New Books

ELEMENTARY INTRODUCTION TO MOLECULAR SPECTRA, by Borge Bak (Interscience Publishers Inc. 250 Fifth avenue, New York City 1, New York. 1954, 125 pages, $2.90). In the first chapter the author very briefly surveys the high spots of practical and theoretical spectroscopy. The summary is an excellent, concise coverage of the field. The derivations of some important equations in spectroscopy are presented in chapter two. However the reviewer found the approach probably too sketchy and too brief, even for a reader having some background in quantum mechanics. The remaining chapters, four, five, and six, are devoted to the applications of the equations to microwave spectroscopy, infrared spectra, and to visible-ultraviolet spectra; and the research possibilities in the regions are discussed.

The reviewer would not recommend the book generally to chemists, biologists, and chemical engineers who might be interested in a better understanding of molecular spectra unless they have had a good background in quantum mechanics and are somewhat familiar with the subject. However, to the student, who contemplates, or is making a study of molecular spectroscopy, and to the scientist, who has a good background in quantum mechanics or wishes to refresh his memory, this book is recommended. The author has given some well chosen references on molecular spectroscopy. Perhaps a title, which would be more apropos, is suggested as follows: A Review of Quantum Mechanics as Applied to Molecular Spectra.

The quality of the paper, binding, and printing is very good. The index seems to be adequate.

CHARLES F. SMULLIN
Atlas Powder Company
Wilmington, Del.

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LEADERS IN AMERICAN SCIENCE, by Robert C. Cook, editor-in-chief (Who's Who in American Education Inc., Nashville, Tenn., First Edition, 1953, 852 pages, $12). Turning through this book, the reader is quickly struck with both its omissions and its errors. The reviewer, who has a nodding acquaintance among men engaged in several sciences and technologies, is astonished at the omission of many who are leaders in their fields today, and at the occasional inclusion of men whose best work was done several decades ago and who now are long inactive, or retired, or dead. For example, while looking in vain for George Gamow (physics), Bruce Chalmers (metallurgy), George Morey (physical chemistry), and E. F. Osborn (petrology), one wondered at the emphasis on such estimable scientists of earlier years as R. A. Millikan, W. W. Coblentz, R. W. Wood, and V. Ipatieff.

Misinformation is not lacking. A few minutes of browsing revealed several long-invalid addresses and connections. For example, at one point, L. Pauling is associated with "Calif. Inst. of Tech., Berkeley, Calif."

Misspellings of names discovered in a casual perusal include "Singlewald," "Von Vleck," and "Daisy," for Singewald, Van Vleck, and Doisy. The field of specialization of S. C. Lind is something called "Rology."

One wonders what purpose the book may serve beyond being just another "Who" volume with which to burden bookshelves. One doubts that it can be either a substitute for or an adequate supplement to a well established biographical directory like *American Men of Science*.

In plan, the book offers one feature which, if it were well executed, might be of some use, especially to those who like to write letters begging information from "experts." That feature is a listing of names of "leaders" under each of 275 categories of specialization. But this section, like the alphabetical listing, is notable for its omissions, misinformation, and poor editing.

The reviewer does not recommend purchase of the book or publication of succeeding editions.

H. M. DAVIS
Pennsylvania State College
State College, Pa.

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THE SULPHUR DATA BOOK, compiled by the technical staff and edited by William N. Fuller of Freeport Sulphur Company

(McGraw-Hill Book Company Inc., 1954, 143 pages, $5). This book presents data on the properties of sulphur of interest to chemists and engineers using sulphur. It is not a literature review. The authors have selected the data which they believe to be most accurate. Forty-three literature references are cited.

The text of the volume is divided into five sections and consists largely of charts and tables of data. The five sections are: The Nature of Sulphur; Physical and Chemical Properties; Reaction Thermodynamics; Solubility; and Analysis of Sulphur. In addition to 21 tables, 20 figures, and tabulations of solubility data, conversion tables for sulfuric acid are included in the book.

The section of analysis gives the detailed procedures of 12 analytical methods for the analysis of sulphur.

The volume should prove useful to those using sulphur and having need of a ready and reliable source of information regarding the properties of sulphur and methods for its analysis.

T. H. HOPPER
Southern Utilization
Research Branch
New Orleans, La.

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HANDBOOK OF COSMETIC MATERIALS, by Leon Greenberg and David Lester (Interscience Publishers, New York City, 1954, 455 pages, $12.50). The book starts with a discussion of the function of the skin, defined to include the hair and nails. Technical accuracy is indicated by differentiation between hypersensitivity and allergy.

After this 17-page treatise the balance is a special type of dictionary and bibliography. The dictionary section classifies the information under formula, properties, uses, toxic action, and dermatological action. Since more than 4,000 titles in the literature have been searched to determine whether there is a record of toxic or dermatological action, this should be an excellent source of information as to whether such data are in the literature at all, as well as a digest of that information. It should save many tedious hours of searching for many people.

FOSTER DEE SNELL
Foster D. Snell Inc.
New York, N. Y.

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ORGANIC CHEMISTRY (Second Edition), by Reynold C. Fuson and H. R. Snyder (John Wiley and Sons Inc., New York City, 1954, VIII plus 544 pages, $6.50). The second edition of this widely used text retains the features that led to the wide adoption of the first edition. It differs from the traditional presentation in that aromatic and heterocyclic compounds are introduced very early, the subject matter being organized around the concept of reactions of functional groups. This type of organization permits the book to be used advantageously for a year course in which part of the students will drop out after a semester or two quarters. Modern theory of reactions is included, but it is presented in such restricted form that considerable time will be needed by the teacher to supplement this important phase of a modern course.

Organic Chemistry now includes such a vast body of detail that one of the main problems of the authors of such a text is that of elimination. A remarkable job has been done in selecting material of fundamental importance and in choosing as examples work of rather recent vintage.

Readers of this journal will however be disappointed in the section on fats. It could have been written 25 years ago and in this respect is in marked contrast with the relatively up-to-date treatment of many other topics. There are few statements that are definitely incorrect, but it is implied repeatedly that simple glycerides are important constituents in typical natural fats. The following quotations are representative: "Examination of the acids produced by the hydrolysis of a typical solid fat, such as beef tallow, reveals that the substance is composed largely of the glyceryl esters of saturated acids, palmitic, and stearic acids. The glyceryl esters are known as tripalmitin and tristearin, respectively; both melt well above room temperature." Similarly, the hardening of vegetable oils by hydrogen-

ation is considered "- - - - as involving the change of triolein to tristearin." Concerning drying oils the authors state: "- - - linseed oil contains considerable quantities of trilinolein and trilinolenin." The fact, well established by the researches reported in this journal and elsewhere during the past quarter of a century that simple triglycerides are rare in natural fats, is not mentioned. Perhaps a hint of the actual situation is given by the following sentence: "because of the existence of isomeric mixed esters the natural fats contain many more components than is indicated by the analysis of the mixture of acids obtained by hydrolysis." Just how the analysis of the mixture of acids obtained by hydrolysis could indicate the actual glyceride species present is not explained.

But any specialist can find unsatisfactory passages relating to his field in any general textbook. Such criticisms should not overshadow the conclusion that in general this text is well balanced, interestingly written, and teachable. It is to be highly recommended.

R. K. SUMMERBELL
Northwestern University
Evanston, Illinois

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LABORATORY INSTRUMENTS. Their Design and Application, by A. Elliott and J. Home Dickson (Chemical Publishing Company, New York City, 1953, 414 pages, $7.50). In recent years, especially since the end of World War II, the number of American companies designing and manufacturing laboratory instruments for scientists has markedly increased. Competition has been keen. For example, new spectrophotometers have appeared almost yearly, each offering increased precision, greater ease of operation, or lower price. Under these conditions American laboratory workers who have need of a new instrument or desire modification of an existing model usually have available the services of many companies eager to try out innovations.

This excellent book will probably find a relatively limited market in this country. The authors, one with Courtauld's Ltd. and the other with the Royal Naval Scientific Services, have written for a British audience. They use British trade names for plastics and alloys. Their references however to texts are quite complete and include American books and periodicals.

There are 16 chapters and 4 short appendices. The first 11 chapters, about half the book, are general in nature and relatively simple in content. Such subjects as properties of materials, casting and joining metals, preparation of drawings, accuracy obtainable in machining operations, magnification of small displacements, sensitivity and errors of instruments, tests for straightness, flatness, and squareness are treated in separate chapters. These subjects, with many references and a collection of excellent tables in the text, would be most useful in a course on instrumentation, to the graduate research worker in physical science, and to the hobbyist with his home workshop.

The second half of the book is devoted to glass, its working, lenses, mirrors, and prisms, optical instruments, and photography in research. In this part lens and prism design, ray tracing, and some aspects of photography are treated in considerable detail. The appendices are extensions of this part and include computation of a correction plate of a Schmidt camera. While the size of the book does not permit a complete treatment, sources are cited and many useful data are assembled. The designer of optical instruments should find it a useful guide.

Although the principles of design given in this book are all well-known, instruments are now on the market which violate many of them. Designers and constructors of modern laboratory instruments will find the book valuable and interesting. No space is given to electronics or the recording-controlling instruments now becoming so popular. The printing and illustrations are excellent.

R. T. MILNER
University of Illinois
Urbana, Ill.

Call for Business Meeting

In connection with the fall meeting of the American Oil Chemists' Society, to be held at the Radisson hotel, Minneapolis, Minn., October 11-13, 1954, there will be a special session for the purpose of transacting Society business, hearing committee reports, and so on.

R. W. BATES, secretary C. E. MORRIS, president