

and structural steel. The next three chapters treat of the production of steel castings, shear and crucible steel and armor-plate, and the direct processes of making steel.

The second part of the volume is devoted entirely to the reheating of cold ingots and blooms preparatory to rolling and forging and the furnaces and machinery for charging and withdrawing the ingots.

The third part takes up the mechanical treatment of steel with detailed descriptions of rolling mills for sections and plates, and their accessory engines, tables, tongs, etc. As might be supposed, English and Continental types are given the most prominence, but the important American inventions and improvements have not been slighted. Incidentally Harbord notes a "tendency among Americans to unduly multiply mechanical appliances."

The fourth part takes up the mechanical testing of steel, with numerous examples, describing, in detail, a hydraulic and a lever testing machine. The last part gives a condensed account of the microscopic examination of slightly etched surfaces of steel, with many micro-photographs reproduced in half-tone. Due credit is given to several American workers in this field and their efforts toward the interpretation of microscopic structure and its application to metallurgical problems. A note is made of the relation of the Gibbs phase rule to the constitution of steel, but a brief outline of the application of the law in this particular instance would not have been out of place.

A good index is provided, and several useful tables.

FRANK JULIAN.

ELEMENTS OF WATER BACTERIOLOGY, WITH SPECIAL REFERENCE TO WATER ANALYSIS. BY SAMUEL CATE PRESCOTT AND CHARLES-EDWARD AMORY WINSLOW. New York: John Wiley & Sons. 1904. 162 pp. Price, \$1.25.

This little book is evidently the outgrowth of considerable practical experience in the line of water examination by culture methods. The authors are connected with the Biological Laboratories of the Massachusetts Institute of Technology, which, as every sanitarian knows, have contributed so largely to the development of the theory and practice of water analysis. The book is intended for the use of chemists and sanitary engineers who have already had experience in general bacteriology. No

directions are given for the ordinary routine manipulations, but stress is laid on the special points which come up in water analysis. Here the book is full enough for all needs, but its most valuable feature is the discussion of the conclusions which may be drawn from the results of bacterial tests. This is, of course, the most difficult part of the whole problem and it must be said that the authors deserve credit for the conservative manner in which they discuss questions still in dispute.

J. H. LONG.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1904. Volume I. Including general medicine. Octavo, 673 pages. Philadelphia, New York, and London: W. B. Saunders & Co. 1904. Cloth, \$3.00 per volume.

In former years attention has been called to this valuable compilation, which is under the general editorial charge of Dr. George M. Gould. The reviews of work in physiological chemistry, prepared by Dr. Walter Jones and Dr. Reid Hunt, of Baltimore, and those in legal medicine by Dr. John Marshall and Dr. J. H. W. Rhein, of Philadelphia, will be found of most interest to chemists. But several of the other departments treated will also be found of interest in view of the increasing influence of chemistry on the discussions of internal medicine. The Ehrlich "side-chain theory" is a good illustration. Much of the matter in the section on physiology is largely chemical.

J. H. LONG.

THE VEGETABLE ALKALOIDS, WITH PARTICULAR REFERENCE TO THEIR CHEMICAL CONSTITUTION. BY DR. AMÉ PICTET, Professor in the University of Geneva. From the second French edition. Rendered into English, revised and enlarged, with the author's sanction, by H. C. BIDDLE, PH.D., Instructor in the University of California. New York: John Wiley & Sons. 1904. vi + 505 pp. Price, \$5.00.

This little book, written by Pictet, has been much in use on the Continent, and has become known everywhere to those giving attention to the chemistry of the alkaloids. It has stood almost alone as a brief summary of the constitution of vegetable alkaloids, separate from other matter. The second edition by the author, "La Constitution chimique des Alcaloides végétaux," in 421 pages, appeared in 1897, and is the edition that Dr. Biddle has "rendered into English, revised and enlarged," as stated on the title-page, "with the author's sanction."