

Book reviews

Microbial Genetics (Second Edition). S. R. Maloy, J. E. Cronran and D. Freifelder. Jones and Bartlett, London. 1994. Pp. 484. Price £20.95, hardback. ISBN 0 86720 248 3.

This well-known textbook, first published in 1987, appears in its second edition and is now co-authored by S. R. Maloy and J. E. Cronran following the death of David Freifelder. Like the first, this edition focuses entirely on bacteria and bacteriophages and does not deal with eukaryotic microbes. It is even admitted by the authors that in this respect the book might be more appropriately titled 'Bacterial and Phage Genetics'. However, the second edition retains the strengths of the first in terms of structure and objectives. It leads the student through the essentials of genetics and microbiology, the basic biochemistry of nucleic acids and proteins (in an accessible way), and on to in-depth descriptions of genetic systems at the molecular level. It is here that the book comes into its own with chapters on plasmids, transposable elements, bacterial transformation and conjugation, genetics of phage T4, lytic growth of λ , lysogeny, transduction and strain construction. Difficult concepts and complex mechanisms are explained clearly and here the use of line drawings is especially effective. The larger format of this edition improves the juxtaposition of text and illustrations and allows the inclusion of new examples panels. The success of the first edition has, in a sense, presented the authors of the second with a problem. What should be changed, and how? The solution here appears to have been to adopt a policy of minimal change. This is immediately evident, and even a cursory glance shows that each part, chapter and section of the first edition finds its almost identical counterpart in the second. Although the authors claim extensive rewriting, a closer inspection of the text reveals that much of this is merely cosmetic and occasionally the elegance of the original text is lost. There is evidence of significant reworking and improvement of some parts, for example the chapter on strain construction and the later sections on site directed mutagenesis and PCR.

My overall impression is that while the new edition retains the character of a solid practical textbook, the authors have missed the opportunity either to inject a sense of real excitement or to show how molecular genetics has advanced in the last seven years. In particular, this book notably fails to show how principles elucidated in model systems (mainly in *Escherichia coli*) have been shown to apply in a wide variety of Gram positive as well as Gram negative bacteria. In addition, the treatment of new technologies is scanty. For example, automated sequencing is not mentioned and the extensive uses of PCR technology are not fully described. The final section on applications of genetic engineering is disquietingly similar to its seven-year-old predecessor!

It would, however, be unfair to conclude without re-emphasizing the strength of the book which is in the clear explanation of molecular mechanisms. If this is what is required then this edition can be recommended and represents extremely good value for money.

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Peas: Genetics, Molecular Biology and Biotechnology. R. Casey and D. R. Davies (eds). CAB International, Wallingford, Oxon. 1993. Pp. 333. Price £49.95, hardback. ISBN 0 85198 863 6.

Every once in a while a scientific text comes along which represents a key publication marking the current position of human knowledge in a particular field of scientific endeavour and which is in the 'must have' category for any laboratory active in the field. This book, edited by Rod Casey and Roy Davies, is clearly in this category and presents review contributions on key aspects of study of the common or garden pea, *Pisum sativum*, as an experimental organism and important food crop. The editors are well-known pea scientists with world-wide reputations for their work. The book is organized into 11 chapters and the contributors are also well-known experts in different aspects of pea research. The concentration of contributors from the John Innes Institute in Norwich, U.K. is, of course, a reflection of the important role played by this institute in pea research.

Chapter 1, by Roy Davies, sets the scene with a brief overview of the status of the pea as an experimental plant species and as an agricultural crop. This briefly covers the reasons why the pea model has been selected for use in biochemistry and molecular biology as well as for physiological and genetic studies.

Noel Ellis, in chapter 2, plunges straight into the molecular genetics with a detailed and up-to-date description of the pea genome as studied by various modern approaches and also of the mechanisms which bring about heritable change. This chapter is extremely valuable, not only as a report on the current status of pea genetics, but also as a comparative illustration of the molecular approaches which are being used to probe genome structure and to map genes of importance. Noel Ellis has also contributed chapter 3, on the structure and function of the plastid genome. Inevitably, this is a much smaller contribution which concentrates