Book reviews

Reproduction in Fungi: Genetical and Physiological Aspects. Charles G. Elliot. Chapman and Hall, London (1994). Pp. 309. Price £35.00, hardback. ISBN 0 412 49640.

It is a very substantial task for a single author to provide a comprehensive review of our current knowledge of the genetics and physiology of reproduction in fungi. In this text, Charles Elliot has gone a long way towards achieving this aim. He has produced an in-depth analysis of the subject, which illustrates the inter-relationships between environmental stimuli, biochemical products and gene function in the regulation of sexual reproduction within the fungal kingdom. The aim of the book was not to provide an exhaustive review, but to illustrate the concepts. In places these concepts are somewhat buried amongst the detailed examples. Also, several systems, including *Schizosaccharomyces pombe* and the Myxomycetes, are not described.

Following a short introductory chapter, in which the reasons for sexual reproduction are considered, chapters 2, 3 and 4 describe the well-established genetic systems of the filamentous Ascomycetes, the Basidiomycetes and the Hemiascomycete *Saccharomyces cerevisiae*. Our current understanding of the structure and function of mating type genes is also discussed. This is followed in chapter 5 by an analysis of the genetics of conidium and ascocarp development, in which *Aspergillus* and *Neurospora* are used to provide detailed examples. Subsequently, in chapters 6 and 7, reproduction in the Zygomycetes and the Oomycetes is discussed. Although our understanding of the genetics of members of these groups is much more rudimentary, analysis of the hormonal control of sexual reproduction provides some interesting insights. Nutritional and environmental signals play an important role in fungal development, and their known effects on reproduction are covered in chapter 8. Chapter 9 focuses on our knowledge of the physiological and morphological processes involved in the development of fruiting bodies in the Basidiomycetes. Finally, chapter 10 provides a useful summary, which draws together strands from the whole of the text and identifies fruitful areas for further research.

Overall, the text is well organized and presented. In particular the summary at the end of each of the major chapters will be invaluable to students. Although I am not an advocate of microscopic figures, several figures seemed disproportionately large in relation to those in the rest of the book. Inevitably, it is not possible to include the very latest developments in such a book. For example, recent advances in understanding the mating type loci of *Ustilago maydis* are not described. In my opinion, the single major omission is the lack of a glossary, which would be of tremendous value to the non-specialist reader. This would have been a useful replacement

for the author index, which I found to be very frustrating since it only referred to the first authors of cited papers.

This is a specialist text which assumes a good working knowledge of the fungi. It will be essential reading for final year undergraduates and researchers in this field, as well as being a valuable asset to library collections.

KEITH JOHNSTONE
Department of Plant Sciences
University of Cambridge
Downing Street
Cambridge CB2 3EA
U.K.

Gene Mapping: Using Law and Ethics as Guides. George J. Annas and Sherman Elias. Oxford University Press, Oxford. 1992. Pp. 291. Price £35.00, hardback. ISBN 0 19 507303 7.

The first thing that came to mind when asked by *Heredity* to review *Gene Mapping – Using Law and Ethics as Guides* was why a British journal, in which I've never published and probably never will, sent *moi* this book. The second thought after reading the jacket cover and checking the copyright date, a habit from my public school days, was why a 1993 review of a 1992 edition. Now that it's 1994 and I'm finally seated (listening to Rod Stewart's *Unplugged and Seated*) the second question has answered itself, but the first remains a mystery though not on a par with anything that would concern Inspector Morse. However, there was this supper at Bob Williamson's flat with ... hmm, let's think about that while we get on with the review.

Once mass times momentum was overcome, this was an enjoyable and educational read. Annoyingly, the book is broken into six sections that contain a total of seventeen chapters but includes no page of contents. It makes navigating the book like travelling in London without taxis or making the tube colourless. In the first section, a fleeting parallel is drawn between the impact of past big-budget hard science (physics and engineering) projects, like the Apollo programme, but more aptly the Manhattan Project, with the possible unforeseen societal effects of the Human Genome project. I wish more time had been spent here, describing this first opportunity for biologists (who have long been made to feel like second-class citizens in the science community) to flex their collective muscles. Also, I wonder if the authors sensed two years ago a growing resentment amongst biologists with the continuing success of these hard scientists to technologically retool and compete for public and private funding in this new biomedical and biotechnological age. The description of minimal standards for the establishment of a DNA 'gene bank' includes some lofty ideals. Although these