

able for specific developmental studies. These have been notably underutilized in recent years, and it is to the fostering of a better appreciation of these organisms that this book is addressed. Covered in this volume are the descriptive and experimental embryology and biochemical embryology (where known) of 15 organisms, including coelenterates, ctenophores, flatworms, annelids, several mollusks, nemerteans, echinoderms, ascidians, and amphioxus.

The book is addressed to molecularly oriented biologists, with the ostensive purpose of pointing out the unique and important problems in development which can be solved with the appropriate organism. Some of these organisms are certainly described in this book, but most readers unversed in classical embryology will find the reading difficult. There is no introductory or integrating chapter that reviews the general patterns of development, and the nomenclature used in describing development is not defined. Fortunately, several of the authors do present sufficient introductory material and comprehensive overviews to aid the uninitiated. For the nonembryologist, therefore, I would recommend consulting these chapters first and then moving on to the other chapters. The chapters by Clement (*Ilynassa*) and Hess (*Limnea*) provide particularly good introductions to spirally cleaving eggs and the loose distinctions between "mosaic" and "regulative" embryos. These chapters could be followed by that on sea urchins by Czihak. His treatment of this important group is encyclopedic and he presents many original illustrations.

Armed with this background, the reader could now tackle other chapters. However, if the former molecular biologist (now of course an aspiring developmental biologist) wants to use these embryos, he had better have access to other literature, for information on the techniques of obtaining and handling marine embryos is sadly lacking in this volume. Again, the chapters on *Ilynassa* and *Limnea* and also Arnold's description of cephalopod development are pleasant exceptions. This last article is especially important, for recent discoveries and techniques make cephalopods attractive for studies on the role of the egg cortex as a depository of cytoplasmic information.

Some readers may be disappointed at the dearth of biochemical information about the various embryos described in this book. This is not due to neglect on the part of the authors, how-

ever, but rather reflects the small number of workers who have studied these embryos from a biochemical viewpoint. The information available in this volume might well stimulate renewed interest in these important groups. New factors that should facilitate such studies are the availability of well-equipped marine research centers and jet plane transportation of aquatic organisms from almost anywhere in the world.

The book suffers in being already out of date (most of the citations are earlier than 1968), but no comparable treatise has been published in several decades. Also lacking are the stimulating perspectives and questions that characterized such prominent early texts as Waddington's *Principles of Embryology* or Weiss's *Principles of Development*. Nevertheless, Reverberi's treatise is the only current review of these potentially important embryos.

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Atmospheric Microphysics

The Physics of Clouds. B. J. MASON. Second edition. Clarendon (Oxford University Press), New York, 1971. xvi, 672 pp. + plates. \$38.50. Oxford Monographs on Meteorology.

Students of the atmospheric sciences will welcome this second edition of B. J. Mason's authoritative review of cloud physics with particular emphasis on microphysics. The first, widely used edition, which was published in 1957, has been out of print for a number of years, and the revision has been awaited with interest. This new book will not disappoint scientists familiar with Mason and his work. It represents a thorough distillation of the literature, is written in an excellent style, and is well illustrated with drawings and photographs.

The structure of the book is identical to that of the first edition. The chapters deal, in order, with water vapor condensation, condensation nuclei in the atmosphere, the growth of droplets in clouds and fog, initiation of the ice phase in clouds, the formation of snow crystals, natural precipitation processes, the artificial modification of clouds and precipitation, radar studies of clouds and precipitation, and the electrification of clouds. Two appendices cover the collision and coalescence of water droplets and the fall of

raindrops. There is a very lengthy bibliography.

For the most part, Mason has succeeded admirably in achieving the purpose of this extensive revision, that is, "to provide a fairly complete and critical account of all important developments up to the end of 1969." Every chapter of the book with two exceptions has been expanded substantially, and new material, some published as late as 1970, has been incorporated. The more extended text reflects new research carried out particularly in such subjects as the growth of droplets, ice-crystal nucleation, precipitation growth, the development of radar observational techniques, and cloud electrification.

One distinct shortcoming in this book is the relatively inadequate treatment given the artificial modification of clouds and precipitation. Although this edition is about 40 percent longer than the first one, the chapter on cloud modification is about 25 percent shorter. The tone of the material reflects the somewhat pessimistic view Mason has expressed in his public statements on the subject. It does not appear that he examined the existing literature with the same open-mindedness that is reflected in the other parts of the book.

Notwithstanding the weaknesses in this chapter, the book is an outstanding one which should be at the disposal of everyone seriously interested in the physics of clouds and precipitation. It is unfortunate that the publisher is asking such a high price.

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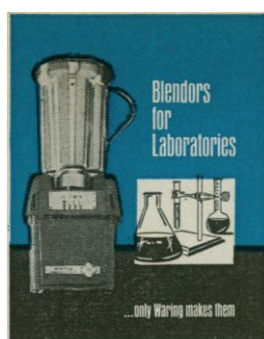
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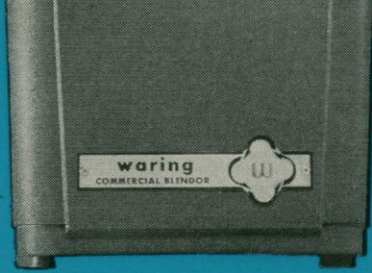
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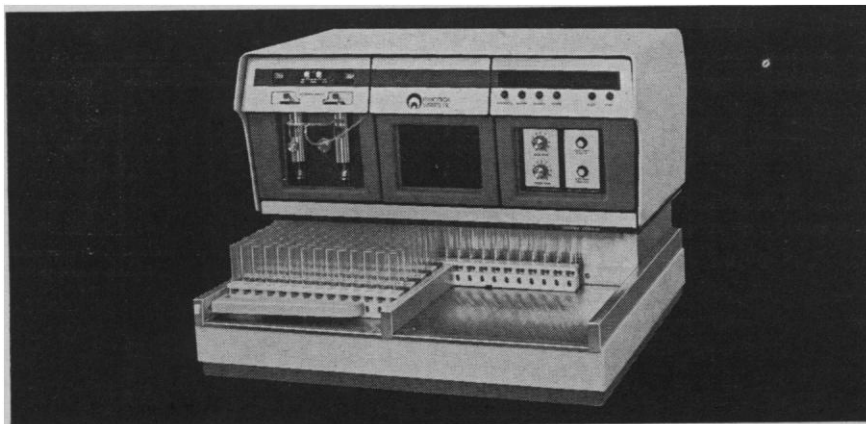
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