

- (2) J. P. Hou and J. W. Poole, *ibid.*, 58, 1510 (1969).
(3) A. Leo, C. Hansch, and D. Elkins, *Chem. Rev.*, 71, 604 (1971).
(4) J. Smith, G. Degrey, and V. Patel, *Analyst*, 92, 247 (1967).

C. F. Carney
A. R. Hurwitz *

Pharmacy Research and Development
Ayerst Laboratories, Inc.
Rouses Point, NY 12979

Received September 7, 1976.

Accepted for publication November 9, 1976.

* To whom inquiries should be directed.

BOOKS

REVIEWS

The Catharanthus Alkaloids. Edited by W. I. TAYLOR and N. R. FARNSWORTH. Dekker, 270 Madison Ave., New York, NY 10016, 1975. 323 pp. 16 × 32.5 cm. Price \$29.50.

This valuable book for students, teachers, researchers, and clinicians interested in the pharmacognosy of the *Catharanthus* alkaloids opens with a concise and significant introduction by Gordon H. Svoboda, in which he outlines the history and discovery of the outstanding alkaloid pair, vinblastine and vincristine. Dr. Svoboda, responsible for much of this research, reviews the scientific and medical aspects of these and other *Catharanthus* alkaloids in terms of their biological specificity and their relative clinical merit.

The book includes chapters dealing with the following topics: a Synopsis of the Genus *Catharanthus* (William T. Stearn, British Museum), the Photochemistry and Pharmacology of *Catharanthus roseus* (G. H. Svoboda and D. A. Blake), the Phytochemistry of the Minor *Catharanthus* Species (M. Tin-Wa and N. R. Farnsworth), Structure Elucidation and Chemistry of the Bis *Catharanthus* Alkaloids (D. J. Abrahams), the Biosynthesis of *Catharanthus* Alkaloids (R. J. Parry), and Tissue Culture Studies of *Catharanthus roseus* (David P. Carew). The final chapters, dealing with Biochemistry (William A. Creasey) and the Clinical Aspects of the Dimeric *Catharanthus* Alkaloids (R. C. DeConti and W. A. Creasey), comprehensively and thoroughly review these important topics.

The book is well organized; tables, figures, and text are of professional quality; and, in spite of the many botanical terms used, the number of misprints is remarkably small, a rare exception being a twice misspelled catharanthine (I) (p. 128).

The total amount of multidisciplinary information contained in this monograph is considerable. The book, therefore, constitutes a valuable reference work for diverse professionals needing reliable information. The authors all have worked extensively in their various specialties, thus endowing the book with an authoritative quality. In particular, the chapter on clinical effects of vinblastine and vincristine as well as other alkaloids of lesser efficacy summarizes the relative and specific clinical activity in a clear and comprehensive manner. For researchers not having easy access to detailed medical literature in this area, this chapter by DeConti and Creasey constitutes a good source for reliable information on clinical usages of currently available oncolytic *Catharanthus* alkaloids.

The only regret felt during the reading of various chapters, especially those dealing with topics presently in an active state of investigation, is in the time lag during writing and publication. Few references beyond 1972 are included in most chapters. Much excellent work during the following years thus remains unmentioned through no fault of authors or publishers.

In summary, the editors have made an excellent selection of topics and authors. The resulting book summarizes available information on this important class of alkaloids in a most readable and reliable manner. The book is heartily recommended for readers wanting to become acquainted or reacquainted with the chemistry or biology of these complex herbal products of outstanding medicinal value.

Reviewed by Koert Gerzon
Chemical Research Division
Lilly Research Laboratories
Indianapolis, IN 46206

Pro-drugs as Novel Drug Delivery Systems. Edited by T. HIGUCHI and V. STELLA. American Chemical Society, 1155 16th Street, N.W., Washington, DC 20036, 1975. 245 pp. 16 × 24 cm. Price \$13.50.

This volume is a collection of papers presented during a symposium on prodrugs held in Atlantic City, September 10, 1974, under the sponsorship of the ACS Division of Medicinal Chemistry. The book consists of six sections. The first section, which constitutes approximately half of the volume, is a review of the basic concepts and approaches to the design of prodrugs. The second section covers applications of the prodrug approach to antibiotics. The remainder of the volume describes, in the form of research papers, chemical and biological studies on prodrug candidates performed in the laboratories of the authors. These chapters deal with prodrugs of phenytoin (diphenylhydantoin) and epinephrine and with the use of prodrugs in the formulation of cytotoxic agents for parenteral administration.

Although the enzymatic and some biological aspects, which are important in the design of new prodrugs, are not discussed, this book represents an excellent compilation of data on the subject. The extensive bibliography, particularly of the first two sections, and the excellent examples selected to illustrate the chemical approaches to the problem of drug delivery should make this volume a valuable addition to the library of every researcher in this field.

The book is easily readable and is recommended to graduate students and faculty of both chemistry and pharmacy. The material described in this book by the authors, who are experts in this field, ought to stimulate greatly the thinking of those who are seeking new ideas in the application of chemistry to biology and pharmacy.

Reviewed by George A. Digenis
College of Pharmacy
University of Kentucky
Lexington, KY 40506

The Effect of Disease States on Drug Pharmacokinetics. Edited by LESLIE-Z. BENET. American Pharmaceutical Association, 2215 Constitution Ave. N.W., Washington, DC 20037, 1976. 252 pp. 15.5 × 23 cm. Price \$9.25 (APhA Member Rate, \$6.50).

"The Effect of Disease States on Drug Pharmacokinetics" is a collection of the papers presented at the April 1976 symposium sponsored by the Academy of Pharmaceutical Sciences of the American Pharmaceutical Association. The 29 contributors to this symposium are among the most prominent researchers in the field of clinical pharmacokinetics.

The introduction is a general orientation to the subject and a brief discussion of various possible approaches to the investigation of potential pharmacokinetic changes. The book is divided into four parts, each of which contains one chapter that discusses the subtopic in general and one or more chapters that deal with specific examples.

In the first section, Body Perfusion, Chapter 2 presents an overview of pharmacokinetics in disease states that modify blood flow and organ perfusion. Chapter 3 deals specifically with the effects of cardiac failure on GI absorption.

Hepatic and Metabolic Function is the subject of the second section, which includes Chapters 4-6. A comprehensive review of drug kinetics in patients with hepatic dysfunction is presented in Chapter 4. The effect of chronic liver disease on hepatic clearance is examined in Chapter 5, and Chapter 6 is a description of the kinetics of a single drug, carbamazepine, in a particular disease state, epilepsy.

The third section, Protein Binding, contains, in Chapter 7, a survey of disease-induced changes in drug-binding components and factors that alter drug-protein binding. Chapter 8 reviews the effects of uremia, bacterial infections, and cardiopulmonary bypass on serum protein binding. The clinical implications of interindividual differences of plasma protein binding, specifically for warfarin, phenytoin, and bilirubin, are discussed in Chapter 9.

Renal Function, the final section, is the area in which the most progress has been made in evaluating effects of disease states on drug kinetics. Chapter 10 presents a broad consideration of the field and a tabular compilation that may be used in adjusting drug dosage for compounds influenced by changes in renal function. The influence of renal disease on the elimination of procainamide and the accumulation of *N*-acetylprocainamide is described in Chapter 11. Finally, in Chapter 12, the effect of changes in renal function on gentamicin kinetics is discussed.

This book should be of particular value to students and researchers in the field of clinical pharmacokinetics, as well as practitioners and professionals in allied fields.

Staff Review

Practical Pharmaceutical Chemistry. Third Edition-Part Two.

By A. H. BECKETT and J. B. STENLAKE. Humanities Press, Atlantic Highlands, NJ 07716, 1976. 552 pp. 16 × 24 cm. Price \$37.50.

The present volume is an attempt to provide to students the benefit of numerous developments in practical pharmaceutical chemistry since the book was first written (1970). This resulted in an increase in the length of the volume by 127 pages, a figure that gives some idea of the new matter incorporated in the present edition.

This edition again opens with a chapter on "General Physical Methods," which covers some of the general topics in physics including molecular weight, refractometry, optical activity, and viscosity. These topics, systematically presented in concise form, lay the groundwork for subsequent chapters. It would be invidious to single out any chapter for special mention because the book covers such a wide variety of topics. These topics include analysis of drugs, measurement of electromotive force and pH, conductometric titrations, polarography, chromatography, spectrophotometry, flame photometry, and atomic absorption spectroscopy, spectrofluorometry, IR, NMR, mass spectrometry, and radiochemical techniques. These topics provide a sound basic knowledge to chemistry and pharmacy students.

The organization of this edition is identical to the previous edition. In addition to the material covered in the previous edition, this edition has given more detailed coverage to flame photometry, atomic absorption, and GC-mass spectrometric systems and has incorporated excellent introductions to, and practical applications of, circular dichroism spectra, thermal methods of analysis, coulometry, and high pressure liquid chromatography. The sections on NMR have been extended to include lanthanide shift reagents, ¹³C-NMR spectroscopy, fourier transform NMR, and an introduction to internuclear double resonance and nuclear overhauser effect. The chapter on radiochemical techniques includes additional practical experiments with radionuclide generators and the use of radioimmunoassay techniques. All chapters of the book are sufficiently illustrated with diagrams, experiments (none in chapters on NMR and mass spectrometry), cognate experiments, and references. At the end of certain chapters, the authors provide a list of recommended books for additional study.

Overall, this is a lucid book presented in the style employed by Arthur I. Vogel, the author of "Practical Organic Chemistry." It is the opinion of this reviewer and his associates that this edition will not

only stimulate the interest of chemistry and pharmacy students but will also assist in enhancing their knowledge.

Reviewed by S. D. Jolad
Division of Pharmaceutical Chemistry
College of Pharmacy
University of Arizona
Tucson, AZ 85721

NOTICES

Dictionnaire Pratique De Pharmacologie Clinique. By Y. TOUITOU and L. PERLEMUTER. Masson et cie, 120 bd Saint-Germain, 75280 Paris 6, France, 1976. 1204 pp. 15 × 21 cm. Price 167 F.

Receptors and Recognition. Vol. 1 Series A. Edited by P. CUATRECASAS and M. F. GREAVES. Wiley, 605 Third Ave., New York, NY 10016, 1976. 175 pp. 16 × 24 cm. Price \$24.00.

Arzneiformenlehre. Ein Lehrbuch für Pharmazeuten. By PAUL HEINZ LIST *et al.* Wissenschaftliche Verlagsgesellschaft mbH., 7000 Stuttgart 1, P.O. Box 40, Germany, 1976. 514 pp. 17 × 24.5 cm. Price DM 62.—.

Carbohydrate Chemistry. Vol. 8. Edited by J. S. BRIMACOMBE *et al.* The Chemical Society, Blackhorse Road, Letchworth, Herts. SG6 1HN, England, 1976. 485 pp. 14 × 22 cm. Price \$66.00. May be obtained from Special Issue Sales, American Chemical Society, 1155 Sixteenth St., N.W., Washington, DC 20036.

Innovative Medical-Psychiatric Therapies. Edited by RICHARD M. SUINN and RICHARD G. WEIGEL. University Park Press, Baltimore, MD 21202, 1976. xvi + 302 pp. 16.5 × 23.5 cm. Price \$19.50.

Reviews of Physiology, Biochemistry and Pharmacology. Vol. 74. (The Role of Cyclic Nucleotides in Central Synaptic Function; Renal Transport of Amino Acids). Springer-Verlag, 175 Fifth Ave., New York, NY 10010, 1975. 200 pp. 17 × 25 cm. Price \$39.80.

Biosynthesis. Vol. 4. Edited by J. D. BU'LOCK *et al.* The Chemical Society, Burlington House, London, W1V 0BN, England, 1976. 274 pp. 14 × 22 cm. Price \$44.00.

Dental Practitioners' Formulary 1976-78. The British Medical Association, Tavistock Square, London, WC1H 9JP and The Pharmaceutical Press, 17 Bloomsbury Square, London WC1A 2NN, England, 1976. 64 pp. 15.5 × 9.5 cm. Price £ 0.55.

Handbook of Ocular Toxicity. By MARVIN B. SMITH. Publishing Sciences Group Inc., 162 Great Rd., Acton, MA 01720, 1976. 525 pp. 16 × 24 cm. Price \$20.00.

British National Formulary 1976-78. The British Medical Association, Tavistock Square, London, WC1H 9JP and The Pharmaceutical Press, 17 Bloomsbury Square, London WC1A 2NN, England, 1976. 422 pp. 16.5 × 10.5 cm. Price £ 1.55.

Thiamine. Edited by CLARK J. GUBLER, MOTONORI FUJIIWARA, and PIERRE M. DREYFUSS. Wiley, 605 Third Ave., New York, NY 10016, 1976. 393 pp. 16 × 23.5 cm. Price \$27.00.

Contemporary Organic Chemistry. By MARION H. O'LEARY. McGraw-Hill Book Co., 1221 Avenue of the Americas, New York, NY 10020, 1975. 396 pp. 16.5 × 24 cm. Price \$13.95.

Visceral Muscle. Its Structure and Function. By HENRY HUDDART and STEPHEN HUNT. Halsted, 605 Third Ave., New York, NY 10016, 1976. 181 pp. 15 × 21 cm. Price \$13.95.

Biochemical Fluorescence: Concepts. Vol. 2. Edited by RAYMOND F. CHEN and HAROLD EDELHOCH. Dekker, 270 Madison Ave., New York, NY 10016, 1976. 944 pp. 16 × 24 cm. Price \$38.00.

The Heroin Epidemics. A Study of Heroin Use in the United States, 1965-1975. By LEON GIBSON HUNT and CARL D. CHAMBERS. Halsted, 605 Third Ave., New York, NY 10016, 1976. 145 pp. 16 × 23.5 cm. Price \$12.95.

Immunopharmacology. Edited by MARVIN E. ROSENTHAL and HERBERT C. MANSMANN, Jr. Halsted, 605 Third Ave., New York, NY 10016, 1976. 332 pp. 15.5 × 23.5 cm. Price \$25.00.

Hormones, Behavior and Psychopathology. Edited by EDWARD J. SACHAR. Raven, 1140 Avenue of the Americas, New York, NY 10036, 1976. 307 pp. 16 × 24.5 cm. Price \$24.00.