

Drosophila: A Practical Approach. Edited by D. B. ROBERTS. Oxford: IRL Press. 1986. 310 pages. £16.50, \$30.00 paperback. ISBN 0 94746 45 4.

This book is an addition to the 'Practical Approach' series published by IRL Press, and as the title suggests, covers a wide variety of practical topics centred on the fruit fly, *Drosophila*. It combines many different subjects in one volume and, let me say at the outset, I believe that no serious researcher working on the molecular or developmental biology of *Drosophila* should be without a copy. Quite simply there is so much useful information here which is so easy to extract from this volume. Even if one has several filing cabinets of reprints dealing with all the disciplines mentioned here plus the dozen volumes of the Ashburner 'Bible', *The Genetics and Biology of Drosophila*, this book should be bought as it is so much easier to find the data and it is by no means expensive.

It begins at the beginning with a comprehensive survey by David Roberts of basic care of the animal. Most of this will already be known by someone who is already working on *Drosophila*, but it will be extremely useful to the novice. The methods of anaesthetization, sexing flies, collecting virgins, performing genetic crosses, etc. are clearly and concisely described. The construction of fly cages, collection of eggs, synchronization of growing cultures and recognition of the various defined developmental stages are all here, together with isolation methods for specific tissues and even a couple of pages on *Drosophila* cell culture. The latter is a good case in point; one cannot seriously expect to initiate experiments involving cell culture just by reading the two pages of this book. However, the basic description tells one what can be done and points the way to the references which give a more complete account. Additionally, a recipe for one of the commonest and best media which can be simply made at the bench is provided. This chapter also covers the basics of *Drosophila* genetics, including the whys and wherefores of inversions, deficiencies (large deletions), balancer chromosomes and translocations, and even tells you where to get your flies from.

The second chapter by Tom Grigliatti describes methods of mutagenesis. I have been working on *Drosophila* for eight years and I have never mutagenized a fly stock and would not know how to do it if it were not for this chapter. The advantages and disadvantages of each method are clearly put, and again the sundry tricks of the trade for mass isolation of virgins, and creation of specific chromosome deletions and different types of mutation (conditional lethal, recessive lethal, etc.) are clearly described. One point I would have liked to see covered is how many flies are mutagenized to produce a given mutation.

The third chapter by Margaret Kidwell describes the uses of P-M mutagenesis in the isolation of

mutants. This is an important subject because mutants created by this method carry a molecular 'tag' at the site of mutation which renders molecular cloning much easier. Again the practicalities of this technique are well covered, complete with names and addresses of people (including the author) who are willing to be pestered by requests for fly stocks.

In chapter four Pirrotta brings us into the eighties with a description of the many ways available for molecular cloning of *Drosophila* genes. Other books in the IRL series deal with cloning in general, and this chapter is a useful addition to these, as it covers aspects unique to *Drosophila* such as microdissection of individual chromosomes and microcloning of chromosome segments, 'chromosome walking', and *Drosophila* germline transformation.

Chapters five and six by Mary Lou Pardue and Hafen and Levine respectively deal with *in situ* hybridization to chromosomes (Pardue) or tissue sections (Hafen and Levine). The former approach tells you where your molecular clone is located on the *Drosophila* chromosomes, the latter tells you in what tissues it is being transcribed. Pardue's chapter is similar to one already published by IRL in their 'Nucleic Acid Hybridization' sister volume, but chapter six is new and very useful. If you ever wondered why your tissue falls off the holder during tissue slice cutting in a cryostat then this chapter is for you. All the recipes are clearly laid out here and throughout the volume.

Drosophila egg injection and P-element germline transformation (which relies on the former) are covered in chapters six and seven. As in all the chapters in this volume, the authors are world authorities on the technique in question, in these cases Pedro Santamaria and Alan Spradling are responsible. There is some overlap inevitably here and elsewhere, but it is much less than I have seen in other multi-author books. Chapter seven by Nusslein Volhard and Weischaus describes the ways one looks at *Drosophila* embryos and in particular how one photographs the beasts to visualize specific organs or cells. This is an area which is of great importance, because the many pattern formation mutations which have been isolated from *Drosophila* usually act at this stage and are often difficult to record photographically. Chapters ten and eleven by Lawrence *et al.* and Wilcox respectively deal with the techniques of creating marked cell clones during *Drosophila* development and the use of antibodies in the detection of cell-surface antigens. Both are important in the battery of techniques available for studying *Drosophila* development and again both are comprehensive and easily read. The final chapter by Trevor Jowett tells one how to isolate nucleic acids and nuclei from *Drosophila*.

All in all, there is a massive amount of useful information in this relatively small book. One last use for it was volunteered by a colleague. The softbound cover is protected by a plastic coating which can be

easily wiped clean with a damp tissue. It therefore constitutes an excellent fly swatter for those inevitable failed experiments.

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On Competition by C. T. DE WIT. First published in 1960 and now reprinted as *Evolutionary Monographs*, vol. 7 by University of Chicago Press, 915 East 57th St, Chicago, IL 60637, USA. 1986. 82 pages. \$10.00 (institutions); \$8.00 (individuals).

This book is an ecological classic, dealing with the effects of competition between species (mostly plants) under various circumstances. It is not genetical. What is called 'Fisher's Fundamental Theorem of Natural Selection' is mentioned on page 7, but in fact this is not really Fisher's theorem, but an analogous but rather simpler ecological theorem. Otherwise genetical considerations are hardly mentioned, although the results obtained on the rate at which selection operates would be relevant to any fully developed genetical theory of natural selection.

The book begins with a model in which two species develop independently in neighbouring areas, so that strictly speaking there is no competition, but nevertheless one species will end by being more abundant. Later chapters deal with the effects of limited-space mixtures of two species, or healthy and diseased plants of the same species, on the rate of growth of colonies on their own in competition with other species, mixtures of several species, and more complicated types of competition. In every case in which equations of growth are derived they are compared with actual experimental results of similar situations, often with quite strikingly good agreement. Useful advice is given on how to conduct experiments to obtain informative and reliable results.

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Oncogenes and Growth Control. Edited by PATRICIA KAHN and THOMAS GRAF. Berlin: Springer-Verlag. 1986. 369 pages. DM 148. ISBN 3 540 16839 7.

This timely book is a collection of mini reviews by a variety of authors on a subset of all possible topics which might conceivably come under its title. The editors in their preface make it quite clear what their intentions were when organizing their contributors. They point out how rapidly this subject is progressing and how difficult it is to keep up with the literature in this area. Because of this, mini reviews by experts in a particular speciality are essential if the work is to be published fast and to be up to date. The authors have been rigorously restricted to length of text and numbers of references, thus improving the chances

that the essential facets of a subject will appear, unclouded by detail and unnecessary speculation. The only casualties of such an approach are a few hurt feelings, for which ample and no doubt sincere apologies are given.

There are 47 contributions organized into six sections, and the editors have themselves written introductions to each section and an introduction to the whole book. The average article is of five or six pages, with one table or figure and about 30 references, which are given with complete titles. The length of each section is variable, for instance there is one chapter by Doug Hanahan in the section on Oncogenesis in Transgenic Mice, while there are fourteen contributions to the section on Growth factors, Receptors and Related Oncogenes. The editors deliberately restricted the choice of topics to fibroblast and haemopoietic systems and to the *src*, *myc* and *ras* oncogenes, but there are articles on GM-CSF (Nick Gough), TGF beta (Harold Moses and Edward Leof), TGF alpha (Rik Derynch), EGF and EGFR (by a variety of authors), *c-abl* (Yinon Ben-Neriah and David Baltimore), *v-abl* (Angelika Gebhardt and Gordon Foulkes), *mos* (Donald Blair), IL-2R (Masanori Hatakeyama, Seiji Minamoto, Hisashi Mori and Tadatsugu Taniguchi), protein phosphorylation (Tony Hunter), IP metabolism (Mike Berridge), protein kinase C (various authors), cytoplasmic pH and free calcium (Wouter Moolenaar), regulation of human globin gene expression (Patrick Charnay), regulation of steroid hormones (Miguel Beato), tissue-specific enhancers (Uwe Schlokot and Peter Gruss), DNA methylation (Walter Doerfler), E1A (Lennart Philipson), transactivators of HTLVs (William Haseltine, Joseph Sodroski, Craig Rosen, Wei Chun Goh, Andrew Dayton and Daniel Celander), *c-fos* (Rodrigo Bravo and Rolf Müller; Thomas Jenuwein and Rolf Müller), *myb* (Karin Moelling), and p53 (Moshe Oren). There is also a section on malignant transformation as a multistep process with eight contributions ranging from chemical carcinogenesis (Allan Balmain) through multiple factors involved in B-cell tumorigenesis (George Klein) and the role of Middle T:pp60^{c-src} (Seng Cheng, William Markland and Alan Smith) to the suppression of the neoplastic phenotype (John Wyke and Richard Green). The section on growth factors and proto-oncogenes in development I thought was a particularly useful summary of this subject with regard to mouse development, with three contributions from Aya Jakobovits, Erwin Wagner and Rolf Müller, and Larry Rohrschneider. There is also a very useful index which is complete as far as I am able to judge, as well as a list of abbreviations and of the oncogenes discussed in the book.

What everyone will want to know is, does this format succeed? My opinion is it does very well, and it would be excellent if it were published at one-fifth the price in soft covers, so that all those who will undoubtedly want to read it could afford to buy their