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BOOK REVIEW

SAUER, H. W. (ed.): *PROGRESS IN DEVELOPMENTAL BIOLOGY* (Fortschritte der Zoologie, Band 26). Proceedings of the Symposium held in Mainz, 1980. — G. Fischer Verlag, Stuttgart—New York 1981. 340 pp., 131 figs., 14 tables. DM 189,—.

The book contains 26 papers, most of them reviews, including the introductory address by F. Seidel and a general survey of the field and closing remarks by H. W. Sauer.

The student of plant science may find it rather unfortunate that the general concepts of developmental biology are based almost entirely on zoological models. The above book is no exception. Historically, animal embryology has been used as a successful model for tackling the puzzle of development (Driesch, Roux, Spemann *etc.*). As a result, botanists have "borrowed" not only animal developmental terminology but also developmental concepts, underestimating at the same time some specific features of their own models (*e.g.* cell totipotency). However, the introduction of molecular biology has enabled direct comparisons of various experimental systems, making the links between botany and zoology quite useful. Thus, there is a good reason for a botanist to get acquainted with ideas which currently dominate animal development.

The topics of the book can be divided into four parts: DNA analysis with a view to obtain accurate information on genome organization, nucleo-cytoplasmic interactions, induction and cell interactions, patterns and models. The later topics might be most interesting for botanists. An urgent need is being felt to bridge the gap which still exists between transcriptional activity and pattern formation irrespective of the object used.

The detailed paper by Krause on homology in insect-egg differentiation should be read to appreciate the complexity of such systems. The reader becomes convinced of the validity of the now classical notions of organizational centres, polarity, metamerization *etc.* It is assumed that such regulatory systems operate at epigenetic level and should be viewed within the network of evolutionary pathways. Everyone acquainted with the pleiotropic effects of phytohormones in morphogenesis will be interested in the contribution by Wolpert on the pattern formation in limb morphogenesis. The pattern is considered in terms of positional information in a coordinated system interpreted according to the genetic constitution and developmental history of a cell. It was demonstrated that one way of assigning positional values is by means of the monotonic concentration gradient of a diffusible universal morphogene. A comparable view is expressed in a paper by Meinhardt on the pattern formation and activation of particular genes. Again the leitmotif of graded distribution of morphogenes prevails.

As a whole, the book deals with all the main current concepts of developmental biology, and on many occasions presents the highly personal accounts of the authors. It is a provocative and inspiring reading for the botanist who wants to start a dialogue with his colleagues in zoology.

J. KREKULE (*Praha*)