

ing primarily with theories, is of great importance and interest to the modern chemist in general since the applications of hydrogen-ion concentration are developing rapidly in all branches of this science.

In Part I of the book the chemical equilibrium of the ions is discussed, the laws of electrolytic dissociation, the theory of the quantitative determination of acidity and alkalinity, the ionic phases of salt formation and the electrolytic dissociation in non-aqueous solutions.

In Part II the potential differences of ions are considered particularly in the direction in which they are to have a probable physiological bearing. The several groups such as electrode potentials, diffusion potentials, phase boundary potentials, membrane potentials and absorption potentials are discussed.

An interesting phase of the book are the summaries of contents which precede each chapter. These represent abstracts of the work covered in any given chapter, in some cases covering more than a half page and enable one to obtain a bird's-eye view of the subject matter and scope of the particular chapter.

A large number of references are provided, thereby giving the reader a rather complete bibliography on the subject. It might be mentioned that the more recent advances in chemistry, those since the printing of the original German edition of the book have been included in the translation by a number of addenda to the text.

The book therefore offers the subject of ion concentration in a complete and thorough form not only to the research chemist but also to the advanced student. It is not a textbook for the average man studying chemistry but should be of the highest value to the biological and medical research student.

HUGO H. SCHAEFER.

Textbook of Pharmacy. By A. O. Bentley. Demy 8 vo., + 540 pp. Illustrated with 103 figures. Published by Baillière, Tindall and Cox, London. Price 15s. net.

The statement has frequently been made in this country, especially by members of the other professions, that pharmacy is nothing but applied botany and chemistry and that there is little justification for treating it as a separate subject in our schools and colleges. These critics point to our textbooks in pharmacy in support of their contention and this is a difficult argument to meet in view of the

fact that nearly all of our textbooks do attempt to cover the fields of botany, chemistry and physics and, in some cases, bacteriology, serology, immunology accounting, store management, etc. It is therefore a pleasure to review a book which deals almost exclusively with real pharmacy and which we as pharmacists may point to in support of our viewpoint.

The author states that the book is intended to cover the requirements in general and official pharmacy of the syllabuses of the Pharmaceutical Society of Great Britain and of the qualifying examinations of the various pharmaceutical societies and boards of the British Empire. The subject of dispensing, including the making of pastilles, tablets, etc., has not been dealt with for the reason that there are other excellent and specially written treatises on these subjects.

The subject matter of the book has been divided into three parts. Part I deals with the commonly employed pharmaceutical operations. Part II is concerned exclusively with the preparations of the British Pharmacopœia and Part III covers the additional subjects in pharmacy that are contained in the syllabuses for the Pharmaceutical Chemist Qualifying Examination of the Pharmaceutical Society of Great Britain and the B. Pharm. Examination of the University of London. These subjects are the preparation of vaccines, sterilization, surgical dressings and enzymes.

A special feature of the book which distinguishes it from our textbooks on pharmacy is that a number of practical exercises have been included. At the end of every chapter in Part II there is given a number of exercises which are intended to give the student practice in making the different types of preparations discussed.

The book is by an experienced teacher of pharmacy and is well written. While it cannot serve as a text in our schools of pharmacy, because of the fact that it is based on the British Pharmacopœia, yet it should find a place in our pharmaceutical libraries as a reference book and there is much material in it which recommends it to the practicing pharmacist.

A. G. DUMÉZ.

Edible Oils and Fats. Their Chemistry and Examination, Their Substitutes and Adulterants. By G. D. Elsdon, B.Sc., F. I. C., Liverpool. D. Van Nostrand Company, New York. 521 pp. Price \$12.50.

The author has made an effort to bring this book up-to-date, including modern methods without discarding those which have proven to be of value in the past and some methods are also mentioned which have not yielded satisfactory results. Many suggestions have been added to these discussions and a large number of references are cited. Preference is given to abstracts in the *Analyst* and in the *Journal of the Society of Chemical Industry* (Great Britain).

The volume is divided into 31 chapters in which there are 273 tables; there is also an index of authors, a subject and a botanical index. Oils and Fats are classified in the first chapter and in the next their properties are discussed, followed by a chapter on their composition. Then the constituents are given consideration, followed by several chapters on qualitative, physical and chemical tests. Succeeding chapters treat of oils and fats in groups and singly, a chapter deals with medicinal oils and another with hydrogenated oils.

The large number of tables are convenient for the oil chemists and indicate to others as well the related characteristics of classified oils, their composition, etc. The illustrations show various methods of assay and apparatus used by the oil analyst. While the book is primarily for British oil chemists, a more general service has been rendered by the author in bringing the analytical methods employed by oil chemists into one volume. As indicated, the work is, probably, of greater value to British chemists than to those of this country, however, the methods are informative and may, in some instances, prove to be better or more rapid than those in use here, and serve those who are interested in export trade and for determining their comparative value with American products.

More attention has been given by the author to the analytical study of fats and oils than to their manufacture; the discussion of hydrogenated oils is not as comprehensive as that of other works, and may indicate that the industry has not assumed the large proportions in Great Britain which it has in the United States.

Chemists using the book will take the differences that obtain in refined products into consideration. The printing, paper, press work and binding of the volume are good, and it seems to be quite free from typographical errors.

E. G. E.

The New Dutch Pharmacopœia.*—The fifth edition of the "Nederlandsche Pharmacopœe" presents many fundamental changes. The work, for reasons of economy, appears in Dutch and not as hitherto in Latin, the latter being retained only in the official titles. The chief innovation is a collective description of standard tests and reactions to determine the identity and purity of official substances, which are grouped together in the preface, a new feature in a Continental pharmacopœia. Thus, a liquid is alkaline to phenolphthalein if 10 cc. assume a pink to red coloration on the addition of one drop of 1:100 phenolphthalein solution; a liquid may be described as colorless if its tint is not deeper than that of the following three comparative solutions: (1) A yellow solution, containing 0.001 Gm. of potassium bichromate in 1000 cc. of water, acidified with dilute sulphuric acid; (2) a pink solution, containing 0.1 Gm. of cobalt nitrate in 1000 cc. of water, acidified with dilute hydrochloric acid; (3) a blue solution, containing 0.231 Gm. of copper sulphate in 1000 cc. of water, acidified with dilute hydrochloric acid.

The standard for limpidity is comparison with a suspension of 0.005 Gm. of kaolin (average diameter of the particles 20μ) in 1000 cc. of water. The tests for purity command special attention—yields no reaction is given a precise definition; in fact, in the new Dutch Pharmacopœia the reactions for the more commonly occurring impurities have become essentially limit tests. Thus, "yields no reaction for iron" means that the addition of 1 cc. of solution of ammonium chloride (107:1000 *N/2*) and 3 drops of solution of sodium sulphide (84:1000 *N/1*) to 5 cc. of the liquid to be tested, rendered alkaline by the addition of solution of ammonia, should not produce a green coloration deeper than that which occurs on applying the same test to a solution containing 0.002 Gm. of trivalent iron in 1000 cc. of water (0.0172 Gm. of ferric ammonium sulphate in 1000 cc. of water, acidified with sulphuric acid). Chlorides: the cloudiness produced by the addition of solution of silver nitrate to 5 cc. of the liquid to be tested, and acidified with nitric acid, should not exceed that which occurs in a solution containing 0.005 Gm. of chlorine (0.0083

* The review is a partial reprint of an editorial in the *Chem. & Drug.*; in part, the matter is condensed and abstracted.—E. G. E.