Book Reviews

Applications of Glass Capillary Gas Chromatography. Volume 15. Edited by Walter G. Jennings. Marcel Dekker, New York. 1981. xiii + 629 pp. 18 × 26 cm. $69.50.

This book is a recent addition to the series of monographs "Chromatographic Science". According to the editor, "This volume has been complied to allow the interested analyst an opportunity to explore the application of glass capillary gas chromatography to several diverse fields." The monograph meets this objective well.

A beginning chapter by Leslie Ettre describes the evolution of open tubular columns. Interesting insights are provided through original early descriptions of techniques and difficulties. Curiously, this author extols the use of the term open tubular vs. capillary columns, a recommendation disregarded by the editor and most authors in this volume. A second short chapter on "Systems Requirements" by the editor compliments chapter 1. The introductory material in the first two chapters is repeated, unfortunately, in several chapters on "applications". To save space and cost, the editor should have exercised control over the redundancies.

Chapters 3 through 15 review applications of open tubular gas chromatograhy in the analysis of xenobiotics, air and air pollutants, water and water pollutants, pesticides, compounds of interest in clinical medium, steroid hormones, amino acids, essential oils, food and food flavors, beer and hops, and grapes, wines and brandies. Most of these chapters emphasize problems in sample handling and gas chromatographic separations and quantitations. There is some redundancy between chapters 7 ("Glass Capillary Gas Chromatography in Clinical Medium") and 8 ("Analysis of Steroid Hormones"), while the former chapter includes less than two pages on determinations of drugs and drug metabolites. No other sections address drugs in a significant way, which will limit the book's usefulness for medicinal chemists.

Practically all chapters contain references through 1979, and the book is reasonably free of typographical errors. Several blurred pages are found in chapters 10 and 11, and the book has the mundane appearance of most products of direct photoduplicative processes.

This volume should be of value to gas chromatographers and deserves a place in reference libraries. Its rather high price will limit purchase by individuals.

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Experimental and Clinical Psychiatry. Volume 1. Handbook of Biological Psychiatry. Part IV. Brain Mechanisms and Abnormal Behavior—Chemistry. Part V. Drug Treatment in Psychiatry—Psychotropic Drugs. Part VI. Practical Applications of Psychotropic Drugs and Other Biological Treatments. Edited by Herman M. van Praag, Malcolm H. Lader, Ole J. Rafaelsen, and Edward J. Sachar. Marcel Dekker, New York. 1981. Part IV: xi + 963 pp. 16 × 23.5 cm. $110.00. Part V: viii + 204 pp. 16 × 23.5 cm. $28.75. Part VI: viii + 559 pp. 16 × 23.5 cm. $67.00.

The "Handbook of Biological Psychiatry" is the first volume of six edited by Herman M. Van Praag, distinguished investigator and academician, in a series entitled *Experimental and Clinical Psychiatry*. This series spans a wide range of topics in clinical and preclinical psychiatry, including biological substrates of psychiatric illness, adolescent psychiatry, consult-liason psychiatry, psychopharmacology, and transcultural psychiatry. Volume 1, the "Handbook of Biological Psychiatry", is divided into six parts covering a wide spectrum of investigations that have been pursued in the biological aspects of psychiatry illness and behavioral disorders. I will review here Part IV, "Brain Mechanisms and Abnormal Behavior—Chemistry"; Part V, "Drug Treatment in Psychiatry—Psychotropic Drugs"; and Part VI, "Practical Application of Psychotropic Drugs and Other Biological Treatments".

Associate editors in volume 1 are Malcolm H. Lader, Ole J. Rafaelson, and Edward J. Sachar, all respected investigators in the neurosciences with a list of contributing authors which reads like a "Who's Who" of biological psychiatry. Part IV is divided into three sections, the first entitled "Biochemical Determinants of Abnormal Behavior", comprises the bulk of this Part and reviews quite adequately some of the preclinical and clinical biochemical research of such illnesses as schizophrenia, depression, manic-depressive illness, alcoholism, opioid dependence, aging and dementia, mental retardation, Parkinson's disease, and Huntington's chorea. There are 18 chapters dedicated to these issues in this section which are uniformly well-written, informative, well-referenced, and quite comprehensible. My only criticism of this generally excellent section is an editorial point, that two of the chapters are dedicated to the clinical courses of both schizophrenia and affective disorders, having virtually no material devoted to the biochemistry of these illnesses. Although these two chapters are among the best of the three parts I reviewed, their inappropriate location made it relatively difficult to access the excellent information contained within. The second of three sections in Part IV is comprised of two chapters dedicated to the interrelation between nutrition and behavior. The first focuses on psychiatric syndromes in which primary symptomatology include eating behaviors and abnormalities. The second chapter, dealing with nutrition and behavior, explores the evidence for the effects of malnutrition and dietetic manipulation on both the growth and development of mammalian central nervous systems, particularly emphasizing the effects of human brain and behavioral development and the findings which have been reported in animal models of protein and vitamin deprivation. The third and final section of Part IV is entitled "Mode of Action of Psychotropic Drugs". In keeping with the title of Part IV, the focus in these five chapters is clearly on the biochemical literature relating to the mode of action of antidepressants, stimulants, neuroleptics, lithium salts, benzodiazepines, and hallucinogens. With such distinguished chapter authors as Irwin Kopin, Guiseppe Bartholini, Mogens Schou, Ole Rafaelson, Silvio Garattini, and Daniel Freedman, this section is among the most informative, well-written, well-referenced, and well-presented of the entire series. The authors manage to balance well the presentation of clinically relevant material with the more basic preclinical research which has been performed in order to elucidate the mode of action of these substances. With psychotropics included in Parts IV, V, and VI, there was a danger of overlap of material covered. Here, the editors have done very nicely. There has been a clear separation of emphasis in the three parts. Part IV concentrates on the biochemical aspects, Part V on the use of these drugs clinically, and Part VI on a number of miscellaneous issues related to drug treatment in psychiatric disorders such as pharmacokinetics, endocrine and neurologic effects, combined drug treatment, and other such areas of interest to the psychopharmacologist.

Part V entitled "Drug Treatment in Psychiatry—Psychotropic Drugs, is the shortest of the volumes" here reviewed (204 pages), concentrating on the clinical aspects of medications used in the treatment of behavioral and emotional illnesses. This publication is written by Reginald Herrington and Malcolm Lader, is separated into five chapters, and covers antidepressants, lithium, antipsychotics, sedative-hypnotics, and miscellaneous substances, such as amphetamines, monoamine precursors, hallucinogens, antiepileptics, and vasodilators for demented patients. Although the basic pharmacology, pharmacokinetics, and potential side effects were generally well-discussed, the authors did not cover adequately the problems inherent to evaluating a class of drugs which purportedly treat a heterogenous group of illnesses in which

the nosological criteria are, at best, confusing. Their discussion of these problems in regard to antidepressants, lithium, and antipsychotics was not very current and lacked an appreciation for the more recent literature on the differential diagnosis of manic-depressive illness, depression, and schizophrenia. This part lacks the depth and understanding of the field evident in Parts IV and VI.

Part VI continues with the excellent quality of content and clarity evident in Part IV with the emphasis reflected in the title, "Practical Applications of Psychotropic Drugs and Other Biological Treatments". This part is comprised of 19 chapters, each penned by different authors. The first nine chapters covers the clinical aspects of the use of psychotropic medications ranging from side effects, neuroendocrine effects, pharmacokinetics, the use of these drugs in both children and the aged, to findings and management of lithium and depot neuroleptic clinics and the use of both psychotropics and psychotherapy for the treatment of certain disorders. Generally speaking, these chapters are comprehensive, informative, easily read, well-referenced, and very useful for the clinician interested in a more in-depth understanding of this class of medications. The next five chapters, 10 to 14, cover the frontiers of psychophysiological research in relation to drug effects and drug response, as well as addressing the theory questions of evaluation of drug response, patient selection criteria, and the use of animal models for drug screening with this class of medicines. These chapters are "must" reading for anyone investigating the effectiveness and utility of psychotropic drugs in clinical psychiatry. The last five chapters cover electroconvulsive therapy, psychosurgery, sleep deprivation, and sleep treatment studies. These are of the same high quality evident in the preceeding chapters of this publication with clarity of writing, currency of bibliography, and good presentation of the material.

In general, I would recommend Parts IV and VI to any psychiatrist who prescribes medications to his patients and has an interest in a more in-depth understanding of these drugs. More specifically, these parts would be most interesting and useful to clinical investigators in psychopharmacology who are interested in a complete picture of the preclinical and clinical findings that had been amassed in this rapidly moving and expanding field. Similarly, it would be useful for preclinical investigators who wish to gain insights into the difficulties inherent in psychopharmacologic research.

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Progress in Drug Metabolism. Volume 6. Edited by J. W. Bridges and L. F. Chasseaud. Wiley, New York. 1981. ix + 321 pp. 15.5 × 23 cm. ISBN 0-471-28023-2. $48.95.

Examination of the table of contents of Volume 6 of *Progress in Drug Metabolism* serves to emphasize the interdisciplinary nature of the field. Indeed, the six volumes in this series have consisted of chapters on topics that include bioanalytical methodologies, enzymology, toxicology, pharmacokinetics, and clinical aspects of drug metabolism. The only unifying theme running throughout Volume 6 and its predecessors is the relationship that each topic has to some aspect of drug metabolism. There will, therefore, be individual scientists who find certain chapters to be of much greater interest than others.

The first chapter of this volume presents a useful overview of the hepatobiliary disposition of xenobiotics. It contains information on the chemical characteristics of compounds that are likely to be subject of biliary excretion, as well as discussions of clinical and toxicological information. A reader who is unfamiliar with the topic might have benefited had the authors included diagrams in the section that covers anatomical considerations. The chapter is concluded with two extensive tables (33 pages) that list examples of xenobiotics excreted in the bile of animals and man, along with references to the original literature.

The metabolism of β-adrenoreceptor blocking drugs is the topic of chapter 2. This is a subject of considerable current interest, and, although reviews of various scope and depth are available elsewhere, the authors have nicely summarized and illustrated the biotransformation pathways of 20 β-blocking drugs. Relevant information is provided on the overall elimination of the drugs and on the formation of active metabolites. This should be of interest to many medicinal chemists.

Chapter 3, entitled "Novel Biotransformation Pathways", consists of a lengthy (84 pages) presentation of some unusual or unexpected biotransformation products. In many instances, the metabolic production of these compounds is not readily predictable from the currently existing knowledge of the more common biotransformation pathways. In general, the author has selected a group of intriguing biotransformations in order to illustrate his advice that "During investigations concerned with metabolic identification, it is very important to keep an open mind and not be confined to previously reported pathways for similar compounds." Although the author's reason for inclusion of the decarboxylation of L-Dopa in the novel biotransformation category is not clear to this reviewer, the vast majority of the chapter provides worthwile reading for anyone who is interested in the structural aspects of drug metabolism.

In the fourth chapter, "Isolation of Drug Metabolites", the author has taken a practical approach to the problem of separation and characterization of various types of metabolites. The chapter is well documented and it includes discussions of sample collection, workup approaches, isolation techniques, and chromatographic strategies. A substantial amount of useful information is presented.

The subject of the final chapter is "Whole Body Radiography". The emphasis is on methodology, and the authors have provided a very readable account of the technique for those of us who have little familiarity with the subject.

This volume contains an extensive subject index, but the publishers have not included an author index. The latter omission seems of little consequence in a volume of this nature, but there are times when such an index would facilitate its utilization.

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NATO Advanced Study Institutes Series. Series A. Volume 36. The Prostaglandin System: Endoperoxides, Prostacyclin and Thromboxanes. Edited by F. Berti and G. P. Velo. Plenum Press, New York and London. 1981. ix + 428 pp. 25.5 × 17 cm. ISBN 0-306-40645-4. $49.50.

This volume presents a collection of reports from a limited access course/symposium sponsored by the NATO Advanced Study Institute. The symposium was held in Erice, Sicily, on September 2–13, 1979. The book contains 31 articles written by 20 authors or groups generally recognized as experts in their fields and consists of short reviews with an emphasis on work from the authors laboratories. The subjects covered are biosynthesis and metabolism, assay methods, and the inflammation and immunology, cardiovascular, reproduction, and gastrointestinal areas. There are three reports covering free radical and lipoxygenase reactions. Overall, the quality of the reports is good and they generally contain complete bibliographies of earlier work in the subject areas.

Unfortunately, the book is badly out of date, thus frustrating the reader and the hope of the editors, as expressed in the preface, that with this publication "...new ideas concerning the physiopathological role of these compounds will arise together with new directions for future research." The index is inadequate, consisting of about 1.5 pages of key words from the authors titles. There is no author index. A particular weakness, from the point of view of a medicinal chemist, is the lack of chemical structures. An introduction, including the biosynthetic and metabolic pathways in the arachidonic acid cascade, would have been useful to the casual reader or to scientists seeking to familiarize themselves with the area.

The chemistry and biology of arachidonic acid derived materials is a fast developing area of research. Because of the 2-year delay in publication of this report, I cannot recommend its purchase.

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Apomorphine and Other Dopaminomimetics. Volume 2. Clinical Pharmacology. Edited by Giovanni Umberto Corsini and Gian Luigi Gessa. Raven Press, New York. 1981. xviii + 278 pp. 18.5 × 26 cm. $31.50.

This interesting book represents the second, clinical part of material presented at the symposium entitled "Clinical Pharmacology of Apomorphine and Other Dopaminomimetics" held in Villasimius, Italy, in September 1980. The material was rapidly collected by obviously two eager and well-organized editors and presented in a two-volume set. Volume 1 covers the basic pharmacology of apomorphine and related dopamine agonists, while volume 2 deals with clinical pharmacology aspects. This volume details the clinical aspects of dopamine agonists in relation to schizophrenia and affective disorders, Parkinson's disease, dyskinesias, sleep, pituitary hormone interactions, aging and arterial blood pressure control. Participants of the symposium and contributors of this volume represent an eminent international group of scientists active in the rapidly growing field of dopamine pharmacology. There is a slight predominance of European participants (especially a prominent number from Italy), but the U.S., unlike the Canadian dopamine establishment, is also well represented.

The material is divided into seven chapters, five of which are related to dopamine-sensitive diseases or physiologic functions. The first chapter covers the "Clinical Aspects of Dopamine Agonists". It consists of three studies, two of which are especially nice reviews of the clinical studies with apomorphine and behavorial aspects of apomorphine in man.

The second chapter deals with "Schizophrenia and Affective Disorders", and it consists of seven contributions described in both general aspects of dopamine involvement in schizophrenia and specific drug trials in the treatment of schizophrenia. Needless to say, special emphasis is given to apomorphine, and it has to be mentioned that a new derivative of apomorphine, *N*-*n*-propylnorapomorphine (NPA), has also been tested and found to exert a prominent antipsychotic potential. Although NPA is similar to apomorphine in its action on dopamine presynaptic receptors, its potency is about 10 times higher than that of apomorphine in induction of stereotypy and stimulation of locomotive activities. It is, on the other hand, viturally free of the peripheral side effects of apomorphine. Apomorphine was especially prominent in providing improvement in the paranoid form of chronic schizophrenia.

The third chapter deals with "Parkinson's Disease and Dyskinesias" and it encompases six contributions dealing with both human pharmacological studies and experimental animal models concerning dyskinesias induced by dopaminergic drugs. Unfortunately, most of these studies dealt with dopamine agonists other than apomorphine, which were analyzed in detail only in one of the contributions concerning Parkinson's disease. This chapter does cover, however, a thorough presentation of pharmacokinetic considerations for the treatment of Parkinson's disease with dopamine agonists, of which bromocriptine, lergotrile, and pergolide were considered in detail.

The chapter on "Dopamine in Sleep Mechanism" consists of five relatively short contributions discussing theoretical, experimental, and clinical aspects of possible involvement of dopamine in sleep modulation. Among these studies, two analyzed the effect of apomorphine on the sleep patterns especially suppressing REM and reducing stage 4 of sleep. However, most of these studies are limited because of the low number of observation reported.

Chapter five entitled "Dopamine and Pituitary Hormone Interactions" consists of four papers, two of which present biochemical characterization of dopamine receptors and the influence of apomorphine. Two other papers report pharmacological data with dopamine-related drugs affecting pituitary hormones, especially prolactin. In one of the studies with bovine pituitary and [^{3}H]spiperone, apomorphine listed second among the dopamine agonists (next to bromocriptine) in competition to displace the radioligand. Unfortunately, only one of the pharmacological studies dealing with the effect of dopamine agonists on pituitary hormones includes apomorphine. Its effect was measured on prolactin and growth hormone levels in acute and chronic schizophrenia patients and the hormone status was correlated with the activity of schizophrenia.

Chapter six entitled "Aging and Neuronal Transmission" consists of only three chapters, none of which, unfortunately, actively discusses apomorphine. These are mostly experimental studies in rat or theoretical considerations, and only one study reports the measurement of levels of monoamines and their metabolites and activity of related enzymes in the brains of aged patients with dementia or Alzheimer disease.

The last chapter is the shortest and it is entitled "Peripheral Actions of Dopamine Agonists". It consists of only two short chapters, one of them dealing with the possible role of dopamine receptors in the control of blood pressure in normal and hypertensive patients but, unfortunately, involving important data only with sulpiride. The last paper deals with the possible role of dopamine receptors in migraine headache and the effect of bromocriptine on blood pressure in these patients.

From a technical point of view, the volume reveals the positive and negative aspects of rapid publication of symposium proceedings. The papers are up-to-date, short, and rapidly published. However, the length and the detail of the contributions vary greatly (e.g., from 2.5 pages of an undivided short description of the "effect of apomorphine on schizophrenia" and containing only seven references, up to in-depth reviews on "clinical studies with apomorphine" on 11 pages and comprising 88 references). The average length of the contributions is about six to eight pages with about 20–30 references. Most of the contributions report their own findings; however, several papers provide a rather comphrehensive review of the data from the literature.

The strength and the weakness of this book might be apparent from the factual description of the contents. It contains a large amount of new material concerning the clinical utility of dopamine agonists with attempts to emphasize apomorphine. It also contains considerable amount of biochemical data on both human and animal materials. On the other hand, we find only a few papers dealing specifically with apomorphine. The so-called weakness, however, underlines the inherent nature of this field, implying that the use of apomorphine and especially the potential of new apomorphine derivatives remain to be investigated in the future. Thus, we cannot more than agree with the statement at the end of the Preface: "These two volumes represent the establishment of apomorphine as an invaluable tool in basic and clinical research in the neurosciences, and will be of interest to pharmacologists as well as neuroscientists."

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Burger's Medicinal Chemistry. 4th Edition. Part III. The Basis of Medicinal Chemistry. Edited by Manfred E. Wolff. Wiley, New York. 1981. ix + 1354 pp. 17.5 × 25 cm. $100.00.

Part I, previously described by this reviewer (*J. Med. Chem.* **1981**, *24*, 353), is devoted largely to theoretical means of finding the best candidates among known classes of drugs. Part II, reviewed in *J. Med. Chem.* **1982**, *25*, 485, describes known classes of drugs that have either been used or that may have shown promise in categories including antiinfective, antiparasitic, antineoplastic, antihyperlipidemic, and hormonal agents. Part III rounds out the picture of medicinal chemistry in 28 chapters bearing the following titles: "Anti-aging Drugs", "Radioprotective Drugs", "Cardiac Drugs", "Thyromimetic and Antithyroid Drugs", "Diuretic and Uricosuric Agents", "Adrenergics: Catecholamines and Related Agents", "Antihypertensive Agents", "Cholinergics", "Anticholinergics: Antispasmodic and Antiulcer Drugs", "Antiparkinsonism Drugs", "Neuromuscular Blocking Agents", "Skeletal Muscle Relaxants", "Histamine H_2-Receptor Agonists and Antagonists", "Inhibitors of Allergic Response", "General Anesthetics", "Local Anesthetics", "Analgetics, Antitussives, Sedative-Hypnotics", "Anticonvulsants", "Antipsychotic Agents", "Antianxiety Agents", "Antidepressant Agents", "Anorexigenics", "Hallucinogens", "Radiopaques", "Nonsteroidal Anti-inflammatory Agents", and "Anti-inflammatory Steroids".

Strictly interpreted, one might assume that medicinal chemistry is devoted largely to the chemistry of medicines, that is, to the synthesis, isolation, and physical data of chemicals that are used in therapy. However, in Burger's historic and classic treatise, as

well as in most books on the subject, such information is not provided because it is readily available elsewhere, and the medicinal chemist, in the search for new medicines, is best served as in Burger by a more biologically oriented treatment of the subject, as noted in discussions of etiology of disease, pharmacology, mechanism of action, metabolism, toxicology, resistance, and structure–activity relationships.

Again, as in Parts I and II, Editor Wolff is commended for considerable success in finding competent authors for the various chapters. In particular, this reviewer appreciated the priceless listing of references to the original literature and historical descriptions of the origin and development of the various fields, especially on the subject of "Thyromimetic and Antithyroid Drugs" by the late Eugene C. Jorgensen. In general, the etiology of diseases, screening methods, and other biological background were adequately described in well-written chapters. For example, Richard E. Thomas provided an excellent background on the molecular basis of myocardial contractility. Occasionally, certain authors generously offered specific suggestions for research, as on page 406 by B. V. Rama Sastry and on page 688 by Bertil H. Takman.

Inevitably, typographical errors or omissions will creep into a large work. For example, this reviewer failed to find a statement concerning flammability of certain general anesthetics. Errors range all the way from a useless comma following the word *concept* on the fourth line from the bottom of page 628 to the misplaced bond from the methylene to the thiophene ring in structure 49.12, page 559. Structure 52.35, page 720, should show a 4-hydroxy instead of 3-hydroxy, and *was* should be replaced by *were* on the bottom line of page 722. The second structure on page 796 should either hold a negative charge on the oxygen or the nearby Na^+ should drop the positive charge. The structure at the top of page 851 should be 55.44. One can become picayune in pointing out that consultation of the index for the terms STX and TTX leads only to page 688 where they are not identified, whereas their names and structures are revealed on page 654. "Burger's Medicinal Chemistry", Parts I, II, and III, are compulsory reading for the medicinal chemist.

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Handbook of Mass Spectra of Drugs. Edited by Irving Sunshine. CRC Press, Boca Raton, FL. 1981. vii + 457 pp. 18 × 26 cm. ISBN 0-8493-3572-8. $69.95.

Handbook of Spectrophotometric Data of Drugs. Edited by Irving Sunshine. CRC Press, Boca Raton, FL. 1981. viii + 479 pp. 18 × 26 cm. ISBN 0-8493-3571-X. $64.95.

Based on the titles of these two volumes, one might assume that the reader will be confronted with a dry enumeration of spectral data. This is unavoidable in any publication of this type, if it is going to serve the purpose of providing a reference library, and it is indeed the case in this series as well. However, to the credit of the editor these volumes go a step beyond the mere tabulation of numbers and graphs by the inclusion of brief review chapters outlining the principles of the associated techniques. Of necessity, these are "encyclopedic" in nature but, nonetheless, adequate to acquaint the average worker in the routine analytical laboratory with the basic concepts of the techniques he(she) might be using. For the most part, the bibliographies cited date prior to 1975, but this should be of no major consequence as far as the usefulness of these introductory reviews. On the other hand, this also suggests that the collection of spectral data covers only drugs introduced prior to that date or perhaps well before.

The "Handbook of Mass Spectra of Drugs" contains a short and concise summary of the basic principles of mass spectrometry, including those of quantitation. Electron-impact mass spectral data are tabulated on the basis of the "eight-peak index" from the collections at MIT, Baylor College of Medicine, NIH, Abbott Laboratories, and Custom Service Laboratory. It is unfortunate that in the spectra of the Me_4Si derivatives of drugs the ubiquitous m/z 73 ion has been included in this tabulation as one of the key peaks when it might have been possible to substitute that with some other more structurally diagnostic ion. The electron-impact data are nicely supplemented by a table of chemical ionization (isobutane and methane) data for most of the compounds. The subject index is thorough and well organized, both in terms of the review content and the pages where one might find the desired information for a given compound. Finally, in addition to the tabulated arrangement of the spectral data, a bar graph presentation of the EI mass spectra has been included. The drawings are clear, and comparisons with analytical data are greatly simplified. Ideally, it would have been desirable to display the structures of the drugs along with the spectral drawings. Perhaps this may be too much to ask, as it would have added too much to the price of this otherwise beautifully prepared volume.

The "Handbook of Spectrophotometric Data of Drugs" is a compilation of spectrometric data covering the ultraviolet–visible range, infrared spectroscopy, fluorescence spectroscopy, and atomic absorption spectroscopy. As in the "Handbook of Mass Spectra of Drugs", introductory chapters discussing the principles of the pertinent areas and basic instrumentation techniques have been included. The UV tables have been arranged in order of ascending wavelength of UV peaks, which makes the search for spectral matching of the spectrum of an unknown compound relatively simple. Absorptivity values and the solvent conditions are also included. In general, the UV reference data are arranged quite systematically and the inclusion of an alphabetical compound index preceding the actual UV traces facilitates the search for an unknown or for the reference spectrum of a known compound. In general, the same approach is used in the organization of the infrared spectral data. For identification of the spectrum of an unknown, use is made of the Sadtler Spec Finder. The sections on fluorescence spectroscopy and atomic absorption spectroscopy have more of a review character than that of a "Handbook". They are well written and well documented and balance nicely the rest of the volume.

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Organophosphorus Chemistry. Volume 12. Specialist Periodical Reports. D. W. Hutchinson and J. A. Miller, Senior Reporters. The Royal Society of Chemistry, Burlington House, London. 1982. xii + 276 pp. 14.5 × 22 cm. ISBN 0-85186-106-7. $120.00.

Devotees of Specialist Periodical Reports on *Organophosphorus Chemistry* will note that Volume 12 of this series differs from previous volumes in two significant ways. Professor Stuart Trippett, who initiated publication of the Reports and was their sole senior reporter for nearly a decade, no longer occupies that position. Furthermore, this volume includes an "occasional report" on "Phosphoryl Transfer from Phosphonomonoesters and Adenosine 5′-Triphosphate", by F. Ramirez and J. F. Marecek. This report, which stresses recent (and, in part, unpublished) work from Professor Ramirez' laboratory, resembles an account in *Accounts of Chemical Research* more closely than a review in, for instance, *Topics in Phosphorus Chemistry*.

Phosphoryl transfer is an important subject, both in its abiological and biological aspects, and this report is up-to-date, succint, and, in general, well written, although an unfortunate mixup in a list of pK_a values (page 145) may confuse readers who are unfamiliar with the subject. However, there is only one series of Specialist Periodical Reports on *Organophosphorus Chemistry*, while there are many opportunities for publication of review articles. Much of the material in the Ramirez–Marecek report, for instance, is also covered by Professor Ramirez' recent (1980) reviews in *Pure and Applied Chemistry*. This reviewer would therefore hate to see the unique merits of the Specialist Periodical Reports sacrificed to find space for more "occasional reports". It is presumably an unfortunate coincidence that the chapter series on phosphazenes has been "temporarily discontinued" in this volume. Let us hope that the discontinuance does indeed prove to be temporary.

It would be unjust for me not to point out that the remaining ten chapters, which are identical in subjects and authors with those

in Vol. 11 and which cover material published between July 1979 and June 1980, maintain their usual high quality. Another semibright note (for American readers, at any rate) is that recent fluctuations in the exchange rate have resulted in a $25 (17%) decrease in the price for this year's Reports compared to the previous volume. One must be grateful for this change, even while noting that it comes nowhere close to compensating for last year's 136% increase in price.

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Interaction of the Blood with Natural and Artificial Surfaces. Edited by Edwin W. Salzman with 20 contributors. Marcel Dekker, New York. 1981. viii + 231 pp. 16 × 23 cm. ISBN 0-8247-1582-9. $35.00.

The International Committee on Thrombosis and Hemostasis devoted a full day of its 1980 meeting to a symposium on the interactions of the blood with natural and artificial surfaces. This monograph represents these presentations considering a broad array of subjects within the title framework, starting with basic aspects of surface chemistry and the circumstances governing adsorption of proteins to surfaces. The book proceeds in a logical fashion to the biological features of these interactions as they influence cells, organs, and organisms. It closes with a consideration of the prospects for controlling untoward blood–surface interactions in artificial organs by developing thromboresistant components.

The presentations are recorded under ten headings: "The Physics and Chemistry of Protein–Surface Interactions"; "Protein Interactions with Artificial Surfaces"; "Interactions of Biological Membranes with their Environment"; "Influence of Proteins on Platelet–Surface Interactions"; "Interactions of Platelets with Natural Surfaces"; "The Dynamics of the Interaction of Cells with Surfaces"; "Surface-Dependent Activation of Blood Coagulation"; "Assessment of Activation of Coagulation and Platelets in Vivo"; "Current Status of Thromboresistant Materials"; "Perspectives and Future Developments in the Field of Blood–Materials Interactions".

The chapters are well referenced and are replete with detailed information in graph and tabular form. This well-indexed book represents a rather recent (1980) and thorough review of the responses of blood to contact with natural and artificial surfaces and, as such, provides a lucid look at an interdisciplinary field with an impact in hematology, cardiology, and artificial organ development. This monograph provides a noteworthy bridge in the literature of biology and materials science. Interest in this text will likely be stimulated among specialists dealing directly with the title concept—bioengineers, hematologists, materials scientists, and cardiologists. The authors and editor have done a commendable job in presenting this complex area in a useful, well-organized, and interesting format.

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Advances in Biochemical Psychopharmacology. Volume 27. Glutamate as a Neurotransmitter. Edited by G. DiChiara and G. L. Gessa. Raven Press, New York. 1981. viii + 445 pp. 16 × 24 cm. $41.00.

This volume of the excellent series of monographs is the companion to volume 26, entitled "GABA and Benzodiazepine Receptors" (reviewed in January, 1982). Both volumes are based on a symposium on GABA and Glutamate as Transmitters held in Porto Cervo, Sardinia, Italy, in May 1980. The preface to the volume succinctly states its scope and purpose, and nicely puts glutamate in perspective: "It is hoped that [this book] will help glutamate along the long, hard road to acquiring its freedom and becoming recognized, not as a by-product of intermediary metabolism, a precursor of GABA, or an oriental flavoring, but at last as a neurotransmitter. This volume is a comprehensive and systematic review of the anatomy, biochemistry, electrophysiology, and pharmacology of glutamate synapses and receptors, [as well as] the role of glutamate analogs, particularly kainic acid in neuropathology."

The book contains 37 articles by 95 contributors from 12 countries. The articles are grouped into five headings plus a very useful introductory article which presents the overview of that to follow. The titles of the five headings are (1) "Distribution of Glutamate and Aspartate Synapses", (2) "Synthesis, Uptake, and Release of Neurotransmitter Glutamate", (3) "Membrane Changes by Amino Acids", (4) "Receptors for Glutamate and Related Excitatory Amino Acids", and (5) "Kainic Acid, Glutamic Acid, and Neuropathologs".

This work addresses all of the appropriate areas that would be of interest to anyone investigating the glutamate field. The chapters on the use of kainic acid are particularly thorough. The distribution of coverage lies strongly in favor of the biochemical and neurochemical aspects of glutamate action. There is less coverage of potential therapeutic correlates. Some work is described that seems to link the neuroexcitatory amino acid glutamate (and its close relative, aspartate) to the regulation of endocrine function and to some role in some forms of epilepsy. Much of this lack of direct therapeutic applicability is due to the embryonic state of development of this area. Since there is a share of basic pharmacology and structure–activity investigation included, one hopes that it is just a matter of time before the field matures to the point of therapeutic application. One apparently unavoidable problem is the high degree of overlap between coverage of glutamate (along with asparatate) and GABA. The techniques for investigation of each are quite similar even though the pharmacologic effects are opposite in nature.

The production quality of the text is fully up to the usual high standards of the other members of the series, and few, if any, typographical errors are apparent. Each article has been reproduced by photo-offset method from camera-ready copy. This technique undoubtedly has contributed to the book's rapid production and relatively reasonable cost.

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