

NEW BOOKS.

A DIGEST OF METABOLISM EXPERIMENTS IN WHICH THE BALANCE OF INCOME AND OUTGO WAS DETERMINED. BY W. O. ATWATER, PH.D., AND C. F. LANGWORTHY, PH.D. Bulletin No. 45 (Revised Edition). Washington: U. S. Department of Agriculture, Office of Experiment Stations. 434 pp.

This publication is a digest of about 3,600 experiments in which the balance of one or more of the factors of income and outgo was determined. It includes metabolism in both man and animals. The compilation has been prepared in connection with the work of the Office of Experiment Stations and, particularly, in connection with the investigations that are being pursued under the direction of Prof. Atwater, who is the special agent in charge of nutrition investigations. The compilation includes records, from the Russian literature and other sources, not found in general treatises and standard abstract journals. While the authors do not claim to have found all the investigations ever reported, they believe that comparatively few have escaped their attention.

An introductory chapter, containing a brief description of the compilation and a historical account of the subject, is followed by the experiments with man. These occupy three-fifths of the entire volume. Beginning with the nitrogen balance in healthy subjects, experiments on the influence of diet are first recorded, followed by those on the influence of other conditions. The experiments are numbered seriatim throughout the compilation. Each subject is treated separately. A table containing the data of the experiments is followed by a brief description of the objects and conclusions of each, together with other important information contained in the original publications.

After nitrogen metabolism in health are experiments on subjects in disease, arranged according to the classification of diseases in Osler's "Practice of Medicine." The experiments with man conclude with a description of those in which the balance of nitrogen and carbon was determined. In recording the experiments on animals, those on each animal are given collectively. At the end of the volume the names of experimenters and subjects are indexed separately.

The work shows that the literature has been extensively con-

sulted in its preparation and that this has been done with a thoroughness and intelligence essential to a valuable compilation of this kind. The arrangement of such material is difficult. While that presented in this volume has the disadvantage of separating some experiments that have a common interest, it appears to combine the greatest number of desirable qualities. The matter relating to each subject is well brought together in the index.

E. E. SMITH.

THE ARITHMETIC OF CHEMISTRY. BY JOHN WADDELL. New York: The Macmillan Co. 1899. viii + 133 pp. Price, 90 cents.

This is the best elementary text-book upon chemical arithmetic, or stoichiometry, we have yet examined. The general mistake made by most books of this class is to attempt too much and to explain too little. Formulas and rules are used too frequently, and too many problems are to be solved by simply substituting for a or b its numerical value. In Mr. Waddell's book the explanations are clear, and the laws upon which the solutions of the problems depend are plainly stated. The ground covered by the book is not extensive, but the most important chemical problems, such as the calculation of weights, the solution of chemical equations, the volume of gases, the calculations in volumetric analysis, the deduction of formulas from percentage composition, etc., receive a generous share of attention. Among the examples given for solution are many selected from the examination questions of the leading American and British colleges.

RICHARD K. MEADE.

BOOKS RECEIVED.

Bulletin No. 18. Sugar Beet Investigations in 1898. 24 pp. Bulletin No. 19. Miscellaneous Analyses (strawberries, peas, wines, foods, poisons, fertilizers, and potable waters). 24 pp. University of Idaho Agricultural Experiment Station, Moscow, Idaho. 1899.

A Short History of the Progress of Scientific Chemistry in Our Own Times. By William A. Tilden. London, New York, and Bombay: Longmans, Green & Co. 1899. x+276 pp. Price, \$1.50.

Die aetherischen Oele. Von E. Gildemeister und Fr. Hoffmann. Bearbeitet im Auftrage der Firma Schimmel & Co. in Leipzig. Mit vier Karteu und zahlreichen Abbildungen. Berlin: Verlag von Julius Springer. 1899.

Report on Investigations to Determine the Cause of Unhealthy Conditions of the Spruce and Pine from 1880-1893. By A. D. Hopkins. 265 pp.