

similar approach to other enzyme systems.

Granted that the book contains much good material and that individual articles are well presented, my main criticism is that this sort of publication is not the best vehicle for the information, although the format appears to be increasingly popular with publishers. From the standpoint of a student a book like this is intimidating; it presents not 1 story but 25. A single logical development by one author is far more satisfactory didactically and avoids such tedious and wasteful repetition as the retelling of the story of gabaculine by several contributors in this book. The use of camera-ready copy also leads to a higher incidence of errors than found in books produced by more traditional methods. The mysterious compound hydroglycine A, for example, on page 10 clearly slipped past typist, author and editors and has found its way also into the index. Expert readers will

recognise 'hydroglycine' as hypoglycin, but such errors are unhelpful to student readers.

If one assumes on the other hand that the book is mainly aimed at research workers, one must still ask whether their requirements are not better served by a single expert, coherent review backed up by the detailed research literature. Such reviews are often biased, and it may be argued therefore that volumes such as the one under review here present a more balanced view. For that very reason, one frequently finds that the most valuable feature of a proceedings volume is the discussion section after each paper which highlights conflicts of opinion, and often throws up stimulating speculations. Such discussion is unfortunately missing from the present volume.

P. C. Engel

Neurotransmitter Receptor Binding

Edited by H. I. Yamamura, S. J. Enna and M. J. Kuhar

Raven Press; New York, 1978
x + 196 pages. \$22.10

The current interest in the use of binding studies to characterise plasma membrane receptors for a wide range of substances which influence cellular activity has inevitably spawned a number of reviews, and now texts, devoted to the theoretical and practical aspects of such studies. Among the laboratories which have been particularly active in this area is that of Solomon Synder and the contributors to this book for which Dr Synder provides the initial chapter are drawn largely from current or former members of the Department of Pharmacology at Johns Hopkins University School of Medicine.

In his introduction Dr Synder attempts to provide an overview of the use of binding studies in the identification and analysis of neurotransmitter receptors in the central nervous system and also to some extent in other tissues, and to indicate some of the problems and prospects inherent in such studies. This is a huge area nowadays and it is perhaps hardly surprising that

coherence suffers under the weight of fact.

The next three articles deal with fundamental and practical aspects of receptor binding studies being concerned respectively with receptor models (Hollenberg), criteria for receptor identification (Burt) and methods of study (Bennett). In these chapters the book overlaps most closely with that on adrenergic receptors by Williams and Lefkowitz and although both have their good points, on balance I prefer the Williams/Lefkowitz version which not surprisingly is more coherent. In particular in this volume it is not especially helpful to have the mathematical treatment spread across two articles.

The remaining articles in the book are concerned with applications of the receptor binding concepts and methodology to, for example, drug screening (Crease) and neurotransmitter and drug assay (Enna); and with receptor purification (Lindstrom) and histochemical localisation (Kuhar). All these articles have points of

interest, but whether the specific example(s) described in each instance provide a case for more general applicability only time will show. Certainly in some instances one wonders to what extent the favourable properties of the particular system may give a false sense of optimism, although this caveat is specifically recognised in most cases.

It is clear then that in many areas this book overlaps with the volume on adrenergic receptor binding by Williams and Lefkowitz. However a wider area is covered in respect both to the neurotransmitters con-

sidered and also to the applications of the binding approach. As a guide to the uses, interpretation and pitfalls of receptor binding analysis I prefer the book by Williams and Lefkowitz, although the wider perspective given by consideration of other neurotransmitters and other approaches is missing. In many respects therefore the two books are complementary and both should be available to biochemists interested in this approach to receptor studies.

M. C. Scrutton

Progress in Drug Metabolism: Volume 3

Edited by J. W. Bridges and L. F. Chasseaud
John Wiley and Sons; Brisbane, Chichester, New York, Toronto, 1979
x + 372 pages. £19.25

This series is intended to provide comprehensive, up-to-date and critical accounts of various aspects of the biological fate of drugs and xenobiotics. The third volume, which contains six reviews of a wide range of topics, admirably fulfils these intentions.

Three of the reviews concern aspects of methodology, namely: the use of high pressure liquid chromatography in pesticide analysis, the analysis of drugs in biological fluids and applications of nuclear magnetic spectroscopy. In each case the basic principles and limitations of the techniques are explained clearly and simply and their applications described. For high pressure liquid chromatography an extensive and detailed account of its application to the analysis of a wide range of pesticides has been compiled. The use of nuclear magnetic resonance spectroscopy in the identification of drug metabolites is discussed and it is shown how appropriate modern techniques often enable structures to be assigned to small quantities of metabolites. In the article on the analysis of drugs in biological fluids the authors demonstrate that there is an urgent need not so much for new methods as for a rational approach to the selection and validation of methods.

Three biochemical aspects of drug metabolism are also surveyed in this volume. Current information on the biotransformation of xenobiotics is presented and it is shown how this is being applied to the design of insecticides and the way in which metabolic studies can be extended to model ecosystems. There is a detailed account of the metabolic fate of synthetic pyrethroid insecticides in mammals. This includes a discussion of the development of compounds which are more rapidly detoxified in animals than in insects and have enhanced selective toxicity. Finally the biochemistry and distribution of epoxide hydratase in different tissues and animal species is described. This enzyme controls concentrations of mutagenic epoxide metabolites of polycyclic aromatic hydrocarbons in vitro and current approaches to establishing its role in vivo are discussed.

These reviews are approachable, informative and critical and should be of interest to students, specialists and those with a general interest in problems of drug metabolism and toxicity.

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