

a 'top-down' manner, its impact in terms of communicating the important ideas to workers in related areas as well as to the politicians whose decisions have an enormous impact on the preservation of biodiversity might have been considerably increased. The achievement of ICARDA's goals depends on specialists in many disciplines working together and it would have been good to see more evidence in this book that this was also happening within research programmes. As a non-geneticist, I find it curious how rarely experimentation seems to be carried out to establish how far a character is stable under a range of environmental conditions. Much research still seems to be at the stage of summarizing data sets statistically rather than moving on to understanding the mechanism linking the possession of a particular complement of genes to the performance of the genotype in a farmer's field. Mechanistic crop models are by no means perfect but at the very least force us to ask how a particular feature of a genotype leads to a higher, or lower, yield in particular circumstances.

The individual papers vary in quality, as is often the case with such compilation works. The presentation is excellent which suggests hard work behind the scenes by the editor or by an editorial panel, although there are no acknowledgements to referees. At the end of each paper there is a short discussion, based on comments made at the workshop and in some cases the information would have been better incorporated within the paper. Speed of publication is an admirable goal but it is sometimes better to spend a little more time ensuring that authors take account of new ideas at the conference, perhaps by cross-referencing to other papers. The book contains a considerable amount of useful information. Unfortunately, the worst feature of the book is its index which consists almost entirely of entries for species of wheat, places, organizations, pests and diseases. Terms such as restriction fragment length polymorphism, vernalization and water use efficiency are conspicuous by their absence. In a book such as this, the titles of the individual contributions are insufficient to explain their contents in detail and a good index is essential. It is particularly unfortunate that a volume with evaluation as one of its aims does not include in the index any reference to the wide range of techniques employed. Nor indeed are biological processes such as photosynthesis indexed, thus reducing the value of the book to scientists who are neither geneticists nor taxonomists.

In summary, this is a book that specialist geneticists and taxonomists working on wheat systematics and breeding may be able to justify ordering for their Institute library. However, there is an important book with the same title still waiting to be written for a wider readership.

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Chromosome Microdissection and Cloning, A Practical Guide. By NABIL G. HABAB and MICHAEL V. VIOLA. Academic Press. 1993. 160 pages. Comb-bound. Price £27.00. ISBN 0 12 313320 3.

Another cookbook full of recipes. There are many now on the market, none really holding a candle in scope to the three volumes of what is colloquially known as 'Maniatis' (Sambrook, Fritsch & Maniatis). And it is with that veritable 'Mrs. Beeton' of the genetic laboratory that any newcomers must be compared. This book has the merit, at least, of tackling the technically difficult topic of microdissection and microcloning not treated at all in the magnum opus. That being said, the question remains 'does it do it well?', and here there is a resemblance to the proverbial egg of Mr Jones the curate.

Take the first chapter, which attempts to give an overview of chromosome morphology and structure in a space which cannot hope to do justice to the subject. Surely a pointer to the more standard texts would have been adequate, allowing an expansion of the much more important practical chapters in what is a self-designated practical book. In addition one of the important figures is decidedly unclear and poorly edited, detracting from the otherwise high standard of production. Similarly I could see little point in having a glossary of terms that will already be all too familiar to the person who is likely to use this manual. However, the chapters on the actual nitty-gritty of microdissection from chromosome preparation through to final analysis and use of the clone libraries are clearly written and useful. There are some areas that would have benefited from more detail. For instance there are very pretty pictures of a microforge and a micropipette grinder and it would also have been helpful if the text had provided some help on how to actually get these machines to make nice bends and ampullae on micropipettes. Ampullae-ended micropipettes can also be accurately calibrated as to volume using radioactivity, a useful alternative to their method of extrapolating from tip diameter. In passing there is also a (surely redundant) picture of a printer which seems to be producing, if I am not mistaken, an obstetric ultrasound image! The range of the equipment they describe is also somewhat limited. Many de Fonbrune micromanipulators are still to be found in the many labs in the U.K. and Europe, and very good they are too (de Fonbrune's name is also appended to a widely used microforge), and more modern motor-driven devices such as the Eppendorf are almost vibration free. There are also more important areas that are understressed. After telling us that phase contrast optics are essential when acquiring a microscope for microdissection I can find no mention of phase contrast imaging, which has its own problems when used at high power, and the tricks and adaptations that go towards solving them. Such microscopy can be very useful in imaging chromo-

somal rearrangements that can form clearly visible landmarks for microdissection. This technique has been perfected by Dr Weith and his colleagues in Heidelberg and Vienna and is capable of yielding clones of a large average size and representativeness. The dissection and cloning stages involved are adaptations of the 'oil chamber method' which they describe only very scantily. This is a great pity, especially since the relevant publications are mentioned in the very good reference lists. I very much doubt whether the method could be duplicated successfully simply from the information given in this volume. But then perhaps such methods, like the bedside manner of a clinician, are best learned under direct supervision from expert practitioners.

However, overall, the book is a highly useful summary of the field. It is small, opens flat when required, and has plenty of room in the margins for the scribbling of comments. If I was not given the review copy I would probably buy it, but the price would probably put off some prospective readers. However, such manuals are just as much tools of our trade as any thermal cycler or piece of pulse field apparatus, they are of more use in the lab. than in the library, and perhaps the equipment budget could be equally well used in their purchase.

A final point of irritation. There has developed an unfortunate folklore around microdissection and this is not helped by the publisher's blurb on the back page of this paperback. Here we are promised the revelation of 'in-house secrets usually omitted from published works'. Black magic is not involved, and I'm sure the authors deserve better for their generally clear exposition of good lab practice.

Reference

Sambrook, J., Fritsch, E. F. & Maniatis, T. (1989). *Molecular Cloning: A Laboratory Manual*. 2nd edn. New York: Cold Spring Harbor Laboratory Press.

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Chromosomes: A Synthesis. By ROBERT P. WAGNER, MARJORY P. MAGUIRE and RAYMOND L. STALLINGS. Wiley-Liss. 1993. 523 pages. Hard cover. Price \$89.95. ISBN 0 471 56124 X.

I know that you should never judge a book by its cover, but it always seems such a good place to start, when book reviewing. In this case it looked promising, a snappy title, glossy colour picture on the front and solid textbook-like feel. The back cover hints at equally enticing content within. The authors' stated aims are to convey the excitement of modern chromosome biology, currently undergoing somewhat of a renaissance and hence ripe for a new and up-to-date textbook, and to encompass the areas that contribute to it – cytology, cell biology, genetics,

biochemistry, molecular biology and evolution. Unfortunately, to my mind this book fails to achieve these aims. What the authors have accomplished is a very useful historical account of the subject that would have satisfactorily summarized the field up to approximately 1990. However, for a book with a 1993 publishing date there is a lot missing and for me this includes some of the most exciting things going on in the world of chromosomes. This is reflected in the reference lists, which cite no papers published in 1993 and only 7 from 1992. For example, there are 11 pages on reassociation kinetics and repetitive DNA but no mention at all of unstable trinucleotide repeats, in either human disease, or in relationship to the appearance of fragile sites on chromosomes, particularly with respect to Fragile X and the phenomenon of anticipation. Also missing is a discussion of X inactivation in relation to the product of the Xist gene, and similarly the intriguing problem of genetic imprinting is barely touched upon. Surely, these are two of the most fascinating aspects of mammalian chromosome structure and its relationship to gene expression.

As far as drawing on different disciplines is concerned, I felt that the contributions of genetics and biochemistry were understated. There is little consideration of chromosome-associated proteins, outside of the obvious example of histones; what about the polybom/chromobox proteins, methyl-CpG binding proteins and chromosome motor proteins – kinesins and dyenins just to take a few examples? The contribution of yeast genetics to our understanding of the chromosome is drawn entirely from the budding yeast *S. cerevisiae*, whereas it is the fission yeast *Schizosaccharomyces pombe* where a tractable genetic system has been partnered with cytologically visible chromosomes to isolate mutants in, and subsequently identify genes involved in, many aspects of chromosome condensation and segregation.

Visually I found the book rather turgid and old-fashioned. Diagrams are spidery and have an unprofessional appearance. Boxed inserts are used to break up the text, but these are overly long. As you may have judged I found this book rather disappointing; graduate and undergraduate students browsing through it will get a good appreciation of the key historical findings that have laid the foundations for the study of chromosomes, but they will miss out on the most recent and stimulating aspects of the field that are emphasizing the importance of the chromosomes as a structure central to all aspects of nucleotide metabolism from the regulation of gene expression through to recombination. Indeed, you should not judge a book by its cover.

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