The Biochemistry of the Nucleic Acids (Ninth Edition)
by R.L.P. Adams, R.H. Burdon, A.M. Campbell, D.P. Leader and R.M.S. Smellie
xiv + 518 pages. £8.50

When 'The Biochemistry of the Nucleic Acids' first appeared in 1950, under the authorship of the late J.N. Davidson, it was a slim book of 163 pages that slipped easily into a coat pocket. It was recognised immediately as a valuable text, that filled an important gap, and was a suitable book for undergraduates and junior research workers. Over the years the explosive growth of knowledge of the structure and function of nucleic acids has necessitated frequent revision. It has expanded to form a substantially larger volume. Despite its size and the fact that it now is written by a committee, it retains many of the virtues of the first edition — good organisation, readability, clarity, usefulness — and at the same time it is modern and up-to-date in its presentation. It still bears many traces of its ancestry, some of which could, with profit, be abandoned.

The authors have wisely decided that the term 'biochemistry' in the title requires a wide-ranging and comprehensive survey founded on a broad biological approach. The book covers the metabolism of nucleotides, the biosynthesis of nucleic acids, protein synthesis and its regulation, and genetic engineering. There are good brief descriptions of experimental procedures, which are sufficient to give the reader an insight into the methodology in this field. The statements in the text are lavishly supported by references to the literature, including a fair sprinkling of recent papers.

Altogether this is a fine book that should be bought by every undergraduate studying biochemistry and his or her teachers.

A.P. Mathias

Ionophores and their Structures
by M. Dobler
Wiley; New York, 1981
xii + 380 pages. £42.50

Since 1974 when a monograph on a similar theme appeared (Yu. A. Ovchinnikov, V.T. Ivanov and A.M. Shkrob, Membrane active complexes, Elsevier, Amsterdam) the area of ionophores has continued its rapid expansion. A number of new ionophores have been obtained from natural sources or synthetically, their properties studied and more knowledge accumulated of the older members of this group. Therefore, the appearance of the book is quite timely and it will be welcomed by many biochemists and biophysicists.

The book consists of 9 chapters. Chapters 1–5 briefly consider classification of ionophores, their ion binding and biological properties, applications in chemistry and methods of structural study. Chapters 6–8 provide the major content of the book. Three-dimensional structures of ionophores and their complexes are discussed in detail and the conformation–ion binding–transmembrane ion transport relationship outlined. Chapter 9 deals with the so-called quasi-ionophores, i.e., species performing ion transport without forming specific complexes, or, on the contrary, binding ions but
unable to transport them. Chemical formulae of the ionophores are collected in the supplement, the reference list containing over 300 entries.

Being for many years among the leading experts in the crystallographic studies of ionophores the author paid considerable attention to X-ray work. All the structures are shown in beautiful stereo pictures. A unique feature of the book are the tables of three-dimensional atomic coordinates of all structures discussed in the text.


The above does not alter the fine overall impression of the book. The overwhelming bulk of material is presented in a competent and critical way. At the same time professional jargon is practically absent and the style of writing is clear and lucid. The book will be comprehended and appreciated by the experts using ionophores for biochemical studies as well as by a much broader circle of readers interested in modern developments in physico-chemical biology.

V.T. Ivanov

**Peptide Antibiotics — Biosynthesis and Functions**

*Edited by H. Kleinkauf and H. von Dohren*  
*Walter de Gruyter; Berlin, New York, 1982*  
xii + 480 pages, DM 190

This book is, in the main, a compilation of the contributions to the first symposium on the enzymatic biosynthesis of peptides held in Berlin in 1980. Some contributions have been extended and other invited articles are included.

The 39 separate contributions have been grouped by the editors into five sections. In the first section, an introductory review on peptide synthetases by the editors is followed by a discussion by F. Lipmann on his seminal work on the cyclic antibiotics gramicidin S and tyrocidine and of linear gramicidin.

Pathways in which the individual enzymes have yet to be characterised are discussed in the papers in the second section. The synthesis of the poly(γ-D-glutamyl) capsule in *Bacillus licheniformis*; the use of cell-free systems and of mutants in penicillin and cephalosporin synthesis, and the biosynthesis of mycobacillin are discussed here.

Section three deals with the use of fermentation techniques in the production of various peptide antibiotics. The main part of the book, section four, deals with the enzyme systems involved in the synthesis of the peptide antibiotics. This section accounts for nearly half of the book and includes nine papers on gramicidin S-synthetase and ten papers on the enzymes involved in the synthesis of enniatin; polymyxin E and gramicidin A; bacitracin; edeine; leupeptin; carnosine and related peptides; and *Corynebacterium* species folyylpoly-γ-glutamate synthetase. A short description of a round-table discussion on the problems and properties of peptide synthetases concludes this section.

The final section tackles the thorny problem of the possible functions of the peptide antibiotics in the organisms producing them.

This book, arising as it does from papers given at an international conference, is aimed at the specialist reader with research interests in enzymic processes involved in synthesising peptide antibiotics. Its price will probably put it beyond the reach of most personal libraries.

D.W. Young