BOOKS RECEIVED

Mycoplasmas. Molecular Biology and Pathogenesis

Edited by J. MANIHOFF, R. N. McELHANEY, L. R. FINCH and J. B. BASEMAN. 1992. ISBN 0-55581-050-0. American Society for Microbiology. Pp. 609. \$109.00.

This long-awaited volume is an exhaustive compilation of current knowledge on mycoplasmas written by experts in the field. It is a large book (> 600 pages, 11 × 8½ inches) with 35 chapters and too bulky to be described as bedside reading.

There is no doubt that this is a reference work for the specialist. It is not designed for use as a laboratory manual. The opening chapter takes the form of a concise and thorough overview of the history, ecology and fundamental properties of mycoplasmas and sets the scene for the rest of the book. Also included in the introductory section are chapters on nutrition and growth, and on the viruses of mycoplasmas. The many varied forms of viruses that infect mycoplasmas constitute a fascinating new field of research. However, this chapter could have benefited from some diagrams or electronmicrographs to illustrate the morphology of the major classes of viruses.

From the medical standpoint, this book is likely to be of great interest only to the most dedicated physician, except for the chapter reviewing current thinking on the relationships of *Mycoplasma pneumoniae*, *M. hominis*, *M. genitalium*, *M. fermentans* and *Ureaplasma urealyticum* to human disease, and the chapters on immunity and vaccination, antibiotic resistance, serodiagnosis and mycoplasmas in relation to AIDS. The latter subject has attracted a lot of attention in the last 2 years but, in the minds of some microbiologists, the significance of mycoplasmas in the tissues of AIDS patients has still to be fully explained. However, this chapter is well presented with some remarkable electronmicrographs and photomicrographs and includes in-situ hybridisation evidence for the presence of *M. fermentans* in human clinical material.

The mycoplasmal diseases of animals, insects and plants are comprehensively covered in other chapters.

A large proportion of the book is devoted to membrane structure and function. Because of their simplicity relative to other bacterial genera and their lack of a cell wall, mycoplasmas are attractive candidates as models for the study of the molecular architecture of cells, for research on the structure and function of membranes and for the study of the uptake and incorporation of various classes of macromolecules which are essential cellular components. These subjects are presented in great detail. Probably the most significant recent advances in mycoplasma research, as with many organisms, have arisen from nucleic acid technology, and this is reflected in the amount of space in the book devoted to the structure, function and mechanisms of mycoplasmal nucleic acids. These include chapters on: genome structure and organisation, ribosomes, DNA replication and repair, DNA restriction and modification, transcription and translation, gene transfer, repetitive sequences, phylogeny and evolution.

This book is likely to become the standard reference work for mycoplasmaology for many years to come.

D. PITCHER

Cowan and Steel's Manual for the Identification of Medical Bacteria. 3rd edition

Edited by G. I. BARROW and R. K. A. FELTHAM. 1993. ISBN 0-521-32611-7. Cambridge University Press. Pp. 329. £40.00.

To a generation of bacteriologists, "Cowan and Steel" has been the first book to be taken from the shelf in the search for the possible identity of an unknown isolate. First published in 1965, a second edition followed in 1973, making this third edition overdue but nonetheless welcome.

Readers familiar with the earlier editions will find the format unchanged, and although this revision is primarily the work of Barrow and Feltham, they have also included contributions from other experts on certain groups of organisms. This is probably a necessary use of assistance, as the range of species of bacteria to be included in a work of this kind are increasing inexorably, making the task of comprehensive coverage difficult for only two authors.

Following brief introductory chapters on classification, nomenclature, media and the principles of isolation, there are sections on characterisation of bacteria and the theory and practice of their identification. These have been updated from the second edition by the inclusion of information on rapid identification methods. However, the heart of this book is in the two chapters describing the characters and reproducing the identification tables for Gram-positive and Gram-negative bacteria. The Cowan and Steel identification method was and remains a progressive system starting with fundamental characteristics tabulated and called "first stage" which should direct the reader towards specific "second stage" test tables. These may identify an organism to species or to genus level. In the latter case, a "third stage" table of definitive tests is given and these allow the speciation of most medical bacteria. The important distinguishing characteristics of each genus are outlined in the text, together with convenient mini-definitions which should be compulsory learning for all students of microbiology.

The tables, text and appendices have been updated to include new genera, but the advance of knowledge will always outpace the ability of hardback publishers to reproduce changing data in its currently accepted form. However, mindful of the fact that the edition immediately preceding this one contained no reference to *Legionella*, *Campylobacter jejuni*, *Gardnerella* and many more, this new work is a more appropriate reflection of contemporary thinking regarding classification, nomenclature and pathogenesis.

The quaint device of preparing punched cards to assist in conversion of the data to an identity is again reproduced. Does anybody use these? Their preparation would appear laborious and is surely only cost effective when allied with singular devotion to this means of identification. Sadly, perhaps, we are too reliant nowadays on the commercial availability of computer-based rapid identification kits to appreciate the thoroughness with which Cowan and Steel's tables have been prepared on our behalf.

A minor annoyance to this reviewer in earlier editions of this book has unfortunately continued. There may be valid reasons, but why are the descriptions of the tests to be found at the opposite end of the book from their constituents? This results in having to search for information in two places, when surely one would suffice.

There is no substitute for hard work and attention to detail. These are the requirements when using Cowan and Steel, and there is no short cut to solving problems of identification. For those who persevere, and are able to acquire the necessary reagents to perform the tests as described, there will be correct answers. For those who wish to read this work just to add to their knowledge, there will be the satisfaction of money well spent.

D. E. HEALING