

It is clear that this book will be of interest primarily to investigators wishing to make transgenic mice. The techniques for making transgenic mice are founded in embryology and are now well established, although complicated. Those who wish to use these techniques are by and large, molecular biologists, not embryologists. Given this, the methods were ripe for writing up in detail. Indeed, this book was originally due for publication over a year before it finally appeared.

It would be wrong to give the impression that the manual will be of use only to 'transgeneticists' as the range of techniques covered is very comprehensive. A great many embryologists will find it useful. A successful laboratory manual needs to be robust, well presented, clearly written and concise. The comb binding allows the book to be opened flat at any page, without risk of it closing or of pages falling out. The presentation is excellent, with many clear illustrations. The text is a little patchy, some protocols being given with too little information. In most of these cases appropriate references are given to fill in the gaps. For the majority of the techniques described, the protocols should be sufficient.

One problem with this book is a consequence of its clarity. Many of the protocols are technically difficult, the conciseness and lucidity of the descriptions suggests the opposite. This is a feature well worth coming to terms with as the techniques will certainly be easier with the manual than without it.

As a laboratory manual, the book is well worth the price. I would recommend it to anyone embarking on embryo manipulation experiments. *MANIPULATING THE MOUSE EMBRYO* is however, more than just a laboratory manual. Approximately a quarter of the book is devoted to background developmental biology and genetics. This puts many of the techniques in context and provides a useful source of up-to-date information. Indeed, this book is probably unique in its coverage of mammalian developmental biology, and will be welcomed by anyone who has tried to plough through embryology texts in search of information relevant to mammals. In the preface, the authors state 'It is to help catalyze the interaction between molecular biology and mammalian embryology that this manual has been written.' I am sure that this aim will be fulfilled.

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Evolutionary Processes and Theory. Edited by SAMUEL KARLIN and EVIATAR NEVO. Academic Press, New York. 1986. 786 pages. Hardback £52, Paperback £29. ISBN 0 12 398760 1 hardback; 0 12 398761 X paperback.

This book is the product of a workshop which moved among five different universities in Israel to discuss its

main topics – which must have added much to the labours of the organizers and those who had to keep on unpacking and repacking their luggage. Darwinism (both eo- and neo-) is still very much alive and spreads its tentacles into every corner of biology, as a glance through this book illustrates. In fact, almost any biochemical or genetic (molecular or populational) research can readily be shown to have evolutionary implications and lead to a workshop paper.

The range of the 33 fairly substantial papers (average 24 pages) collected here is very wide, with a strong bias towards mathematically oriented theory, but it by no means covers all the main areas of current evolutionary interest, or gives an adequate picture of those areas which are discussed. Most of the papers resemble research reports rather than reviews, and make no allowance for new readers not already blessed with the proper background. Almost any fairly knowledgeable reader, however, will find several topics of interest, and the book is well worth sampling.

There are six main section headings, I. Evolution Problems of Molecular Biology; II. Tempo and Mode in Molecular Evolution; III. Comparative Analysis of DNA and Protein Sequences; IV. Models and Evidence of Speciation; and Population Genetics divided into V. Observation, Experiment and Theory and VI. Ecological and Behavioural Interactions. These main headings are not realistically descriptive of the sectional contents, and the choice of papers within each section is a little idiosyncratic, not to say wayward. As an example Section II listed above contains articles on hybrid dysgenesis, by Margaret Kidwell (a good review but not entirely new) 'The spread and success of non-Darwinian novelties', by Gabriel Dover – this article might be subtitled 'In praise of molecular drive and molecular coevolution', and its difficult speculative theme has been and will be much exposed elsewhere – 'Population genetics theory of multigene families with emphasis on genetic variation contained in the family', by Tomoko Ohta (extending her previous mathematical analysis), and 'Statistical aspects of the molecular clock', by John Gillespie (his previous theme that molecular evolution is an episodic process).

Section III on DNA and protein sequence analysis includes Michael Clegg *et al.* on chloroplast evolution in barley, Alan Templeton on a statistical analysis of molecular data bearing on the relationships of the great apes and man: overall these favour the theory that gorillas and chimpanzees had a common ancestor after the human lineage split off, as opposed to the theory that humans and chimpanzees had a common ancestor after the gorilla lineage split off, but not all sets of data point the same way. There are also theoretical papers by Wen-Hsiung Li, Walter Fitch and Samuel Karlin. Articles in Section IV on speciation discuss sexual selection in the Hawaiian *Drosophilids* (Hampton Carson), Allopatric and non-allopatric speciation (Bush and Howard), The subterranean mole rats of Israel (Nevo), *Drosophila*

speciation in the Hawaiian Islands (Templeton), and speciation of hummingbird flower mites, elsewhere described as stowaways on the hummingbird express (Colwell).

The two last sections on Population Genetics include papers on Mitochondrial DNA, Habitat preference in *Drosophila*, Suez canal migration – which way, what kind of species and why?, Evolutionary genetics of HLA, Gaussian versus non-Gaussian analyses of polygenic mutation-selection balance (an illuminating discussion by Michael Turelli), The Gaussian approximation for random genetic drift, W. D. Hamilton on Instability and cycling of two competing hosts with two parasites (I found this as obscure as much modern music), some more mathematics of altruistic behaviour, a mathematical model for the evolution of learning, and genetic models of endosperm evolution in higher plants.

I have failed to mention several possibly important articles, but potential readers with an interest in the more mathematical aspects of evolutionary studies and speculation may be encouraged by my listing of titles to examine the book or buy it in paperback. I cannot say that it should be purchased by all Genetics Department libraries, but at least the (comparatively) cheap paperback edition makes it available for those with a strong interest in many of the topics listed. No doubt articles in this compendium will soon get into the references in future papers, but most of what is included can be extracted from other publications, with a little patience.

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Practical Developments in Inherited Metabolic Disease: DNA Analysis, Phenylketonuria and Screening for Congenital Adrenal Hypoplasia. Edited by G. M. ADDISON, R. A. HARKNESS, D. M. ISHERWOOD and R. J. POLLITT. MTP Press Limited. 1986. 335 pages. £50.00. ISBN 0 85200 690 X.

This oddly titled book is, as the contents page makes clear, the proceedings of the 23rd Annual Symposium of the Society for the Study of Inborn Errors of Metabolism (SSIEM), held in September 1985. The assembled papers have already been published as two supplements to the *Journal of Inherited Metabolic Disease*. Membership of SSIEM includes subscription to the Journal and all its supplements and costs £25.00 per year. The above book costs £50.00. For those who are interested, there are obvious financial advantages in applying for membership of SSIEM.

Until quite recently, meetings of this Society have tended to concentrate on the detailed enzymology of those genetic disorders whose rarity allows the investigators to outnumber the patients. No aspect of seramidase deficiency, Zellweger's syndrome or short-chain fatty-acid oxidation defect was considered

unworthy of minute examination and loving reporting. The standard of work has been high and the Journal is superbly edited and produced. However, much as one admires the dedication of those who engage in this type of very necessary investigation, their reports can be awfully dull reading for the interested onlooker.

The proceedings in this book represent the Society's attempts to come to terms with the 'new genetics'. A symposium on recombinant DNA includes some useful contributions from Sue Malcolm and Marcus Pembrey on principles of gene probing, chapters on phenylketonuria and α_1 -antitrypsin deficiency by Savio Woo, ornithine-transcarbamylase deficiency by Lee Rosenberg, and an interesting short account of the role of homologous recombination in gene insertion by Oliver Smithies. However, these chapters are already substantially out of date and the interested reader will have to check *Nature* or *Proceedings of the National Academy of Sciences* to see where the subject is now. Apart from the recombinant DNA section, which takes up the first third of the book, the remaining papers are detailed descriptions of the enzymology of the rare and the vanishing rare.

I welcome the attempt by SSIEM to put a tentative foot into the cold water of molecular biology. It must seem an alien world to many of its members. But one thing is clear: if the Society continues with its interest in DNA, it will have to stop publishing the proceedings of its annual meetings in hardback form. There was little enough justification for this in the past, given the availability of the same material in supplements of the *Journal of Inherited Metabolic Disease*. With the accelerating pace of progress in molecular biology, hardback proceedings are hopelessly dated by the time they appear. I could not, therefore, recommend this book to either individual readers or science libraries.

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Fourteenth Symposium on Nucleic Acids Chemistry. Held in Tokushima, Japan. 30 October to 1 November 1986. Nucleic Acids Symposium Series No. 17, IRL Press Ltd. Oxford. 272 pages. £27, \$49. ISBN 1 85221 003 6.

This is a special symposium edition of the journal *Nucleic Acids Research*. It is principally of interest to research workers in the areas of biological and pharmaceutical chemistry. The volume contains a great deal of innovative science but is generally short of experimental detail. I feel sure that any important work appearing here will have already surfaced or will shortly be seen in other scientific journals. A quick scan reveals some interesting statistics. Of the 235 contributors, 230 are Japanese, 4 American and 1 Belgian. This is not, then, an international symposium. On the positive side the 60 scientific papers on nucleic