The author quotes a very large number of references from journals in many languages, thus giving the reader an opportunity of assessing the work in this complex field of study. Unfortunately the book has neither an index nor an alphabetical list of the authors quoted. A short summary at the end of each chapter would have been useful.

K. A. BETTELHEIM

Medical microbiology in the tropics

Dr Nnochiri has attempted the formidable task of providing, over the whole area of this vast subject, information on every microbiological topic sufficient for the needs of medical students, health workers and nurses working in a tropical environment. The manner of presentation of this volume, and parts of its content, invite criticism. The line diagrams are as dispiriting as they are limited, and the content of some sections, for example, those on lymphogranuloma venereum and brucellosis, and the laboured introductory chapter, leave much to be desired. However, other sections are admirably concise and apt for the topics covered: laboratory procedures, the microbiology of water supplies, milk and food, and certain of the sections dealing with the clinical relevance of bacteriology to disease. It must be admitted, however, that the systematic approach used here is not always suitable.

On the other hand, this volume has undoubted merit. The task of complete coverage of the subject is tackled with obvious enthusiasm, and a selection of material is made that is generally appropriate to the needs of those for whom the volume is written. Postgraduates may also find this book useful in some circumstances, though they may be disturbed by the lack of guidance given to those who will have to choose between the many alternative methods described.

This book will run to more editions. Perhaps the need for offering guidance to the judgment of the reader will be given priority in future revisions.

J. GRANT

Infectious multiple drug resistance

A book of this type is long overdue, and the author has extensive experience of the laboratory facets of the subject. He has also an appreciation of the ecological significance of bacterial plasmid activity, and is sufficiently close to that aspect to justify his treatment of it. The result is a book that is valuable to microbial geneticists at all levels, to molecular biologists, to medical and veterinary microbiologists and to clinicians. There are also chapters that could be read with advantage by administrators in public health and veterinary medicine.

The title is a misnomer. The book deals not only with infectious ("transferable" is better) drug resistance, but also covers bacterial plasmid genetics and activity in general, and in considerable detail. However, perhaps this title will be better for sales than a more academic one, and the book deserves to be widely read. The style is rather colloquial, but this makes the content easy to absorb.

There is one rather serious drawback. The references are not identified precisely in the text but are given under subject lists at the end of each chapter. In a book of this calibre, all references should be accurately indicated in the text, so that they can be related to the full references at the end of the chapter, or of the book.

There are, of course, other faults. The terms $f^+$ and $f^-$ are used almost as though they were synonymous with F-like and I-like. We know enough about these properties and their presence in various plasmid compatibility-groups to make this bad practice. Compatibility-group O is given a priority it does not deserve over group B, with which it is identical and which was described over a year earlier than O. Not enough space is given to the Mexican chloramphenicol-resistant strain of the typhoid bacillus, to the enormous
outbreak of typhoid fever it caused, and to the H-group R factor it carried, all of which were well defined long before this book was finished. And there are other errors of omission and commission. But these will no doubt be corrected in the next edition. In the meantime, this book is strongly recommended.

E. S. Anderson

Negative strand viruses

These two volumes are a successful and up-to-date sequel to the earlier book from the Cambridge group, "Biology of large RNA viruses", and they deal with the same agents apart from the oncarnaviruses. The 65 articles, from an International Meeting attended by 120 virologists, comprehensively cover genome transcription and replication, translation of virus message and virion structure (vol. 1), and virus-coded polypeptides in infected cells, genetics and virus-membrane interactions (vol. 2). These are considered mainly from the point of view of biochemistry. Perhaps reflecting the organisers' own research interests, viral immunology, for example, is conspicuously absent and this is something which could well be corrected at future meetings. Given the fact that geneticists, molecular biologists and biochemists are increasingly using viruses and virus-induced changes in cells as a probe to investigate cellular functions, these books can be expected to have a wide circulation and appeal; deservedly so, because the papers have been carefully edited and reproduced with numerous plates and figures to a very high standard. The longer articles attempt to review particular areas of the subject while the associated shorter ones mostly present new data. The mixture is a good one.

A particularly notable feature of the two volumes is the amount of important comparative virology. Thus, although the myxoviruses, rhabdoviruses and parainfluenza viruses are gathered together by the single unifying feature of possessing "positive strand" virion RNA, which cannot be used as messenger RNA unless first transcribed to give "negative strand" mRNA, they nevertheless differ dramatically in other aspects of pathogenicity, genetics and molecular biology. Influenza virus, for example, differs in having a segmented genome with replication cycle involving both cytoplasm and nucleus. On the other hand, these various viruses provide similar problems of structure and chemistry. Do the glycoprotein spikes penetrate the lipid bilayer to the underlying M protein? What is the function of the M protein and how are virus structural proteins inserted into the plasma membrane of infected cells? To be able to compare such problems within four covers is immensely helpful and must lead to fruitful recombination or reassortment of ideas among specialists of each virus group.

Particularly good contributions are those of D. H. L. Bishop and M. Bratt on transcription of VSV and NDV respectively, P. W. Choppin on proteolytic cleavage and glycosylation of influenza haemagglutinin, and A. J. Hay on synthesis of influenza proteins. These are among the larger review-type papers. S. Fazekas de St Groth in a lucid and mainly theoretical paper, itself rather unusual nowadays in virology, discusses his controversial and stimulating theory of the phylogeny of influenza relating to the origin of new pandemic strains and the direction of antigenic drift. His model system helps to explain the asymmetry of the serological cross-reactions, long observed between influenza subtypes, in terms of "senior" antigenic determinants, which have a bulkier amino-acid component, and "junior" determinants. Senior viruses can be selected in the laboratory and may be more broadly reacting immunologically when used as vaccine strains. Important shorter papers are those of Gregoriadis, showing apparent similarity between influenza M protein and the non-structural NS1 protein, and of A. Haywood describing the use of the liposome model to study virus-cell interactions.

Of course many of the papers have since been published elsewhere, but this in no way detracts from the value of the books as a whole. The two volumes will be a very considerable asset to laboratories dealing with RNA viruses and also to biologists and biochemists