Book Reviews

From Egg to Embryo
Determinative Events in Early Development
by J.M.W. Slack

Developmental and Cell Biology Series. Volume 13
Edited by B.W. Barlow, P.B. Green and C.C. Wylie

Cambridge University Press; Cambridge, 1983
x + 241 pages. £25.00, $49.50

This book is mainly concerned with an aspect of animal development not dealt with by most other developmental biology texts, namely pattern formation, or how cells in various regions of an embryo come to be committed to form different structures. The book is therefore a welcome addition to the existing literature.

The book consists of two major parts. The first, over half the book, is called the 'data base', and gives a condensed account at the morphological level of normal development and experimental work in amphibia, insects, a group of other invertebrates, chickens, and mice. The contents include: fate maps and cell lineage, commitment and determination, regulation of pattern, and induction. This book is not primarily concerned with gene expression or its control and is non-biochemical in its orientation.

The second, and most interesting part of the book comprises four chapters on the theoretical basis of pattern formation, dealing with such topics as symmetry-breaking processes, gradients, thresholds, and repeating patterns. The author gives a fairly concentrated comparison, at the mathematical level, of the merits and difficulties of various theories put forward to explain the facts summarised in the first part of the book.

An important merit of the book is that it covers the theoretical aspects of embryology not easily accessible elsewhere. Another is that it collects information which is hard to assemble, for example, the ability or otherwise of embryos to regulate their pattern when several are fused together.

A criticism of the book is that it is hard to follow in several places, the text and most particularly the figure legends sometimes being excessively condensed. Another general difficulty which a student might experience is in the style of presentation. Increasingly, textbooks are divided into sections each of which reaches a clearly stated conclusion. This book has subject area or organism headings, such as regulation, genetics, ascidian, and one may wonder, at the end of a section, what conclusion is to be drawn.

For these reasons, I consider the book not be suitable as a student text. It does however provide a very interesting and unusual collection of information much of which may come as a surprise to those who work in this field. It is essentially a summary of developmental mechanisms from the personal and interesting point of view of the author. I believe that the important part of the book on the theoretical discussion of embryological concepts will be of great value to those who penetrate this complex area.

J.B. Gurdon

Copies of books for review in FEBS Letters should be sent to:
Professor H.R.V. Arnstein, Department of Biochemistry, King’s College, Strand,
London WC2R 2LS, England

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