

## Book reviews

*The Recombination of Genetic Material*. Edited by K. BROOKS LOW. London: Harcourt Brace Jovanovich Limited. 1988. 450 pages. £45.00. ISBN 0 12 456270 1.

This book is a compilation of review articles written by leading researchers in the field of genetic recombination in the early 1980s. It gives a very sound grounding in the subject and provides an important source for workers in recombination and for others wishing to acquire an understanding of the field. Unfortunately a very long time has elapsed between the writing of the chapters and the eventual publication of the book.

The book starts with a chapter by K. Brooks Low introducing recombination. This is done very clearly and concisely, and gives an appetizing lead into what follows. Jean-Luc Rossignol *et al.* provide a view of the power of genetic analysis in fungi. They describe with admirable clarity the experiments conducted in *Ascobolus* that have underpinned so much of our understanding of recombination. They discuss how the behaviour of particular classes of mutations can inform the development of models and discuss the application of several models to their data. This chapter is essential reading for anyone seriously interested in the subject. Arthur Chovnick and colleagues introduce the genetic analysis of recombination at the *rosy* locus of *Drosophila* and compare and contrast it to the situation in fungi. The analysis is abstract, dealing with the concepts of conversion, crossing-over and interference without the help of visual models. I found it interesting but hard work. Matthew Meselson deals with methyl-directed mismatch repair. This paper provides a clear review of the early genetic data on the subject. Gerry Smith covers sites that stimulate recombination in both bacteria and fungi. I enjoyed being able to read about these diverse systems in one paper. A. John Clark and K. Brooks Low cover the genetics of recombination 'pathways' in *E. coli*. Despite whether or not one believes that the pathway concept is useful until we have a more detailed knowledge of the biochemistry of the events, this chapter is a remarkable tour-de-force and represents an important source of knowledge and information for anyone interested in *E. coli* recombination. Huntington Potter and David Dressler provide a refreshingly novel approach to the study of recom-

ination *in vitro*. Nigel Grindley addresses transposition and site-specific recombination. This is an immense subject area which is very clearly presented. By his own admission, however, the review is out of date. Harvey Miller concerns himself with the control of site-specific recombination. Despite its title, the chapter deals almost exclusively with the integration and excision of bacteriophage lambda. Hannah Klein covers recombination between repeated yeast genes. She provides the basic framework for understanding these events but, as she states in her introduction, her chapter deals mainly with results that predate 1983. I enjoyed reading Robert Perry's chapter on the recombination of immunoglobulin genes which presents very clearly an immensely complicated subject but, as he says, the paper was completed in October 1982. I found Michio Oichi's chapter extremely interesting as it deals with the integration of our knowledge of the action of recombination proteins into the cellular mechanism for dealing with DNA damage (the SOS system). This is very important and there are probably many lessons that scientists working on isolated parts of recombination could learn by viewing the system as a whole within the context of repair.

My conclusion is that this is a very well written and presented book which will be enjoyed by readers interested in genetic recombination. Had it been published in 1983 or 1984, which I assume had been the intention, it would also have been up to date. I have not listed examples of the important recent work that has not been included because this could be taken as criticism of the authors and would be biased by my areas of knowledge and interest, but it is clear that the book is seriously out of date. Despite this problem I can say that I enjoyed reading it and believe that it is a useful source for workers in the field of genetic recombination. One final note: be careful of pretty pictures. The illustration on the front cover gives the impression that an unstretched DNA double helix lies within the RecA filament. Reading the caption will reassure you that this is not the case, but so prominently located a figure should not be so open to misinterpretation.

DAVID LEACH  
*Department of Molecular Biology*  
*University of Edinburgh*