

lation genetics should still do so. Although at £11.60 the price is high, British grants have trebled since the book first appeared.

DAVID T. PARKIN

*Department of Genetics, University of Nottingham*

CELL GENETICS IN HIGHER PLANTS. Proceedings of an International Training Course. Edited by D. Dudits, G. L. Farkas and P. Maliga. Akadémiai Kiadó, Budapest, Hungary. Pp. 251+58 text-figures+tables. Price: £8.60.

In this rapidly developing area of research some major problems have yet to be overcome and these are highlighted by the articles written by leading scientists in the first part of this book. The second and shorter part contains details of experimental methods used in cell genetics in higher plants.

After a short introduction by G. Melchers, the next six articles are about methods which do not involve the use of protoplasts. The maintenance of cell cultures and the isolation of mutants from them are adequately discussed; the main problems are maintaining the ploidy level and the regeneration of plants from single cells. A good account of methods used for obtaining biochemical mutants in *Arabidopsis* is given. P. F. Lurquin gives a critical review on the integration of exogenous DNA into plants, and some preliminary observations on the use of bacterial plasmids in plant cell genetics are added by F. Cannon.

The remaining ten articles concern the use of plant protoplasts. Although reliable methods for plant protoplast fusion are now available, and are described in the book, the selection and regeneration of hybrids has so far been possible in only a few special cases. E. C. Cocking presents evidence that the natural differential sensitivities of different kinds of protoplasts to various substances may be made use of for selecting hybrids. Several authors report that after a concerted effort to regenerate cereal protoplasts they have had no success, even though an enormous number of different media have been tried. Little work has been done on organelle transfer into protoplasts and it is this, I think, which makes the accounts of this subject seem poor. The importance of protoplasts in plant virus research is discussed. L. Ferenczy describes the characteristics of inter- and intra-specific hybrids obtained by protoplast fusion in *Aspergillus* and although the subject-matter is not directly concerned with higher plants the article does not seem to be out of place. Experience gained from systems using fungi and lower plants may prove to be invaluable to higher plant studies at a later date. Indeed, this could well be a very worthwhile approach.

The practicals in the second part of the book describe methods for pollen culture, protoplast culture and fusion, organelle transfer into protoplasts, and uptake of bacterial plasmids by plant cells.

The choice of authors has ensured a good coverage of the topics. Unfortunately many articles contain frequent grammatical errors, presumably due to poor translation. The main attribute of the book is that it contains numerous up-to-date references.

N. H. GRIMSLEY

*Department of Genetics, University of Cambridge, England*