

seem a digression. In this the relative merits of different types of structural representation (three-dimensional models, computer graphics, stereo pictures, cartoons) are discussed. Chapter 8 covers the thermodynamics and kinetics of chain folding, a process which must be understood if useful structural predictions from amino acid sequences are to be made. Protein evolution, an underlying theme in much of the books, also receives a separate chapter. This chapter deals with criteria for establishing phylogenetic trees relating proteins of similar function in different organisms (speciation), the diversification of function of homologous proteins (differentiation) and convergence to similar function or topology of different proteins. Several examples are given of probable evolutionary relationships based on comparisons of sequence and chain fold, perhaps the most interesting of which is the Ig-domain of immunoglobulins and HL-A antigens (which show sequence homology) and a similar fold found in cytosolic superoxide dismutase (which does not). In the final chapters protein-ligand interactions, exemplified by haem proteins and nucleotide binding proteins, and protein function are dis-

cussed. Again both specific examples and generalisations are given: mechanisms of chymotrypsin, papain and glyceraldehyde-3 phosphate-dehydrogenase are compared and factors contributing to rate acceleration in enzymic reactions are assessed. Finally the point is made that functions of individual proteins must ultimately be related to the performance of biological systems as a whole and muscle is given as an example.

This book will be invaluable to anyone working in, or even just interested in, the field of protein structure and function in the widest sense, including established research workers, postgraduates and undergraduates. Although it does not deal with specific proteins in great detail (that is not its purpose), the references are there. It is well, if not superbly illustrated, but this keeps the price down to a figure, which though high, is perhaps manageable. Those who do buy it, will find it not just an adornment for their shelves, but a book to use.

Pauline M. Harrison

The Nature of Enzymology

by R. L. Foster

Croom Helm; London, 1979

xii + 384 pages. £19.95 (hardback), £9.95 (paperback)

The author of this book set out to produce a work that might be regarded as 'all things to all those interested in enzymes'. This implies an enormous coverage in approx. 400 pages, a most daunting task. The range of subject matter does indeed cover almost all that could conceivably have been included. The only serious omission that is apparent is the absence of discussion of coenzyme mechanisms, in particular those which involve pyridoxal and thiamine.

The book is divided into two halves: the first half covers what might be described as 'classical' enzymology, including chapters which cover such topics as chemical catalysis, protein structure, enzyme kinetics and detailed enzyme mechanisms; the second half of the book is distinctly more original in content and has

chapters on enzyme physiology and technology as well as medical enzymology. The chapters on enzyme technology and medical enzymology are both welcome and well-presented. These topics are not usually covered in textbooks of enzymology and serve to distinguish this book from most others. The chapter on enzyme physiology contains much information that can be found in the standard textbooks of biochemistry and represents rather an amorphous collection of facts.

On rather numerous occasions the author has provided somewhat inadequate cover of important topics. Everything is mentioned but often in such a brief fashion as to render its value doubtful. Little attention is paid to practical aspects and often difficulties

which occur in the interpretation of results are not mentioned. The first half of the book reads rather like an encyclopaedia and so partly fails to communicate underlying concepts. A regrettable aspect is the presentation of several data-free sketches, e.g., pH- and temperature-dependence. Experimental results would be more suitable.

Aspiring enzymologists would be better advised to read Alan Fersht's excellent book which demonstrates many of the virtues lacking in the first half of this book. However, having regard to the reader with wider interests, e.g., the medical or industrial biochemist

then this book might prove very useful as a convenient handbook since it is an adequate source of references. It is thus to this type of reader that this book is recommended, in particular the laudable chapters mentioned above.

A factor that caused some irritation to the reviewer was the refusal of the book to lie open (flat) upon my desk; indeed a few pages were liberated in my quite gentle attempts to persuade it to do so.

C. W. Wharton

Antibiotics

Volume V

Part 1: Mechanism of Action of Antibacterial Agents

Part 2: Mechanism of Action of Antieukaryotic and Antiviral Compounds

Edited by F. E. Hahn

Springer-Verlag; Berlin, Heidelberg, New York, 1979

xxvi + 846 pages. Cloth DM 324.00, \$178.20

Antibiotics I was published in 1967, was edited by D. Gottlieb and P. D. Shaw and contained a series of reviews concerning the actions of antibiotics. Further volumes have since appeared culminating in the present extended edition. *Antibiotics V* include 42 independent contributions and considers a wide selection of compounds. Part 1 was structured to deal with the modes of action of antibacterial agents whereas part 2 deals with substances inhibiting eukaryotes or viruses. As stated in the preface, however, the separation is somewhat arbitrary since many of the substances cited are potent inhibitors of function in both pro- and eukaryotes. Furthermore, in the selection of compounds synthetic drugs and plant alkaloids have been included along with antibiotics per se.

Inevitably, many topics are not considered. For example, the Editor has chosen to exclude any coverage of the lactam antibiotics, the penicillins and cephalosporins, and he goes to some lengths in the preface to justify this decision. However, this partic-

ular aspect of *Antibiotics V* is to me unsatisfactory. Thus certain members of the large and interesting group of naturally-occurring nucleoside and nucleotide analogues are featured including, for examples, 9- β -D-arabinofuranosyladenine, showdomycin, 8-azaguanine and 5-iodo-2'-deoxyuridine. The criteria used for selection are obscure, certainly to this reviewer. Furthermore two other books have recently appeared where these and related compounds have been well cited — viz. *Nucleosides as Biological Probes* by R. J. Suhadolnik (Wiley Interscience, 1979) and *Nucleoside Analogues* edited by R. T. Walker, E. E. DeClercq and F. Eckstein (Plenum Press, 1979). While I accept that selection of topics for inclusion in the present two volumes must have been a difficult task, I can find no real evidence of an overall grand plan. The Editor concedes that there is a problem in grouping the contributions into logically coherent sections and settles for an alphabetical presentation. However, it does not help to have an article on the