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## Book reviews

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*Current Topics in Microbiology and Immunology: Measles Virus*. Eds V. ter Meulen and M. A. Billeter. Pp. 196. Springer Verlag 1995: ISBN 3540 5389-5.

This volume is a welcome addition to the literature on measles, maintaining the traditions of this long running series. It contains a series of review articles by acknowledged experts in measles research. The topics covered include: measles replication (S. M. Horikami and S. A. Moyer), measles surface proteins (T. F. Wild and R. Buckland), measles virus gene expression in neural cells (S. Schneider – Schaulies, J. Schneider – Schaulies, L. M. Dunster, V. ter Meulen), measles virus strain variation (B. K. Rima, J. A. P. Earle, K. Baczko, P. A. Rota, W. J. Bellini), immune responses during measles infection (D. E. Griffin), mono-nuclear interactions (P. Borrow and M. B. A. Oldstone), monkeys in measles research (R. S. Van Binnendijk, R. W. J. Van Der Heijden, A. D. M. E. Osterhaus), measles infection in rodents (U. G. Liebert and D. Finke), the clinical spectrum of measles (M. Katz), the epidemiology of measles (C. J. Clements and F. T. Cutts), and paradigms of measles vaccinology (E. Norrby).

As the Editors observe in the preface, although measles disease is well controlled in the USA and much of Europe it remains a major cause of morbidity and mortality in the developing world. The problems in using current vaccines to eradicate are well described by Clements and Cutts and potential new approaches for vaccination are clearly reviewed by Professor Norrby. The series of chapters on the virology and immunology of measles comprehensively review the areas of active current research.

The book has avoided the common pitfalls of this type of volume; almost all of the chapters are comprehensive and written to a high standard and several chapters include references from 1994 so it has not yet become out of date. This is a useful and informative book which should be essential reading to anyone with an interest in measles.

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*Yersiniosis: Present and Future*. Eds G. Ravagnan and C. Chiesa. Pp. 340. Karger, Switzerland: 1995. US \$299.25. ISBN 3 8055 6138 5.

The genus *Yersinia* includes three important human pathogens: *Y. pestis*, the aetiological agent of the plague, *Y.*

*pseudotuberculosis* and *Y. enterocolitica*, which causes gastro-enteric disease. As such these are organisms which demand research study. 'Yersiniosis: present and future' is compilation of over 80 papers presented at the 6th International Symposium on *Yersinia* held in 1994 in Rome, Italy, and represents a comprehensive review of the current research into *Yersinia* virulence and genetics.

The book is aimed at the professionals, the clinical microbiologist or the research scientist, who are involved in *Yersinia* research. The subjects covered by this publication are broad and wide ranging. For convenience it has been subdivided into six different subject areas. Epidemiologists and clinical microbiologists will find the first three sections, concentrating on the epidemiology of yersiniosis, diagnosis and therapy, most useful. Bacteriologists and molecular biologists would turn to the latter half of the book which deals with aspects of immunology, pathogenicity and molecular genetic aspects of this charismatic group of micro-organisms.

This book provides a vehicle for researchers to present new and exciting preliminary experimental data; thus, for those actively involved in *Yersinia* research, this work becomes an invaluable reference tool keeping one up-to-date with the most recent advances in this dynamic field – I will undoubtedly refer to this publication in the future and I look forward to the 7th International Symposium on *Yersinia*.

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*Molecular Basis of Virus Evolution*. Eds A. Gibbs, C. H. Calisher and F. Garcia. Pp. 603. Cambridge University Press: 1995. £65.00 (US \$94.95). ISBN 0 521 45533 2.

This volume covers the breadth of a rapidly emerging field, almost as rapid as some of the emerging viruses described. With the increased use of nucleotide sequencing which has exploded in recent years, information about viruses and their hosts is expanding exponentially. This book aims to review some of the new conclusions gained from these analyses and the implications from and for biology of the different viruses studied and their associated diseases. The book arises from a meeting held in Madrid in 1991 entitled 'Co-evolution of viruses, their hosts and vectors'. This is

both the books strength and weakness in that a wide range of researchers in this field or related areas are represented, however it is inevitable that compilations based on meetings can become out of date as they are published, in this case end of 1995. Most of the chapters make it clear that the literature is current to 1992, a few do seem to update, perhaps at the proof stage and have included references to 1994. Nonetheless, this is an excellent compilation of the spectrum of studies in this area. Particularly valuable given the high degree of genetic diversity canvassed, more within the virus world than any possible within the entire animal kingdom.

The book is prefaced with a useful overview provided by the editors followed by a logical arrangement of seven sections. This covers the impact of viral diseases with classic studies of virus epidemiology and evolution; the origins of viruses and their genes with different speculations on RNA and DNA viruses and their differing ability to acquire cellular genes; sources of virus variation with comparisons on contributions of sequence drift or genetic rearrangement and recombination; the molecular interactions of viruses and their host with the influences of immunity and the ability of virus to mimic cellular receptors or ligands; aspects of viruses and host population genetics with analyses of virulence dynamics; case studies of viral taxa with selected virus examples comparing host co-evolution found in persistent viruses to different rates of evolution in selected hosts; and finally a summary of techniques for viral systematics with a useful guide to phylogenetic analyses. Overall, the book makes exciting reading for the breadth of variation and selection displayed. Of particular use to epidemiologists are the case studies of the virus taxa, for examples chapters on HIV, influenza, papillomaviruses, flaviviruses, bunyaviruses, herpesviruses, reoviruses, alphaviruses. There are also chapters on plant viruses which are not directly related to study of disease in the human host, but are vivid in illustrating evolutionary principles which apply. Interestingly, the authors add a chapter on prokaryotic evolution which provides context to some of the virus studies, but a useful addition would be one on eukaryotic evolution as the viruses described in this compilation infect the eukaryotic host.

Sources of variation are richly explored and rates of evolution compared ranging from acute RNA virus infections which can evolve a millionfold higher than the host but may be new infections within the last 50 years to some persistent DNA virus infections which may only vary at a rate 10-fold higher but have co-evolved with the host over the last 250 million years. Clearly the implications for such variation will be different. The chapters neatly illustrate the application of molecular systematics to epidemiological studies but also show some non-intuitive findings from this type of analyses. For example, the source of prediction of the next influenza pandemic is within obscure aquatic birds, the tissue specific properties of papillomaviruses (cutaneous versus mucosal or cancer associated) evolved prior to the variation showing co-evolution with human migrations, and the observation that 'HIV1 and HIV2 spread at a time coincidental with the development of biochemical techniques allowing for their detection most

probably reflects recent massive increases in urbanisation and travel'. A timely book with something for those interested in epidemiology and infection, but also in their theoretical basis.

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*Tuberculosis*. Eds W. N. Rom and S. Garay. Pp. 983. Little, Brown and Co. 1996. 100 stlg.

Tuberculosis holds the dubious privilege of being the first disease to be declared a global health emergency by the World Health Organisation. New York has been a focal point for the emergency, a horrifying example of the collapse of an industrialized society leading to resurgence of disease. More recently, she has become a beacon of optimism by demonstrating that given resources, both human and financial, it is possible to turn the tide. It seems appropriate therefore that the latest textbook on tuberculosis should arrive from the New York University Medical Center and the Bellevue Hospital.

The editors have strengthened the New York team with contributors from the rest of the USA and a handful from Canada and beyond and have produced an excellent, cohesive work. The emphasis is clinical and more than half the book is devoted to clinical aspects and therapy. The text is well-illustrated with case-histories, radiographs and CT scans as well as colour plates of pathology and ocular complications. Future therapies are considered including native peptides, vitamin D metabolites and mycobacteriophage mediated gene replacement. Immunomodulation through administration of some cytokines or down-regulation of others are discussed but there is no mention of immunotherapy with killed *M. vaccae*, which would be a major advance if the current randomized studies show that it works.

Although the coverage of diagnosis and treatment are thoroughly modern, space is found for archival photographs from the Bellevue and an historical section including a short chapter dedicated to the statesmen and artists whose lives have been 'altered or abbreviated' by phthisis from Cicero to Mandela.

Sections on epidemiology and on prevention and control focus largely on the American experience and problem. There is a wealth of interesting and relevant material, including a debate on the ethical and legal issues involved in directly observed therapy and other methods to enhance adherence. However, little space is given to the problems of understanding and controlling tuberculosis in those parts of the world where the huge majority of its morbidity and mortality occur. The concluding sentence of the book, suggesting that elimination of tuberculosis from the USA will finally be achieved seems most unlikely if more attention is not given to the fire raging in Africa and Asia.

Many of the more recent laboratory advances in mycobacteria are covered in sections on microbiology and host response, others fall more naturally into therapy (cytokine modulation) or control (recombinant vaccines).

The book is beautifully produced and well-referenced (up