radiations of radium on bacteria used a platinum rod to cast a shadow on the culture, in order the better to estimate by contrast whether the rays had effected the culture or not. The platinum rod so used to intercept the rays was of cylindrical form and about 3 mm. in diameter. Prof. Dixon's and Dr. Wigham's observations are published in the *Proc. R.D.S.*, and also in *NATURE*.

Happening at the time to be repeating some of Dr. Russell's well known experiments on the influence of metals on photographic plates, I used this rod, among other specimens of metallic elements, to observe their photographic activity. This was about thirty days after Dr. Dixon had made his experiments. I was surprised to find that the rod, after resting twenty-four hours upon an instantaneous plate, had not only affected the plate, but had also produced all the appearance of intense solarisation, darkening the plate in its neighbourhood, but clearing it completely along the line of contact. The negative is still in my possession.

In this experiment the only action upon the plate was from the γ and β rays, the radium (5 mgrs.) being enclosed in a sealed glass tube.

In a subsequent experiment, a copper coin kept enclosed along with some radium contained in an aluminium button, when tested photographically, gave no specially marked result.

It would be desirable in experiments of the kind described by Sir William Ramsay and Mr. Cooke that α rays should in some cases be permitted to exert their influence. If Dr. Harold Wilson's suggestion as to the nature of these radiations is correct, it may well be that these positive ions may take part in synthetic effects.

I have already ventured to suggest the possibility of the synthetic origin of radium, partly in answer to a difficulty I have not seen discussed, *i.e.* what becomes of radiated ions when these are absorbed by atoms. J. JOLY.

Valencia, Co. Kerry, August 14.

Action of Metals on Photographic Plates.

IN the course of the experiments referred to above, as to the nature of the Russell effect, I found that metals (pure mercury and polished speculum metal) placed in contact with a rapid plate submerged under absolute alcohol, and the whole enclosed in an air-tight desiccator over calcium chloride, afforded the photographic marks on subsequent development just as vigorously as if obtained in ordinary moist air. Is not this experiment sufficient to show that Dr. Russell's explanation, which refers these marks to the formation of hydrogen peroxide, cannot be correct? Ought we not rather to seek the explanation in the ionising properties of metals indicated by other observations?

August 14.

J. JOLY.

"The Primrose and Darwinism."

YOUR readers may remember a book published under the above title some few years ago, and my apology for bringing up the subject again is the delight with which many reviewers hailed it as totally destructive of Darwin's theory of the fertilisation of the primrose. Whilst viewing with distrust the entirely unscientific method displayed in the book, I considered a useful purpose might be served by repeating some of Darwin's primrose experiments under different conditions.

Plants of primroses were therefore potted up and forced in a hothouse in February, 1904, and crossed and self-