

samples of undoubted purity with which to compare the oil under process of identification, as even the so-called "constants" are so variable in the case of oils, that one may be easily misled, especially where only a small amount of an adulterant is present. On the general subject of lubrication the author is a little too brief to leave a clear impression in the mind of the student.

The rank which is given mineral oils as having greater adhesion and less cohesion than animal and vegetable oils is open to question, for while this may be true at ordinary temperatures, it will not be found the case when the parts requiring lubrication become warm from any cause, and the lubricant is most needed. At high temperatures nothing but the most viscous fat oil we can obtain will adhere to the heated surfaces, and it is for this reason that a percentage of an animal or vegetable oil is added to cylinder oils—in order to give the adhesiveness which is wanting in petroleum products at cylinder temperatures. This emphasizes the desirability of determining the viscosity of an oil at the temperature at which it is to be used.

Part II contains brief descriptions of the various oils in common use, giving their source, preparation, constants, adulterants, and uses, in a concise and comprehensive manner.

The appendix contains much valuable information in tabulated form.

O. S. DOOLITTLE.

AN INTRODUCTORY COURSE IN QUANTITATIVE ANALYSIS. BY PERCY W. EVANS, PH.D., Associate Professor of Chemistry, Purdue University. Boston: Ginn & Co. 1897. iv + 83 pp. Price, 55 cents.

The little book of Prof. Evans offers within a scope of eighty pages a very instructive course in quantitative analysis, including gravimetric and volumetric methods, together with a discussion of the various manipulations with which every student of this branch should become familiar as a preliminary. The exercises are well chosen and the explanations clear and comprehensive. As a handbook it might well find use in many college laboratories.

F. C. PHILLIPS.

EXERCISES IN PRACTICAL PHYSIOLOGY. PART III. PHYSIOLOGY OF THE NERVOUS SYSTEM. ELECTRO-PHYSIOLOGY. By Augustus D. Waller, M.D., F.R.S. London, New York, and Bombay: Longmans, Green & Co. 91 pp. Price, 90 cents.

As the title indicates, this is a practical or laboratory hand-

book and is intended to accompany the third edition of the author's well-known "Introduction to Human Physiology." In ninety-one pages of matter the student, who is supposed to have had a year's training in general physiology, is given careful directions for performing a large number of important experiments relating to the physiology of the nervous system. The book makes no pretense to being anything more than a laboratory guide, and from this standpoint the selection of exercises it presents must be considered excellent and well chosen. Most of the experiments are adapted to the needs and understanding of that growing class of students in our medical schools which demands thorough training in physiology and chemistry as preliminary to a proper appreciation of clinical demonstrations, and to such students the book can be recommended.

J. H. LONG.

THE CHLORINATION PROCESS. BY E. B. WILSON, E.M. New York: John Wiley & Sons. 1897. 12 mo. cloth. v + 125 pp. Price, \$1.50.

This book was evidently written to meet the present demand for information regarding gold. It is mild to say that the work was poorly done. It is mainly an undigested mass of citations tied up with confused and misleading statements which injure the utility of even the best quotations.

The author's statements are often inexact and frequently contrary to fact. For instance, he uses "chlorine" as synonymous with "chloride" and "chlorination" with "chloridizing roasting." Also, page 23, he makes this astounding statement: "Copper sulphides can be readily freed from their sulphur by slow roasting at a moderate heat, with or without salt." And, page 87, he gives the reaction on bringing hydrogen sulphide gas into acid auric chloride solution as " $2\text{AuCl}_3 + \text{H}_2\text{S} + 2\text{H}_2\text{O} = 2\text{Au} + 6\text{HCl} + \text{SO}_2$."

One looks in vain for any critical discussion of the chlorination process and its particular field of application, or for any tests to determine whether a given ore would be suitable for this process. In fact, Dr. Godshall's article in the *Engineering and Mining Journal*, Jan. 6 and 13, 1894, is a far better guide in investigating the chlorination process than Wilson's book.

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