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

Diagnostic Immunology

D. F. KEREN and J. S. WARREN. 1992. ISBN 0-683-04596-2. Williams and Wilkins, Baltimore. Pp. 402. £69.00.

The stated aim of this book is to provide information for both clinicians and laboratory scientists, thus bridging the gap between manuals of clinical immunology and medical laboratory immunology. The initial section of the book comprises a review of basic immunology followed by a review of hypersensitivity, auto-immunity and immunodeficiency. The final section of the book refers to principles of diagnostic techniques used in the immunopathology laboratory.

The section on basic immunology is lucidly written, as up to date as a text book of this nature could be, and clearly illustrated with numerous helpful line drawings. This section provides a good foundation text for undergraduates (medical and non-medical) and students of medical laboratory science. The section on laboratory techniques is also clearly set out and provides a useful, if basic, review of the methods employed in diagnostic immunology.

However, the weakness of the book resides in the breadth of the audience it seeks to target. The clinical aspects are not sufficiently detailed or related to case histories to be valuable beyond the introductory stage in a medical curriculum. The *Textbook of clinical immunology* by Chapel and Haeney or *Basic and clinical immunology* edited by Stites and Terr are, to my mind, superior in this respect. The basic science again is not dealt with in sufficient depth, for example, physiological anatomy of lymphoid tissue is hardly dealt with at all. Immunoglobulin structure and function is dealt with only very briefly, as are T- and B-cell activation and tolerance. Hence, this book is unlikely to be used beyond the initial stage by specialist students in the subject.

Finally, the section on laboratory immunology is not sufficiently detailed in the technical or interpretational aspects to be of value to staff in specialist immunology laboratories.

In summary, this text is a useful introductory book for undergraduates and medical laboratory technologists particularly those not specialist in immunology who wish to obtain an introduction to the subject. It is unlikely to be read and re-read by those with a special interest in the subject.

D. S. KUMARATNE

Molecular and Cell Biology of Sexually Transmitted Diseases.

Edited by D. WRIGHT and L. ARCHARD. 1992. ISBN 0 412 36510 3. Chapman and Hall, London. Pp. 318. £40.00.

This book is one of the series *Molecular and cell biology of human disease*. The aim of this series is to present the contribution that molecular biology has made to the understanding of different diseases. This volume concentrates on aspects of sexually transmitted diseases where molecular and immunological techniques have substantially increased the understanding of the pathogenesis, diagnosis or treatment of the disease. The editors have largely chosen subjects that have not been reviewed recently elsewhere, hence HIV infection and acquired immunodeficiency disease, and papilloma virus infection and cervical carcinoma are not included.

In approaching the book in this manner they have brought together a collection of excellent reviews including chapters on the bacteria that cause sexually transmitted infections—*Neisseria gonorrhoea*, *Treponema pallidum*, chlamydiae and mycoplasmas—and on the viruses—hepatitis B, *Molluscum contagiosum* and Herpes simplex virus. Also included are chapters on the molecular biology of candida pathogenesis

and on the molecular analysis of *Trichomonas vaginalis* surface protein repertoires. The book concludes with a discussion of anti-idiotypic therapeutic strategies in HIV infection. All the chapters review their subject in depth, varying in length from 14 to 32 pages, and are well referenced.

It is refreshing to encounter a book on sexually transmitted diseases which is not primarily focused on HIV. In recent years, molecular techniques have been used to dissect HIV with amazing rapidity. The value of this book is that it demonstrates clearly that molecular techniques have also produced significant advances in the depth of our knowledge of a wide range of sexually transmitted diseases. As the role of other sexually transmitted diseases in HIV infection is becoming increasingly recognised, this book will be a valuable source of information to potential research workers as well as a useful reference for those currently involved in research into sexually transmitted diseases. Hopefully it will also act as an incentive to clinicians and microbiologists to use molecular techniques for the detection and diagnosis of sexually transmitted diseases.

C. ISON

Progress in Medical Virology

Edited by J. L. MELNICK. 1993. ISBN 3-8055-56004. S. Karger AG, Basel. Pp. 224. £132.50.

Progress in medical virology has now reached its 40th anniversary with this volume, and the series has become established reading for all those in the broad field of human virology. This volume continues the high standards set by its predecessors, and, as the promotional paragraph on the cover maintains, contains reviews on "diverse topics in medical virology". Consequently I doubt whether any virologist would read it cover to cover, but all will find some chapters of interest and value. The 10 reviews from an international group of authors range from the British contribution of Desselberger and Flewett which looks at the provision of routine virus diagnostic services, to a review on the assembly of bacteriophage P22 as a model for the assembly of a ds-DNA virus.

The chapter I found of most value personally was the wide-ranging review of hepatitis B from molecular biology to treatment. The accounts of hepatitis B in subSaharan Africa, rabies and hypotheses on the origins of strains of influenza A all made fascinating reading. Also of particular interest to those in clinical virology are reviews of detection of HIV sequences, CMV diagnosis and defective parvoviruses.

As one may anticipate, the impact that molecular biology is having on the understanding and practice of medical virology runs as a theme through most chapters. In this context, the historical epidemiology of rabies virus together with apparent proof of incubation periods up to 7 years demonstrates the impact that this technology is having upon our understanding of epidemiology and the way we approach control of infectious disease.

Progress in medical virology is obviously facing competition from a number of review journals, but I would suggest that volumes such as this still have a place, and are an essential acquisition for our departmental library, even if price precludes a place on our own personal bookshelf.

P. MORGAN-CAPNER