

## NEW BOOKS.

WATER SUPPLY (CONSIDERED PRINCIPALLY FROM A SANITARY STAND-POINT). BY WILLIAM P. MASON. 8vo. viii, 504 pp. New York: John Wiley & Sons. Price, \$5.00.

There is scarcely a subject about which chemists are called upon to give an opinion, which requires broader knowledge, more care in analytical work and, above all, more exercise of good common sense, than the determination of the sanitary character of a water supply.

The present work will be found of service not only to chemists, but also to physicians, engineers, and many others who are called upon to consider problems of this kind.

The author has had a wide practical experience in the study of water supplies and shows excellent judgment selecting that which is most valuable, both from his own experience and from the almost boundless literature of the subject.

In a long chapter on Drinking Water and Disease, a good selection is given from the many cases on record where epidemics, especially of typhoid fever and of cholera, have been proved to have been connected with the use of a contaminated water.

The chapter on the artificial purification of water gives a detailed account of the best systems in use in America and in Europe for the filtration of water on a large scale. A large number of plants of this character have been personally examined by the author.

In discussing the natural purification of water it is interesting to notice that the author agrees with those who believe that the self-purification of a river water which has once been seriously contaminated with sewage is a very slow process, and that such waters should not be recommended for potable use even after many miles of flow. The evidence given on this point seems to be almost incontrovertible.

About one-third of the book is given to the discussion of the various forms of natural waters: rain, ice, snow, river water, stored water, ground water and deep-seated water.

Concise and satisfactory directions are given for the chemical

and bacteriological examination of waters, the latter being confined to methods of preparing culture liquids and counting colonies. In the opinion of the writer the retort which is recommended for the "albuminoid" ammonia process would be better replaced by a flask, or a distilling bulb with a ground glass stopper. The retort seems to have little place left in the modern laboratory.

The opinion is expressed that, while the bacteriological examination is important, its value has been greatly overrated, and the chemical examination will, in most cases, give more reliable information as to the character of a water.

The typography and general arrangement of the book are excellent, and the writer is not acquainted with any other work which contains so much that is of value on the subject.

W. A. NOYES.

HINTS ON THE TEACHING OF ELEMENTARY CHEMISTRY IN SCHOOLS AND SCIENCE CLASSES. By William A. Tilden, D.Sc., F.R.S. London: Longmans, Green & Co. 1895. 12mo. 84 pp. Ill. Price, 75 cents.

Dr. Tilden is one of the English chemists who examines many papers written by candidates in chemistry. He is well qualified, therefore, to speak to teachers of the subject, and his book is practically a series of short talks to teachers. The following extract gives a good idea of his point of view:

"In order to cultivate the powers of observation, various branches of natural science have been brought into use in schools, but none seem to present so many advantages as are offered by chemistry when rightly taught. As a science based entirely upon the results of observation and experiment, it is only by making experiment a principal feature of the system of instruction that these advantages can be secured. The observations and experiments must also, as far as possible, be the work of the pupil and not of the teacher, and therefore exercises undertaken should be in the first instance of the simplest possible character, and graduated so as to lead on to more difficult operations, which should only be undertaken after some time and after demonstration by the teacher. It is a mistake to suppose that the great theories of chemistry can be established by experiments conducted wholly by beginners, but with due preliminary