value to research workers in the fields of organic chemistry and chemotherapy. As a reference book on organic arsenicals used in therapy, it should be given a place in every pharmacist's library.

A. G. DuMez.

The Determination of Hydrogen Ions. By W. Mansfield Clark. Second Edition, 1923, 480 pp. Williams and Wilkins Co., Baltimore, Md. $5.00.

To biochemists generally great credit belongs for having in their own particular field so extensively and profitably employed the quantitative consequences of the theory of Arrhenius as applied to acid-base equilibria. Stimulated by the researches of Sorensen and others, investigators in every branch of science have sought to determine the effect of hydrogen-ion concentration on all types of reactions, chemical or otherwise. The principles involved are the results of physical chemical research. The methods, much of the apparatus, and many of the indicators used are the product of the biochemist's labors.

Everyone who is interested in actually carrying out quantitative measurements of hydrogen-ion concentration can profit from Dr. Clark's book. It is obvious that such measurements have almost become a fad in some quarters and there are those who discredit many of the results obtained, on the ground that the necessary degree of familiarity with the physical chemical principles involved is not possessed by their sponsors. Careful consideration of the subject matter of this book will produce this necessary degree of familiarity, as well as a more wholesome regard for the difficulties to be overcome and the errors to be avoided.

The present edition is a complete revision of the first, some parts having been completely rewritten, and much new material has been added. The first chapter of the older work has been divided into two chapters and expanded in the interest of clarity. A description of the Gillespie colorimeter for use with two-color indicators is included in Chapter IV. One of the most valuable features of the present edition is the attempt which has been made to list in Chapter V, dealing with the choice of indicators, each of the dyes commonly used for this purpose, under their common names, together with the corresponding chemical name and the p_H range. The chapters dealing with the actual methods for measuring hydrogen-ion concentration, both colorimetrically and electrometrically, have been enlarged. The use of the audion bulb in following the E. M. F. of gas chains is referred to in Chapter XIV. Chapter XVI on the relation of the hydrogen electrode potential to reduction potential has been revised and increased in size in view of the recent developments in this subject.

In Chapter XX, a brief review of supplementary methods for determining acid-base relationships, is described the work of Biilman and Lund on the quinhydrone electrode. This particular section should be of great interest to pharmaceutical chemists, since the quinhydrone electrode permits the determination of the hydrogen-ion concentration and the electrotitration of easily reducible substances, *i. e.*, alkaloids. The increased use of both electrometric and colorimetric methods in many different types of problems is adduced by the expansion of the section on applications of the methods from 29 to 48 pages. Finally the bibliography has been increased from 1234 to approximately 2200 references.

It is quite natural that whenever the book escapes beyond the bounds of elementary physical chemical theory and method, it emphasizes the biochemical field. This in no way detracts from its value to those whose interests may not lie in this circumscribed division, nor does it narrow Dr. Clark's treatment of the entire subject.

The author has not altered his theoretical discussions to completely conform to the concept of "activity" but has included this idea in such a way that the reader may translate the older views into the new, in so far as this can be done, at his own discretion.

Finally, the appearance of a scientific work written in readable English is always a matter for commendation. Dr. Clark is one of those who recognize language as a means for the transference of thought and not as a camouflage for ideas.

William J. McGill.

Industrial Health, Edited by Geo. M. Kober and Emory R. Hayhurst with thirty-three contributors. Published by P. Blakiston's Son and Company, Philadelphia. 1924. Price $15.00.

Even a casual inspection of the present volume will be a revelation to those who have not kept up with the recent advances in industrial hygiene and medicine. Here is a stately volume of about twelve hundred and fifty

pages on how to keep the industrial worker well and efficient; most of it in language which any intelligent layman can understand.

Until one looks it over, one hardly realizes the enormous field which has to be covered in such a work. There are forty-two chapters, many of them subdivided into sections. Practically each of the chapters and sections treats of a different topic; ventilation, sanitation and lighting of the workshop; personal hygiene, diet and housing of the worker; mining, lumbering, farming; iron, paper, shoes, food, soap, clothing; automobiles and transportation; poisons such as carbon monoxide, arsenic, lead, phosphorous and mercury; infectious diseases, fatigue, cancer; to mention but a few. Some topics require much more space than others; the chapter on poisoning has three hundred and forty pages—lead alone has sixty—fatigue has fifty, dust thirty-five, cancer twenty-four. Even so, the book can be little more than an introduction to the subjects and there is very wisely provided at the end of nearly every chapter and section a select list of references so that any subject can be followed up to any extent the reader may require. The number of such references on any one topic runs from five to thirty and in a few instances to fifty or one hundred..

No one man nor two could cover such a wide field and so the editors have very wisely enlisted the coöperation of experts in various lines. Ten such contributors are from Boston, six from Washington, five from New York City, four from Europe, three from Ohio and the other five from various places; three are connected with the U. S. Public Health Service, three with the U. S. Army, and three with labor organizations. This does not mean that the editors have simply put a group of articles by these various contributors through the press. Their own work is manifest throughout. The name of the senior editor is attached to no less than thirty-five chapters or sections and the name of the junior editor to sixteen and these in both cases are scattered throughout the volume.

It must be confessed that it makes the table of contents look peculiar to have nearly every chapter and section by a different author. Another peculiar feature is that a long historical chapter immediately follows the title page thus putting the table of contents sixty-seven pages from the front and making it difficult to find. At the end of the volume one hundred and seven pages are given up to an index which seems to be very complete, practically all the chapter headings and leading terms have been incorporated. However, I happen to note that Necator on page eight and fulminating powder on page 548 are omitted. On page 693 Strongyloides is indexed but Trichiuris is not; on page 694 Taenia is indexed but Cysticercus is not. There is also no uniformity in the indexing of double terms: For example, "functional spasms" and "hephaestic palsy" are indexed under the second term, while "craft neurosis," "lilly rash" and "packer's itch" are indexed under the first term in each case. However, these are minor faults which can be corrected in a second edition.

Pharmacists will probably be most interested in the completeness with which the occurrence of poisoning in the industries has been treated. It is necessary to consider carbon monoxide as a poison in no fewer than twenty-seven industries and benzine in eleven. Even so inert and harmless a substance as carbon tetrachloride may cause poisoning not only when administered for the treatment of hookworm infection but also when it forms a constituent of a hair wash, when it is used as a solvent in a milliners' cement, in the "dope" for aeroplane wings or in the rubber industry and, finally, when used as a fire extinguisher it may be changed into carbon monoxide by the heat of the fire and be seriously dangerous in a closed room.

The book is a storehouse of valuable information and a notable contribution to the improvement of the health of the laboring man and of the conditions under which he must work.

E. C. L. MILLER.

Standardized Plant Names. A Catalogue of Approved Scientific and Common Names of Plants in American Commerce. By F. L. Olmstead, F. V. Coville and H. P. Kelsey, Sub-committee. Pages XVI + 548. American Joint Committee on Horticultural Nomenclature, Salem, Mass., 1923. Standard edition, $5.00; flexibly bound thin-paper edition, $6.50. This work is the concrete result of efforts on the part of horticulturists, florists, pharmacists, landscape architects and park executives to check the confusion of names of horticultural plants by bringing about, so far as practicable, the consistent use of a single standardized "scientific" name and a single standardized "common" name for every tree, shrub and herb in American commerce.

It has been compiled by a sub-committee