Volume 49 is better balanced between the specific and the more general articles. In the former category are reviews on kynureninases, tryptophan synthetase, mitochondrial ATPase and synthesis of phosphoribosyl pyrophosphate. All of these provide a comprehensive account of the particular topics and will be of interest to those concerned with these fields. The article on mitochondrial ATPase by Penafsky makes clear the degree of confusion which still exists with respect to the structure of this enzyme and the relationship of the various subunits which can be detected in purified preparations to differing functional states of the ATPase. Perhaps one should not be surprised that the problems which have always plagued the oxidative phosphorylation field should extent into the enzymological characterisation of the individual components. In the review on synthesis of phosphoribosyl pyrophosphate (PRPP) Becker, Raivio and Seegmiller provide a lucid account not only of the properties and regulation of PRPP synthetase but also of the manner in which the observations on the isolated enzyme may explain regulation of PRPP production in the intact cell. The availability of enzymes with altered properties from human subjects suffering from gout makes this a particularly interesting system in which to examine the physiological significance of the in vitro data obtained using purified enzyme. The more general articles show a good distribution of topics. Schimmel describes the very interesting studies aimed at elucidating the mechanism by which specific tRNA-aminoacyl-tRNA synthetase recognition is obtained, a problem of central importance in phenotypic expression of the genetic information while Halvorson discusses the relationship of amino acid structure to amino acid transport in an article which provides considerable insight into the development of ideas in this field.

Finally Mildvan contributes one of his characteristically provocative reviews; in this case devoted to consideration of the role of metal ions in enzymes exhibiting differing coordination schemes at the three phosphates of ATP. The ideas presented are certainly stimulating and one hopes they will be borne out by further evidence.

In summary these are two worthy additions to a distinguished series and one hopes that most libraries (and even possibly individuals) who possess all or part of the series will be able to afford their purchase.

M. C. Scrutton

Cytochrome Oxidase

Edited by T. E. King, Y. Orii, B. Chance and K. Okunuki

Elsevier/North-Holland; Amsterdam, New York, 1979
xiv + 426 pages. $62.00, Dfl 125.00

This book publishes in camera-ready format the proceedings of the Japanese–American seminar on Cytochrome Oxidase held in Osaka, in the late summer of 1978. The scope of material is a little wider than merely that of the cytochrome oxidase (EC 1.9.3.1. Ferrocytochrome *c*:oxygen oxidoreductase); also included are papers on cytochrome *P*-450 from *Pseudomonas putida,* cytochrome *o* from *Vitreoscilla,* and L-tryptophan 2,3-dioxygenase. Nevertheless, these variations on a heme do not account for more than 8% of the book.

As is usual with this sort of presentation, the individual chapters summarize recent and current interests of the participants, and are comprised of material that has been published elsewhere in journals. Despite what might therefore appear to be a reduplication of publication, it is exceedingly useful to have in one book a comprehensive account of the state of research into a given topic. This is especially so when the topic covers a wide span of interests and disciplines, and where relevant work is reported across a wide spectrum of specialist journals. Thus happily cohabiting between the covers of this book are papers on the primary structure of cytochrome oxidase sub-

units; the orientation of hemes in membranes, biophysical studies using variously electron paramagnetic resonance, magnetic circular dichroism. Raman spectroscopy, and X-ray edge absorption spectroscopy; the lipid environment of cytochrome oxidase, kinetics and mechanisms; evolution, and proton-translocation. Coverage is incomplete in that not all leading laboratories were represented. Thus there were no contributions from the Basel group of G. Schatz, or from M. Wikström of Helsinki. Despite this, a useful compendium, and an attractive addition to the libraries of those many laboratories actively studying hemoproteins and especially hemoproteins in membranes.

P. B. Garland

Enzyme-Activated Irreversible Inhibitors

Edited by N. Seiler, M. J. Jung and J. Koch-Weser

Elsevier/North-Holland; Amsterdam, New York, 1978
viii + 360 pages. $53.75, Dfl 110.00

This book represents the proceedings of an international symposium on Substrate-Induced Irreversible Inhibition of Enzymes held in Strasbourg in 1978. To quote the editors, the articles 'reflect the present state of the art in this burgeoning field'. There has indeed been an explosion of interest in this area over the past 5 years. The underlying principle clearly set out by Abeles and by Rando in their introductory contributions, is that it is possible to design substrate analogues containing substituents which only become chemically reactive under the catalytic influence of the target enzyme. Such analogues may then react with suitably positioned groups in the enzyme itself, causing inactivation. This offers a very high degree of specificity in the design of selective inhibitors. The approach requires the skill of the synthetic organic chemist. Fortunately, chemists have been drawn to this field, seeing in it a systematic approach to the study of enzymatic catalysis. Traditional enzymologists have jumped at the opportunity of using very specific reagents to label critical active-site residues. Drug companies have rightly seen in this line of research one of the most promising routes to a rational pharmacology.

A volume summarising the progress to date is thus timely and welcome. These proceedings include wide-ranging contributions by Abeles, Rando and Walsh et al. who have established the ground rules for the design of suicide inhibitors. These papers are very useful for the student or the newcomer to the field, although there is much overlap between them. There are also interesting articles by Buchanan on purine nucleotide synthesis and by Meister on glutamine synthetase and γ-glutamyl cysteine synthetase. Both these workers have been applying 'suicide inhibitors' to specific biochemical problems for many years and one inevitably wonders in retrospect why it has taken so long for the more general applicability of the approach to be appreciated.

At the end of the book there is a miscellany of interesting individual articles on inhibitors of pyrimidine metabolism, steroid biosynthesis, β-lactamase, proteases/and cytochrome *P*-450. The majority of the contributions, however, are related to the organisers' interests in amino acid metabolism, and more specifically in pyridoxal phosphate-dependent transamination and decarboxylation. Indeed, 6 of the 25 contributions are from the sponsoring institution, the Centre de Recherche Merrell International. The book is thus unbalanced in its coverage of topics. This is not, however, a fatal flaw, since the area chosen for detailed coverage offers an illuminating case history. The subject is explored at all possible levels – the chemical approach to the design of inhibitors, mechanistic studies with such inhibitors in vitro, studies with cultured cells, and finally pharmacological and clinical studies. The book will be welcomed, despite its prohibitive price, by workers contemplating a