in the field has been the originator of much of its currently accepted theory. The resulting book is far more than a mere review of the literature—it contains a wide-ranging and critical evaluation of the experimental foundation of the episome concept not to be found anywhere else. Dr. Campbell devotes a major part of this book to the bacteriophage *lambda*, which has been the main subject of his own research. Indeed, *lambda* is by far the best known model of an episome yet available. However, detailed attention is also given to the F (fertility) factor of *Escherichia coli*, to the extrachromosomal determinants of colicinogeny in *Esch. coli* and *salmonella*, and to the R (resistance transfer) factors. The similarities and differences between these various elements are fully discussed in a very illuminating way. They all have in common the basic property of being able to replicate independently of the chromosome, and most of them have some means of spreading in infective fashion from one bacterial cell to another. The capacity for chromosomal integration, the distinctive feature of an episome, is possessed by only some of these elements, and to this extent Campbell's title, as he himself recognizes, focuses attention on only one property of the general class of *plasmids*, to use Hayes' term.

The book is not a long one, but the writing is concise and the information content high. Little time is spent on introducing the reader to terminology, and only those already partly familiar with microbial genetics will find the book easy going. Even the comparatively well-prepared reader may find that some of the later chapters require frequent pauses for thought. In discussing the famous 'Campbell model' of the mode of integration of episome into chromosome the author comments that he was by no means convinced of its truth when he first proposed it. He goes on to remark that in the early days of a new hypothesis it may be necessary to look at the facts with a good deal of optimism in the hope that apparently contrary evidence will be shown to be invalid; subsequently, if the theory becomes well established, there comes a time for criticism and for the rigorous testing of its consequences in all possible ways. In this book there is a measure of hopeful and enlivening speculation more than balanced by a very critical examination of the logic of the arguments used. It requires, and more than repays, careful reading.

J. R. S. FINCHAM

The Genetics of Bacteria and their Viruses. Studies in Basic Genetics and Molecular Biology, 2nd ed. By William Hayes. (Pp. xvi+925; 142 figures+26 tables. 95s.) Oxford & Edinburgh: Blackwell Scientific Publications. 1968.

The first edition of this book, published in 1964, was greeted with enthusiasm and enjoyed a great success. It was almost unique in being scholarly, comprehensive, and readable. With the second edition the general character of the book has not changed; many passages stand unaltered and the newly written sections, which demonstrate again the lucidity and grace of the author's style, fit easily into the existing framework. Neverthe-

less, Professor Hayes has managed to take account of a large amount of new material published during the past five years. The bibliography has been expanded from 46 to 84 pages, with a great many new references added and only a very few of the old ones deleted. The text has grown from 667 to 804 pages and the author has done well to keep the increase down to so modest a figure. New growth has been kept within bounds by judicious pruning of the previous text. Here and there space has been saved by omitting or reducing discussion of a not-so-fruitful hypothesis or of a controversy now more or less settled (as in the case of the mode of integration of *lambda* prophage). But no important issue is evaded and the author is, as always, very fair in his presentation of conflicting lines of evidence on questions still undecided.

There are a considerable number of new illustrations and some of the old ones have been redrawn. To judge from my copies, the two-colour printing, which is a great help in the understanding of some of the diagrams, has been done more neatly in this edition (the second colour has changed from red to green to match the new dust cover). There are also several new photographic plates, mostly showing electron-micrographs and all very beautiful. When one adds that the price has been increased only 12% from 84s. to 95s. it will be seen that the second edition is an even better buy than the first.

It might seem that Professor Hayes has taken on a heroic task which will soon become impossible. In another four or five years the growth of the literature may have outstripped the capacity of any one man to cover it. I am inclined to believe, however, that though important new advances may be expected soon in some areas, notably, perhaps, in our understanding of the mechanism of recombination, Professor Hayes may well relax for a while before thinking about a third edition. A great deal of our knowledge of microbial genetics is now established on a very sound basis, and this book should stand as a definitive guide to many aspects of the subject for many years to come.

J. R. S. FINCHAM

Selected Topics in Medical Genetics. A Review from the Nuffield Unit of Medical Genetics, Liverpool University. Edited by Cyril A. Clarke. (Pp. x+282; illustrated+tables. 80s.) London: Oxford University Press. 1969.

This book, as the Editor explains, is an anthology of essays on topics in which he and his colleagues have been particularly interested and fields in which their own original researches have been conducted. While, therefore, the book does not make a harmonious whole, and is far from constituting a comprehensive if short textbook for students, every part of it is written with freshness and personal involvement. Apart from the Editor himself, there are contributions from R. B. McConnell, A. L. Jones, D. A. Price Evans, D. J. Weatherall, J. B. Clegg, R. Harris, J. Price, S. Walker, and G. S. Thompson, as one sees a list combining distinction with modesty since they offer hardly a first name among them.