

test-papers is given. The work is, unfortunately, defective in its theoretical discussions. While a very brief and not altogether satisfactory chapter is given on the theory of indicators as based on the modern theory of solutions, no use is made of the theory in other parts of the book. Statements with regard to individual indicators are almost exclusively from the purely empirical standpoint.

The theory of F. Mohr, on p. 19, can scarcely be considered otherwise than as a historical curiosity and would have been better omitted.

WILLIAM A. NOYES.

A COURSE IN QUANTITATIVE CHEMICAL ANALYSIS, GRAVIMETRIC AND VOLUMETRIC. BY NICHOLAS KNIGHT, A.M., Ph.D., New York: A. S. Barnes & Co., 1899. x + 110 pp. Price, 80 cents.

This book is offered as a course which "will constitute a sufficient basis for advanced work in organic chemistry, including the ultimate analysis of substances by combustion, and for industrial chemistry which requires quantitative methods." After a brief general introduction in regard to the care of the balance, precipitation, filtering, etc., the author devotes fifty pages to the methods of gravimetric analysis.

The choice of examples for practice is not all that can be desired. In the preliminary operations the directions given are not adequate for a beginner in analytical chemistry, neither in detail nor in substance, and do not form a sufficient foundation for the student to continue with such complex analyses as those of smaltite, tetrahedrite, and granite. The schemes for the analysis of these more complex substances would be much better suited to qualitative than to quantitative analysis, no attempts having been made to utilize the more recent and more special methods. The directions are often arbitrary and always mechanical, lacking in clearness, and with no attempt to explain the course of any reaction. Even if the student were entirely familiar with his general chemistry, he would have much trouble in trying to learn the whys and wherefores of analytical methods.

Twenty pages are devoted to volumetric analysis in the same arbitrary mechanical style. It would be useless to criticize this part of the book as well as the *seven* pages devoted to the analysis of drinking-water inasmuch as the whole of it shows a woeful lack of intimacy with the subject. The less said of the English in the book, the better; it is inexcusable.

With the many excellent treatises on analytical chemistry which can now be obtained, it is inconceivable why a new book altogether lacking in merit, should be published unless it offers new features either in contents or method.

HENRY FAY.

ERRATUM.

On page 935, October number, the symbol for rubidium persulphate should read $Rb_2S_2O_8$ or $RbSO_4$.

BOOKS RECEIVED.

Cultivation of Cigar-leaf Tobacco in Florida. By Marcus L. Floyd. Report No. 62, U. S. Department of Agriculture. Washington: Government Printing Office. 1899. 31 pp., with illustrations and plates.

Essentials of Medical Chemistry, Organic and Inorganic, containing questions of Medical Physics, Chemical Philosophy, Analytical Processes, Toxicology, Etc., prepared especially for Students of Medicine. By Lawrence Wolff, M.D. Fifth Edition, Thoroughly Revised by Smith Ely Jelliffe, M.D., Ph.D. Philadelphia: W. B. Saunders. 1899. 222 pp. Price, \$1.00.

The Chemistry of Soils and Fertilizers. By Harry Snyder, Professor of Agricultural Chemistry in the University of Minnesota. Easton, Pa.: The Chemical Publishing Co. 1899. ix+277 pp. Price, \$1.50.

Practical Methods for Determining Molecular Weights. By Henry Biltz, Privatdocent at the University of Greifswald. Translated (with the Author's Sanction) by Harry C. Jones, associate in Physical Chemistry in Johns Hopkins University, and Stephen H. King, M.D., Harvard University. Easton, Pa.: The Chemical Publishing Co. 1899. ix+235 pp. Price, \$1.50.

Determination of Radicals in Carbon Compounds. By Dr. H. Meyer. Authorized translation by J. Bishop Tingle. New York: John Wiley & Sons. 1899. x+133 pp.

Preliminary Catalogue of Plants Poisonous to Stock. By V. K. Chesnut, B.S. Reprinted from the Annual Report of the Bureau of Animal Industry for 1898. 40 pp.

Experiments on the Metabolism of Matter and Energy in the Human Body. By W. O. Atwater and F. G. Benedict, with the cooperation of A. W. Smith and A. P. Bryant. U. S. Department of Agriculture, Washington, D. C. 1899. 112 pp.

Laboratory Manual. Experiments to Illustrate the Elementary Principles of Chemistry. By H. W. Hillyer, Ph.D. New York: The Macmillan Co. 1899. 200 pp. Price, 90 cents.