• *New Books*

EVALUATION AND PRESENTATION OF SPECTRO-ANALYTICAL RESULTS, by A. B. Calder (The Macmillan Company, 47 pp., 1960, $1.25). This is a pocket-size paper-bound book containing no index but with a well-defined table of contents and list of references. The contents are broken down into four sections, including an introduction, clarification of errors, general mathematical treatment, and applications to spectro-analytical problems. The book, in general, follows the form normally expected in a paper written for a journal. In fact, in the introduction the author states, "In the present paper attention has been confined . . . ."

The title of the book is somewhat misleading in that the subject is largely a treatise on statistical analysis of chemical data, using instrumental methods as samples. Since all of the technical writing is contained in some 34 pages, it can be readily seen that the scope is quite limited. The statistical treatment is no different from that shown in many other books of a similar nature. The references to instrumental work are of interest and would be usable by anyone analyzing instrumental data.

R. C. STILLMAN, The Procter and Gamble Company, Cincinnati, O.

TRACER APPLICATIONS FOR THE STUDY OF ORGANIC REACTIONS, by John G. Burr Jr. (Interscience Publishers Inc., New York, 291 pp., 1957, $7.50). Many problems in the mechanism of organic reactions have been solved by the use of the tracers, carbon-13, carbon-14, oxygen-18, deuterium, and tritium. The literature of these studies is scattered through many papers and books covering the major subject, organic chemistry. This book reviews the particular studies in organic chemistry in which tracers were used through 1955. It is not a large book, only 291 pages; and it is no longer very modern, but the material covered is clearly presented and the organic reaction mechanism approach is good. It is fun to read because the author deals directly with literature reports, and it is stimulating to further thought because the inadequacies of our knowledge are clearly revealed.

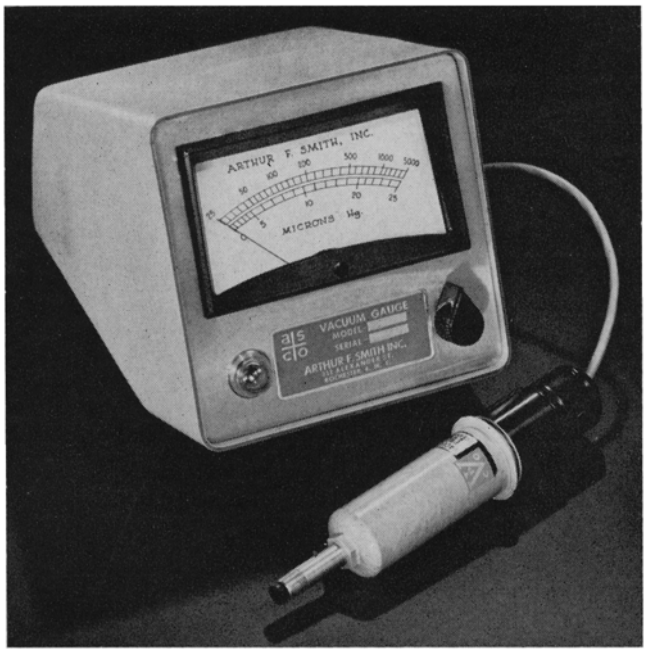
The subject material is covered by fundamental reaction process: proton transfer, nucleophilic displacements, free radical process, carbonium ion process, molecular rearrangements, etc. It includes an extensive bibliography and is well indexed. This is an excellent book for the graduate student or research worker who desires a comprehensive review of how tracers have been used in organic chemistry. It is not a techniques manual, and experimental details are not mentioned.

This book will have an important place in every technical library for the next five to 10 years. It reminds me of Hevesy and Paneth's "A Manual of Radioactivity" (1938), which was a comprehensive applications book and very useful in its day. Hevesy's book would be very difficult to write today; it would be too big, and the approach would be too applied. Similarly the applied approach in Burr's book, although useful today, probably will not be used again in this growing field. However there is great need for a good modern techniques book on isotopes in organic and biochemistry.

BERT M. TOLBERT, University of Colorado, Boulder, Col.

THE ANALYSIS OF FATS AND OILS, by V. C. Mehlenbacher (Garrard Press, Champaign, Ill., 640 pp., 1960, $12). In this book the author has brought together a very complete collection of methods for the analysis and characterization of fats and oils. Included are the standard or official control methods developed and adopted by organizations in the United States, such as the A.O.C.S., A.S.T.M., A.O.A.C., etc., as well as those of many other countries. In addition, there are a large number of nonstandard methods that the analyst will find useful for specific control or research applications.

Each method is discussed, giving scope of application as well as shortcomings, also accuracy and precision data are shown for many of the methods. Where more than one method is given for the same analysis, comparisons are made to assist the analyst in selecting the method best suited to his purpose. An excellent set of bibliography footnotes provides further assistance.



ASCO PIRANI TYPE GAUGE—This is one of the Arthur F. Smith Inc. pieces of equipment (Cat. No. 10-85) along with an enclosed McLeod gauge, rotary seal gland, recorder, and controller, all labelled ASCO in the catalog. The firm is located in Rochester, N. Y.

The book is divided into eight chapters: Chapter I, Introduction, covers composition and occurrence of fats and oils; Chapter II, Fat Content, gives methods for estimation of content including extraction, Mojonnier, Babcock, Gerber, refractometric, dielectrometric, and densimetric; Chapter III, Estimation of Impurities, includes methods for determining impurities, both naturally occurring and contaminants, that may be found in fats and oils; Chapter IV, Stability, describes the various methods that have been developed to measure oxidative deterioration of fats, also covers identification and analysis of many antioxidants; Chapter V, Specific Tests and Identification, cites procedures for identifying specific fats and mixtures of fats, including determination of physical and chemical characteristics, special identity tests, microscopy, estimation of composition, and a table of infrared absorption bands; Chapter VI, Chemical Characteristics, covers methods utilized to measure unsaturation and molecular weight of fats and oils; Chapter VII, Physical Characteristics, describes physical measurements that characterize fats and oils, including color, refraction, melting point, solidification, consistency, viscosity, density, and many others that the analyst will find useful; Chapter VIII, Composition, provides excellent coverage of procedures used to determine composition of fats and oils, including physical and chemical tests, distillation, fractionation, and chromatography.

The author's qualifications for compiling this book of methods include chairmanship of the A.O.C.S. Fat Analysis Committee, editor of the A.O.C.S. Methods, chairmanship of the N.S.P.A. Technical Committee, member of N.C.P.A. Chemists' Committee, and collaborator in A.S.T.M. and A.O.A.C. These experiences have contributed to make this book a most valuable tool for the fat and oil analyst or researcher. The reviewer highly recommends it.

KENNETH E. HOLT, Archer-Daniels-Midland Company, Minneapolis, Minn.

AN OUTLINE OF UNITED STATES PATENT LAW, by Richard E. Brink, Donald C. Gipple, and Harold Hughesdon (Interscience Publishers, New York and London, 280 pp., 1959, $7.50). This book, as stated on the jacket, is an outline of

United States patent law. It is divided into an outline section of 106 pages, four appendices, and an index; the appendices and index comprise 173 pages. The appendices, which comprise about 155 pages of the book, consist of a copy of the U. S. Patent Statutes (Title 35, U.S.C.) and the Rules of Practice of the United States Patent Office.

The outline compiles the provisions of the Patent Statutes, the Rules of Practice, and the Manual of Patent Examining Procedure into a convenient index.

While the book does outline the patent law, it would be primarily suitable for use only by those having a working knowledge of patent law as a convenient combined index for cross-reference purposes. However it will also serve, in a very general way, to familiarize those not having a working knowledge of the patent law with the procedures used in prosecuting patent applications before the U. S. Patent Office.

It would appear that this book would have only limited value to readers of the Journal of the American Oil Chemists' Society.

AARON B. KARAS, General Foods Corporation, Tarrytown, N. Y.

GAS PURIFICATION, by Arthur L. Kohl and Fred C. Riensenfeld (McGraw-Hill Book Company Inc., 556 pp., 1960, $15). This book is one of an extensive series in Chemical Engineering being published by McGraw-Hill. Its text, in 14 chapters, is generously illustrated by more than 270 figures and well documented by nearly 600 references. It includes 131 tables of useful data.

Topics cover design and operation of ethanolamine plants, carbon dioxide and hydrogen sulfide removal by absorption and other means, water as an absorbent, sulfur dioxide absorption in liquids and its recovery, gas dehydration and purification by adsorption, catalytic conversion of gas impurities, and other gas purification techniques. Discussions under the foregoing topics are limited to removal of gas-phase impurities from gas streams. Removal of solid or liquid particles is not considered, nor are processes more appropriately classified under separation rather than purification.

The book is an authoritative treatment of the more important gas purification and dehydration processes common to more than one field. Processes described have been grouped into chapters on the basis of operational similarity rather than on the impurities removed. It is particularly beamed at design and operating engineers to help them solve gas-purification problems, evaluate alternate routes, and operate existing plants. Much useful working data for design of process units are provided. Many flow diagrams are included. It discusses in detail such troublesome areas as corrosion, foaming, chemical losses, and material of construction.

M. G. LAMBOU, Southern Regional Research Laboratory, New Orleans, La.

SOAP FILMS, STUDIES OF THEIR THINNING, by Karol J. Mysels and Kozo Shinoda (Pergamon Press, New York, 110 pp., 1959, $7.50). As the authors have explained in the preface, this volume presents an account of investigations on aqueous films formed by solutions of surface-active agents. It does not represent a fully completed investigation or a review of the subject of soap films. The material has been published in the form of a book, rather than in scientific journals, in order to enable the authors to present somewhat clearer detail than is normally possible in periodicals.

The volume consists of seven chapters, an extensive bibliography of more than 300 references, an author and subject index. In addition to an introduction, which presents a short review of pertinent considerations in the field of association colloids and films formed by their solutions, the six remaining chapters are on the following subjects: Principal Thinning Mechanisms, The Thinning of Rigid Films, The Thinning of Mobile Films, Hydrodynamic The-

ory of Marginal Regeneration, The Black Film and The Irregular Mobile Film, and Two-Dimensional Hydrodynamics and Surface Viscosity. Six plates are included, which depict the phenomena discussed throughout the book; five are in color.

The authors have described very ingenious experimental techniques in the study of films and, through precise measurement of film thickness by optical means, have been able to go beyond a purely descriptive treatment of their subject. This does not necessarily mean that the authors have succeeded in reaching final solutions to some of the problems under consideration. For instance, in Chapter V on the Hydrodynamic Theory of Marginal Regeneration, in a fairly extended derivation of an expression relating thickness of a film falling into the border to that of a film being drawn out of the border, the final result is "in clear conflict with the observations described in Chapter IV."

The subject matter of this volume is probably mainly of interest to those working on studies of films and foams at the fundamental level. The techniques described should be especially valuable to other workers. The material is presented in an informal style and is, for the most part, clearly written. In a few instances the figures could have been explained more clearly. The volume is almost entirely free of typographical errors.

H. J. Harwood, Armour Industrial Chemical Company, Chicago, Ill.

Snell Reports on Munich Meeting

Foster Dee Snell of New York, member of the International Fat and Oil Commission, reports briefly on proceedings at the recent meeting in Munich, Germany.

H. Sturm presided. Madame Lewkowitz translated French to English and *vice versa*. The report of the Brussels meeting of 1958 was accepted. This Commission meets annually, not merely at IUPAC meetings. The number of titular members was reduced from 10 to eight. There are now about 40 members of whom 32 were present. Dr. Heinz of Germany was elected vice president to replace retiring Dr. Jacini.

Work on alkali in soft soaps being done in Spain was reported as incomplete and will be commented on more fully in 1960. Work on silicates in Belgium is similarly incomplete and will also be reported on in 1960.

Comprehensive data on the spectrophotometric color of oils has been obtained for the past six years. It was concluded that the data are adequate for adoption of the method as tentative, that the method is more accurate than Lovibond, and that there will be continuing difficulty in interpretation to industry. A subcommittee will draw up the method to be applied by each country to the oils with which it is principally concerned. Europeans will apply it to crude oils, but the United States practice is to regard refined oils only. The method was adopted by the Commission.

Work on the fusion point of fats with capillary tubes was discarded as experience showed too great a difficulty in getting standard capillaries. The significance was questioned by several. One tube method studied is reproducible but lengthy, and this problem led to consideration of the U. S. dilatometric method, which is neither a melting point nor a solidifying point. Williams of U. K. described a solidifying point method done in 30–40 min. with a 10-g. sample. Germany has a such a method with 75 g. of sample. The method is under study by the American Oil Chemists' Society. For next year it will be studied with the 10-g. sample, and the fusion point done in parallel by the tube method.

The Karl Fischer method for moisture was adopted, using the single reagent form.

The Böhmer index was adopted by the Commission, and Williams was asked to complete the details.

Progress was reported on "foots" in linseed oil, but the subject was passed on to other bodies for further action.

The A.O.C.S. method for isomerized oils was agreed to be superior to that investigated in 1959. A somewhat abbreviated version is to be prepared by Boekenoogen and investigated in the 1960 program.

The 1960 program includes two methods for aldehydes, and two for monoglycerides. Williams will circulate a number of standard methods of all countries, and steps will be taken to eliminate differences wherever possible.

Vizern has done the editing, and a second edition of the international methods will go to press shortly.