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# Book reviews

**Hennig, W. (ed.): Handel, M. A.; Hackstein, J. H. P.; Kimble, J.: Spermatogenesis, Genetic Aspects.** Berlin Heidelberg New York: Springer Verlag 1987. 130 pp., 24 figs. Hard bound DM 98.–.

This is a book on the genetics of spermatogenesis. Is it a source of new, useful, and interesting information? In my opinion: yes, yes, yes. The success or failure of a scientific monograph (or of a scientific symposium) depends largely on its timing in relation to the growth of the area that is treated. *The Genetics of the Spermatozoon* was the topic of a successful meeting organized by Beatty and Gluecksohn-Waelsch in 1971 (and published in 1972), just at a time when the phenomenon of haploid gene expression had been discovered independently in the mouse and in *Drosophila*. During the meeting, the similarity of the phenomenon in the two species was unravelled to the delight of the participants. Haploid gene expression has an interesting consequence, namely that the mendelian laws are not obeyed for these factors.

In recent years, the advent of new tools in molecular genetics has given rise to a new, large expansion in our knowledge in this area of the genetics of the spermatozoon. Yet, many unsolved problems remain, often because of the technical difficulties in undertaking genetic studies where the characteristic of the object of study is male sterility. In the present volume, three outstanding investigators have summarized available information on the genetics of mouse spermatogenesis (M. A. Handel), of *Drosophila melanogaster* and *D. hydei* (J. H. P. Hackstein), and of the small soil nematod *Caenorhabditis elegans* (J. Kimble). The choice of animal species has been a lucky one, although I do think that the volume would have benefitted from including data on a fourth species in which a great amount of information has been made available recently, even if with genetic methods that differ a great deal from those used in mouse, fruit fly, and nematod – Man. *Drosophila* has been regarded as God's gift to geneticists, and as for *Caenorhabditis*, it seems that this animal is His gift to geneticists and embryologists alike. A comparison of these animals having 7000 and 3000 genes respectively with mammals that have tenfold more genes shows that work with the later species is much quicker for this reason. Another interesting comparison between the three species is the fact that the mouse (or man) has sperm tails built largely of the same components as also found in the cilia, whereas *Drosophila* has sperm tails but no cilia, and nematods have neither sperm tails nor cilia. This has consequences for the genetics of those genes that make tubulin and dynein for sperm tails.

Considering that the spermatozoon is by far the most complex of all cells in the body (and sometimes outside the body) and that spermatogenesis is a very sensitive process, it is hardly surprising that an estimated third of all *Drosophila* genes are crucial for spermatogenesis. What is more surprising is that no single gene has yet been defined in the mouse or any other mammal that has a sole effect on spermatogenesis. All the genes responsible for male sterility are pleiotropic and thus show phenotypic effects elsewhere in the body.

The volume is rather thin but is, as mentioned, a rich source of information, and the authors should also be complemented for having pointed out gaps in present knowledge – problems which can be fruitfully attacked in the near future. It is a pleasure to recommend the monograph to anyone interest in all the problems that relate to the genetics of sperm production, sperm structure, and sperm function. Björn Afzelius, Stockholm

**Shapiro, M.: Practical Flow Cytometry.** 2nd edn. New York: Alan R. Liss 1988. 353 pp., 73 figs., 9 tabs. Hard bound $ 59.50.

This book is the second edition of the well-known handbook on flow cytometry. A new edition of a very successful book within 4 years indicates the rapid development in that field of research, but above all, the dedication and driving-force of the author. Howard Shapiro is capable of writing away any fears people might have for complicated machines, and if the reader enjoys the style of writing, he or she will pleasantly learn everything needed to know in order to get started with flow cytometry. The author obviously used the revenues of the first edition to buy a good laser-printer, as the rather grubby appearance of the original version has been replaced by a lay-out pleasing to the eye.

The text carefully introduces the reader into the field with an overture and leads the way to alternative techniques and background subjects in analytical cytology. After the historical review, an extensive chapter is dedicated to "How a flow cytometer works". Much attention has been paid to explaining the basic facts about light and optical principles. After an "Introduction to data analysis", the reader is ready for the applications, unremittingly accompanied by Shapiro's encouragements.

A chapter about "Cell sorting" and an excellently documented chapter on "Parameters and probes" finish the introductory part of the book. Although a substantial part of this edition has been devoted to "Building a flow cytometer", a separate chapter tells about the ins and outs of buying commercially available machines. As evidence of the increasing importance of flow cytometry in analytical cytology, the chapter on "Using flow cytometers" has tripled in size.

It is here that workers in plant science might feel disappointed. Of course, subjects dealing with flow cytometry are universal, and most of the people using flow cytometers are working in animal cell biology, but a quarter of a page, mainly used as a guide to a review of Spencer Brown, is pretty meagre. Clearly, the author misses an entry to the plant literature, as in the readers guide to periodicals, there is an absence of journals dealing with plant science and publishing on flow cytometry. In 1986, Brown collected 44 references on flow cytometry in plant biology! This has surely almost doubled in the last two years showing the increasing interest in and the use of flow cytometry in plant science.

A chapter on sources of supply and 1026 references, updated to 1988 (!), complete this excellent handbook. Readers new in the field of flow cytometry will be caught by the enthusiasm of the author and the comprehensiveness of the text. With this new edition, workers in (plant) flow cytometry will have the one and only manual necessary for the next 4 years.

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