simultaneously, when there is no doubt that a very interesting but looser association did exist.

The more than 9000 surviving sheets of Harriot's papers consist mostly of mathematical results and experimental and observational records—typifying in many ways the emerging "new science" of the Scientific Revolution—but they contain little that reveals their broader context and even less that reveals his aims and motives. Consequently, only by painstaking analysis of his manuscripts have historians been able to recognize their significance, reconstruct the development of his thought, and place it in historical perspective. Perhaps because of these difficulties of interpretation, and also because he recently edited *A Source Book for the Study of Thomas Harriot* (Arno Press, 1981) that contains reprints of much of the specialist literature, Shirley has chosen not to present Harriot's scientific work in depth. Indeed, he virtually ignores his mathematics. Since Harriot's scientific investigations were the principal passion of his life, this results in a meticulously documented chronicle of his life rather than a full-bodied biography. Still, Shirley's book will bring the intriguing Harriot to a broader audience and for historians serve as a solid foundation for future research.

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Biological Development

From Egg to Embryo. Determinative Events in Early Development. J. M. W. SLACK. Cambridge University Press, New York, 1983. x, 241 pp., illus. $49.50. Developmental and Cell Biology Series, 13.

The development of a batch of embryos is always impressive because of the uniformity of the developmental process and the dramatic increase in complexity that occurs as the egg generates an organism with a definite body plan. *From Egg to Embryo* deals with the mechanisms that underlie the genesis of this spatial pattern. It was written to explain the mind set and the major findings of experimental embryologists to a general audience of biologists.

The book is divided into three parts. The first part delimits the problem that Slack is concerned with: the mechanisms that are responsible for regional specification in the early embryo. Slack argues, I think quite correctly, that elucidating these mechanisms is the central problem in the field of developmental biology. This part of the book also introduces the concepts and defines the terms that experimental embryologists use. Words that serve as bridges between observations and concepts sometimes have different meanings for different workers in this field, and there has been a tendency for groups of developmental biologists to invent their own jargon. Slack has defined his terms carefully in order to avoid these problems. One might quibble with a few definitions; most of these cases reflect the Wolpertization of English developmental biology.

The second part of the book provides an overview of the experimental evidence that indicates when and how regional specification occurs during early embryogenesis in amphibians, insects, other selected invertebrates, the mouse, and the chick. This survey is very well done. It not only points out the unique contribution that each of these groups has made to experimental embryology, it also considers the outcome of a set of similar experiments on embryos of animals that develop in different ways. This allows one to try to compare the extent to which the embryos use the same developmental mechanisms. The chapter on invertebrates other than insects is not as well done as the chapters on the other groups. Many of the eggs of such invertebrates have localized cytoplasmic determinants that appear to be responsible for regional specification in the early embryo. Slack seems a bit uncomfortable with this notion.

The last part of the book presents a number of models devised by theoretical biologists that could be used to explain various aspects of regional specification. These models fall into three general classes; they deal with reaction systems that could exist in more than one stable steady state, the role of axial properties in integrating developmental events in different parts of an embryo, and the emergence of discontinuities between regions in the embryo. Such models are just beginning to have an impact on developmental biology. Variants of some of the models discussed here have played an important role as a guide to research work on regulation in *Hydra* and *Dictyostelium*. This work has involved an active collaboration between model builders and experimentalists. Unfortunately there aren't any good examples of this kind of approach involving early embryogenesis. Though Slack does a good job of describing the models he presents and explaining their limitations, most of his attempts to use the models in the context of early embryogenesis only engender skepticism on the part of the reader.

This book would make an excellent special topics textbook in an advanced undergraduate course in developmental biology. It is much more interesting than any of the current textbooks on the market.

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