author has the control laboratories report to the plant manager, "Verboten" in the pharmaceutical industry! Kehoe in "Automation in Industrial Analytical Chemistry" gives five excellent theses which should be recommended reading for anybody considering or working on laboratory automation. Thesis number four states: "The best automatic analyzer still requires intelligent supervision to detect subtle errors and to recognize gradual decay of accuracy."

I hope that the instructive and well-written chapters on "Design of Laboratories for Analytical Chemistry" by Mellon, "Design of Laboratories for Radiochemical Work" by Fenninger and Hale and "Safety in the Analytical Laboratory" by Stalzer, Martin, and Railing find a wide readership since the information presented reaches beyond the confines of the analytical laboratory.

"Development of Raw Material and Product Specifications" should be required reading for all purchasing agents. Patek makes the memorable point that "it is almost impossible to develop a good purchase specification without the assistance of an analytical chemist." In the final chapter on "Testing of Consumer Products" by Schwartz and Gaffney the reader not only is treated to the cigarette puffing machine but also will learn that there is a gadget called the Handle-O-Meter to measure the fluffiness of towels.

The print of the book is readable and the drawings are clear. However, the paper used does not lend itself too well to photographic reproduction. This particularly detracts from the nice gesture of presenting the authors' portraits.

The book then contains an abundance of information over a wide range of subjects. I can visualize that a future historian might use the volume as a rich source to study the role and organization of analytical chemistry in the chemical process industry in the mid-20th century. To the contemporary pharmaceutical analyst the book offers a broad view of the adjoining pasture.

Reviewed by K. Florey
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Fractional Solidification. Vol. I. Edited by M. ZIEF and W. R. WILCOX. Marcel Dekker, Inc., 95 Madison Ave., New York, NY 10019 1967. xvi + 714 pp. 16 × 23.5 cm. Price $28.75.

Fractional Solidification is the first of two volumes. Twenty-two authors from England and the United States have contributed to the text. The contributions of Paul Jannke are of special interest to the pharmaceutical scientist. Each chapter is well documented with references—a majority being recent.

The book is divided into six parts. Part I is devoted to basic principles with contributions dealing with phase diagrams, mass transfer in fractional solidification, constitutional supercooling and microsegregation, polyphase solidification, and heat transfer in fractional solidification. Part II deals with laboratory scale apparatus used in fractional solidification with specifics that deal with batch zone and continuous zone melting, progressive freezing and column crystallization, and zone precipitation and allied techniques. Part III deals with industrial scale equipment. Different authors discuss the Proabd Refiner, Newton Chambers' Process, Rotary-Drum Techniques, Phillips Fractional-Solidification Process, and desalination by freezing. Part IV deals with applications of fractional solidification. Ultrapurification and its relation to pharmaceuticals are discussed by Jannke *et al.* Chapters are devoted to ultrapurity in crystal growth and to bulk purification. Part V is devoted to the economics of fractional solidification, and Part VI contains tables listing the purification and operating parameters for zone melting of inorganic and organic compounds. A great many of the organic compounds are important pharmaceuticals.

This book is of value because the basic knowledge and methods used to produce chemicals of ultrapurity are presented. The processes required to produce ultrapurity are examined in detail. The material should be valuable to those in pharmaceutical and other industries in order to develop and maintain strict specifications on raw materials. This book should prove to be valuable to the researcher in producing ultra-pure crystals in either very small or large scale batches.

The book is printed on paper which provides easy reading, and the print is of adequate size. The authors have used many figures to illustrate their concepts and discussions.

I recommend this book as a reference to the scientist in research, teaching, and industry.

Reviewed by John A. Biles
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Los Angeles, Calif.

Take as Directed. Edited by F. E. SHIDEMAN and written by JOHN P. RUSSO. The Chemical Rubber Company Press, 18901 Cranwood Parkway, Cleveland, OH 44128, 1967. xiv + 457 pp. 16 × 23.5 cm. Price $14.75.

The editor has fulfilled the objective given on the book cover, "Our modern medicines explained for the layman." Diseases and physiological conditions have been described clearly in terms the layman will understand. The fundamental information given about the drugs is presented in a sound, reasonable way that is a pleasant contrast to the dramatic presentations that frequently are offered to the lay public. This book is an excellent, simplified discussion of drugs and their use in medical treatment today. Pharmacists and pharmaceutical scientists can confidently suggest this book in response to requests from laymen to recommend a simplified—yet authoritative—text discussing drugs in current use.

Staff review

Aromatic Amine Oxides. By EIJI OCHIAI. Translated by Dorothy U. Mizoguchi. Elsevier Publishing Company, 52 Vanderbilt Ave., New York, NY 10017, 1967. ix + 456 pp. 15 × 23 cm. Price $30.00.

In view of the frequently predictable chemical