

reactions between unsaturated lactones and reagents containing sulfhydryl groups. On the other hand, the difference in activity of the iodoacetate III and the acetate IV argues against a hydrogen bonding role for the lactone carbonyl group.

The cardiotoxic activity of cassaine V (9) (LD 1.15 mg./kg.), may be explained in a similar manner, as the α,β -unsaturated ester in this material is also a potential electrophilic reagent. In both cases, the function of the polycyclic portion of the molecule is presumably to induce an inhibitory specific conformational perturbation (10) in the enzyme. This is indicated by the known biological consequences of structural variations in this part of the molecule (1), as well as by the fact that simple unsaturated lactones (11) and simple sulfhydryl reagents (12) are dissimilar from cardiac glycosides in their effects.

The extension of these studies to other electrophilic analogs is in progress.

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Keyphrases

Steroidal iodoacetate
Cardioactivity—steroidal iodoacetate
Lactone ring—cardioactive compounds

Books

REVIEWS

Treatise on Analytical Chemistry. Part III: Analytical Chemistry in Industry. Vol. 1. Edited by I. M. KOLTHOFF, P. J. ELVING, and F. H. STROSS. Interscience Publishers, Inc., 605 Third Ave., New York, NY 10016, 1967. xxiv + 455 pp. 17 × 24.5 cm. Price \$17.50.

The well-known and respected "Treatise on Analytical Chemistry" series edited by Kolthoff and Elving by now has reached encyclopedic proportions. However, when it came to Part III "Analytical Chemistry in Industry" the editors, as they state in the Preface, deferred for industrially important analytical methods and procedures to Snell and Hilton's even larger "Encyclopedia of Industrial Chemical Analysis" by the same publishers. Therefore, the first volume of Part III with F. Stross as co-editor addresses selected topics to the organization builder, the laboratory designer, the production controller, and the safety conscious among others. The pharmaceutical analyst should approach this volume forewarned that there are few specific references to the pharmaceutical industry. The student eager to explore the attractiveness of industrial

employment should be told that the treatise is a "comprehensive account" but comprehensiveness is not apt to stimulate the imagination or inspire enthusiasm. Where is the analytical Watson to write "The Double Focus?"

About individual contributions the following should be briefly reported: In "Analytical Chemistry and the Analytical Chemist in Industry" Royer and Maricle are of the opinion that "analytical chemistry, without doubt, entered industry through the Control Laboratory." In "Methodology of Industrial Analysis" Spauschus makes the excellent point that "the contributions of the analytical chemist to a research program will be most effective if he is given the opportunity to participate while the program is being planned." In "Organization of Analytical Chemistry in the Industrial Research Laboratory" Kirklin makes very cogent comments on the controversial question whether to submit samples for reanalysis "openly" or "blindly." Kirklin also presents a plethora of organization charts but wisely states that "changes in details of organization are made frequently in accordance with the demands of the work." He should have added "and of problems of personality." In "Organization for Analytical Chemistry in Production Control" the same

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.

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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 micro-segregation, 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.

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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