

manipulation of antibody effector functions and production of antibodies and fragments in both eukaryotic and prokaryotic systems.

The book assumes that the reader has a good background knowledge of recombinant DNA techniques and to some extent antibody engineering itself. A better balance could have been obtained by including a general first chapter introducing in more depth the concepts and theories behind the practical protocols including advice relevant throughout the book. For example, 'Recommendations on the Preparation and Use of a PCR Room' does not appear until Chapter 7, whereas the technique itself is mentioned in earlier chapters. A glossary of terminology is also missing, a valuable source of information for a novice in this particular field. Practical approach guides can prove to be a valuable source of 'base' protocols even for the most experienced researcher in the field. This text is well structured with short introductions to the chapters and to each protocol. The methods themselves are easy to follow, well detailed, step by step guides.

*Antibody Engineering — A Practical Approach* brings together a number of authors under the editorial control of McCafferty, Hoogenboom and Chiswell. The result is a comprehensive guide that will act as a valuable practical reference source for any researcher entering the field of antibody engineering.

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**Chromosomes Today, vol. 12.** N. Henriques-Gil, J. S. Parker and M. J. Puertas (eds). Chapman and Hall, London. 1997. Pp. 379. Price £60, hardback. ISBN 0 412 75240 9.

The volumes of *Chromosomes Today* represent the proceedings of the International Chromosome Conference (ICC), a meeting that takes place every three years. The meeting consists of poster sessions and about three solid days of plenary lectures reviewing recent developments in cytogenetics. I have found the meetings an excellent way to keep up with research on chromosomes, and *Chromosomes Today* a valuable reference book thereafter.

*Chromosomes Today, 12* includes papers based on all the plenaries at the 1995 ICC in Madrid (the poster abstracts are published in the 1995 *Chromosome Research*, 3 supplement 1). It stands out relative to its predecessors with regard to quality of production; presumably 'camera ready' days are gone forever! There are many superb colour photographs of chromosomes and even black-and-white portraits of the plenary lecturers.

Although 'International', the Chromosome Conference has always been substantially a European affair, and, as can be seen from the list of authors to *Chromosomes*

*Today, 12*, there was a particularly strong Iberian representation among the plenaries at the 12th ICC. While I would have preferred more input from North American and Australasian cytogeneticists, I do believe that *Chromosomes Today, 12* is successful as a remarkably wide-ranging survey of the current state of research on chromosomes, with 22 chapters each averaging 17 pages in length. There are up-to-date contributions on many of the long-term favourite issues in cytogenetics: involvement of chromosomal change in cancer, identity or otherwise of chiasmata and cross-over events, selfishness v. neutrality of B chromosomes, orientation of univalents and sister-chromatid cohesion at meiosis, and cell cycle control from a chromosomal perspective. Other more 'modern' issues (Y-linked genes in mammals, DNA methylation, genomic imprinting) are also covered and throughout the volume we are feasted with the greatest excitement of current cytogenetics: the incredible technical developments (FISH, GISH, chromosome painting etc.) applied within a wide variety of studies.

I particularly enjoyed the review papers on use of nucleases in elucidating chromosome structure (Gosálvez *et al.*), the characteristics of chromosome regions that form G-, R- and T-bands (Craig & Bickmore), chromosome behaviour at earliest meiotic prophase (Scherthan) and the power of molecular techniques in understanding plant evolutionary biology (Leitch *et al.*). Also worthy of special mention are Peter Cook's minimalist model of chromosome packing, Harald Biessmann's fascinating story of *Drosophila* telomeres and Milton Gallardo's controversial contention that there is a tetraploid species of mammal.

All-in-all, this volume continues the excellent tradition of *Chromosomes Today* and is well worth reading. Unfortunately, at a cost of £60 it seems destined for library shelves rather than individual collections. Although the book is generally well put-together there are a few minor irritations with respect to editorial control, that I hope will be corrected for volume 13: all contributions should have had summaries, more consistency in chapter length and quality of English would have been desirable, and the colour plates and their legends could have been better positioned.

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**Biological Invasions.** Mark Williamson. Chapman and Hall, London. 1996. Pp. 244. Price £24.99, paperback. ISBN 0 412 59190 1.

Biological invasions are fascinating phenomena, and I can think of no-one better qualified than Mark Williamson to write about them. His interest in the subject developed

from his work on island biology and his experience includes running the British contribution to the SCOPE (Scientific Committee on Problems of the Environment) Programme on the Ecology of Biological Invasions. Indeed this book is in large part a review of how well we have managed to tackle the first two SCOPE questions, namely 'What factors determine whether a species will become an invader or not?' and 'What site properties determine whether an ecological system will be prone to, or resistant to, invasions?'

As the author readily acknowledges, potential invaders and invulnerable habitat types are both difficult to spot, and the attempt to characterise invasions *a posteriori* has revealed frustratingly few generic features. There are rules — of sorts — like Williamson's own 'tens rule' which says that roughly 10 per cent of imported species escape, roughly 10 per cent of escapees become established, and roughly 10 per cent of established escapees become pests. But this rule, which provides a reasonable statistical description of invasions, is interesting principally because of several exceptions. The book is structured around a list of these emergent generalizations — which are dubbed 'conceptual framework points' (CFPs) — based on what usually happens. However, we are rightly warned that 'individual invasions can do almost anything, and can behave in many strange ways'.

The ten CFPs are introduced in the first chapter and are illustrated by four examples of invasions (by the fulmar, the rabbit, the *Myxoma* virus which infects rabbits, and the plant genus *Impatiens*) which display some, or all, of them. This sets the tone for the rest of the book and typifies probably its greatest strength — the wealth of detailed examples of invasions employed to illuminate issues, test theory, and challenge assumptions. Mark Williamson is a wonderful storyteller (in the best sense of the word), weaving fact and theory to develop the plot in each chapter (see, for example, perhaps my favourite bit — the section on testing mathematical theories of spread

from studies of muskrats and sea otters), sometimes embellished with marvellous items of trivia (Did you know that stiff-tailed ducks are poor walkers and lay remarkably large eggs?) He is at his best when debunking an idea he disapproves of (the use of Baker characters in risk assessment) or a bit of dogma too readily accepted (the importance of high '*r*' for successful invaders). The result is highly readable.

The chapter likely to be of most interest to the readers of *Heredity*, on genetic and evolutionary effects, is rather thin, concentrating mainly on the line that to be a successful invader you have to have the right genes (although we are not sure what these are), that these may be only a few genes different from non-invaders, and that combining genes, as in hybridization, can change ecological amplitude and empower invasions. The fact that a small genetic change can sometimes have a large ecological effect may explain the enthusiasm of the author and many other ecologists (which I do not share) for the appropriateness of the invasion model to risk assessment of genetically modified organisms. I believe it is relevant only in a very general sense and, because biological invasions are so poorly characterized, is hardly a very helpful model. Knowing what can happen seems to me only marginally to improve our ability to spot, in a particular case, whether it is likely to happen.

It is difficult for someone who knows Mark Williamson well not to read this book without a mind's eye image of the mischievous sparkle he brings to a debate, and his provocative, sometimes staccato, but always easy to read style is an excellent vehicle for a controversial, little-understood and exciting subject. Buy it and read it.

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## Books received

**Plant Molecular Biology — A Laboratory Manual.** Melody S. Clark (ed.). Springer-Verlag, Berlin. 1997. Pp. 529. Price DM 120.00, spiralbound softback. ISBN 3 540 58405 6.

**Biotechnology and the Improvement of Forage Legumes (Biotechnology in Agriculture Series 17).** B. D. McKersie and D. C. W. Brown (eds). CAB International, Oxford. 1997. Pp. 444. Price £75.00, hardback. ISBN 0 85199 109 2.

**Understanding DNA and Gene Cloning (3rd edn).** Karl

Drlica. John Wiley and Sons, Inc., New York. 1997. Pp. 329. Price £19.99, paperback. ISBN 0 471 13774 X.

**Plant Genetic Conservation — The *In Situ* Approach.** N. Maxted, B. V. Ford-Lloyd and J. G. Hawkes (eds). Chapman and Hall, London. 1997. Pp. 446. Price £27.50, paperback. ISBN 0 412 63730 8.

**Primer of Genetic Analysis (2nd edn).** James N. Thompson, Jenna J. Hellack, Gerald Braver and David S. Durica. Cambridge University Press, Cambridge. 1997. Pp. 276. Price £37.50 (US \$64.95), hardback. ISBN 0 52147312 8.