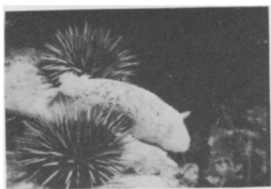


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THEME: BIOLOGY AND EVOLUTION



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WESTERN MARINE LABORATORY
P. O. Box 4595
Santa Barbara, California 93103

The book is illustrated with appropriate and clear diagrams.

The only mention of a laboratory program is a single reference to a laboratory manual in the foreword. It is unfortunate that a course for liberal-arts majors, which has the goal of introducing the student to the nature of science and the manner in which concepts have been developed, is not closely integrated with and dependent on a strong laboratory program. Students of limited background in science may find the historical and conceptual development difficult to follow without a good laboratory experience on which to base their thinking. However, if the course is designed for students who have had a strong background in chemistry and physics in high school, then the abstract nature of this historical and developmental approach can be very exciting and appropriate.

Harold Pratt
Jefferson County (Colo.) Public Schools

Zoology

TASTE AND SMELL IN VERTEBRATES: A CIBA FOUNDATION SYMPOSIUM, ed. by G. E. W. Wolstenholme and Julie Knight. 1970. J. & A. Churchill, London. 402 p. Price not given.

This is the proceedings of one of CIBA's symposia on sensory mechanisms in vertebrates. The papers report on the application of electron microscopy, histochemistry, and electrophysiology to the organs of taste and smell. Some of the reports suggest a reassessment of certain statements found in textbooks; for example, individual taste buds may be sensitive to more than one of the four basic taste modalities. T. S. Reese and M. W. Brightman report on the electron microscopy of the olfactory surface in a variety of vertebrates. The olfactory epithelium is ciliated in mammals, and it is well known that cilia initiate excitation in a variety of sense organs; but fish, which lack sensory cilia, respond to chemical stimulation. These workers suggest that it may be the cell membrane, rather than the cilium, that is the site of the initiation of excitation, and that in the higher vertebrates the cilia serve to extend the cell membrane in the direction of air- or water-borne odors.

There are reports of single-receptor coding in the organs of taste and smell, and the data suggest that a single receptor responds to only one or a limited number of different taste or odor qualities. An interesting series of papers discusses ideas about the mechanism of smell. One is that smell is based on an odorant molecule's being absorbed onto the receptor membrane, and by its irregular shape causing a "hole" in the membrane molecules. This

hole might permit leakage of ions, which in turn would initiate a membrane depolarization. According to this idea, odorant molecules of different shapes would cause different amounts of leakage and thus give rise to different sensations. An alternative idea is that detection of specific odors is by specific proteins in the cell membrane, which have receptor sites specific for the different odorant molecules.

The book provides no summary statement of the symposium proceedings or of the current state of research. This volume would have been much improved for the general reader if there had been some effort to put the participants' conclusions into context and to assess their validity.

Lorna P. Straus
University of Chicago

HUMAN ANATOMY AND PHYSIOLOGY, by James E. Crouch and J. Robert McClintic. 1971. John Wiley & Sons, New York. 663 p. \$2.50.

This book has a nice balance between anatomy, biochemistry, and homeostasis. I especially like the treatment of histology. The authors devote a chapter to the introduction of tissues, at the beginning of the book, and give a more detailed analysis as they cover the individual systems. The use of photomicrographs is exceptional, and there are a number of excellent drawings and photographs as well as summarization charts. Having an open mind and an appreciation for the human body, I do not object to the use of nude photographs to illustrate anatomy. However, I do feel some pictures could have been used with more discrimination; for example, there is an entire anterior view of a nude man to illustrate the deltoid muscle but there is hardly any nudity in photos dealing with the reproductive system.

Overall, this is an excellent volume; it is comprehensive and well written. I would recommend it for a college introductory course in physiology and anatomy. In addition, it should be in the professional library of all teachers of biologic science.

Donald E. Mason
Gen. William Mitchell High School
Colorado Springs

ELEMENTS OF ENTOMOLOGY: AN INTRODUCTION TO THE STUDY OF INSECTS, by Harold Oldroyd. 1970. Universe Books, New York. 355 p. \$7.95.

This, the American edition of Oldroyd's book, could be used in a general education course for people who are fascinated by natural history—particu-

(Concluded on p. 240)