theophylline from serum or plasma proteins. The apparatus is portable and does not require a refrigerated centrifuge for ultrafiltration. The procedure is ideal for clinical investigations because of the small volume of sample required. It has potential application to the study of protein binding of a wide range of xenobiotic compounds.

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Colin J. Briggs [x]

D. W. Mulhall
Keith J. Simons
Faculty of Pharmacy
University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2

F. Estelle R. Simons
Section of Allergy and Clinical Immunology
Department of Pediatrics
Faculty of Medicine
University of Manitoba
Winnipeg, Manitoba
Canada R3E 0W1

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BOOKS

REVIEWS

Formulation and Preparation of Dosage Forms. Edited by J. POLDERMAN. Elsevier/North-Holland, 52 Vanderbilt Ave., New York, NY 10017. 1977. 307 pp. 16 × 24 cm. Price $37.95.

This volume presents the proceedings of the 37th International Congress of Pharmaceutical Sciences (F.I.P.) held in The Hague, The Netherlands, September 5–9, 1977. The editor states that the book takes its title from the main theme of the Congress.

The first of five sections is Formulation and Preparation of Dosage Forms. Three reviews are given on formulation factors affecting drugs given by oral route, surface applied drugs, and drugs given parenterally. These reviews are preceded by a General Introduction and followed by Conclusions and Perspectives. The introduction was more informative and better documented than the presentations on the oral route and the parenteral route.

The second section is Drug Substance-Pro-Drugs. The presentation, Drug Substances in Particular Pro-Drugs: Problems and Methods of Approach, was excellent and provided a wealth of references. The report, Analytical Aspects on Pro-Drugs, was informative and well documented. Pro-Drugs: Structure Activity Relationships suffers by comparison with the other presentations.

The third section, First Pass Effects, is composed of three lectures covering the influence of the route of administration of a substance on its bioavailability, drug metabolism associated with the routes of administration, and first pass effects and consequences for the routes of administration and dosage form design. The section describes the first pass effects and cites examples; however, some statements are redundant. Perhaps this repetition is unavoidable with the multiauthor presentations of a symposium.

The fourth section, Mechanism of Drug Release, consists of three presentations. Physico-chemical Aspects of Drug Release discusses theories of dissolution and dissolution of particles and binary mixtures. Solid Dosage Forms: Mechanism of Drug Release gives a simple view of the effect of formulation on release. Liberation of Medicaments from Semi-solid Bodies Applied to the Skin considers penetration conditions of chemical substances through the skin and the role of carrier materials in the rate of release of medicaments applied to the skin.

The final section, Physico-chemical and Technological Aspects, was also composed of three presentations. Powder technology was discussed superficially. A description of physicochemical and technological aspects of granulation techniques was elemental. A review of the process involved in tablet formulation provided some interesting scanning electron micrographs of compressed tablets; however, it did not explain or document what might be occurring in the compaction process. The final section was the least informative of the five sections.

As expected in a symposium presented by 17 authors in three languages, even after translation into English, the style is not uniform and repetition does occur; however, the volume is easily read and provides facts and references of interest to anyone concerned with dosage forms.

Reviewed by Eugene L. Parrott
College of Pharmacy
University of Iowa
Iowa City, IA 52242

Cardiovascular Drugs. Vol. 1: Antiarrhythmic, Antihypertensive and Lipid Lowering Drugs. Vol. 2: β-Adrenoceptor Blocking Drugs. Edited by GRAEME S. AVERY. University Park Press, 233 East Redwood St., Baltimore, MD 21202. 1978. 16 × 24 cm. Vol. 1: 176 pp. Vol. 2: 230 pp.

These two volumes comprise two parts of a three-part series entitled "Cardiovascular Drugs." The chapters have been revised from popular review articles previously published in the Australasian Drug Information Services press journal, *Drugs*. Written by internationally recognized authorities in their respective fields, this collected series provides a concise and convenient review of the current state of the art in cardiovascular drug therapy.

Volume 1 contains four chapters that review lipid lowering drugs and hyperlipidemia, antihypertensive drug therapy, antiarrhythmic agents, and clinical pharmacology and therapeutic uses of digitalis glycosides. With 51 figures, 19 tables, over 500 references, and an extensive subject index, this volume provides valuable and practical information concerning the appropriate therapeutic use of antiarrhythmic, hypotensive, and hypolipidemic drugs. Also included are discussions concerning the pharmacological actions, adverse reactions, and combination drug interactions of these cardiovascular agents.

Volume 2 contains nine chapters covering the pharmacodynamics and pharmacokinetics of β-adrenoreceptor blocking drugs; β-adrenoceptor blocking agents in the treatment of hypertension, angina pectoris, cardiac arrhythmias, and hyperthyroidism; clinical toxicology of propranolol and practolol; adverse effects of β-adrenoceptor blocking agents on respiration; and autoimmune and autoallergy phenomena in patients treated with β-blockers. With 20 figures, 27 tables, over 1000 references, and a subject index, this book provides a comprehensive review of β-adrenergic blocking drugs.

These well-written and comprehensive volumes are excellent reference sources and clinical guides to scientists working in cardiovascular re-

search. They are of particular interest to physicians, pharmacologists, and toxicologists involved in clinical pharmacology and toxicology. Volume 3, "Platelets, Thrombosis and Drugs," will conclude the "Cardiovascular Drugs" series.

Reviewed by William P. Heilman
Life Science Division
T. R. Evans Research Center
Diamond Shamrock Corporation
Painesville, OH 44077

Quantitative Drug Design: A Critical Introduction. Medicinal Research Series Vol. 8. By YVONNE CONNOLLY MARTIN. Dekker, 270 Madison Ave., New York, NY 10016. 1978. 425 pp. 15 × 23 cm. Price $38.50.

This "how to do it" text is a must for anyone interested in the application of quantitative structure–activity relationship methods to molecular design. It will introduce the concepts to the beginner, guide the efforts of the intermediate, and provide convenient reference material for the professional.

The introduction gives the topics covered and emphasizes the steps in drug design: (*a*) find a lead, (*b*) synthesize and test an exploratory series, (*c*) develop quantitative structure–activity relationship models, and (*d*) optimize the lead with quantitative structure–activity relationships. The author then plunges into the "guts and workings" of quantitative structure–activity relationships. Some topics covered are: extrathermodynamic and *de novo* approaches, noncovalent interactions, physical properties, biological data, equations relating potency and physical properties, regression analysis, statistical evaluation, and a detailed example of extrathermodynamic calculations.

The text is well written, clear, easy to follow, current, well illustrated, and well referenced. Of particular importance are the treatment of statistics, the detailed examples, the discussion of biological data, and the very practical discussion in Chapter 11, Synthesis to Follow up a Lead: How to Start and When to Stop. The Appendixes, which are very useful, contain equations and definitions, substituent constants, Wiswesser line notation, and sources of computer programs and data bases.

This book was much needed and has come at a time when the field is exploding. It is highly recommended for those interested in quantitative structure–activity relationships who want to find out what can and cannot be done with the methods and for those working every day with quantitative structure–activity relationships who want most of the information in one handy place.

Reviewed by William P. Purcell
Drug Design Laboratory
University of Tennessee Center for the Health Sciences
Memphis, TN 38103

Marihuana Research Findings: 1976. NIDA Research Monograph 14. Edited by ROBERT C. PETERSEN. National Institute on Drug Abuse, 11400 Rockville Pike, Rockville, MD 20852. 1977. 251 pp. 15 × 23 cm.

The National Institute on Drug Abuse (NIDA) regularly publishes research monographs on various aspects of abused drugs. This book, like many of its predecessors, is useful to workers in the area or those contemplating future endeavors in that area. The book contains nine chapters, each representing an area of research interest that in general reflects NIDA grant activity in marihuana research. Most chapters have been written by experts in the field. A preliminary summary of marihuana findings by the editor is quite readable and was the text for the sixth edition of the *Marihuana and Health Report*.

Chapter 1, written by William McGlothlin, gives an excellent overview on the epidemiological research findings with marihuana usage during the past 10 years, with emphasis on recent findings. Chapters 2 and 3, by Ralph Karler, cover the chemistry, metabolism, toxicology, and pharmacology of marihuana. These chapters appear to be the weakest in the book. The reader has considerable difficulty following the text without benefit of chemical structures. Particularly was this problem true with the synthetic analogs of marihuana. Surprisingly, there was no mention in Chapter 2 of the NIDA-sponsored symposium on marihuana assays in humans detailed in Monograph 7. (In the summary by the editor, *cf.*, p 12, this symposium was referenced.)

Chapters 4–6, by Douglas Peter Ferraro, cover the research on behavioral effects, most of which comes from animal studies. Chapter 7, by Reese Jones, is the best organized and perhaps the most useful to researchers starting in this area. This chapter covers the myriad of human effects known to occur from marihuana smoking or administration of individual cannabinoids. Chapter 8, by Steven Matsuyama and Lissy Javrick, details the rather limited knowledge available on genetic and immune responses in animals and humans. The final chapter, by Sidney Cohen, takes a sort of anecdotal approach to therapeutic aspects of marihuana use. Sections on intraocular pressure reduction, bronchodilation, and anticonvulsant work certainly emphasized some positive effects found for various cannabinoids which are not necessarily found in marihuana.

The book is an excellent source for recent references in the marihuana area and is recommended mainly for that reason. Yet the newcomer in marihuana research should be forewarned that this short thesis cannot completely cover the vast literature of this field.

Reviewed by Jimmie L. Valentine
BioAnalytic Laboratory
School of Pharmacy
University of Missouri–Kansas City
Kansas City, MO 64108

Aliphatic Chemistry, Vol. 5, A Specialist Periodical Report. Edited by A. McKILLOP *et al.* The Chemical Society, Burlington House, London WIV OBN, England. 1977. xii + 337 pp. 14.5 × 22 cm. Price $47.00. Available from Special Issues Sales, American Chemical Society, 1155 Sixteenth St., N.W., Washington, DC 20036.

In the fifth volume of the Specialist Periodical Reports on aliphatic chemistry, the authors and editor maintain the excellent quality and the well-organized format of the previous volumes. This volume is composed of four chapters that survey the literature published during 1975 and one chapter (Chapter 5) that summarizes the literature for the 2-year period of 1974–1975.

The literature dealing with alkanes, acetylenes, allenes, and olefins was contributed by J. C. Saunders and B. P. Swann, who were also coauthors of the corresponding chapter in Volume 4. The task of compiling Chapter 2—by far the longest in this volume—on compounds with other functional groups (carboxylic acids and their derivatives, nitriles and isocyanides, aldehydes and ketones, alcohols, amines, alkyl halides, ethers, and other types of aliphatic compounds) was performed by E. F. V. Scriven. Dr. Scriven maintains the high standards set by E. W. Colvin, who so ably contributed the analogous chapters in all of the preceding volumes.

Progress in the areas of naturally occurring polyolefinic and polyacetylenic compounds (Chapter 3) is reviewed for the fourth consecutive year by G. Pattenden. This chapter summarizes reports dealing with detection and isolation, structure elucidation, and syntheses of these unsaturated natural products. Included are not only open-chain, alicyclic, and simple heterocyclic natural products containing polyolefinic and polyacetylenic moieties but also more complex compounds, such as the macrolide and ansamycin antibiotics. The view, formerly held, that halogen-containing compounds are rare in nature is refuted by this chapter and its predecessors in earlier volumes, particularly by the sections that treat compounds from marine sources.

Chapter 4 on prostaglandins by K. W. Mallion reflects a resurgence of interest in syntheses of prostaglandins and their analogs. Synthesis routes are amply illustrated with structures and schemes. In Chapter 5, F. D. Gunstone surveys the literature of 1974 and 1975 on the biology, chemistry, and biochemistry of fatty acids and related compounds.

It is becoming difficult to review the volumes of this series without becoming repetitiously laudatory. The fact remains that this volume and its predecessors provide admirable surveys of the annual literature in the specified areas; collectively, they constitute valuable reviews of the recent literature (1970–1975) of these areas. It is still a marvel that such comprehensive coverage of specific (Chapters 3–5) and general (Chapters 1–2) topics is presented in a concise, informative, and well-organized style.

Reviewed by Y. F. Shealy
Southern Research Institute
Birmingham, AL 35205