Clinical Chemistry

by R. Richterich and J. P. Colombo
Wiley; Chichester, New York, 1981
xxiv + 766 pages. £31.50

British books on clinical biochemistry tend to concentrate on methodology with little interpretation (Clinical Chemistry) or to discuss biochemical pathophysiology without analytical details (Chemical Pathology). This book is the English-language version of the 4th (1978) edition of a popular Swiss textbook (in German), and aims to cover, according to the title-page, 'Theory, Practice, and Interpretation'. Professor Colombo took over the editorship from the late Professor Richterich and has written the book with a number of local collaborators.

The initial one-third of the book deals with general clinical chemistry, namely matters applicable to any analysis. Much of this part is excellent, particularly those chapters which deal with laboratory statistics and sample handling. Of the sections on instrumentation, that on automation is insufficiently detailed as a guide to large laboratories: in a comprehensive book the reader should expect much more information on, e.g., relative costs and precision of the different types of equipment. There is unfortunately no discussion of the important related topics of false positives and false negatives, specificity and sensitivity, and predictive values. The chapter on laboratory design (including safety) is so short that it could well have been omitted.

The major part of the book is somewhat arbitrarily divided into Metabolic investigations (e.g., enzymes, electrolytes) and Organ-specific investigations (e.g., liver, endocrine glands). In each chapter there are sections on basic physiological chemistry, theory and detailed description of methodologies, and diagnostic significance. The methodology, though usually thorough (there are a few exceptions, such as calcium; and there are not nearly enough drug methods), is inevitably not always up-to-date. Some of the diagnostic sections are incomplete. There are useful appendices, especially on buffer solutions and on SI conversions.

This book, which is clearly written with excellent tables and figures, provides a valuable compendium of current practice in Switzerland and is especially useful for its references to the important German-language literature that is so often neglected in English-language books. On this account a large laboratory should find a place for it, but the book is not a necessary purchase for the individual clinical biochemist. It is still better to use separate books, of which there are several excellent ones available in both categories, for clinical chemistry and for chemical pathology.

D. N. Baron

Coordination Compounds of Porphyrins and Phthalocyanins

by B. D. Berezin, translated by V. G. Vopian
Wiley; Brisbane, Chichester, New York, Toronto, 1978 (Russian text); 1981 (English translation)
xiv + 286 pages. £19.15

Among the many advances reported in the chemistry of porphyrins, phthalocyanins and related compounds during the last two decades, there have been many contributions from the Soviet Union. The Russian papers are not always readily accessible to Western readers, and there are frequently delays in

acquiring details of Russian research. The publication of the present volume, which is heavily biased towards Russian contributions, is therefore of interest, not only in order to compare it with British and American reviews, but also to have so many Russian papers assessed in one volume. The title is however, somewhat misleading, as the treatment of the porphyrins is almost completely concerned with the physical properties of the compounds; general methods of synthesis of porphyrins are not included and only a few of the chemical reactions receive treatment. Much greater attention is paid to the porphyrins related to heme than to the purely synthetic products. The physical properties selected for detailed treatment naturally reflect the personal interests of the author and they include molecular structure (including quantum-chemical data), ionisation and coordination properties (including thermodynamics and kinetics), mechanisms of proteolytic dissociation of metal complexes, thermodynamics of complex formation, electron-optical properties, i.e., ultra-violet and visible spectra, and other properties including oxidation–reduction reactions and catalytic activity. Even here, there are some noticeable gaps and no mention is to be found, for example, of infra-red spectra, nuclear magnetic resonance spectra or mass spectra. The most telling criticism however is the date of the text. Only a handful of references to the Russian literature are to 1976–7; no references to work outside Russia after 1973 was noted. This of course causes major drawbacks; thus, no reference is made to the authoritative volumes on this topic edited by K. Smith and D. Dolphin respectively, and the only phthalocyanin review quoted is that by Moser and Thomas in 1963. In summary therefore, the book is a highly restricted text which is appreciably out-of-date. It may be useful to have a review of so much earlier Russian work but in my opinion the result does not justify the effort of the translation. It will have little appeal other than to a relatively small number of physical specialists in porphyrin chemistry, and it cannot be recommended to general readers.

A. W. Johnson

Microbial Cell Walls and Membranes

by H. J. Rogers, H. R. Perkins and J. B. Ward
Chapman and Hall; London, December, 1980
x + 564 pages. £30.00

When 'Cell Walls and Membranes' was published in 1968 under the authorship of 2 (Drs Rogers and Perkins) of the 3 authors of the current volume, it was both feasible and desirable to bring together in a single book, the broad body of knowledge of surface structures of diverse cellular origins. In the intervening 12 years or so, as the authors point out in the Preface such a coverage is now 'manifestly impossible'. Confining the present monograph to walls and membranes of micro-organisms has enabled the authors with their combined, formidable expertise in various facets of the field, to produce a cohesive work of admirable quality.

This book takes us through the ultrastructure of bacterial envelopes, through wall and membrane isolation to the basic similarities in structure and function of both prokaryotic and eukaryotic cell membranes (chapters 3,4) and ultimately to the contrasts of the unique differences between bacterial and fungal walls and the biosynthetic pathways for the assembly of their major structural polymers (chapters 6–8 and 13,14). I found this feature of the book particularly attractive and it successfully fulfills one of the authors goals of aiming this work at 'final year undergraduate students in microbiology and postgraduate students working on appropriate subjects'. Moreover, we have found the material and illustrations, particularly in chapters 8,9,13 and 14, a valuable reference source for teaching our medical students.

Much has happened in the field of antibiotic inhibitors of bacterial wall synthesis and it is not surprising from the involvement of all 3 authors in aspects of

Porphyrins (/Ëˆpɛ”ËrfÉ™rÉªn/ POR-fÉ™r-in) are a group of heterocyclic macrocycle organic compounds, composed of four modified pyrrole subunits interconnected at their Î± carbon atoms via methine bridges (=CHâˆ’). The parent of porphyrin is porphine, a rare chemical compound of exclusively theoretical interest. Substituted porphines are called porphyrins. With a total of 26 Ï€-electrons, of which 18 Ï€-electrons form a planar, continuous cycle, the porphyrin ring structure is often described as aromatic. One John Wiley, Toronto. has been cited by the following article: TITLE: Application of tetratozilat meso-tetrakis (4-methylpyridil) porphyrin as effective sensor for metal cations in plasma-solution systems.Â Porphyrins and their metal complexes generally exhibit characteristic sharp and intensive absorption bands in visible region. The region from 400 to 500 nm, which is called the Soret band, shows the most intensive absorption, and molar absorptivities about 105 are often found. Soret band (400-500 nm) shows the most intensive absorption of these compounds, molar absorptivities often being about 105. The Soret band is widely used for spectro- photometric detection of metalloporphyrins. Bocian, Lindsey and co-workers studied sandwich complex nanocapacitors comprised of porphyrin and phthalocyanine ligands separated by lanthanide metals [133]. A triple-decker sandwich of phthalocyanine-Eu-phthalocyanine-Eu-porphyrin, with two phenylethynyl linker wires from the porphyrin, potentially has up to nine accessible oxidation states (â€”4 to +4). SAMs of monomers, dimers, trimers, and oligomers of this sandwich, anchored at one or both ends by thioacetyl groups, gave charge densities up to 10 10 mol cm-2, electron-transfer rates up.Â B. D. Berezin, Coordination Compounds of Porphyrins and Phthalocyanines, John Wiley Sons, New York (1981). [Pg.181]. As for common porphyrins, they can be formally divided into three groups[7,20] with characteric basic structural features. Compounds of the first group are mainly planar p-and meso-substituted porphyrins and chlorins. The second group includes highly aromatic compounds, mainly porphine and porphyrazine derivatives with four p,p'-fused aromatic rings as well as porphyrazines themselves. The third group of compounds contains H2P with a highly non-planar structure which nevertheless remains aromatic.[5]. Highly distorted common porphyrins compose extended group of compounds.[57] Within them macro