

these in turn organised into a living system. Sir Gavin de Beer has two contributions dealing with the "stuff" of evolution viz., the science of comparative anatomy and *Adaptation*. He gives us the classical textbook treatment with a fair smattering of history. Only in the closing paragraphs are we informed (after suspecting it throughout) that *Homology An Unsolved Problem* is really a question of developmental genetics, yet we are denied more than a tantalising clip from Sonneborn's experimental approach to "gene action in development". E. B. Ford embarks on an inquiry into the mechanism of evolution (*Evolution studies by Observation and Experiment*) and explains in an "infectious" and enthusiastic manner how the information has been gained through a fertile combination of ecology and laboratory genetics. Some account of more recent work revealing extensive allelic variation detectable only at the level of enzyme polymorphisms, would have been welcome. There are more than the proverbial "two schools of thought" about *The Origin of Chordates*. Bone adopts "the orthodox position deriving chordates from echinoderms or, hemichordates" and one would need to study the "Further Reading" pretty thoroughly before taking sides in this particular argument!. *Metamorphosis* has come rather late, slotted in between the Chordates, and Napier's account of *Primates and Their Adaptation*. It ought to be in company with the earlier account by Gurdon on differentiation. M. H. Day succeeds in putting "life" into the *Fossil History of Man*. Technical jargon is held to a minimum in this clear and fascinating story about the origin of our ancestors. The last two Readers, appropriately illustrated in shades of green, discuss the evolutionary history of the angiosperms. They make absorbing reading and bring us, through skilful writing and presentation, right to the forefront of these two important and challenging fields of research—*The Mysterious Origin of Flowering Plants* (K. R. Sporne) and *Studying the Past by Pollen Analysis* (R. G. West).

The reader is left in little doubt that these Oxford Biology Readers make a valuable contribution to the teaching and appreciation of Modern Biology. They have been stringently edited in a fashion which communicates the methods and excitement of science, yet still preserves the style and attitudes of individual authors. Given the titles only, one could have supplied many of the names. One monograph is conspicuously absent. Where is the account of the finest and most ingenious of all scientific success stories—the elucidation of the genetic code?

The 15 monographs making up this book are a selection from 84 to be published by 1974. Doubtless most students will find it preferable to purchase them singly and put together their own favoured selection.

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BACTERIAL TRANSFORMATION. Ed. L. J. Archer. Academic Press, London and New York. Pp. 413+85 text figures, 3 plate figures. £6.50.

This book comprises 23 of the papers given at the First European Meeting on Bacterial Transformation held in Oeiras, Portugal in September 1972. The subject matter is presented under three headings; the early steps in transformation, the fate of transforming DNA and recombination. Although the major emphasis is upon studies with *Bacillus subtilis*, *Pneumococcus* spp.

and *Streptococcus* spp., and *Haemophilus* spp. there is some consideration of other systems.

In the section on early steps there is much descriptive work. The nature of the differences between transformation and transfection, transformation-deficient mutants and the binding of synthetic polynucleotides to the surface of component bacteria are covered. There are five papers on competence and competence factors and, for novelty and promise, that by Portelés *et al.* on the use of continuous culture techniques to investigate the regulation of competence is perhaps the most interesting. Turning to the fate of transforming DNA, the papers acquire a greater precision. Endonucleases are well explained. Their biological diversity through transformation and phage restriction and modification studies is considered and exploitation of their purification in the analysis of incorporation of transforming DNA and recombination illustrated. The greatest precision is probably reached by Nester and Dooley in their elegant manipulations of DNA/membrane complexes suggesting DNA incorporation close to the membrane. The use of transformation as a tool to analyse mechanisms of recombination is elaborated in papers on the effects of inhibition of host DNA synthesis, recombination-deficient mutants, the required extent of base pair homology for transformation and the early stages of an analysis of the differences between low and high efficiency transformation systems. Exploitation of the stable and unstable diploids for large regions of the *B. subtilis* genome described by Audit and Anagnostopoulos should be of great value in the future genetic analysis of this organism. Finally, there are reports of the nature of transformation in a blue-green alga and the covalent bonding of bacterial DNA to that of mouse fibroblasts.

The editor and publishers of this book are to be congratulated on its publication only nine months after the Symposium. However, this speed may have resulted in the considerable unevenness between papers in style of presentation and clarity of language and also some poor figures and photographs. Closely related papers are not necessarily adjacent, probably because grouping by organisms dominates that of subject area. These defects make for difficult reading so that, whilst the book may be attractive to research workers in the transformation field for up-to-date reference, it may be of less value to those with other interests and could not be recommended for general final year undergraduate reading. On the positive side, commentary on the increasing control and understanding of transformation processes and the occasional references to their more general biological significance, for example, in the evolutionary context, is of much contemporary interest and value.

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