

Book reviews

Proceedings of the Hungarian-Italian Plant Genetic Conference on The Possibilities of Increasing Genetic Variability in the Plant Kingdom. Agricultural Research Institute of the Hungarian Academy of the Sciences Martonvásár 1984. 208 pp., several figs. and tabs.

Based on an agreement between the Hungarian Academy of Sciences and the Italian Research Centre to hold a round-table meeting on a topic of mutual interest every year, a binational conference on the possibilities of increasing genetic variability in the plant kingdom was held in June 26–30, 1984, in Hungary. Seven papers from Hungary and eight from Italy were presented in four sessions, I–IV. The present volume is a proceedings of this conference, reproduced from camera-ready manuscripts. Like in many other publications of this nature, most papers report the authors' original works but some are introductory or review articles.

Session I is highlighted with two papers on mutation breeding with beans and tomato by G.P. Soressi, and with cereals by Z. Barabás. C. Lorenzoni gives a bird's-eye view of breeding work in Italy, whereas L. Magassy does the same on polyploid sugar-beet breeding in Hungary. B. Borghi deals with the traits which contribute to the high yielding capacity of two new Italian wheat cultivars. In session II, L. Balla and T. Szundy report the progress in wheat and corn breeding, respectively, in Hungary, pointing out the local as well as world-wide problems in their breeding. M. Sari-Gorla et al. describe the results on male gametophyte selection in corn, proposing this as a new selection method. Four papers in session III deal with the chromosome or genome manipulation, among which J. Sutka's paper describes the production of monosomic series in two Hungarian bread wheat cultivars and A. Blanco's paper reports a trisomic series of an Italian durum wheat. Session IV includes two papers on tissue culture and one paper on genetic conservation. S. Arcioni et al. give detailed accounts on somaclonal variation and regeneration cycle in leguminous crops, whereas E. Lupotto reports a method of indefinite somatic embryo culture in alfalfa. G. Vida's paper deals with the sample size effect on genetic heterogeneity of the stock in maintenance.

On a whole, little account is given to recent work in gene engineering in these countries, research in which some readers may have been interested. To the contrary, most papers aim to represent the results obtained by the established techniques, such as artificial mutation, genome or chromosome manipulation, intergeneric hybridization and tissue culture, and demonstrate the usefulness of these techniques in increasing the yield potentials of some important crops. It is assured that this book will greatly help the readers of other countries to get an over-all picture about the past achievements and present activities in plant breeding in Hungary and Italy.

K. Tsunewaki, Kyoto

Laver, W. G.; Air, G. M. (eds.): Immune Recognition of Protein Antigens. Current Communications in Molecular Biology. New York: Cold Spring Harbor Laboratory 1985. X + 197 pp., several figs. and tabs.

For the functioning of the immune system it is essential that a lymphocyte binds to an antigen. This means that a receptor in the lymphocyte membrane must recognize a

specific sequence, called an epitope, on the antigen. The spacial structures of receptors as well as most epitopes are determined by the configuration of proteins. Thus, small modifications to amino acids may dramatically change the reaction of the immune system to a certain antigen. Known pathogens that escape the host's defence mechanism by antigenic variation are influenza viruses, Gonococci, Trypanosoma sp, among others.

The recent development of two techniques has provided a great impetus to the study of both receptors and epitopes. First, the number and specificity of monoclonal antibodies that are synthesized against a single antigen provide insight in the body's repertoire of receptors. Second, the production of cDNA clones enables a detailed analysis of the protein structure of epitopes as well as receptors. In this book, the results of a number of experiments in which one of these techniques or both are applied, are presented and discussed.

It contains extended abstracts of contributions to the conference on Immune Recognition of Protein Antigens held at the Banbury Center of Cold Spring Harbor Laboratory in March 1985. The topics that are discussed include antigenic structure of influenza and polio virus antigens as well as of proteins such as lysozyme, myoglobin and cytochrome c. Also antibody specificities, and interaction between antibodies and peptides are discussed. The book opens with a synopsis of the presentations.

The advantage of this approach is that the reader is informed quickly and completely. The major disadvantage, however, is that the abstracts are very concise and, sometimes, difficult to read without a prior knowledge of the subject.

H. v. d. Donk, Utrecht

Futuyma, D. J.; Slatkin, M. (eds.): Coevolution. Sunderland, Mass.: Sinauer 1983. X + 555 pp., several figs. and tabs. Soft bound £ 19.75.

The many different evolutionary aspects of interactions among species which are described in the 19 chapters of this volume can be subdivided into the following three subjects: (i) Competition between species; (ii) Exploitation of one species by another (predator-prey systems, parasite-host systems, as well as some cases of mimicry); (iii) Exploitation of two or more species by each other (other cases of mimicry and mutualisms).

Until now there has not only been little attempt to develop models of the evolution of such interactions but also the principles which these different coevolving systems may have in common have hardly been explored.

Therefore, "Coevolution" seems to be of particular importance in that it describes the features of diverse systems of interacting species that affect coevolution, it brings together diverse lines of study that bear on the evolution of ecological interactions, and it identifies important questions that may help to guide research in this field.

"Coevolution" is introduced by four general chapters: 1. Introduction, 2. Genetic background, 3. The theory of coevolution, 4. Phylogenetic aspects of coevolution. Subsequent chapters emphasize very different special aspects of interactions, 5. Coevolution in bacteria and their viruses and plasmids, 6. Endosymbiosis, 7. Plant-fungus symbiosis, 8. Evolu-

tionary relationships between parasitic helminths and their hosts, 9. Parasite-host coevolution, 10. Evolutionary interactions among herbivorous insects and plants, 11. Dispersal of seeds by vertebrate guts, 12. Coevolution and mimicry, 13. Coevolution and pollination, 14. Intimate association and coevolution in the sea, 15. Coevolution and the fossil record, 16. The deer flees, the wolf pursues: incongruencies in predator-prey coevolution, 17. Coevolution between competitors, 18. Size of coexisting species, 19. Convergent evolution at the community level. At the end of the volume a brief overview of many of the ideas of the different authors is given by D.J. Futuyma and M. Slatkin.

R. Piechocki, Halle/Saale

Swan, A.; MacGregor, H.; Ransom, R. (eds.): **Programmes for Development. Genes, Chromosomes and Computer Models in Developmental Biology. Journal of Embryology and Experimental Morphology, Vol. 83.** Cambridge: The Company of Biologists Limited 1984. 369 pp., several figs. and tabs.

"Programmes for Development" is a compilation of papers presented at a symposium that deals with research programmes based on a wide range of developmental phenomena. This provides a book in which the reader can learn about systems that stretch from microbes to man. At the same time it emphasizes the generality of most developmental phenomena and the important differences between plant and animals and between simple and complex systems. The symposium focussed on genes and chromosomes and the papers can be divided into three categories. First: the influence of repressor and activator molecules. Proteins that specifically block or facilitate the synthesis of messenger RNAs by binding at or near the transcription sites. The second category is one in which the expression of a gene is altered by changing the DNA sequences in its neighbourhood. The cellular oncogenes are the best known examples of this kind of phenomena. Thirdly those kinds of developmental processes that deal with the influence of the shape of the cell in determining the

pattern in which its genes are expressed. For example, a cell on a certain substrate will adopt a certain shape and express a special group of genes. In this context special attention was focused on the role of the plant cell form and the programming of the expression of its genes and vice versa.

The exact titles of the presented papers are as follows:

1. An introduction to Programmes for Development; 2. Chromosomal changes associated with changes in development; 3. DNA methylation versus gene expression; 4. Chromosomes and sex differentiation in eutherians; 5. Chromosome order – possible implications for development; 6. A programme for the construction of a lambda phage; 7. Subroutines in the programme of *Chlamydomonas* gene expression induced by flagellar regeneration; 8. Switch genes and sex determination in the nematode *C. elegans*; 9. Giberellins and gene control in cereal aleurone cells; 10. Analysis of transcriptional regulation of the *s38* chorion gene of *Drosophila* by P element-mediated transformation; 11. Heat shock – a comparison of *Drosophila* and yeast; 12. Photoregulation of the biosynthesis of ribulose biphosphate carboxylase; 13. Polarity, calcium and abscission: molecular bases for developmental plasticity in plants; 14. Programmed development in the mouse embryo; 15. Computer modelling of cell division during development using a topological approach; 16. A mathematically modelled cytochrome cortex exhibits periodic Ca^{++} -modulated contraction cycles seen in *Physarum* shuttle streaming; 17. Models for positional signalling, the threefold subdivision of segments and the pigmentation pattern of molluscs; 18. Cell behaviour in a polygonal cell sheet on the crawling of cells.

A reader who makes the effort to examine several contributions and evaluate them individually will experience that this book is more than just a collection of papers: he will understand more about the fundamental principles that govern growth and form in living organisms. The clear and concise manner in which most of the articles are written is also an attractive feature of the book.

J. A. M. Schrauwen, Nijmegen

Announcement

Genetic Congress

The 16th International Congress of Genetics will take place in Toronto, Ontario (Canada) from 20 to 27 August 1986

Information: Mr. L. Forget (Congress Manager), National Research Council of Canada, Ottawa, Ontario K1A 0R6, Canada

Human Genetics Congress

The 7th International Congress of Human Genetics will be organized at Berlin (West) in the period between September 22 and 26, 1986