

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.

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This text consists of 25 papers resulting from a symposium held at the University of Illinois in 1962. The papers are brief and adequately illustrated with explanatory diagrams and photographs. Each is followed by a list of literature cited and by a discussion among participants in the symposium. The discussions add much to the value of the book, particularly for the non-specialist, because much additional information and points of criticism are thus brought out.

The papers are grouped such that the first five deal with the principles of ultrasonic energy relevant to selected inanimate and biological materials. For these and a number of the other papers, the reader who has a fair background in physics will be at an advantage.

The next seven articles are of particular interest to those oriented in cytological structure and function. These describe the effects of ultrasound on a variety of organs and tissues, including the anterior pituitary, the liver, the ear, skeletal muscle, tumors, and neuromuscular skeletal systems.

Four chapters describe the surgical applications of focused ultrasound, particularly with respect to nervous tissue. The remaining chapters deal with ultrasonic diagnosis pertinent to the eye, the heart, the uterus, the breast, and to abdominal and intracranial regions.

The main difficulty this reviewer experienced, and which will not be uncommon to many readers, is that a proper understanding of this text does require a fairly sophisticated background in both biology and physics. The collateral readings provided by the references, however, should remedy this deficit for the individual biased in either direction. There is no doubt that this collection of papers, reporting the progress made in a young field of high potential in biomedical research, should be in the scientific library of any college.

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THE MOLECULAR BASIS OF REGENERATION:
ENZYMES, Anthony J. Schmidt 79 pp., \$4.50,
University of Illinois Press, Urbana, 1966.

This monograph grew out of a synthesis of material for a graduate student seminar on regeneration. Hence, it is organized in a logical sequence beginning with a morphological analysis of the regenerative process and continuing through the specific enzymes involved in regeneration rather than being the chronological sequence of research in the field often encountered in monographs. Regeneration is an especially intriguing field, partly because the ability