

Book reviews

Verma, D.P.S.; Goldberg, R.B. (eds.): Temporal and Spatial Regulation of Plant Genes. Vienna, New York: Springer 1988. XIII/344 pp., 55 figs. Austrian schillings 1,360.00.

This volume, the fifth of the series *Plant Gene Research-Basic Knowledge and Application* covers the regulation of expression of some of the genes expressed in specific plant organs and tissue types from seed germination to fruit ripening, and the manner in which these genes respond to certain environmental signals. The 17 essays which make up this volume provide a somewhat patchy picture of what could be interpreted as the molecular developmental biology of higher plants. *Arabidopsis*, *Antirrhinum*, tomato, *Nicotiana*, Petunia, maize, and lily are still used as model plant systems in investigations on cell division, spatial patterns, flowering, self-incompatibility, photo-perception, cell wall extension, heat shock stress, protein transport, and resistance. Quite a few processes can now be formulated in a more fashionable way – processes that formerly the plant physiologist could only describe. Progress has been made in understanding the molecular bases of many processes, but there are still many areas in which practically no information exists on molecular mechanisms. Thus, some of the articles – in general all excellent – just summarize physiological events, no more.

This book provides first-hand information on the present state of knowledge of gene regulation in plants and should, therefore, be obligatory reading for plant molecular biologists, experts, and those that wish to become experts.

H.F. Linskens, Nijmegen

Schilcher, F. von: Vererbung des Verhaltens. Eine Einführung für Biologen, Psychologen und Mediziner. Stuttgart, New York: Thieme 1988. 346 pp., 100 figs., 27 tabs. Soft bound. DM 33.–.

According to its subtitle, this book is intended to be an introduction to the field of behavior genetics for biologists, psychologists, and physicians. Indeed, a textbook for a course in behavior genetics was not yet available in German. However, anyone planning to use it as such should realize that the book isn't exhaustive by far. Von Schilcher himself has been doing research mainly on *Drosophila* and, unfortunately, this has led to a bias in his view on the field as a whole. Accordingly, the chapters on *Drosophila* behavior genetics are generally of a high quality, as are the chapters on the neurobehavioral genetics of *Drosophila* and *Caenorhabditis*. The chapters dealing with rodents, mainly house mice and rats, and even more so those on man, are of a lesser quality. This stems partly from von Schilcher's often expressed conviction that neurogenetical approaches are only possible if structural mutants can be used and that such an approach is thus impossible in higher organisms such as rodents. Consequently, he ignores all developments in the increasingly important fields of rodent pharmacogenetics and neurobehavioral genetics, in which not mutations, but naturally-occurring heritable variations in neurochemistry and neuroanatomy are used to uncover the physiological bases of behavior. Rather, he is mainly concerned with studies demonstrating genetic influences on rodent behavior and estimates of heritabilities. The chapters on human behavior genetics show even more an unhealthy fixation on estimates of heritability of characters like IQ. Behavior geneticists have, in the past, carried out a huge number of studies in which the main or even the only

goal was the estimation of heritability. Initially, these studies were very useful, primarily because many ethologists and psychologists needed to be convinced that genetics can play an important role in the causation of interindividual differences in behavior. Unfortunately, this in principle sterile approach was carried through too long and, because of this, behavior genetics became even somewhat discredited in the late 1970s. In the last decade, however, the field has experienced a renewed upsurge. Two facts were mainly responsible for this. First, animal behavior geneticists began to use increasingly sophisticated methods which have led to important developments in, for instance, the neurobehavioral genetics of *Drosophila* and rodents. Second, human behavior geneticists abandoned their fixation on heritability estimates and started investigating the mechanisms responsible for interindividual differences in behavior. Important advances have been made in this respect (e.g., Plomin and Daniels' review in the March 1987 issue of *Behav. Brain Sci.*). All these developments, with the exception of those concerning *Drosophila*, are ignored by von Schilcher. Furthermore, his chapters dealing with human behavior genetics overemphasize the importance of current research on race differences. And, although perhaps understandable from a historical point of view, a chapter presenting biochemical and molecular-biological data on the basis of which races may be distinguished, including a subchapter presenting evidence (based solely on blood-group data) that there are no biological reasons to recognize the existence of a Jewish race, seems out of place here.

Summarizing, von Schilcher's book provides an excellent summary of *Drosophila* genetics, but it can only be used as an introductory textbook to the complete field of behavior genetics if it is supplemented with additional information.

W.E. Crusio, Paris, Heidelberg

Burck, K. B.; Liu, E. T.; Larrick, J. W.: Oncogenes – An Introduction to the Concept of Cancer Genes. 1st edn. Berlin, New York, Heidelberg: Springer 1988. 300 pp., 93 figs., 36 tabs. Soft bound DM 54.–.

Recent advances in molecular biology have allowed the researcher to study cancer ethiology at the molecular level of individual genes. In the last few years a great deal of experimental data – surveyed only by specialists – has become available that fits the oncogene hypothesis. The book now under review is a very helpful attempt at explaining and ordering the recent findings on oncogenes for interested nonspecialists. The book begins with an outline of the basic experimental methods applied in the study of oncogenes. This is followed by a general discussion of oncogene concept in relationship to proto-oncogenes, viruses, and human cancers. Major classes of oncogenes are described in more detail in another part. Finally, conclusions are drawn with respect to the potential clinical and diagnostic use of information derived from recent oncogene research. In summary, this book can provide the reader with a survey of an exciting field of cancer research that is growing at an exponential pace. This reviewer can recommend it as a base both for the understanding of the major problems involved in oncogene research and as a base for a more in-depth study for advanced undergraduates, medical students, graduate students, and physicians.

Dr. M. Wehnert, Greifswald