

## Book reviews

**DNA Fingerprinting.** M. Krawczak and J. Schmidtke. BIOS Scientific Publishers, Oxford. 1994. Pp. 107. Price £16.00, paperback. ISBN 1 872748 43 0.

This book provides a commendably brief, and more than commendably comprehensive, up-to-date account of the topic of DNA fingerprinting. There is good coverage of all aspects of the subject, from the basic physical and chemical structure of DNA and the organization of genomes through to the statistical analyses of the genetics of populations. Thus, a sound overall account of this important and rapidly developing area is provided.

The book begins by covering the molecular structure of DNA and genome organization, and this provides some useful background information, although the coverage of certain topics is rather sketchy and incomplete (for example, section 1.2.3 on Gene expression). However, in those areas most relevant to the subject of DNA fingerprinting, the information provided is sound and comprehensive; section 1.3 on the molecular organization of the human genome is especially good.

Chapter 2 gives a valuable account of the many different techniques relevant to this field and is greatly strengthened by the inclusion of illustrated examples. However, I was a little surprised to find no mention of the techniques of DAF (DNA amplification fingerprinting) or RAPD (random amplified polymorphic DNA) analysis. A final section on the applicability of DNA fingerprinting to human genome research and clinical medicine makes a very worthwhile addition.

Chapter 3 deals with the origins and maintenance of DNA polymorphisms. This is a particularly valuable part of the book as it draws together, in a succinct and unifying way, the many different mechanisms involved in these processes. The inclusion of brief accounts of both the selectionist and neutralist theories of molecular evolution should stimulate critical consideration of these complex and relevant issues.

Chapters 4 and 5 are devoted to the application of DNA fingerprinting to the specific cases of suspect identification and the establishment of familial relationships, respectively. In both chapters, the coverage of the different techniques available and the relevant statistical analyses is very good indeed and there is a frank and valuable discussion of some of the problems encountered in the statistical analysis of DNA fingerprinting data.

The book concludes with a brief, but important, examination of some of the ethical matters pertinent to the uses and possible abuses of DNA fingerprinting. These are matters of which those working in this field should be keenly aware.

The book is well and generously illustrated and the inclusion of a glossary, as well as references and titles for suggested further reading, are additional strengths.

There are two specific matters that require attention. First, the alignment of the terms '2N' and '4N' on the right hand side of Figure 1.4 is imprecise; secondly, on the top line of page 22 (section 2.1.6.) the word 'virus' should be replaced by the word 'vector'.

Overall, this is an excellent short text on a complex and rapidly expanding field that spans many different disciplines. It should prove very valuable to anyone with any interest in this area and I would commend it heartily.

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**Environmental Gene Release: Models, Experiments and Risk Assessment.** M. J. Bazin and J. M. Lynch (eds). Chapman and Hall, London. 1994. Pp. 166. Price £24.99, hardback. ISBN 0 412 54630 2.

The ability of recombinant DNA techniques to allow the genetic manipulation of plants and microorganisms towards improved or novel abilities has opened widespread possibilities for both deliberate and accidental release of engineered organisms. Most public and scientific attention in recent years has been focused on the deliberate release of organisms, primarily for agricultural benefit, but also for such specialist tasks as the removal and detoxification of pollutants. It is probably true to say that the issue of releasing such genetically-manipulated organisms (GMOs) into the open environment has spawned more multi-authored books than it has refereed papers. This volume is, however, novel in that it deals with the subject from the standpoint of mathematical modelling of plant and microbial populations and gene flow. The ultimate aim of such studies is presumably to provide measurable parameters for risk assessment within the context of international regulatory legislation.

The book contains chapters on modelling plant growth, models for microbial population dynamics and interactions, gene exchange in soil and the phytosphere, sampling difficulties, risk assessment and a round table paper on mobile genetic elements as risk factors in the dissemination of released genes. These diverse topics are embraced by a mixture of theoretical papers, reviews and semi-experimental communications written by an international panel of authorities in this field. As is always the case in such books, the experimental/methodological contributions suffer from the occasional poor quality gel photograph or autoradiograph, because the authors would understandably wish to