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Book Reviews

Genetically Engineered Organisms Benefits and Risks. By J. R. S. FINCHAM and J. R. RAVETZ, in collaboration with a working party of the Council for Science and Society. Open University Press, Buckingham MK18 1XW, UK. 1991. 158 pages. Hardback £27.50, ISBN 0 335 096190; paperback £8.99, ISBN 0 335 09618 2.

This is an excellent little book on the controversial issues of genetic engineering and its applications, written by a group of experts who (I think) have no axe to grind, since they are not involved in promoting engineered products nor at war with their usage under careful control.

After two introductory chapters aimed at readers not trained in molecular genetics, the book takes the various areas of application and summarizes recent progress, prospects and possible dangers, in the next six chapters, and finally considers risk assessment and managing the uncertainties of risk assessment. Some key references are found at the end of each chapter, and a useful glossary and index follow.

The six chapters on specific areas of application cover genetic engineering of organisms in industry, of microorganisms for use in agriculture, of agricultural plants, of animals, vaccines obtained by genetic engineering, and applications to the human genome. These chapters show the wide range of projects on which progress is being sought, and indicate the methods applied and the major problems the molecular geneticist comes up against. Each chapter also includes a useful discussion of ecological considerations and potential risks.

To take a few of the many examples, organisms in industry can produce hormones and growth factors, antibodies and antibody subunits, antibiotics, food additives and dietary supplements. Microorganisms may be modified to improve rumen bacteria and silage, to control insect pests, reduce frost damage and perhaps to revolutionize the disposal of farm wastes. Plant breeders have a great variety of material to work on, with prospects of transferring genes for disease resistance, resistance to insect pests and to herbicides in crop plants, and also converting plants to entirely new uses and extending the range of plant hybridization. Modified viruses as vectors for transferring useful genes, once they have been identified, play an important role in many of these procedures, and this raises problems of possible dangers which need close attention.

The book will be found instructive by anyone with even a small knowledge of biology, and it deserves very wide dispersal, which is made fairly easy by the low price of the paperback edition. I imagine it will contain much useful information even for the well-trained geneticists, and it should form an excellent starting point for those who want to get a better idea of what is going on in the mysterious world of genetic engineering and its commercial applications. In reading it, one must of course bear in mind that there is a great deal of effort being put into all those projects which seem to have financial prospects, so this book, like all others on genetic engineering, is being rapidly left behind by real life. But it will be useful for some time both for those wanting to catch up on progress and for those who remain suspicious of the disasters which over-enthusiastic commercial applications could lead to.

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From Gene to Animal. By D. DE POMERAI. Cambridge University Press, Cambridge. 1990. 417 pages, ill., index. Hardback £45.00, ISBN 0 521 38192 4; paperback £14.95, ISBN 0 521 38856 2.

The first edition of this textbook was put together in a hurry, and it was criticized for being superficial and for lacking balance. This second edition is essentially a new book, which has benefited from some of the comments on that trial run. It is a sort of graft of Davidson's *Gene Activity in Early Development* on to Wilkin's *Genetic Analysis of Animal Development*, but updated and with a greater emphasis on the molecular aspects of the subject. That being so, the book's immediate value lies in its topicality.

It starts with a very condensed summary of what every embryologist should know about molecular biochemistry. This is so advanced that the student is assumed to have done a full course – and presumably will use the summary as a refresher – and if not, he/she will have to go elsewhere. Similarly, the molecular biologist is expected to know at least some