

## Book Reviews

*An Introduction to Animal Breeding.* Studies in Biology No. 46. By JOHN C. BOWMAN. London: Edward Arnold. 1984. 76 pages £2.10: ISBN 0 7131 28801.

The essentials of animal breeding theory and practice are covered in a readable and conventional form. The chapters follow an introductory university/college course of Mendelian genetics, partitioning of variance and heritability, selection on a single character and correlated responses. A useful chapter on inbreeding and crossbreeding with some notes on selection in practice (poultry) complete the book. However, to bring a ten-year-old book up to date requires more than three pages on crossbreeding strategies; for example, mention of BLUP, genetic lag and drift would be helpful. The references of the text are identical to those of the first edition, with a few additions in the further-reading section, and some misprints of the inbreeding section persist. Often the tables complicate the text, and as graphs are also used, some tables may be unnecessary. For the chapter on selection, an example of a selection index would be appropriate as animal breeding is rarely on the basis of single-character selection. The book may be useful as a short introduction to animal breeding theory, as it reads as a condensed version of Falconer's text. It is probably too algebraic and technical for the layman and some students.

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*Gene Therapy: Fact and Fiction.* Edited by THEODORE FRIEDMANN. Cold Spring Harbor Laboratory, New York. 1984 131 pages. \$4.95 (\$5.95 elsewhere).

This slim volume (132 pp), described as a Banbury Public Information Report, was one of the products of a conference held in February 1982 on the subject of gene therapy. It is a considerable departure from the normal heavy-weight Banbury Reports, for its stated aim is to communicate to the lay public the potential and problems of applying new molecular biological techniques to the management and even cure of human genetic disease. Such attempts to involve the public in the concerns of molecular genetics are laudable, but stand or fall on the ability of the writer to translate complex jargon into everyday language without trivializing the scientific content.

Theodore Friedmann's method is to set out the basic problems of gene therapy in the opening chapters and then to present direct transcripts of the discussions at the meeting. This creates a bizarre discontinuity as we move from a clear, logical and simple description of the early development of molecular biology to the inevitable formlessness and discursiveness of a group of practitioners grinding their favourite axes. The author is obviously aware of this, as he cuts the participants short and returns to his own summaries of what was said and projections of what might happen.

Why, one wonders, did Friedmann not simply write his own book, based on his notes of the meeting? There is, of course, a certain authenticity in hearing the actual words

(probably carefully tidied up) of the giants of molecular biology, but I suspect that this has more impact on professional scientists than on a lay public, who will have the dimmest of appreciations of the stature of Paul Berg, David Baltimore and others. The price of including transcripts is a high one, for no one seems to say anything other than that gene therapy presents difficult problems which will take many years to solve. The particular chapter heading is 'We can't start and we can't stop', and the reader may be forgiven if he assumes that this applies to the discussion rather than the gene therapy itself.

So what are the prospects for gene therapy? In the final chapters Friedmann outlines the problems – isolation of the desired gene, integration into the host cell at an appropriate chromosomal site and regulation of transcriptional and translational activity. Although the first of these steps can be achieved by existing technology, the manipulation of genes into eukaryotic organisms is, in the words of one participant, like putting them in a big black box, where all kinds of imagined and unimagined things can go wrong. David Baltimore is frankly pessimistic: 'I wouldn't be at all surprised, that if we all got together 10 years from now, we wouldn't find a single disease that has been treated by gene therapy. We would still be talking about problems, but we could be talking about new problems and new difficulties.' Victor McKusick is even more realistic and points out that the contribution of molecular genetics is going to be greater in the field of diagnosis than in therapy. Techniques already exist for heterozygote detection and prenatal diagnosis of genetic diseases. If these could be delivered more effectively, particularly in developing countries, it would confirm the old adage that an ounce of prevention is worth a pound of care.

Will the lay public find this a helpful and enlightening book? I very much doubt it. The basic error in structure was to include direct transcripts of the meeting in the middle section of the book and thus to break its continuity and flow. Experts, even when otherwise directed, address each other in the language they use in the laboratory, and as anyone who has chaired a workshop knows, have a remarkable reluctance to speak to concerns other than those immediately in their minds. Reading this book is rather like watching a BBC discussion panel in which Malcolm Muggeridge asks a large group of serious-minded people to give their views on truth or god. In the ensuing babel of competing voices, one searches the programme schedules for something quieter, more organized and ultimately more enlightening.

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