

The relatively small number of pages should not fool the prospective buyer, for the author has managed to lucidly explain, and even with depth, the current knowledge of the cell. I may be lint-picking, but his references to other scientists has no consistency, e.g., sometimes first names, or doctorate designation, or geographic location, etc. Watson and Crick are alternately referred to in that order or as Crick and Watson. This must confound the indexer. There is a full appendix of useful formulas and diagrams.

Truly, this is a valuable book for the student *and* teacher with biological background, and one which I would heartily endorse to be read by all biology teachers.

INTERACTING SYSTEMS IN DEVELOPMENT, James D. Ebert, 226 pp., Holt, Rinehart and Winston, New York, 1965.

A paperback in Holt's Modern Biology Series. The author is a renowned embryologist, but he early disposes of the idea that a book in developmental biology is only one of embryology. He writes that, "It is neither principally descriptive nor experimental; cellular nor molecular." And this breadth of view makes it quite interesting reading for all biologists.

The chapter headings are quite descriptive: interacting systems, interactions of egg and sperm, cleavage and gastrulation, tissue interactions, interactions of nucleus and cytoplasm, molecular basis of gene expression, products of gene expression, beyond the ribosome, cell and tissue interactions, humoral regulation, endocrine and nervous coordination, and immunities. As one reads through this progression of intricacies, the truth of the author's observations that developmental biology is a study of one problem which leads to others is obvious.

The illustrations are superb, and the bibliographies are carefully chosen.

Developmental biology is one of those subsections of biology which defies inclusion in the ordinary divisions of a biology text. This book should help erase some of our well defined divisions and intrigue the teacher and text author to look anew at how one slices the corpus of biology for teaching purposes.

THE CELL, AN ATLAS OF FINE STRUCTURE, Don W. Fawcett, 488 pp., \$11.00, Saunders, New York, 1965.

This book is a well-chosen collection of remarkable electron micrographs compiled by Don W. Fawcett, Professor of Anatomy at Harvard Medical School. The micrographs are of excellent quality not only for their scientific value in the meaningful details of fine structure they present but also in the general aesthetic

satisfaction they offer. The micrographs include not only those from Professor Fawcett's own work but also those supplied by many other leading electron microscopists who have mastered the technical difficulties of this field.

The presentation of the 240 micrographs on the cell is subdivided into three main categories on cell organelles, cell inclusions, and cell surface. The main headings are further subdivided to include micrographs which emphasize different structures and specializations of the cell. As pointed out by the author in the preface, the chief value of this book is in the illustrations which are to be carefully studied by students in place of the actual specimen. The brief text accompanying the illustrations must be supplemented at least with readings from the references cited at the end of each section dealing with a particular cell topic. The references, which are for the most part of an historic and review nature, are pertinent and helpful but by no means exhaustive for any one topic.

The book can serve as an excellent guide to students wishing to learn about current interpretations of cell structures observed by the electron microscope, which has extended and clarified our knowledge of cytological detail as seen originally by the light microscope. However, the atlas is also useful to the more experienced microscopist who may wish to compare the fine structure presented with that observed in his own work. For example, the inclusion of micrographs prepared by different fixation procedures is of value to other investigators.

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THE SAVAGE CELL, Pat McGrady, 421 pp., \$8.50, Basic Books, Inc., New York, 1964.

A voluminous book packed with reports of the current knowledge of cancer organized into a readable fashion by a skilled scientific writer. It is hard to imagine what significant published report has not been used by the author in compiling this book, yet the text reads smoothly. All of these bits of information are grouped under significant major headings which constitute the chapters. There is a detailed index.

It is written for the lay reader and thus should be an appropriate item for the general school or university library. Yet nowhere does the author condescend to write down to the non-biologically informed reader.

JOURNAL OF CELL SCIENCE (formerly the *Quarterly Journal of Microscopical Science*). H. G. Callan and A. V. Grimstone, Eds. One

volume of four parts per year. \$27.50. Started, March, 1966.

The masthead of this journal indicates that it is "devoted to all aspects of the study of cells." The initial issue bears out this pledge, although perhaps more devotedly to structure than function. It is good to see this continuation of the *Quarterly Journal of Microscopical Science* and it will certainly find willing contributors in the field of cell biology. Already, the first part is some 144 pages long, not including the numerous and excellent photographic plates. Because the journal will include research on all types of cells and their functions, it would probably be among the first group of biological journals subscribed to by any college or biology department library. The editorial board, whose members all are affiliated with institutions in Great Britain, is distinguished.

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SCIENCE AND CANCER, Michael B. Shimkin, 137 pp., \$.60, Public Health Service Publication No. 1162, U. S. Government Printing Office, 1964.

Written by the retired head of the National Cancer Institute, the book shows clearly the author's gift for, and experience in, science writing. Done simply with no illustrations except graphs, the story of cancer research is simply and interestingly told. It is flatly aimed at the reader who has had high school biology.

Each chapter takes up a pertinent aspect of the search for more knowledge about cancer and the beginning of each chapter leads off with an interesting-catching item. The book is rich in metaphors and analogies indicating the author's real knowledge of the teaching art.

It is a highly recommended book for the secondary school library, especially the biology classroom, and for the cost it is the best survey of our state of knowledge.

THE EMERGENCE OF BIOLOGY ORGANIZATION, Henry Quastler, 65 pp., \$3.75, Yale University Press, New Haven, Connecticut, 1964.

This book represents a preliminary attempt to develop a theory of biological organization from the point of view of the evolution of living systems. The approach is somewhat empirical in spite of the theoretical nature of the treatment. One can not approach biological problems meaningfully without taking into account the basic facts of chemistry and physics, but Dr. Quastler has used some rather simple mathematical principles to help define the problems involved. The basic principles of information theory are used throughout the book, but the

mathematical aspects should not discourage even those with a minimum of formal training in math. Most of the concepts are developed in a way that can be appreciated without the use of mathematical formulas. On the other hand for those who like to think in mathematical terms, he has provided enough of the basic facts of the chemistry of macromolecules to make the treatment readable by those not familiar with many of the developments in molecular biology.

Chapter 1 provides a discussion of the information content and constraints on living systems on the assumption that nucleic acid is the tape in which the bits of information are stored. The basic characteristics of information storage, readout and feedback are outlined as these concepts apply to living systems.

Chapter 2 deals with the structure of proteins in relation to function. Interactions of proteins with other molecules, which can usually be shown to depend on a small part of the macromolecule, is referred to as the "Signature Principle." Characteristics and requirements of such molecules are considered.

In Chapter 3 are outlined the present concepts concerning the role of genes and their interactions which result in self regulated systems. Genetic regulatory mechanisms which involve the regulation of RNA synthesis in used as a basis for this discussion.

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IN THE BEGINNING: A SURVEY OF MODERN EMBRYOLOGY, Jeffrey J. W. Baker, 65 pp., 20c, American Education Publications, Columbus, Ohio, 1964.

A small pamphlet and one of a series written for the junior and senior high school student. The survey of embryology attempted here is in journalistic style but replete with information and readability which will make it appropriate for the supplementary reading of all students or the special student. Fully illustrated.

Early sections deal with historical ideas of development and evolution and other theories. Then there is an account of techniques used in embryology. While developmental steps are described, almost one-third of the pamphlet is devoted to the description of our present knowledge of regeneration, organizers, and the classic experiments.

A valuable little pamphlet for the student.

ULTRASONIC ENERGY, Biological Investigations and Medical Applications, Elizabeth Kelly, Ed., 387 pp., \$12.50, University of Illinois Press, Urbana, 1965.