

## Book reviews

**Molecular markers, Natural History and Evolution.** John C. Avise. Chapman and Hall, London. Pp. 511. Price £75.00, hardback, ISBN 0 412 03771 8; price £24.95, paperback, ISBN 0 412 03781 5.

In trying to create a text that comprehensively covers the overlap between the fields of Molecular Biology, Natural History and Evolution, John Avise has attempted the near impossible and partially succeeded. The book is divided into two parts. The first gives a history of molecular phylogenetics followed by brief introductions to some of the standard techniques of molecular biology together with methods of analyzing and interpreting the data that they generate. The second part covers the application of those methods, with chapters on individuality and parentage, kinship and intra-specific phylogeny, speciation and hybridization, species phylogenies and macroevolution and, lastly, conservation genetics.

There are numerous pitfalls for a single author covering such a breadth of material but Avise manages to avoid many of them most of the time. He brings coherence to a large and complex subject matter and gives some clear explanations of difficult concepts. The treatment in general is comprehensive rather than selective. Although it is inevitable that there will be omissions, it is nonetheless irritating to find, for example, such a one-sided presentation of the debate on clonality in the parasitic protozoans.

The main strengths of this book lie in the clear presentation and the literature cited. The diagrams and tables are simple and informative although colour graphics would have been a considerable improvement. A system of boxed notes/equations and section summaries balances the main text which itself is technically straightforward. There is a large and fairly comprehensive bibliography including both recent and classic material. This makes it a good starting point for anyone with a budding interest in molecular natural history and evolution. The text, however, does not inspire. It is considered, detailed and functional more often than fascinating. As a result, although the author claims that “molecular approaches are challenging and exciting” we, the readers, are ultimately disappointed. The excitement of much of the original literature is lost and the book has a slightly frustrated air, perhaps as a result of the struggle to represent all aspects of a very complex picture.

The book is aimed at advanced undergraduates, graduates and established scientists in related fields and undoubtedly has much to offer them as an introductory text. Is it a worthwhile investment? I would not rush out and buy it but I would want my library to have it for occasional reference.

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**The Uses of Life: A History of Biotechnology.** Robert Bud. Cambridge University Press, Cambridge. 1993. Pp. 299. Price £30.00, hardback. ISBN 0 521 38240 8.

Biotechnology has played a major role in shaping both traditional and modern science. *The Uses of Life* provides an exciting and objective account of the origins of biotechnology, not only as a word, but also as a science.

Robert Bud considers the advantages and disadvantages of this new technology, drawing on works as diverse and controversial as Aldous Huxley's *Brave New World* and Rachel Carson's *Silent Spring* to illustrate the moral, ethical and medical implications of this new science.

As a historian, Bud provides a lucid account of how biotechnology, far from being a modern science, does in fact have its origins in the techniques of the brewing industry at the turn of the century: drawn from a combination of chemistry, microbiology and engineering. He offers the compelling argument that biotechnology has helped, and continues to help, transcend the traditional boundaries within the scientific community, breaching the previously narrow confines of the ‘old’ science. I particularly liked Chapter Eight, in which he discusses the experiments that transformed bioengineering into big science in the post war years. He quotes Edward Tatum: “The time, has come, it may be said, To dream of many things, of genes – and life – and human cells, of medicine – and kings.”

The author further illustrates this change when he cites how scientific text books are, in general, no longer confining themselves to their formerly narrow subject areas, but instead are beginning to reflect a greater openness. Information on a variety of scientific disciplines can now be found in one volume.

In addition to covering the history of how such big science grew, the book introduces the reader to the scientific, political and public arenas that emerged world-wide, giving individual accounts of how diverse countries coped with the benefits or otherwise of biotechnology. To the scientist, this new technology has great potential both medically and environmentally. Medically, it offers a cure for many inherited and malignant diseases. Environmentally, it has the potential to produce better crops and healthier life stock. These technical developments have given rise to both political and public concern as fears emerge of another eugenics movement.

*The Uses of Life* would be suitable for students and members of the public at large who wish to further their understanding of what biotechnology is, and how it has developed as a major science in the modern world.

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