

The "periodic law" is discussed in less than four pages near the end of the volume, and no mention is made in the descriptive part of the book of its aid in a rational system of classifying the elements. This neglect will appear to many chemists as a mistake of the author greatly to be regretted. Electrochemistry, the theory of solution, and ionization are also very briefly treated. The volume closes with a table of various distances, wave-lengths, etc.

The illustrations are numerous and excellent, and many of them are new to text-books of chemistry. The four lithographic charts of colored spectra are much superior to those usually published.

The work, taking it all in all, is an excellent one, and will be heartily welcomed by all who are interested in a wider diffusion of a knowledge of chemical science. W. W. DANIELLS.

PRELIMINARY REPORT OF AN INVESTIGATION OF RIVERS AND DEEP GROUND WATERS OF OHIO AS SOURCES OF PUBLIC WATER SUPPLIES. By the State Board of Health. 1897-1898.

Early in the report we find the very apt remark, that the examination of one or two samples of water taken from a stream, may give but little information as to its fitness for domestic use; and that, before deciding upon a proposed source for town supply, a much more comprehensive study, extending throughout the year, is imperative.

It is gratifying to note that "the Board has begun an investigation which it hopes to continue until the condition and liability of pollution of all important sources of public water supplies in Ohio, shall have been satisfactorily examined." Would that more states followed this excellent example!

The section, by Mr. Allen Hazen, devoted to "stream pollution," shows that most of the larger streams of the state are used for public supplies; that all of them receive a notable addition of sewage, and that the waters of such streams, below the sewage outfalls, are unwholesome.

Prof. N. W. Lord contributes a voluminous report upon the chemical examination of the waters of the Scioto, Olentangy, and Mahoning Rivers, which is followed by the bacteriological examination of the same waters by Prof. A. M. Bleile. Each of these investigators resorts to the graphic form to illustrate his

results, a mode of presentation that is always acceptable and striking.

Prof. Lord's methods of analysis do not vary from those usually followed, with the exception of a slight change in the scheme for "required oxygen." It is his custom to produce a faint pink color with the standard permanganate at the outset, and the amount of the reagent so used is not counted in the determination, it being considered to represent what is required to oxidize ferrous salts and hydrogen sulphide present. This suggestion would seem to be a good one, but the thought presents itself that easily decomposable organic matter might be present that would vie with the inorganic salts in rapidity of action.

Prof. Bleile very properly lays stress upon the fact that comparative results are looked for, in the bacteriological examination, rather than an exact knowledge of the number of germs present; and he very ingenuously makes use of a filter-paper saturated with formalin and placed within the cover of the Petri dish, in order to arrest growth after a fixed time, and prevent the colonies from breaking down the medium while waiting for their turn to be counted. He makes use of a beef-peptone-agar just alkaline to phenolphthalein, which is a reaction distinctly more alkaline than the medium commonly employed.

A report follows on stream gaugings and sources of river pollution, by Prof. C. W. Brown, after which Prof. Edward Orton, state geologist, devotes considerable space to "The Rock Waters and Flowing Wells of Ohio," chiefly of geological interest.

A "water-shed" map of the state closes a report of decided interest and value. There is no index. W. P. MASON.

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#### BOOKS RECEIVED.

The Practical Compounding of Oils, Tallow, and Grease, for Lubrication, etc. By an expert oil refiner. London: Scott, Greenwood & Co.; and New York: D. Van Nostrand Co. 1898. vii+96 pp. Price, \$3.50.

Ueber einen gasanalytischen Apparat. Von O. Binder. Reprinted from *Chemischen Industrie*, 1898, No. 22. 12 pp.

Ginseng, Its Nature and Culture. Bulletin No. 78, Kentucky Agricultural Experiment Station of the State College of Kentucky, Lexington, Ky. November, 1898. 34 pp., with ten full-page plates.