

NEW BOOKS.

ELEMENTS OF ELECTROCHEMISTRY. BY R. LÜPKE. Translated by M. M. PATTISON MUIR. Philadelphia: J. B. Lippincott Co. 1897. vii + 223 pp. Price, \$2.50.

We have used the German edition of this text-book in our class in electrochemistry and can heartily recommend it as the only book at all suitable for such purposes, and now the English translation has made it still more useful. Still, excellent though the book is, we cannot help wishing that Mr. Muir had written a new book, giving particular attention to the incomparable experiments of Faraday on Electrochemistry, instead of making this translation.

The book is somewhat overbalanced. The osmotic theory, as illustrated by osmotic pressure, boiling-point, and freezing-point, occupy nearly forty pages. We found it far better to substitute a couple of lectures for this part. For the student of electrochemistry the lectures were sufficient.

The book opens with the Phenomena of Electrolysis. A number of simple and instructive experiments are described, but we regret to note the absence of Faraday's simple but elegant qualitative experiments on this subject. Then follow chapters on Hittori's Transport-Numbers, The Law of Kohlrausch, The Dissociation Theory of Arrhenius, Osmotic Pressure, Vapor Pressure of Solutions, Boiling-Points and Freezing-Points of Solutions, Summary, Aqueous Solutions of Electrolytes, Liquid Cells, Daniell Cells, Reduction and Oxidation Cells, The Solution Pressures of the Metals, Intensity of Fixation and Polarization, Irreversible Cells, Accumulators, and The Energetics of Galvanic Elements. Nearly all the subjects are illustrated by good and simple experiments, most of them of such a nature that the student can construct the necessary apparatus himself.

C. L. SPEYERS.

MANUAL OF QUALITATIVE CHEMICAL ANALYSIS. BY THE LATE DR. C. REMIGIUS FRESENIUS. Authorized Translation by HORACE L. WELLS, M.A., Professor of Analytical Chemistry and Metallurgy in the Sheffield Scientific School of Yale University. New edition, thoroughly revised from the Sixteenth German Edition. New York: John Wiley & Sons. 1897. xvii + 748 pp. Price, \$5.00.

In the present translation Prof. Wells has given to American

and English students an admirable reproduction of the last German edition of Fresenius' work, which appeared in 1895. The plan laid down in the earlier German editions has been closely followed in all the later issues, and in the present version the changes consist mainly in additions to parts dealing with methods of detection and separation, and in the elaboration of details. These changes are, however, of such a character as to give a new aspect to the work.

Few innovations are noticed in the chapters upon preparation and testing of reagents.

The reactions of the common bases and acids are treated after the manner of the older editions, yet this part of the work has received important additions, and in the case of reactions already well known, the methods for their production are described with such increased attention to the details of experiment as to insure greater accuracy of analytical results. Corrections are made in formulas which have been long in use, while in other cases (*e. g.*, the basic carbonates) definite formulas have been often purposely omitted. Many newer methods are cited for the separation of the metals of the various groups, and the student is given a greater scope for the exercise of judgment in selecting a method adapted to a special case. The reactions of the rarer metals and their separation are discussed in a manner which reflects very satisfactorily the recent literature of the subject.

In the Systematic Course of Analysis important improvements are made in the details of methods which have long been favorably known.

The chapter upon the Analysis of Simple Compounds (which was dropped in the last English translation) has been retained, although its value may be somewhat questioned.

Qualitative analysis applied to water possesses less value than formerly, in view of recent advances in methods of water examination. Nevertheless the process given for the purpose is very complete.

Under Toxical Analysis the methods described for the detection of arsenic and other poisonous metals are mainly those of the last edition. They are supplemented by an excellent discussion of the purification of the reagents needed for such work.

Important improvements occur as regards methods for the detection of phosphorus and of other non-metallic poisons.

Abundant literature references give increased value to the entire work. The older system of equivalent weights, retained by Fresenius even in the latest German edition, has been wisely suppressed as serving no good purpose.

The student of Prof. Wells' book cannot fail to be impressed by its accuracy of statement and the painstaking care with which the directions given him are formulated.

The work of the translator has been performed in a thorough manner, and it may be said that the new English version will be welcomed by chemists everywhere. F. C. PHILLIPS.

THE PHARMACIST AT WORK. BY WILLIAM C. ALPERS. Philadelphia : J. B. Lippincott Co. 1898. ix + 326. Price, \$1.50.

The usual review methods of scientific works are hardly applicable to this book. The story, in its outward features at least, is a story of the past and appeals with especial force to men who look backward in pharmacy. The preceptor and apprentice are before us again; throughout twenty-four chapters and 326 pages, we are captivated by a pithy dialogue wherein the author not only treats of pharmaceutical manipulation and the chemical and physical principles underlying them, but also comments on many possibilities with which a pharmacist's life is confronted, portraying with much refinement not a few of the frailties of human nature. From beginning to end, every page bears testimony to the author's love for his art and the earnestness of the moral and ethical principles he advocates.

Mr. Alpers, a typical German pharmacist, who came to America just after the Franco-German war, and who has thorough command of his subject, takes the opportunity to make some timely suggestions to modern druggists. He points out (p. 41) the great unknown in alkaloidal and Galenical chemistry as applied to pharmacy, and it is to be hoped that his earnest words will arouse many pharmacists who have the time but waste it by indifference to scientific thought. He informs the reader (p. 56) that tinctures are superior to tablets as medicine carriers, but he realizes also that tablets are so easily counted into a box without involving the "bother" of laboratory work, as to render it possible that better preparations will suffer.