stantive adaptation of the African pongid wrist to knuckle-walking clearly documented.

A useful review of statics in the interpretation of skeletal morphology (Badoux), the results of an extensive comparative analysis of primate scapular morphology (Roberts), and a survey of positional behavior in New and Old World monkeys (Rose) are also included. While the ranges of research and discussion presented in this volume are as broad as its title, much of the material is naturally integrated, giving the book a fairly unified quality. A majority of the contributions contain both valuable data and significant insight, and the book will thus prove vital to anyone interested in primate locomotion.

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Models of Development

Experimental Embryology of Echinoderms. SVEN HÖRSTADIUS. Clarendon (Oxford University Press), New York, 1973. x, 192 pp., illus. $16.

Developmental Biology of the Sea Urchin Embryo. GIOVANNI GIUDICE. Academic Press, New York, 1973. x, 470 pp., illus. $32.

Sea Urchin Development. Cellular and Molecular Aspects. LOUIS W. STEARNS. Dowden, Hutchinson and Ross, Stroudsberg, Pa., 1974. xii, 340 pp., illus. $20.

Studies on sea urchin embryos have provided important cornerstones of developmental biology, and today increasing numbers of researchers are using these organisms as model systems for studying fertilization, cleavage, determination, and morphogenesis. Early experiments probed the organization of the egg and embryo by removal of parts and assessment of the embryos' plasticity—or lack of it—in later development.

These approaches have been especially developed by Sven Hörstadius, and his monograph is a significant, personal, and provocative view of the causal analysis of development—significant because it provides in one place a complete summary of current views of the organization and progressive determination of the echinoderm egg and embryo, personal because much of this analysis is derived from Hörstadius's own research, which spans almost 50 years and successfully links classical embryology and modern developmental biology, and provocative because a major future challenge is to explain in molecular terms the remarkable organization of the egg as well as the plasticity of the echinoderm embryo.

Hörstadius's monograph briefly recounts the history of experimental embryology. This history is followed by a description of echinoid development and methods for working with these embryos. This chapter will be especially useful to embryologists for its account of methods for removing and transplanting blastomeres. There then follow chapters on the determination of cleavage patterns and on the organization of the egg and embryonic axes. The text is not restricted to sea urchins among the echinoderms, and one chapter covers experiments with the other four echinoderm classes. Finally, experiments on germ layer chimeras and interspecific hybrids are described, and the book ends with a stimulating discussion of determination.

Where Hörstadius's book is primarily a personal review of his own research, Giudice's monograph sets out to review the massive literature of the subject, concentrating on physiological and molecular aspects.

Guidice's book is not solely a compendium of research results. The diverse literature generally is integrated into an interesting and well-written discussion. The first section (175 pages) covers experimental embryology, oogenesis, fertilization, cleavage, and experimental cell dissociation and reaggregation (in which Giudice has been especially active). The second section (225 pages) covers the metabolism of the developing embryo, including one chapter on energy metabolism, three chapters on nucleic acid and protein synthesis, and finally a brief chapter on increases in enzymatic activity during development. The bibliography is extensive, containing almost 1700 references, and includes an addendum covering publications through 1972. A defect, for which the publishers are presumably at fault, is in the indexing. The subject index is sparse (only 4½ pages) and poorly cross-referenced, and there is no author index.

Considering the breadth of his subject, Giudice has done an impressive job of integrating difficult literature. The only substantive shortcoming is in the second section, where he has perhaps been too equitable and comprehensive in describing good, bad, and redundant research pertaining to nucleic acid and protein synthesis. Overall, however, he has attempted to synthesize conflicting results and point out new and unresolved problems. He has also included many unpublished observations from his own laboratory.

The contribution by Stearns covers the same ground as Guidice's monograph. It is the more readable of the two, but falls short in breadth and comprehensiveness. Its strength lies in the raising of questions and problems. Some of Stearns's points are excellent, as on the mechanism of the acrosome reaction in fertilization. In other areas, as in the chapter on protein synthesis, much verbiage is wasted on inconsequential points.

A question that is not covered in any of these books is whether sea urchins will continue to be available for embryological research. Embryologists have always competed with gastronomes for the roe of the sea urchin, but in the past this competition was on a small scale. Now commercial marketing and increased demands in Japan and Europe have resulted in the development of a large sea urchin fishery in Japan and recently in the United States. In California, the commercial harvest went from 200 pounds in 1971 to almost 2 million pounds in 1973. Japanese embryologists are already experiencing difficulty in obtaining sea urchins for research. If the U.S. fishery continues to grow, American embryologists will soon experience similar difficulties. To preclude this, the fishery should be scientifically managed, and sea urchin preserves should be established near major university and research centers. Otherwise, these magnificent models of embryonic development will be lost.

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Vertebrate System

The Third Eye. RICHARD M. EAKIN. University of California Press, Berkeley, 1974. xii, 158 pp., illus. $7.50.

Eakin has a national reputation as an excellent electron microscopist and an innovative teacher; this book shows both of these attributes. A short, well-produced and well-illustrated monograph, it summarizes some two decades