NEW BOOKS

OILS, FATS AND FATTY FOODS, fourth edition, by K. A. Williams (J. and A. Churchill Ltd., London, 488 p., 1966, about $14).

This volume follows the same format as the third edition published in 1950 and contains largely the same material published in the earlier edition. Its goal, as that of previous editions, is the description of general characteristics of various commercial fats, oils and fatty foods and the presentation of methods of analysis based on the personal experience and choice of the author.

Examination of fats and fatty foods is discussed mainly from the standpoint of their edible uses. As in the earlier edition, there are chapters covering sampling, general methods, interpretation of analytical results, industrial production of edible fats and oils, butter and margarine, animal fats, marine oils, vegetable oils, and miscellaneous products. The text has been revised in some sections and new tests are also described in several sections, as for example, a test for aflatoxin in the chapter on feeding stuffs.

Several of the newer analytical and research tools such as gas chromatography, countercurrent distribution, and nuclear magnetic resonance spectroscopy are briefly described. However, primary emphasis is placed upon description of traditional methods of analysis such as iodine value, melting dilation, refractive index and saponification value.

The volume is well bound and easy to read, and the material is adequately referenced and indexed. It is recommended as a standard reference text for regulatory chemists and food technologists.

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OILS, FATS AND FATTY FOODS: THEIR PRACTICAL EXAMINATION, 4th Edition, by K. A. Williams (American Elsevier Publishing Co., Inc., New York, p. vi, 488, $18.50).

The fourth edition of this fat analysis treatise follows the same format and maintains the same objectives as the prior editions. The subtitle of this book, "Their Practical Examination," denotes its emphasis on the selection and interpretation of analytical methods and results relative to edible fats and oils. Considerable revision and updating of the text has occurred since the third edition in 1950.

The arrangement of chapters and their headings are the same as prior editions. The first three chapters present actual analytical methods for sampling, measuring impurities, physical tests and chemical values. The new material includes infrared, NMR, mass spectrometry, various chromatographic techniques and lipase analyses. The next is a helpful unit on the interpretation of analytical results. There are individual chapters discussing animal, marine, and vegetable fats and oils as well as chapters on industrial production and hydrogenation. Finished products such as butter and margarine, cocoa and chocolate, feeding stuffs, and milk products are covered in separate chapters with information on production, composition, and analysis. The concluding unit discusses "The Nutritive Value of Edible Oils and Fats." Two new appendices in this edition are: 1) a list of analytical methods issued by national and international groups; 2) a list of new sources of oils that have been published between 1952 and 1962.

The friendly, explanatory style makes reading easy and enjoyable. The author based upon his many years of experience in this field has included many of his own observations and opinions on the analytical methods and the interpretation of results. The discussion of color measurements, pages 96–101, is concise but very thorough; it notes many of the pitfalls in this area of analysis. The references have been updated throughout with the most recent ones being from 1964.

The type and printing are very good and make for easy reading. There are a moderate number of typographical errors. In the table for Japanese Sardine Oil (p. 249), the AOCS analytical values that are quoted are for Salmon Oil not Sardine Oil. In Appendix I, page 472, the last set of values should be shifted four columns to the right. Most errors are readily discernible and should cause no one any difficulty.

The text is a useful reference, but its price of $18.50 will probably deter many from obtaining it for a desk copy. However, those persons engaged in fat and oil analyses or concerned with the interpretation of these data will find this book a most handy guide.

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The Technical Applications of Radioactivity Volume 1, 3rd Edition by Engelbert Broda and Thomas Schonfeld (Pergamon Press Ltd., Headinton Hill Hall, Oxford 4 and 5 Fitzroy Square, London; 353 p., 1966, price 55s. net about $22.50).

The physical appearance of the book is pleasing. The material is well organized in a natural sequential fashion and the table of contents is presented in a detailed, yet easy-to-understand fashion.

The material covered in the 353 pages represents a broad spectrum of radioisotope applications. The introduction to radioactivity, its measurements, the production of radioelements and an introduction to the tracer method comprise the material presented in the first 5 chapters. These introductory chapters lay the foundation for the discussions of the varied applications which follow. The authors have purposely avoided highly technical and mathematical considerations. However the material is quite adequately covered in a descriptive sense and many references are given at the end of each chapter should the reader desire more detailed or technical information.

Chapters 6 through 12 deal with the applications of radioisotopes to various industrial systems including chemical systems, mining and oil production, metallurgical and electrical industries, agriculture and forestry, and hydrology and water supply. Considerable emphasis is given to various chemical systems. Again, many references are given at the end of each chapter.

The last chapter deals rather superficially with radiation protection.

The book is not highly technical, nor is it so superficial as to be of little value.

Scientists and technicians in industry seeking a broad introduction to the use of radioisotopes would profit by reading the book. Also teachers of courses concerned with the practical applications of radioisotopes would benefit by reading the book. Since a great deal of the applied material is related to chemistry, readers of the *Journal of the American Oil Chemists' Society* should be interested in the book.

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Advances in Tracer Methodology, Volume 3, Edited by Seymour Rothchild (Plenum Press, New York, 1966, p. 333, price, $12.50).

The book is a collection of papers presented at the 9th and 10th symposia on Advances in Tracer Methodology. The recent advances as presented in Volume 3, are concerned with liquid scintillation counting, autoradiography and chromatography. Persons working in biochemistry, pharmacology, medicine, or endocrinology would benefit by reading about the techniques presented. The analytical techniques presented should also be of interest to the readers of the Journal.

The table of contents is well organized and understandable. In addition, each paper presented is followed by references, should a reader desire more information about a particular technique.

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ION EXCHANGE, Edited by Jacob A. Marinsky (Marcel Dekker, Inc., New York, 424 p., 1966, $16.75).

In this, the first volume of a series, *Advances in Ion Exchange*, the editor and nine selected authors review and evaluate published research studies in several fields of ion exchange theory which will be of particular interest to theoretical physical chemists or biochemists. Much of the discussion, particularly the kinetic studies, is given an extensive mathematical treatment that the various ion-exchange phenomena require for rigorous definition and interpretation. This detracts somewhat from the readability for the non-specialist, however.

Subjects reviewed in nine chapters are: Transport Processes in Membranes; Ion-Exchange Kinetics; Ion-Exchange Studies of Complex Formation; Liquid Ion Exchangers; Precise Studies of Ion-Exchange Systems Using Microscopy; Heterogeneity and the Physical Chemical Properties of Ion-Exchange Resins; Ion-Exchange Selectivity; Resin Selectivity in Dilute to Concentrated Aqueous Solutions; and, Interpretation of Ion-Exchange Phenomena. Most chapters have introductory paragraphs to orient the reader and several have helpful summaries. Use of the same numerical designations for equations and literature references is sometimes confusing but as a whole the volume is a well-organized if highly theoretical treatment of an important field of research which is growing in importance. The chemist looking for a review of ion exchange applications might be disappointed although some of the discussions can provide a basis for application research.

An extensive table of contents, an author index and subject index are provided.

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PRINCIPLES OF COLOR TECHNOLOGY, by Fred W. Billmeyer, Jr., and Max Saltzman (Interscience Publishers, 181 p., 1966, $11.95).

Many, if not most of the people working actively with color today lack full understanding of the technology of this seemingly simple concept. As this technology has developed, more and more rapidly in the last thirty-odd years, what seemed to be relatively simple has proven to have an orderly but complex basis.

This book is intended as a simple introduction to the field of color and presents ideas with simplicity and a liberal use of easily understood diagrams, charts, photographs, etc. The mathematical basis of color is presented but not dwelt on in sufficient detail to make for heavy reading. The

net result is to present rather complicated concepts with a considerable degree of clarity while holding the reader's interest.

The chapters include a detailed definition of what color actually is, the color-order systems which have been worked out, color measurements and tolerances, both theoretically and in daily practice, and the colorants available to the color technologist. As befits a book intended as introductory in nature, a comprehensive annotated bibliography is included for those wishing to become more informed and skillful in the field by further reading.

This book is recommended as an introduction for those persons who work with color and wish to learn more of the underlying principles and for those entering the field of color technology and need the basic knowledge presented.

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Reagent Chemicals and Standards, by Joseph Rosin (D. Van Nostrand Co., 120 Alexander St., Princeton, N. J., 641 p., 1967, $16.50).

The fifth edition of this book contains properties, standards and tests of quality for more than 600 reagents, solvents, and indicators used in general chemical procedures. Both organic and inorganic reagent chemicals are included. Directions are given for preparing solutions or formulations and carrying out physical and chemical determinations of their properties.

New in this edition are about 30 chemicals which have joined those in greatest value in standard procedures —in titrimetry, colorimetry, and many phases of instrumental analysis. Also new in this edition is a section on flame photometry by Theodore C. Rains of the National Bureau of Standards. This section includes types of instruments, interferences, evaluation of data, calibration in the presence of chemical interference, preparation and analysis of samples.

These new reagents and methods along with the older material in the book meet the needs of all types of chemical work and their use will result in the standardization of research and control.

Advances in Chromatography, Vol. 2, edited by J. Calvin Giddings and Roy A. Keller (Marcel Dekker, Inc., 377 p., 1966, $14.50).

Volume 2 of *Advances in Chromatography* is a two-part continuation of a series describing recent advancements in chromatography. Developments in the ion exchange chromatography of amino acids, ion mobility in electrochromatography, chemical structure in relation to paper chromatography, gradient techniques in thin-layer chromatography, and chromatographic processes in geology are explained in Part I, while Part II covers gas-liquid chromatography (GLC): chromatographic band broadening, GLC of carbohydrates, ionization detectors, and temperature programming. The format of Volume 2 is identical to that of its predecessor in that a brief outline of the subject matter is prefixed to each paper, and the table of contents for the entire volume is a composite of these outlines. An effective author index at the end of the book cites all references used throughout the text, but I feel that it would also be helpful to have a more detailed subject index.

The contributors to this volume have excelled in reporting major developments and trends without sacrificing the details necessary for depth of understanding. In addition, the editors have successfully encouraged the authors to show their pertinent data in the form of figures and tables and to present their opinions of the specific status of developments, with the result that this volume represents much more than a mere cataloging of information already in the literature. This distinguishes the *Advances in Chromatographic* series from *Chromatographic Reviews*, a series initiated in 1959 strictly for the purpose of presenting review articles. The purpose of *Advances in Chromatography*, to critically evaluate major developments and to specifically summarize and focus the authors' own research efforts, has been successfully attained in Volume 2. It is highly recommended for researchers attempting to keep abreast of progress in the many diverse areas of chromatography. The wide variety of topics included in the series also makes it an excellent reference and survey source for those workers in other fields who must use chromatography.

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Advances in Chromatography, Vol. 3, edited by J. Calvin Giddings and Roy A. Keller (Marcel Dekker, Inc., 271 p., 1966, $11.50).

Volume 3 of *Advances in Chromatography* broadens the scope of a series already diverse in subject matter. The excellent overall format and style are identical to those of Volumes 1 and 2, the book being divided into two sections, one dealing with aspects of general chromatography and one with topics related only to gas-liquid chromatography. It includes discussions of isotopic fractionation, adsorption chro-