

electrolysis, 79 pages; (2) the theory of solutions of van't Hoff, 44 pages; (3) the osmotic theory of the current of galvanic cells, 119 pages. Under these headings, Dr. Lüpke has presented, in very readable and easily comprehended language, the present status of the subject. The experimental part is easily the best part of the book, the experiments being very well chosen and very suitable for bringing out the principal facts of the science. If the teacher using the work will confine his pupil's attention to the experiments and the facts which they teach, both teacher and student will be very much helped by the book. If, however, the student wanders into the theoretical part of the book, he will learn, along with much which is good, also much which is questionable, and he will need close attention from his teacher to keep him from receiving distorted ideas. The weak side of the theoretical part is that it presents many of the generalizations of the dissociation theory as if they were without exceptions, and ignores many recent proofs of the failure of the theory in some special cases. Part of Faraday's generalizations are credited to von Helmholtz, simply because, apparently, the latter discussed them in a lecture, while Le Blanc is credited with the discovery of a law regarding the voltage necessary to decompose a compound, which is merely a re-statement of Thomsen's rule, coupled with Hess's law of thermo-neutrality. These, perhaps unconscious, appropriations of electrochemical honors for German scientists will perhaps make the book more popular in Germany, but decrease its reliability for general use.

The translator and publishers have done their work very well.

JOSEPH W. RICHARDS.

ARBEITSMETHODEN FÜR ORGANISCH-CHEMISCHE LABORATORIEN: EIN HANDBUCH FÜR CHEMIKER, MEDIZINER UND PHARMAZEUTEN. VON PROFESSOR DR. LASSAR-COHN. Dritte, vollständig umgearbeitete und vermehrte Auflage. Hamburg und Leipzig: Leopold Voss. 1901-1903. xvi + 1241 pp. Price, 38 marks.

The second edition of this work is well known, both in the original and in the excellent translation of Alexander Smith. The material included in the present edition is more than twice as great as that of the second. The work consists, first, of a "General Part," (213 pages) which discusses general operations such as extraction with ether, distillation, dialysis, sealed tubes, decolorizing of liquids, filtration, crystallization, solvents, determina-

tion of molecular weights, melting-points and boiling-points, sublimation and drying. Methods used in the determination of other physical properties, such as specific gravity, viscosity, heat of combustion, refractive index, specific rotation and electrical conductivity are not mentioned.

The "Special Part" is devoted to a discussion of the more important processes used in the preparation and study of organic compounds, and includes the following topics: Formation of acyl and benzenyl derivatives, and of oximes and hydrazones; fusion with alkalies; introduction of halogens; replacement of halogens; preparation of salts and alkaloids; preparation of diazo compounds; esterification of acids and etherification of phenols; condensation; formation of nitro compounds; separation of isomers; saponification of cyanides and esters. The book concludes with a description of the methods for the ultimate analysis of organic compounds.

As the author of the work points out, the literature of this subject has grown to such overwhelming proportions that it is often extremely difficult to find the method best suited for a particular purpose. The general indexes are usually of little service, since methods of working are, in general, described as incidental to the preparation of some compound, and only the name of the latter is to be found in the index. Professor Lassar-Cohn's book serves a most useful purpose in this direction. The various topics are illustrated by thousands of examples taken from the literature. In the present edition many of these have been taken from the patents, and when we consider the rigid commercial requirement that a method must, if possible, give a good yield, it is easily seen that workers in scientific laboratories may secure very many valuable suggestions from this source.

The experience of the author would seem to have been almost exclusively with aromatic compounds. For this reason the work is somewhat deficient in methods which are especially adapted to aliphatic bodies. English and American journals seem to have been almost completely ignored in the preparation of the book, and in a number of places the author's knowledge is incomplete or one-sided for this reason.

It is very unfortunate that the author has not furnished a general index, which should include all of the compounds men-

tioned in the book. Even the special indexes, at the close of each section, are not so complete as they should be.

In spite of these faults, the book is a very valuable one, and it should be in every laboratory where work in organic chemistry is done.

W. A. NOYES.

QUANTITATIVE ANALYSIS, ADAPTED FOR USE IN THE LABORATORIES OF COLLEGES AND SCHOOLS. BY FRANK CLOWES, D.SC., AND J. BERTRAND BERNARD COLEMAN, A.R.C.SC. Philadelphia: P. Blakiston's Son & Co. 1903. Sixth edition. 602 pp., 125 cuts. Price, \$3.50.

This is the sixth edition of a work which, in some one or more of its previous editions, is to be found in most chemical libraries. The main changes are a revision of the section on organic analysis and the addition of methods for the determination of aluminum and nickel in steel, the analysis of aluminum alloys and a table of four-place logarithms. The Gooch crucible is described for the first time, but only in the appendix, and its use is nowhere recommended in the text. The work is still distinctively English and does not always accord with American ideas, or the best and latest practice. This is especially noteworthy in the sections on superphosphates, milk, nitrogen and silicates. The methods given are clearly described and the cross-references are so full and complete that even the routine analyst could scarcely fall into errors of procedure. Little attempt is made, however, to view quantitative analysis from the scientific standpoint.

The book covers a much larger field of analysis than would seem possible from its size. This is due to the fact that there is almost no repetition, and is made possible by the excellent system of cross references already mentioned. The opening descriptive chapters on chemical manipulation are unusually clear and concise. These are followed by numerous, simple gravimetric and volumetric determinations, to be themselves succeeded by a long list of general quantitative analyses covering a wide field.

The book will be found useful in all laboratories and will be serviceable to students under proper guidance. It is well printed and has a good index.

C. L. PARSONS.

THE SUGAR-CANE IN EGYPT. BY WALTER TIEMANN, Member of the Society of German Sugar Technicians and of the Association des Chimistes de Sucrieries et Distilleries, Paris. x + 74 pp. Price, 5/- net.

This work, by the director of the experimental station in Upper Egypt, treats of the sugar-cane industry only from the agricul-