

under it "Edestin from hemp seed," "Edestinase from hemp seed," and "Quaternary bases in *Cannabis*" only. For the amount of biochemical studies published on the cannabinoids, the biochemists will be disturbed with this type of index coverage.

A large number of incorrect spellings of common and technical words are found in the abstracts. These errors are self-evident for the most part but confusing in cases such as, for example, citation 2914 where "Cannabidivarian" appears in the title of the article and "Cannabidivarin" in the abstract, the latter presumably correct. In a few cases, words and/or phrases are apparently missing in titles of articles or in the abstracts. These omissions are usually not too much of a problem as in citations 368, 431, 474, 740, 1290, 1321, 1679, 1905, 1927, 2058, 2480, 2493, 2708, 2722, and 2914. The journal citation in 301 is confusing, and citation 2212 does not refer to the journal cited.

When abstracts are given, there is a great degree of inconsistency regarding content. Also, the summary table on p. XXII hardly can be considered complete.

However, even though these minor problems were found, the book at a very reasonable price of \$13.95 is a bargain. It will be an indispensable, and much used addition to the personal library of anyone having even a remote interest in *Cannabis*. It will be of special interest to researchers in the field of *Cannabis*, to students in the medical professions and social sciences, to the pharmaceutical industry, and to reporters in the media and should be available in every library.

Reviewed by Norman R. Farnsworth  
Department of Pharmacognosy and Pharmacology  
College of Pharmacy  
University of Illinois at the Medical Center  
Chicago, IL 60612

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**Essentials of Medicinal Chemistry.** By ANDREJUS KOROLKOVAS and JOSEPH H. BURCKHALTER. Wiley, 605 Third Ave., New York, N Y 10016, 1976. 697 pp. 16 × 23.5 cm. Price \$22.50.

The book is designed as an undergraduate text in medicinal chemistry as well as a resource work for the chemist and biologist interested in several aspects of drugs. The composition of the book is built around succinctly stated facts and theories, which the authors hope are presented in a palatable, yet useful, form for the student. The authors have in mind the role of the pharmacist as an information source helping the physician and patient.

The book is in eight parts and generally follows pharmacological or therapeutic categories. These are Introduction: Basics, Drug Development and Theories; CNS Drugs; Drugs Acting at the Peripheral Nervous System; Cardiovascular, Blood and Renal Systems; Chemotherapeutics; Vitamins; Hormones; and Miscellaneous Agents including Diagnostics. The appendix lists drugs in the USP and NF.

Each part consists of several chapters dealing with discrete topics. They are concisely written along the lines of precis or compendia. The highlights of drug structure and action, as well as side effects and dosage, are recorded. Structural formulas and tables are utilized to illustrate structure-activity relationships in some cases. Useful references are appended to each chapter and are divided into general background and specific citations by class of agents.

The book should prove useful as a compendium of information in medicinal chemistry. This book plus a text organized in depth over the same topics should provide the student with a good background in course work, for board exams, and for professional practice.

Reviewed by Lemont B. Kier  
Massachusetts College of Pharmacy  
Boston, MA 02115

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**Manual of Clinical Immunology.** Edited by NOEL R. ROSE and HERMAN FRIEDMAN. American Society for Microbiology, 1913 I St. N.W., Washington, DC, 20006, 1976. 932 pp. 17.5 × 26 cm. Price \$16.00, flexible binding; \$20.00, cloth binding.

This much needed volume, written by 180 authorities in various aspects of the rapidly expanding field of immunology, presents the latest information. The book is directed mainly to laboratory directors and tech-

nologists but should prove extremely useful to graduate students, medical students, postdoctoral fellows, residents, and clinicians. The greatest value of this book is the presentation of methodologies, allowing a step-wise approach to various procedures currently used in both clinical and research immunology. Of particular importance is the discussion of the pros and cons of each procedure with emphasis on the pitfalls encountered. Suggestions as to sources of materials and equipment required for each test can save time when setting up a new method.

The arrangement of the book in sections covering different aspects of the components involved in immunological responses and the cross-referencing between chapters allow the investigator to understand not only his or her own area but also the influence of cellular *versus* humoral aspects of immunology. Of particular importance are the chapters covering delayed hypersensitivity, lymphocyte subpopulations, and lymphocyte transformation.

The principles of radioimmunoassay are well presented, and the methods for determining various hormones in body fluids have general applicability not only in the clinic but also in the research laboratory.

Coverage of the immunological aspects of bacterial, mycotic, parasitic, viral, rickettsial, and chlamydial diseases will assist the clinician in more accurate diagnosis. The disadvantages of immunofluorescence and radioimmunoassays in immunodiagnosis of viral diseases are discussed, and suggestions for the use of microplate enzyme methods are given. The main advantages of the latter are a long shelflife, cheap simple equipment, and the same degree of sensitivity as the other procedures.

In the immunohematology section, the chapters on autoimmune and drug immune hemolytic anemia and the immunology of clotting factors point out the importance of modern immunological methods in the diagnosis of often fatal diseases. Allergic disease testing is well covered, but the importance of testing for drug hypersensitivity is not adequate, being confined almost entirely to penicillin. The subject of autoimmune diseases receives full treatment, including tests for antibodies to tissue-specific antigens. The section on tumor immunology covers the present state of the art and indicates the necessity for further research to improve early tumor diagnosis. The section on transplantation immunology presents the immunological aspects of tissue transplantation, particularly the rejection phenomenon. The last section is of importance to clinical laboratories because it covers legal requirements, quality control, standardization of materials and methods, and proficiency testing of laboratory personnel.

This volume should be available to clinical and research workers in immunology and, because the field is expanding so rapidly, it should be updated more often than most such manuals.

Reviewed by Thomas J. Haley  
National Center for Toxicological Research  
Jefferson, AK 72079

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**Aliphatic Chemistry. Vol. 4. A Specialist Periodical Report.** Edited by A. McKILLOP *et al.* The Chemical Society, Burlington House, London, W1V 0BN, England, 1976. 281 pp. 14 × 22.5 cm. Price \$49.50.

The fourth volume of the Specialist Periodical Reports on aliphatic chemistry is comprised of four chapters which summarize developments reported during 1974 in each of the chosen areas. Chapter 1, on the chemistry of acetylenes, alkanes, allenes, and alkenes, was contributed by D. W. Dunwell, J. C. Saunders, and B. P. Swann. The second chapter, which deals with aliphatic compounds having other functional groups (carboxylic acids and their derivatives, amino acids, aldehydes and ketones, alcohols, amines, alkyl halides, ethers, sulfur compounds, and miscellaneous aliphatic compounds) was prepared by E. W. Colvin, who also contributed the analogous reviews in all of the preceding volumes of this series.

The remainder of the volume is devoted to surveys of the literature dealing with naturally occurring polyolefinic and polyacetylenic compounds (Chapter 3) and with the chemistry of prostaglandins (Chapter 4). Both of these chapters were written by G. Pattenden, as were the corresponding chapters of Volumes 2 and 3. The reviews of Chapter 3 include, in addition to other topics, summaries of new work on polyolefinic antibiotics (*e.g.*, ansamycins) and other microbial metabolites, a variety of plant-product structures, polyolefins and polyacetylenes of marine origin, and insect pheromones. The fact that the chapter on prostaglandins is less than one-third of the length of the same chapter in Volume 3 is cogent testimony to the author's opening assertion of the

decrease in the chemical literature in this area.

As in the preceding volumes, the emphasis is on syntheses and reactions of the various classes of compounds. The liberal use of structural formulas and reaction schemes is an invaluable aid to the user of these volumes. Like its predecessors, this volume serves as a well-organized source of much valuable information on general aliphatic chemistry and on aliphatic natural products.

*Reviewed by Y. Fulmer Shealy  
Medicinal Chemistry Division  
Southern Research Institute  
Birmingham, AL 35205*

**Physiologic Disposition of Drugs of Abuse.** By LOUIS LEMBERGER and ALAN RUBIN. Halsted, 605 Third Ave., New York, NY 10016, 1976. 401 pp. 16 × 23.5 cm. Price \$29.50.

This book contains 10 chapters. The first chapter describes the fundamental principles of drug disposition. The absorption, distribution, and *in vivo* and *in vitro* metabolism of drugs of abuse are described in Chapters 2-9. The 10th chapter deals with the phenomenon and mechanism of tolerance.

The drugs of abuse discussed include amphetamine, mescaline and related phenylalkylamines, LSD and related indolealkylamines, morphine, morphine substitutes, barbiturates, methaqualone, caffeine, nicotine, alcohol, the cannabinoids, cocaine, and miscellaneous drugs including volatile solvents.

Numerous scattered papers and reviews concerning the physiologic disposition of drugs of abuse are summarized in the book. Chemical structural illustrations are used to demonstrate the metabolic pathways of drugs. These illustrations help readers to understand the process of biotransformation of the drug. There is no doubt in the reviewer's mind that this book will be of value and benefit to pharmacologists, psychiatrists, psychologists, and those in basic and clinical fields, especially graduate students and research associates beginning research in fields related to drugs of abuse. The extensive, up-to-date bibliography is very helpful.

It would be nice if a chapter on tranquilizers, especially benzodiazepams, was incorporated in this book.

*Reviewed by S. Y. Yeh  
National Institute on Drug Abuse  
Division of Research  
Addiction Research Center  
Lexington, KY 40511*

**Drug Regulation and Innovation: Empirical Evidence and Policy Options.** By HENRY G. GRABOWSKI. American Enterprise Institute for Public Policy Research, 1150 17th Street, N. W., Washington, DC 20036, 1976. 82 pp. 15 × 23 cm. Price \$3.00.

This book sets out to prove that there is a drug lag in the United States due to governmental regulation of the pharmaceutical industry. It must be seen as an attempt to convince readers of this lag by citing portions of several economic studies. The first five chapters examine various aspects of the effects of regulation on the pharmaceutical industry, and the final chapter presents some suggested policy modifications to rectify the supposed "drug lag."

The book, which is very one-sided, failed to convince the reviewer of the seriousness, or even existence, of the problem. There is a citation that U.S. doctors sent patients abroad for treatment in order to use a drug not available here. This statement is supported by a single citation indicating TWO such examples.

The tone of the work is evident in a quotation from the forward, written by Professor Yale Brozen: "A small step in this direction would be to eliminate the FDA's power to require substantial evidence of effectiveness" (p. 7). Essentially, the argument is made that the United States is falling behind in the number of new chemical entities first developed and/or introduced in this country and that this problem is related to the 1962 amendments to the Federal Food, Drug, and Cosmetics Act. Arguments for the value of some drugs include their sales and market share abroad. The market test is hardly a valid indicator of the value of a product, and it is perplexing that economists choose to use this argument. No one would deny that each of 80 different penicillin derivatives could be useful individually, but more subject to controversy is whether

we have a "drug lag" at all if analogs of existing products are not on the U.S. market.

It is argued that the 1962 amendments will decrease U.S. prestige, harm our foreign balance of payments, and decrease support of academic pharmacology. Yet these arguments are unsupported. Surely the author must have considered factors encouraging foreign research such as the corporate tax structure, foreign profit repatriation rules, and relative labor costs. We come across the statement that the pharmaceutical industry is of above-average riskiness (p. 40). While this may be so for individual products, Barges and Hickey and others have refuted this argument. Easing of FDA regulation and earlier releasing of drugs with greater surveillance after marketing are proposed.

It is no great shock to this reviewer to see that researchers and investors in foreign lands have had successes as we have had. Also, one might argue that the availability of fewer new products is less potentially confusing to prescribers and that competition from products having expired patent protection should help to reduce prices. It seems that in this book conclusions are made repeatedly that are far broader than merited by the findings. The author dismisses arguments about decreases in the number of new product introductions in other countries and points made by government officials if they do not coincide with his hypothesis. This reviewer was expecting a much more even-handed treatment of the subject than he found.

*Reviewed by Albert I. Wertheimer  
College of Pharmacy  
University of Minnesota  
Minneapolis, MN 55414*

**Antibiotics. A Critical Review.** Edited by W. KURYLOWICZ. Polish Medical Publishers, Warsaw, Poland. Distributed by the American Society for Microbiology, 1913 I St., N.W., Washington, DC 20006, 1976. 204 pp. 17 × 24.5 cm. Price \$6.00.

This book by four Polish authorities in the field attempts to compress the subject of antibiotics into about 200 pages. There is a short introduction as well as a brief section on classification, but the bulk of the book is devoted to two sections. Antibiotics in Microbial Metabolism deals with the biosynthesis and mode of action of antibiotics, and Antibiotics as Therapeutic Agents discusses the pharmacology and therapeutics. A great deal of condensed information is included in this book, which is both its strength and its weakness.

The section Antibiotics in Microbial Metabolism is the most useful. Structural formulas and diagrams are plentifully used in a valuable overview of this complex area. The section Antibiotics as Therapeutic Agents is less successful. Here the abridgement combined with the desire to be comprehensive, even to the point of presenting the principles of drug-protein binding and pharmacokinetics, each in a few pages, creates significant problems. A large number of drugs, some of only minor clinical interest in the United States, are dealt with summarily and important omissions occur. There is no mention, for instance, of colitis as a toxic side effect of clindamycin or of cardiomyopathy as a toxicity of the anthracycline antibiotics.

The book contains a substantial number of misprints, most of which are trivial, but some are more problematic; for instance, on page 97 there is a reference to Table 1 which, I think, though I cannot be sure, is a reference to Table 4-3.

In summary, I feel that these authors have made an admirable attempt to review an enormous amount of information in a small book. The result is a valuable introduction to the subject of antibiotics and a useful adjunct to other texts, but it would be unwise to rely on it as a sole source of information about these compounds.

*Reviewed by Patrick J. Creaven  
Department of Experimental Therapeutics  
and Department of Medicine A  
Roswell Park Memorial Institute  
Buffalo, NY 14263*

**Lipid Chromatographic Analysis. Vol. 2.** Edited by GUIDO V. MARINETTI. Dekker, 270 Madison Avenue, New York, NY 10016, 1976. 400 pp. 15 × 23.5 cm. Price \$34.50.

This text contains five chapters covering compounds that, in the broadest sense, can be considered as lipids. The chapters cover TLC of sterols and steroids, GLC of bile acids, chromatography of prostaglandins,