

English Local Government Board, which insists on a quarter-mile distance from even a small group of houses.

We have not left space for discussing the chapters on child hygiene, on milk and other food supplies, water supplies, housing, nuisances, sanitary law, and vital statistics; but in each of these the English sanitarian will find useful points for comparison with our own methods. The last chapter deals with publicity; and here is, perhaps, the most characteristic feature of public health work in the States. In relation to the Press, exhibitions, lectures, motion pictures, etc., useful hints are given for bringing home the lessons of sanitation to the general public.

#### OUR BOOKSHELF.

*North America during the Eighteenth Century: A Geographical History.* By T. Crockett and B. C. Wallis. Pp. vi+116. (Cambridge: At the University Press, 1915.) Price 3s. net.

THE authors have collaborated in an interesting experiment, and have wisely chosen for their first essay (for we presume it is a prelude to others) a region in which the facts of history are easily correlated with those of geography. In one sense it is only another account of the rise of the United States of America, but in a different sense it is a new story, for it tells the history of a century in the light of the place where it occurred. One can imagine oneself in America and watch the drama unfold. We are glad to see that the authors invert the old term and speak of a geographical history, for not only should geography precede history in course of study, but the term historical geography has fallen on evil days so far as school books are concerned. In most cases, except for a preliminary chapter and a map or two, it has no relation to geography.

This book begins with the usual preliminary chapter, but the succeeding ones are not disappointing. The influence of routes and relief, and the question of place relations, are kept to the fore throughout, and very useful are the terse summaries at the end of each chapter. There are many useful black and white maps. In the way of criticism we could wish that the first two maps were a little clearer, and that the authors had curtailed the length of some of their sentences. But we welcome the volume as a most illuminating book.

R. N. R. B.

*First Aid in the Laboratory and Workshop.* By A. A. Eldridge and Dr. H. V. A. Briscoe. Pp. 32. (London: Edward Arnold, 1915.) Price 1s. net.

THE authors of this little book, who have been in charge of first aid organisation in chemical and physical laboratories, have found that the ordinary text-books devote too much space to serious fractures and other injuries, but give little information regarding ordinary accidents, such as

are apt to occur in laboratories and workshops, for instance, burns produced by chemicals, eye injuries, shocks produced by electric currents, and poisoning. They have therefore written this pamphlet to meet this need. It is prefaced by a commendatory foreword from Sir Alfred Keogh, and we heartily endorse his praise. The directions are terse, clear, and correct.

*Determinative Mineralogy: With Tables for the Determination of Minerals by Means of their Chemical and Physical Characters.* By Prof. J. Volney Lewis. Second edition. Pp. vii+155. (London: Chapman and Hall, Ltd., 1915.) Price 6s. 6d. net.

THE present edition differs from the first—reviewed in our issue for January 15, 1914 (vol. xcii., p. 550)—chiefly in the restatement with each table of the classificatory characters and tests leading up to it. The supplementary tables at the end have been extended to include specific gravity and chemical composition; and many more delicate tests have been introduced in both the text and the tables.

#### LETTERS TO THE EDITOR.

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##### The Principle of Similitude.

(1) IN his article under the above heading (NATURE, March 18, 1915, p. 66) Lord Rayleigh deduces, by the method of dimensions, an equation for the rate of heat transfer between a solid body and a stream of fluid in which it is immersed. Commenting on this equation, M. Riabouchinsky (NATURE, July 29, p. 591) remarks that heat, temperature, length, and time are treated in the deduction as independent units; and that if we suppose only three of these units to be "really independent" we obtain a different and less definite result.

In a further note (NATURE, August 12, p. 644) Lord Rayleigh acknowledges the interest of the question suggested by M. Riabouchinsky, and indicates the direction in which the solution of the apparent difficulty is to be sought. But since he does not pursue the subject further and the reader may feel as if left in mid-air, it seems worth while that the point raised by M. Riabouchinsky should be somewhat further elucidated.

(2) The question whether any real doubt has been thrown on the validity of Lord Rayleigh's equation hinges on the answer to the question whether temperature can be derived from energy, length, and time, i.e. from mass, length, and time.

What do we mean when we say that a given kind of physical magnitude can be "derived" from certain other kinds which we call fundamental? We mean simply that experience has shown that if we use, or combine, certain particular magnitudes of the fundamental kinds in a prescribed way, we thereby determine a magnitude of the derived kind, the size of this resulting derived magnitude being dependent only on the sizes of the particular fundamental magnitudes with which we started, when once the method of using them has been specified. For example, we know that if we construct a rectangle of altitude  $l$  on a base  $l$