

All of these problems contribute to the variance and uncertainty of our estimates and hypotheses tests, yet no one is making any attempt to estimate their combined magnitude. Because both the underlying phylogenies and the tests of the theory have unknown error distributions and rates, it is difficult to take most of the conclusions seriously, even though the theory is clever and interesting. Hopefully this will change in time. In summary, the book is a summary of what could be done, but readers must remember the unknown levels of confidence one can place on the inferences. The best estimate is not equivalent to minimum uncertainty; just as knowing the mean tells us nothing about the standard error.

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Concepts of Genetics (5th edn). William S. Klug and Michael R. Cummings. Prentice Hall International, Inc., New Jersey. 1997. Price £29.95, paperback. ISBN 0 13 724410 X.

A glance in any university library might lead a casual observer to wonder why anyone would choose to write yet another book on Genetics. There already appears to be a staggering array of titles covering the subject from every conceivable angle. In truth, though, the competition is not as fierce as it first seems. Not to put too fine a point on it, most books on genetics are either painfully dry or else hopelessly out of date - not the type of book one would naturally choose to browse through in a spare moment and sadly, not the sort that would instill enthusiasm into the average undergraduate. In consequence, most of us who teach genetics are still seeking a standard text which covers the subject logically and accurately but without curing the reader of chronic insomnia.

Thankfully, dull is not a word which springs to mind when referring to this book. The writing style is simple but fluent, whilst the illustrations are both attractive and informative. Furthermore, each chapter closes with a short but fascinating essay which serves to illustrate key concepts. These little gems are highly topical, can be read in minutes and help to stimulate enthusiasm for the subject. There are, for example, essays on the dilemmas of genetic testing, the importance of preserving plant germ-plasm and one entitled 'Prions, mad cows and heresies'.

To my mind, however, the greatest strength of this book lies in the fact that it does not attempt to be both a work of reference and a tool for teaching. Effort is focused entirely on the latter. The layout and the text are aimed specifically at conveying a basic understanding of the subject to first/second year undergraduates. Topics covered in the book are ordered logically although the same is also true of many similar works. The difference in this book lies in the fact that the sections and chapters are designed 'to be used interchangeably, providing the

instructor with increased flexibility'. This is achieved partly through the liberal use of headings and subheadings but largely through the skilfully written explanations, most of which can be read in isolation. Specialized vocabulary is carefully defined where it is introduced and is highlighted in bold font. I found this an extremely thoughtful addition. There is also an extensive glossary containing simple definitions. At the end of each chapter is a series of simple and advanced problems which aim to test the full extent of the student's understanding. Thankfully, answers are provided. I found these of enormous value as teaching aids both in their own right and as inspiration for setting test/exam questions of my own.

Overall then, this book is an attractive buy, particularly since this edition is in paperback form and is appropriately priced for students. My only minor gripe is that the coverage of botanical genetics is perhaps a little superficial in places. For example, allopolyploidy and autopolyploidy, the behaviour of multivalents during meiosis, the importance of plant breeding systems, tetrasomic inheritance and self-incompatibility mechanisms are either not, or else poorly, covered. That said, the book still contains much of value for agricultural or botanical genetics courses. For the more general genetics courses, it is a must.

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The Molecular Biology of Insect Disease Vectors — A Methods Manual. J. M. Crampton, C. B. Beard and C. Louis (eds). Chapman and Hall, London. 1997. Price £60.00, hardback. ISBN 0 412 73660 8.

This publication claims to be 'the first detailed and comprehensive handbook of laboratory methods covering all aspects of molecular entomology'. The three editors had the unenviable task of arranging contributions from over 70 authors into 46 chapters, grouped into eight parts. In common with other works of this type, an attempt has been made to give some semblance of unity with similar section headings for each chapter. Most users of this book will not read it from cover to cover, but will instead dip into chapters relevant for their own research, so the endless repetitions of certain basic techniques will not be as noticeable. I am sure this book will be a useful addition to the shelves of many laboratories, and would make an excellent introduction for students and for more experienced researchers new to the field.

The first 6 chapters (Part One) describing the maintenance of insect colonies in the laboratory are excellent. I particularly liked the list of sandfly species and where they were being maintained; it would have been useful if

similar lists had appeared in the chapters on *Aedes*, *Anopheles*, blackflies, tsetse and triatomines. The second part of the book describes the methods required to infect these insect vectors with various parasites. Here the contributions are very variable in style, length and content. There is a very detailed description of the infection of mosquitoes with rodent malarias, and a shorter chapter on primate malarias, yet surprisingly there is nothing at all on infection with cultured parasites of the human malarias.

The middle sections of the book give basic methods in molecular biology, genome mapping and molecular identification techniques. As one of the authors admits, 'there are at least as many methods of isolating nucleic acids as there are molecular biology labs'. The truth of this statement is amply demonstrated in the rest of this book, where almost every chapter has a different preferred extraction procedure. Many of the techniques described can be found in standard molecular biology manuals; indeed many authors refer the reader to the 'bible' (Sambrook, Fritsch & Maniatis) for further details. However, the strength of this book is that most of the techniques are presented with enough information, in most cases, to do them without the need for further references, textbooks, etc. There has also been admirable restraint in the number of references quoted at the end of each chapter. There are a few odd omissions; only lambda and cosmid libraries are discussed; plasmid libraries and YACs (yeast artificial chromosomes) are only mentioned in passing. I was disappointed that more authors did not include non-radioactive techniques; for many scientists

radioactive material is difficult to obtain, store and dispose of, and I would have liked to see more information on alternative labelling techniques.

The remaining three parts deal with the more specialist topics of transformation techniques, cell and organ culture, and insect symbionts. These sections are well-written and informative. The chapters on transformation techniques (Part Six) are especially useful given the interest in genetic manipulation of insect vectors for disease control.

There are a few surprising mistakes: in the chapter on tsetse fly rearing notes 3 to 8 are completely missing, and there are irritating typographical and grammatical errors scattered throughout the book. It is a pity that the proof-reading process was not a little more rigorous because these errors detract from an otherwise well-written handbook.

In summary I think this manual will prove an important technical resource for this field. Its strengths are that it covers a very broad field yet manages to be detailed enough to be useful. There are a few omissions and errors, which perhaps could be improved in a later edition, but these do not seriously detract from what is, essentially, a good book.

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Books received

DNA and Protein Sequence Analysis - A Practical Approach M. J. Bishop and C. J. Rawlings (eds). IRL Press (Oxford University Press), Oxford. 1997. Pp. 374. Price £29.95, paperback. ISBN 0 19 963463 7.

Gene Cloning and Analysis - Current Innovations. Brian C. Schaefer (ed.). Horizon Scientific Press, Wymondham. 1997. Pp. 214. Price £34.99, paperback. ISBN 1 898486 06 9.

Fingerprinting Methods based on Arbitrarily Primed PCR. Maria R. Micheli and Rodolfo Bova (eds).

Springer-Verlag, Heidelberg. 1997. Pp. 441. Price DM 128.00, paperback. ISBN 3 540 61229 7.

The Pony Fish's Glow. George C. Williams. Basic Books (HarperCollins Publishers), New York. 1997. Pp. 184. Price US\$20.00, hardback. ISBN 0 465 07281 X.

Evolutionary Concepts in the Nineteenth Century — Natural Selection and Patrick Matthew. W. J. Dempster. The Pentland Press, Edinburgh. 1996. Pp.365. Price £12.50, paperback. ISBN 1 85821 356 8.

Species (Systematics Association Special Volume Series 54). M F Claridge, H.A. Dawah and M. R. Wilson (eds). Chapman and Hall, London. 1997. Pp.435. Price £49.00, hardback. ISBN 0 412 63120 2.