

particular topic but at the same time it makes the book seem more like a proceedings than a genuine book, and although I will be in a minority I might have favoured all the references at the end. There are 14 pages of a good index which is highly desirable in such a publication and the book is well printed although the few photographs lack clarity.

The editors argue that the book is intended for researchers, lecturers, students and farmers but I suspect the last two groups may find the book heavy going. Moreover, the way farming incomes are declining, farmers could find the price as prohibitive as will most students. Although it does not claim such comprehensiveness, Simm's *The Genetic Improvement of Cattle and Sheep* (1998) will not find its sales affected by this book and Simm has certainly not been deterred from co-authoring the chapter (with Kinghorn) on 'Genetic Improvement of Beef Cattle'. This new book should become the standard text on cattle genetics — I do not know of any rival for that role. It will have pride of place in most libraries but if it is to do so for a long time it will need to be revised and updated every 5–10 years, and that may be a greater task than the original writing.

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Genetic Methods for Diverse Prokaryotes (Methods in Microbiology, 29). Margaret C. M. Smith and R. Elizabeth Sockett (eds). Academic Press, San Diego. 1999. Pp. 500. Price \$59.95, comb-bound paperback. ISBN 0 12 652340 1.

Recent advances in genetic approaches and technology have made a variety of previously intractable bacteria amenable to genetic analysis and manipulation. In this book the editors have compiled contributions from world authorities covering both classical and new genetic methodologies which are applicable to a number of phylogenetically diverse bacteria, including the archaea.

The book is divided into three sections, the first of which comprises four chapters dealing with essential techniques. These chapters cover transformation procedures, together with detailed treatises on cloning vectors and bacteriophages suitable for delivery of genetic information into and between bacteria. Transposons have become extremely important in genome mapping, mutagenesis and as gene shuttles and an excellent review of their uses in a variety of organisms is presented.

The second section of the book presents six case studies devoted to diverse types of bacteria. An excellent chapter on the genetics of *Neisseria* introduces the section. This chapter is very well conceived and has a good mix of historical information combined with actual protocols. Phase variation is covered well and functional genomics gives the chapter a contemporary feel. The following chapter on *Clostridia* continues the trend with the theme concentrating on methods of transposon mutagenesis. Unfortunately, the remaining

chapters, covering *Borrelia*, *Bacteroides*, mycobacteria and Archaea do not maintain the inclusion of protocols and revert to taking a historical perspective. This notwithstanding, each of the chapters provides an excellent source of references for the reader wishing to delve deeper into the details of techniques. The final chapter in the case study section encompasses our current state of knowledge of archaeal genetics, and is extremely informative.

Four chapters dealing with the genetics of specific complex phenomena are contained in the final section of the book. Included in this is a large and detailed chapter covering everything you ever wanted to know about *Erwinia* phytopathogenesis but were too afraid to ask. Also included are chapters on the genetics of specific aspects of *Helicobacter*, *Rhodobacter* and *Bacillus* biology. Intriguingly, the basic content of these chapters is the same as that of the chapters in Section II and I failed to understand why the editors needed to include them under a separate section.

Clearly, such a book will have a certain degree of repetition in the description of techniques for different organisms. However, the editors have done a commendable job in keeping overlap to a minimum. Upon receiving the book and looking at its title, I had anticipated chapters filled with relatively detailed protocols. As mentioned above this was only evident for two chapters. Nevertheless, having read the book I found that this deficit is amply compensated by the fact that, almost without exception, each chapter provides a comprehensive account and up-to-date reference list. Indeed, in their preface to the volume, the editors comment that their '... aim is to educate on the technical feasibility of genetic experiments in many diverse prokaryotes ...' and they achieve this admirably. It is inevitable when covering such a range of techniques and diverse organisms that some omissions will occur. I felt that the genetic techniques used to study invasive bacteria such as *Listeria* or *Yersinia* would have been very useful. Perhaps also a chapter on *Caulobacter*. Despite these omissions, I feel the book presents a balanced overview of current genetic techniques and it is an extremely good source of information. This book provides excellent value for money and will prove an invaluable mine of information for Ph.D. students, postdocs and research scientists alike.

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Agricultural Value of Plant Genetic Resources. R. E. Evenson, D. Gollin and V. Santaniello (eds). CAB International, Wallingford. 1998. Pp. 285. Price £40.00, hardback. ISBN 0 85199 295 1.

The notes on the back cover of the book provide a convenient summary of its origins and purpose: 'This book is an edited

compilation of papers from the Symposium on the Economics of Valuation and Conservation of Genetic Resources for Agriculture held in Rome in May 1996. It addresses some of the key issues involved in the estimation of the economic value of conserving genetic resources for agriculture. It covers the modelling of the value of plant genetic resources (PGRs), empirical studies of PGRs (including field diversity and yield vulnerability), seven empirical studies of PGR breeding values, property rights in PGRs and the implications of modern biotechnology methods for PGR values.'

The Foreword and Introduction competently set the scene and provide an excellent overview of the topics covered. The book is then conveniently and sensibly divided into five parts, each containing a varying number of chapters, each chapter being a paper from one or more contributors. The first part (comprising four chapters) deals with modelling the role of genetic resources in plant breeding, the second (two chapters) and third (seven chapters) deal with empirical studies related to plant breeding and field diversity, and to breeding values, the fourth (four chapters) with property rights and the final part (two chapters) deals with the implications of developments in biotechnology.

The book attempts to address the subjectivity often associated with the accumulation, maintenance and utilization of plant genetic resources and replace it with well-argued cases, empirical models and economic justifications, to provide an objective system for determining the value of plant genetic resources and a balanced, critical view of the choices to be made. It addresses in depth and considerable detail, and with well-supported arguments and examples, many of the problems and decisions that must be faced when attempting to put a value on plant genetic resources, particularly when justifying their cost and requirements for funding.

Mostly I enjoyed the book — it contains many interesting ideas and some novel approaches to sensible, relevant and valid questions, and it will, no doubt, contain something for everyone involved in the various aspects of plant genetic resources. However, as a biologist with little training in mathematics, I did find much of the economics modelling quite incomprehensible — the equations and parameters are poorly explained for the uninitiated and little attempt is made to put their purpose and effects into words or a practical context. There is also the danger that, having acknowledged that determining the value of genetic resources is very complex, the effort goes into getting the model to work rather than providing practical solutions. Despite this, I would expect

the book to provide a novel approach and a fresh way of thinking for anyone involved in the collection, conservation and characterization of plant genetic resources, or less directly through their utilization as sources of valuable traits.

Ultimately, the question has to be whether anyone can put a value on something for which the use is, as yet, unknown and for which the potential cannot be foreseen. The final sentence of the book states: 'These economic calculations showed that the economic returns to agricultural research will continue to be high in future decades, that plant breeding will continue to be of crucial importance, and that the collection, evaluation and maintenance of genetic resources will continue to be vital to the effectiveness of agricultural resources.' This is a reassuring conclusion to anyone involved in plant genetic resources.

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Books received

Human Gene Evolution. David N. Cooper. BIOS Scientific Publishers, Oxford. 1999. Pp. 490. Price £75.00, hardback. ISBN 1 859961 51 7.

Transgenic Mammals. John Bishop. Longman, Harlow. 1999. Pp. 294. Price £19.99, paperback. ISBN 0 582 35730 6.

The Human Inheritance: Genes, Language, and Evolution. Bryan Sykes (ed.). Oxford University Press, Oxford. 1999. Pp. 195. Price £19.99, hardback. ISBN 0 19 850274 5.

Fundamentals of Molecular Evolution (2nd edn). Dan Graur and Wen-Hsiung Li. Sinauer Associates Inc., Sunderland, Massachusetts. 2000. Pp. 481. Price £27.95, paperback. ISBN 0 87893 266 6.

Foundations of Mathematical Genetics (2nd edn). Anthony W. F. Edwards. Cambridge University Press, Cambridge. 2000. Pp. 121. Price £12.95, paperback. ISBN 0 521 77544 2.