afforded by the drug treatments.

Determination of Alkylating Activity of Compounds 3–12. A solution of the test sample (6 μmol) in acetone (1 mL), distilled water (2 mL), and Tris-HCl buffer (pH 7.4; 1 mL) was incubated with 4-(4-nitrobenzyl)pyridine (148 μmol in 0.4 mL of acetone) at 37 °C for 5 min. Following addition of acetone (2 mL) and 0.25 M sodium hydroxide solution (1.5 mL), the material was extracted with ethyl acetate (5 mL). The absorbance was determined at 540 nm 0.5 min after the addition of the sodium hydroxide solution.

Acknowledgment. This research was supported in part by U.S. Public Health Service Grant CA-02817 from the National Cancer Institute.

Book Reviews

Modern Practice of Gas Chromatography. Edited by Robert L. Grob. Wiley-Interscience, New York. 1985. 895 pp. 16.5 × 24 cm.

This book provides a good introduction and overview to the theory and practice of gas chromatography. Its primary strengths are its good coverage of the basic theory and instrumentation and some application chapters covering environment, food, petroleum, polymer, drug, and clinical analyses. Little attention is given to capillary GC, including some of the current topics like injection techniques, wide-bore columns, bonded phases, and column switching.

The book is valuable for one beginning in GC, but those practicing in this field will need to use monographs for in-depth discussion of special GC topics.

Clinical Chemistry **R. Giese**
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Annual Reports in Organic Synthesis. Edited by Martin J. O'Donnell and Louis Weiss. Academic Press, New York. 1985. xiii + 465 pp. 15 × 23 cm. ISBN-0-12-040815-5. $29.00

This excellent and relatively inexpensive series of summaries of synthetic methods continues in a 1984 edition. The organization is highly logical and simple and encourages the practicing organic chemist to keep the book on the bench shelf and consult it very frequently. Not the least of its attractions is the section on protecting groups, to which one might also add the section on useful synthetic preparations and a list of reviews that the editors have found particularly attractive.

In view of the burgeoning synthetic literature, which as the compilers correctly point out, is becoming more and more difficult to access completely, this compilation is of immediate practical value to all synthetic organic chemists. It deserves wide circulation.

Department of Chemistry **Philip W. Le Quesne**
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Advances in Drug Research. Volume 14. Edited by Bernard Testa. Academic Press, London. 1985. ix + 339 pp. 15.5 × 23.5 cm. ISBN 0-12-013314-8. $69.50

The four chapters in this volume deal with widely varied but generally interesting topics. This has characterized the series over the years. The first chapter covers the topic of deuterium effects in the metabolism of drugs. It is well written and documented. The organization is based on chemical class with generous use of structures.

The second chapter is a definitive treatment of drug design based upon the realization of the three dimensions occupied by drugs and receptors. The chapter begins with a background of classical considerations and then swiftly moves into computer-based displays of molecules in space. Stereochemical considerations of several drug classes are described followed by applications to drug design in five categories. The author makes generous use of colored plates reproduced from computer-modeling exercises. The bibliography is extensive. This is an excellent treatise for anyone working in this area.

The third chapter is a short but useful review of the mechanisms of action of antiinflammatory drugs. The final chapter is an extensive review of benzodiazepine receptors and structure–activity relationships. This is a very thorough analysis of the literature that is cited on over 22 pages. Numerous tables document the search for structure–activity relationships and will prove useful to investigators in this area.

Overall, the volume continues the fine tradition of this series, and it belongs in libraries serving medicinal chemists, pharmacologists, and specialists in these areas.

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The Alkaloids, Chemistry and Pharmacology. Volume 26. Edited by A. Brossi. Academic Press, New York. 1985. xi + 401 pp. 16 × 23 cm. ISBN 0-12-469526-4. $95.00

Any new volume of *The Alkaloids* is always welcome, and this latest addition to the series is no exception. It covers the following topics: the simple indole alkaloids (H.-P. Husson); sulfur-containing alkaloids (J.T. Wróbel); pyridine and piperidine alkaloids (G. M. Strunz and J. A. Findlay); benzophenanthridine alkaloids (V. Šimánek); Lycopodium alkaloids (D. B. MacLean); peptide alkaloids (U. Schmidt, A. Lieberknecht, and E. Haslinger); and pyrrolizidine alkaloids (J. T. Wróbel).

The editor has succeeded in assembling a distinguished constellation of international authors. The discussions and drawings are uniformly of high quality. *The Alkaloids* series continues to be the most useful compendium on alkaloid chemistry and pharmacology available.

Department of Chemistry **Maurice Shamma**
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Polycyclic Hydrocarbons and Carcinogenesis. Edited by Ronald G. Harvey. American Chemical Society, Washington, DC. 1985. vii + 406 pp. 15.5 × 23 cm. ISBN 0-8412-0924-3. $74.95

This book was developed from a symposium on the subject sponsored by the Division of Organic Chemistry of the ACS in August 1984. Sometimes publications of symposia are outdated, contain only abstracts or short summaries of some of the papers, and are not well integrated. However, this publication stands as a remarkable exception to this occasional problem. All of the chapters provide thorough, well-referenced coverage of their topic. Even additional chapters on relevant topics are included that were not part of the original symposium. The integration of the chapters is thorough with appropriate cross references in the discussions. This timely and authoritative book therefore belongs on the shelves of anyone concerned with this subject.

The most unifing topic in the book is how polyaromatic hydrocarbons (PAH's) interact with DNA. This reflects the current surge of interest in "DNA adducts", i.e. the covalent modification of DNA by potentially carcinogenic and mutagenic substances. There is an underlying concern not only for our current cancer problem and how much comes from chemical exposure but that we may be passing on "dirtier DNA", in terms of mutations, to our children than we received from our parents. Many aspects related to DNA adducts are covered in this book including PAH metabolism, significance of the structural variations of PAH's, techniques for detecting and characterizing PAH–DNA adducts, repair of these adducts, and the pathological consequences of the DNA damage. Of course throughout the book there is a commitment to correlate all of these events. It has been a long road since chimney sweeps over 200 years ago were observed to have an increased incidents of scrotal cancer to our present knowledge that substances like benzopyrene-7,8-dihydrodiol 9,10-epoxide are now suspected as causing this and some of our current cancer problems.

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Communication, Storage and Retrieval of Chemical Information. Edited by Janet E. Ash et al. Ellis Horwood, New York. 1985. 297 pp. 15.5 × 23.5 cm. ISBN 0-407-201452. $45.00.

This authoritative book, derived from a 1982 Chemical Structure Association Seminar, consists of 11 chapters. Although traditional print sources, including patents, are covered in a well-written chapter, the emphasis is on computer-based sources. The authors examine text-based systems for storing and retrieving bibliographic information about published literature, as well as systems for handling internally generated data used by private companies, especially in the pharmaceutical industry. Of key importance is the introduction of publicly available substructure search capabilities, such as those provided by CAS ONLINE, DARC, and others. Chapter 8 provides a lucid description of reaction indexing. Chapter 10 summarizes recent developments in software and hardware technology. Despite the number of authors, the book avoids being redundant or fragmentary. The index is adequate. All chapters are well referenced and refreshingly free from jargon. Although a book of this size cannot provide sufficient practical detail to replace user manuals, it offers a well-integrated overview of the major tools of chemical literature. It should provide extremely useful to new and experienced chemists and information scientists in industry and academia.

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Drug Discovery: The Evolution of Modern Medicines. By Walter Sneader. Wiley, Chichester. 1985. x + 435 pp. 15.5 × 23.5 cm. ISBN 0471-90471-6. $21.95

This book presents a highly readable and lively account of evolution of modern medicines. It traces drug development from the very early times to the present and attempts to capture some of the drama and excitement that must have been experienced by the practitioners—the scientists, the doctors, and numerous others who were involved in the discovery process.

The book is largely historical in content. It consists of 16 chapters, each dealing with a therapeutic class. Thus, there are chapters dealing with central nervous system depressants, psychopharmacological agents, drugs affecting nervous transmission, neuromuscular blocking agents, antiseptics, local anesthetics, analgesics, cardiovascular agents, antihistamines, endocrine hormones, vitamins, synthetic antibacterials, antibiotics, and cancer chemotherapy.

Sneader is at his liveliest when describing the legacy of the past and offers a veritable treasure trove of tidbits to keep the reader fascinated. However, as we approach the 1950's the book falters somewhat. The subject matter concerning the discoveries of the 1960's is handled rather unevenly, and the emergence of rational approaches has also been handled skimpily. The oral antidiabetic agents and the sufonylurea story is handled very briefly. Prazosin and nifedipine get passing mention, and captopril, the prototype of "ab initio drug design" is dismissed in a paragraph. Also, the use of computer graphics cited in design of captopril is inaccurate.

These are but minor quibbles. What Sneader has to offer far outweighs the omissions. Medicinal scientists, students, chemists, clinicians, pharmacologists, and biologists—anybody who is interested in the rich heritage of drug discovery and drug development—will enjoy and benefit from the book. While the text is interspersed with numerous chemical formulas, the reader is not required to refer to them. There is an extensive bibliography at the end for those who may wish to pursue the subject further. A detailed index provides access to the drugs by name, their discoverers, and their affiliated research institutions, companies, or universities. This book is highly recommended.

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