

viable ova, rats found positive for *H. nana* ova in feces were treated after being starved overnight. Initially a single dose of 250 mg/kg of the compound was given orally to three animals and three were kept as controls. All animals including the controls were again starved overnight before being sacrificed on day 3 posttreatment. The small intestine of each animal was removed separately and washed, and the worms were collected and scored. The minimum dose of the compound bringing down the score to 10% of the control or less was considered as the minimum effective dose.

Acknowledgment. The authors wish to thank Dr. Nitya Anand for his continued interest in the work. Grateful acknowledgments are due to Vijai Kumar Agarwal for technical assistance. One of us (S.K.D.) is thankful to CSIR, New Delhi, for awarding a Junior Research Fellowship.

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Book Reviews

Chemical Transmission in the Mammalian Central Nervous System. Edited by C. H. Hockman and D. Bieger. University Park Press, Baltimore, Md. 1976. x + 442 pp. \$34.50.

According to their preface, the editors of this volume have attempted to produce a "systematic account of the various substances which qualify as transmitters at mammalian central nervous system synapses" in a "comprehensive yet manageable volume that would encompass biochemical, pharmacological, physiological, and behavioral aspects of neural transmission". It seems extremely doubtful that such an objective is attainable in a single volume. (Consider that the "Handbook of Psychopharmacology", which covers largely the same material, runs to nine volumes, excluding clinical chapters.) Certainly "Chemical Transmission in the Mammalian Central Nervous System" does not adequately fulfill this goal. For one thing, the treatment of different "putative" transmitters is extremely uneven. The two chapters on dopamine and serotonin comprise half of the book, leaving the remaining pages to four chapters on acetylcholine, norepinephrine, and inhibitory and excitatory amino acids and an introductory chapter on the relationship between the structure and function of synapses. There is no discussion of substance P or enkephalin, perhaps the most hotly debated transmitter candidates during the past several years. Furthermore, the material which is discussed differs radically for different transmitters. The chapter by Marczyński on serotonin is concerned primarily with the role of serotonin in mediating various behavioral and physiological processes (e.g., sleep, thermoregulation, gonadotropin secretion, and sexual behavior), while the chapter by Phillis on acetylcholine concentrates on the effects of acetylcholine applied iontophoretically near identified neurons in the brain and spinal cord.

In terms of reviewing the evidence for particular substances being transmitters, perhaps the most successful chapter is that by Johnston. In it he presents a concise summary of the evidence that γ -aminobutyric acid (GABA), glycine, and taurine are inhibitory transmitters in the central nervous system. Johnston considers the transmitter roles of these compounds to be "established", "highly probable", and "possible", in that order. He reviews data on their distribution, metabolism, uptake, release, and postsynaptic actions and discusses related drugs which seem to act at the same receptor sites as these amino acids. One of the pieces of evidence often cited to support the argument that a compound is a neurotransmitter in a region of the central nervous system is the demonstration of a high-affinity uptake system for the compound in that region (see Chapters 2, 3, and

5-7). In this regard, it is important to remember as pointed out here that not only neurons but also glial cells possess such an uptake system for GABA and glycine. In fact, glial cells take up GABA in areas of the nervous system, such as in sympathetic ganglia, where there is no suggestion of the existence of GABA-ergic nerves.

While this book contains some interesting chapters, it would have been a more useful volume if the authors had agreed on a common set of guidelines for approaching the various transmitter candidates.

Harvard Medical School

Richard E. Zigmond

Neurotoxicology. Volume 1. Edited by Leon Roizin, Hirotsugu Shiraki, and Nenad Grčević. Raven Press, New York, N.Y. 1977. xxviii + 658 pp. 18 × 26 cm. \$55.00.

This volume is an updated collection of papers from the First International Symposium on Neurotoxicology, held in New York City during May 16-19, 1976. There are 61 articles by 129 contributors, covering such diverse topics as tranquilizers; narcotics and anesthetics; stimulants, antidepressants, and hallucinogens; heavy and trace metals; antimicrobials; industrial chemicals; pesticides; and anorexic agents. A final section on pathogenic considerations includes a variety of papers not fitting conveniently into one of the above chemical categories.

Since the book is a symposium volume rather than a text or treatise, there is a lack of integration of topics, and coverage is uneven in depth and extent. For example, there are 12 articles on metals but only two on pesticides. The chapter on industrial neuropathies was disappointingly short, and the article on TOCP neuropathy mentioned only briefly the current research on neurotoxic esterase as the primary biochemical target in the development of the lesion. The important question of the relationship of drugs or environmental agents to neurologic disease is well represented by several articles dealing with clioquinol intoxication and subacute myelo-optic neuropathy (SMON) and an interesting account of the possible role of aluminum in senile and presenile dementias.

Researchers having the common aim of seeking to understand adverse effects of chemical agents on the nervous system represent an incredible diversity of backgrounds and approaches. Yet, because of this similarity of purpose, a certain melding has begun to take place. Neurotoxicology is beginning to be recognized as a distinct field of investigation. The appearance of this book should aid in that recognition. The major emphasis in this volume

was on morphological studies. In order to better represent the vast scope and potential of the field, one would hope to see more contributions from biochemistry, physiology, and the behavioral sciences in future volumes in this series.

The University of Michigan

Rudy J. Richardson

Annual Review of Neuroscience. Volume I. Edited W. M. Cowan. Annual Reviews, Palo Alto, Calif. 1978. xiii + 506 pp. 16 × 23 cm. \$17.00.

The unprecedented growth of the traditional fields of neurophysiology, neuroanatomy, neurochemistry, and physiological psychology has also given rise to the emergence of a new, interdisciplinary approach to the study of the nervous system which has come to be known as neuroscience. This new Annual Reviews publication recognized the importance of this development and thus inceptioned this series. Neuroscience is taken to include all aspects of neural structure and function, from its genetic determination to the highest expression of its activity in human behavior. The new series will cover both the vertebrate and invertebrate nervous systems, and it will deal with certain aspects of the related clinical disciplines of neurology, neurological surgery, and psychiatry, as well as the so-called basic neurosciences. In this particular volume, several of the 16 chapters may be of interest to medicinal chemists, such as reviews on Pain (F. W. L. Kerr and P. R. Wilson), Central Catecholamine Neuron Systems (R. Y. Moore and F. E. Bloom), Recent Advances in Neuroanatomical Methodology (E. G. Jones and B. K. Hartman), Neurophysiology of Epilepsy (D. A. Prince), Neural Control of Behavior (D. Bentley and M. Konishi), Trophic Mechanisms in the Peripheral Nervous System (S. S. Varon and R. P. Bunge), and Organization of Neuronal Membranes (K. H. Pfenninger). The remaining chapters are written from more clinical or behavioral perspectives. All the chapters meet the usual standards of high quality which have been set by the Annual Reviews, Inc.

Staff Review

Handbook of Psychopharmacology. Volume 8. Drugs, Neurotransmitters and Behavior. Edited by L. L. Iversen, S. D. Iversen, and S. H. Snyder. Plenum Press, New York, N.Y. 1977. xvi + 590 pp. \$39.50.

"Drugs, Neurotransmitters and Behavior" is the middle volume of this 14-volume magnum opus and rightly so. For here, distinguished researchers interface the data gained from basic electrophysiological, biochemical, and neurochemical studies covered in earlier volumes with the studies of animal behavior. Emergent principles from this volume of behavioral pharmacology in animals serve as an introduction for the later volumes concerning human psychopharmacology. Although this text is an integral part of the whole series, the editors' choice of contributors and topics enables this volume to stand alone. As many of these chapters represent the authors' personal analysis of their focus of interest, a critical analysis of their review would also require a chapter. Since space and situation preclude me from doing this, I shall simply summarize the topics and main conclusions that each discuss.

As would be expected in this new and exciting field, the relationship of global patterns of behavior to specific neuronal systems is controversial at best. The editors feel that it is important to represent unresolved as well as resolved issues within this text, but at this point many, if not all, of the "resolved issues" are probably resolved only because of our limited perspective and dearth of relevant experimental data. This is well brought out in Hoebel's review of the psychopharmacology of feeding. One might well have considered Leibowitz's beautiful reciprocal α -hunger and β -satiety hypothalamic adrenergic circuits as a "resolved issue" had it not been for Margules's diametrically opposite results gleaned under somewhat different experimental conditions. Hoebel does a masterful job in trying to integrate such diverse results as these into some sort of cogent thesis. Unfortunately, the data are just not there at this time to resolve these issues and Hoebel is forced to weakly conclude that norepinephrine is indeed involved, in some way, in the control of

hunger and satiety. With that he moves on to the role of damage to dopamine systems in aphagic syndromes and the possible modulatory roles of serotonin and acetylcholine on feeding behavior. A good third of the chapter amply covers research on anorexic and orectic drugs. That this review contains over 350 references but is not able to resolve even basic issues indicates how complex the field of behavioral psychopharmacology is.

The neural and neuropharmacological basis of reinforcement is another such enigmatic area, and the editors have asked Routtenberg and Santos-Anderson and Stein, Wise, and Belluzzi to present their own personal views and research on this topic. Routtenberg concentrates on the localization of self-stimulation loci and concludes with a five-pathway anatomical model. Stein, on the other hand, focuses on the role of the norepinephrine pathways and provides experimental data which minimize a major involvement of other systems. However, his discussion of the substrates of reward and punishment, removed from self-stimulation experiments, integrates serotonin and norepinephrine into a reciprocal system. Such a simplistic model of norepinephrine equals reward, serotonin equals punishment is obviously naive, and there is much evidence already available implicating at least modulatory roles for other neuroregulators. However, such heuristic models are useful in psychopharmacology in allowing a first approximation to understanding the mechanisms of action of some psychotropic agents. Stein illustrates this with his discussion of the way in which benzodiazepines may release punished behavior through antagonizing the serotonergic systems.

Stein's chapter is nicely contrasted with Gray's chapter on drug effects on fear and frustration, which tackles benzodiazepine action from a different perspective. His conclusion that benzodiazepine's final common pathway is to impair noradrenergic inputs to the hippocampus and septal areas, and perhaps impair serotonergic control of the hippocampal θ rhythm, both supports and conflicts with Stein's hypothesis. Much of Gray's work centers around the θ -driving curve and the ability of minor tranquilizers to block the enhanced susceptibility to driving at 7.7 Hz which occurs in punished and nonarrival of reward situations. However, research to date does not yet indicate whether the 7.7-Hz θ rhythm itself is "responsible" for fear and frustration and the inhibition of voluntary behavior or whether it is simply an emergent electrical concomitant of hippocampal activity, occurring in parallel with other primary inhibitory systems. Pertinent to this point is Gray's own data which demonstrate that haloperidol has the same effect on the θ -driving curve as do minor tranquilizers—although it is generally considered that its pharmacological spectrum of activity on punished and frustration related behaviors is different. This point emphasizes the need in psychopharmacology to test many different drug classes on the particular response of interest. Finding drugs which are inactive in the system often gives as much information and insight as finding drugs which are active.

Warburton presents a scholarly review of behavioral inhibition during habituation, extinction, discrimination, and response suppression by aversive stimuli. Conditions in which a below zero baseline of responding can be obtained, such as in habituation, are seen as the results of two interacting systems, one excitatory (dopamine) and one inhibitory (serotonin) with the inhibitory system projecting to the common motor output. Where below baseline responding does not occur, such as in extinction, the results are explained parsimoniously in terms of decrements in the excitatory system alone. Discrimination and response suppression, which do produce below zero baseline responding, indicate the involvement of serotonergic mechanisms which can be antagonized by benzodiazepines, although cholinergic influences also appear involved in stimulus selection mechanisms. Setler provides a good review of the neuroanatomy and neuropharmacology of drinking. In this field a number of controversial findings, such as the peripheral action of centrally injected β -agonists and the probable leakage of central angiotensin injections, via the ventricle, to receptors in the subfornical organ, have recently been resolved. However, it is somewhat disappointing that neither Hoebel nor Setler interfaces feeding and drinking behavior together and discusses some of the enigmatic data in terms of behavioral inhibition between these two conflicting motor patterns.

Kelly provides a strong chapter on drug-induced motor behavior concentrating on amphetamine-induced motor activity, stereotypy

and rotational behavior, and the interdependence of striatal and accumbens dopamine systems on the emergent behavior. Iversen (S.D.) then takes these studies of the dopamine systems further and attempts to integrate the effects of dopaminergic drugs on many conditioned and unconditioned behaviors to provide a synthesis of the roles of dopamine in behavior. Again the striatum and limbic systems are differentiated with a more motor role placed on the striatum (albeit with involvement in sensori-motor integration) and a more motivational role for the mesolimbic areas. As Iversen points out, it is not easy to generate behavioral paradigms where motivational effects are easily dissociated from performance measures so that manipulations to these different dopamine systems can be investigated in partial isolation. Nevertheless, from her immense knowledge of behavioral pharmacology, Iversen provides a provocative hypothesis and direction for future research that should stimulate the reader.

Jouvet tackles the neuropharmacology of the sleep-waking cycle, focusing mainly on experiments utilizing cats as experimental subjects. The major conclusion of his review is that there is not yet a true hypnogenic drug that will induce physiological sleep with all its specific characteristics. However, his own work and much of the literature discussed demonstrate specific roles for serotonergic systems in inducing slow wave and paradoxical sleep and the catecholamines in the waking cycles. Meyersen and Eliasson review some of the literature concerned with pharmacological and hormonal control of reproductive behavior in a number of different species. The major focus for this chapter centers on the role of hormones in the development, maintenance, and expression of sexual behavior. To date, pharmacological manipulations have been used to a lesser extent in the investigation of sexual behavior than in any of the other behaviors covered in this handbook and, thus, the roles of the various brain neurotransmitters in sexual behavior are not yet clearly defined. The final chapter by Hunter, Zornetzer, Jarvik, and McGaugh covers the effects of drugs on modulation of learning and memory. A very useful description of methodological problems that arise in memory studies because of state-dependent phenomena is provided. This paradigm is then used as the basis for analysis of many experiments trying to link particular neurotransmitters with either sensory registration, consolidation, maintenance, or retrieval processes. The interaction of electroconvulsive shock with neurotransmitters is also well covered. The general conclusion is that many drug effects are mediated through neurotransmitter control of nonspecific arousal processes which may modulate storage. However, the authors point out that this hypothesis may be of little more than heuristic value for, at a mechanistic level, it may be impossible to separate nonspecific arousal processes from specific memory processes.

In conclusion, this handbook provides well-balanced discussions of many of the topics in behavioral psychopharmacology which are attracting attention at the present time. The inclusion of interrelated topics, approached from different directions by different researchers, demonstrates the features which, I find, make psychopharmacology an exciting and rewarding field of research.

John Hopkins School of Medicine

Ian Creese

Annual Review of Pharmacology and Toxicology. Volume 18. Edited by R. George, R. Okun, and A. K. Cho. Annual Reviews, Palo Alto, Calif. 1978. 650 pp. 16 × 23 cm. \$17.00.

Several chapters in this volume will be of particular interest to medicinal chemists, such as reviews on Chemotherapy of Human Intestinal Parasitic Diseases (D. Botero); Drugs and Reinforcement Mechanisms: A Comparison of the Vascular Dopamine Receptor with Other Dopamine Receptors (L. I. Goldberg, P. H. Volkman, and J. D. Kohli); Hypothalamic Hormones: Subcellular Distribution and Mechanisms of Release (L. C. Terry and J. B. Martin); Endogenous Antispermatogenic Agents: Prospects for Male Contraception (L. L. Ewing and B. Robaire); Endogenous Peptides and Analgesia (L. Terenius); Chemotherapy of Systemic Fungal Diseases (P. D. Hoepflich); Drug Treatment of the Osteoporoses (G. S. Gordon); Neuropharmacology of Amino Acid Inhibitory Transmitters (G. A. R. Johnston); Adrenoreceptors (G. Kunos); The Opiate Receptors

(E. J. Simon and J. M. Hiller); Mechanisms of Chemical Carcinogenesis (E. K. Weisburger); and Pharmacological Control of Asthma (A. F. Wilson and J. J. McPhillips). This volume also contains several reviews on topics of continuous interest to pharmacologists, toxicologists, and chemists and includes the last "Review of Reviews" by the late Professor Chauncey D. Leake, to whose memory this volume is appropriately dedicated.

Staff Review

Analysis of Drugs and Metabolites by Gas Chromatography-Mass Spectrometry. Volume 4. Central Nervous System Stimulants. By B. J. Gudzinowicz and M. J. Gudzinowicz. Marcel Dekker, New York, N.Y. 1978. x + 458 pp. 15 × 22.5 cm. \$45.00.

Volume 4 of this series is a comprehensive review of methods for gas chromatographic analyses of central nervous system stimulants through 1975. The main focus (about 300 pages) is on arylethylamines including amphetamine and related sympathomimetics, catecholamines and their metabolites, and tryptamine-related compounds. Other compounds covered include the xanthines, pentylenetetrazole, and propranolol. The text is divided into two chapters, each with over 300 literature references. Both author and subject indexes are included.

As in previous volumes, the information is presented in both tabular and narrative forms. Various methods of derivatization and the GC characteristics (relative retention times, response factors, detection limits, etc.) with a variety of column packings are described. A substantial amount of the discussion concerns derivatization for electron-capture detection. The mass spectral information is somewhat sparse. In a few cases, complete mass spectra are shown and there is some discussion of fragmentation mechanisms, but most references to mass spectral work concern quantification by selected ion monitoring. Many examples of applications of these analytical methods are also presented.

The present volume is the best organized and most readable of the four volumes currently available in this series. Compound structures are grouped into several tables and metabolic schemes are included. Particularly useful discussions are presented of problems encountered when chromatographing amines and N-oxygenated metabolites of amines. This volume provides easy access to analytical data on a large number of compounds and to a comprehensive list of literature references.

University of Colorado

John A. Thompson

X-Ray Spectrometry. By H. K. Herglotz and L. S. Birks. Marcel Dekker, New York, N.Y. 1978. xi + 518 pp. 15.5 × 23.5 cm. \$49.50.

"X-Ray Spectrometry" is volume two of a series on "Practical Spectroscopy", edited by Edward E. Brame, Jr.

It is a text devoted to the techniques of measuring and interpreting inner shell x-ray emission lines for the purpose of practical chemical analysis. As such, the emphasis is on rapid collection and analysis of somewhat low-resolution data on samples having unknown composition. The book is a most useful complement to texts such as "X-Ray Spectroscopy", edited by Azaroff, in which the emphasis is on basic studies of electronic structure by high-resolution valence band spectroscopy on samples of known composition.

The book contains most useful chapters on energy dispersive spectroscopy, electron probe microanalyzers, and discussions of the relative characteristics of spectra excitation by electrons, protons, α particles, and X-rays. Much space is devoted to the various mathematical and empirical ways of taking matrix effects into account in quantitative analysis. There are chapters on specific types of application, such as analysis of geological specimens and the analysis of museum objects. The latter makes particularly fascinating reading, as one learns, for instance, how some of the history of the Liberty Bell may be deduced from X-ray spectra.

The sections on X-ray safety and wavelength dispersion are overly abbreviated, and one is given the impression that the resolution attainable with a crystal spectrometer is 100 eV for

1-Å X-rays, when, in fact, it is possible to build spectrometers whose resolution is almost two orders of magnitude better than this in the 1-Å wavelength range. There is a "once over lightly" treatment of bonding effects.

Despite the above slight criticisms, the book is, overall, an excellent addition to the reference library of the scientist or technician working in X-ray analysis. It is of little value to medicinal chemists interested in conformational and/or configurational detail in the solid state. The standards in this latter area remain in those books by Jensen and by Woolfson.

University of Connecticut, Storrs

Douglas M. Pease
Gilbert J. Hite

Electrochemistry. Volume 6. Specialist Periodical Reports.

By H. R. Thirsk, Senior Reporter. The Chemical Society, Burlington House, London. 1978. vii + 247 pp. 14 × 22 cm. \$39.00.

Topics covered in the latest volume of this useful series include synthetic organic electrochemistry, interfacial tension of solid electrodes, alternating current impedance of complex electrode processes, and theory of electron-transfer reactions (the latter is the conclusion of an article begun in Volume 5). The reviews are authoritative. However, despite the claim of coverage of the literature "to the end of 1976" (apparently correct for some chapters), Chapter 1 (organic electrochemistry) contains practically no references dated after 1974.

Wesleyan University

Albert J. Fry

Encyclopedia of Chemical Technology. Third Edition.

Volume 2. Edited by Kirk Othmer. Wiley-Interscience, New York, N.Y. 1978. xxv + 1036 pp. 18.5 × 26 cm. \$120.00.

Volume 2, the second of 25 volumes in this Third Edition of this encyclopedia, has now appeared and covers industrial products, natural materials, and processes from alkoxides to antibiotics. In this volume more than half the pages are devoted to topics, such as analgesics, antipyretics and antiinflammatory agents, anesthetics, antiasthmatic agents, antibacterial agents, and antibiotics (except polyenes, polyethers, and tetracyclines which are covered in Volume 3), of particular interest to medicinal chemists. The topics are uniformly presented in a clear and precise manner by authorities in their respective fields. [For a review of Volume 1, see *J. Med. Chem.*, 21, 596 (1978).]

Staff Review

Advances in Polyamine Research. Volume 1. Edited by Robert A. Campbell, David R. Morris, Dagmar Bartos, G. Doyle Daves, and Frantisek Bartos. Raven Press, New York, N.Y. 1978. xviii + 282 pp. 16 × 24 cm. \$27.50.

Biological scientists in general are woefully ignorant of the great deal of excellent research which has been done on the polyamines, compounds which were discovered over 300 years ago by Leeuwenhoek. Seymour Cohen points out in his introduction to "Advances in Polyamine Research", Volume 1, that despite the large and expanding literature on the polyamines, "Some of the major texts have perhaps extended their coverage of polyamines from one paragraph to two, many widely praised books on cellular biology and biochemistry do not even mention these substances, and even new workers discovering a relevance of these substances with their own subject are unaware of the extensive literature which might have alerted them much earlier." Perhaps this

volume and those which are to follow will help alleviate this problem.

The first volume of this new Raven Press series was designed to promote interaction among scientists of various disciplines who are engaged in research on polyamines, and it accomplishes this goal quite well. However, a price is paid for this diversity in that the book has much breadth while some of the individual articles lack depth.

The volume is divided into two sections, each with a short introduction by David Morris. The first section is titled, "Biosynthesis of Polyamines", and contains nine articles discussing various aspects of the control of polyamine metabolism. These include some exciting reports on the control of ornithine decarboxylase (ODC) which is the rate-limiting enzyme in the synthesis of polyamines. These amines, the end products of the ODC reaction, act extracellularly to induce production of a low molecular weight protein which is a potent noncompetitive inhibitor of ODC. Production of an inhibitory protein is an unusual and fascinating mechanism of feedback control of enzyme activity.

"Molecular and Cell Biology of Polyamines", the second section of the book, is comprised of 15 articles. Some of these deal with the role of polyamines in cell proliferation and with attempts to localize the phase of the cell cycle which is affected by polyamines. There is an article on the regulation of polyamine synthesis during lytic infection by polyoma virus and another with fascinating electron micrographs showing the condensation of phage DNA which is promoted by the polyamines and which may be important in packaging of DNA in the virion. Other chapters deal with the role of polyamines in various pathways of RNA, DNA, and protein synthesis. These articles demonstrate the apparent ubiquity of the effects of polyamines and emphasize the obvious necessity to separate specific actions of the polyamines from those of cations in general.

There are several chapters in this volume describing work with inhibitors of the biosynthesis of polyamines which might be of particular interest to medical chemists. However, the book (and presumably the series in general) is timely, interesting, and well edited and should be valuable to medicinal chemists as well as other biological scientists who would like to increase their knowledge of the polyamines.

Emory University

Nancy Newton

Organic Syntheses. Volume 57. Edited by Carl R. Johnson.

Wiley, New York, N.Y. 1977. xii + 135 + 17 pp. \$12.95.

Editor Carl R. Johnson has included 30 checked and 26 unchecked procedures illustrating specific examples of important synthetic methods or precise directions for the preparation of intriguing compounds, starting materials, or reagents. Of the checked procedures, seven are devoted to the construction of three- and four-membered rings; seven to synthetic applications of organosulfur reagents; two to the synthesis of macrocyclic ligands; four to catalytic and electrochemistry; three to organotellurium intermediates and dienyl iron complexes; five to reactions of carbon nucleophiles with organohalogen compounds; one to a functionalized allene; and, finally, one to a new reagent, di-*tert*-butyl dicarbonate, for the formation of *N-tert*-butyloxy-carbonyl derivatives which eliminates the use of the hazardous *tert*-butyl azidoformate.

As in Volume 56, common names are used throughout this volume, accompanied by *Chemical Abstracts* indexing names. The continuing diligence of the Editors in keeping chemists abreast of current developments and interests makes this volume a valuable addition to this important series.

Staff Review