Book Reviews

Ascidians of Sagami Bay. Collected by His Majesty the Emperor of Japan. Described and illustrated by Takasi Tokioka; Hirotaro Hattori, Ed. Tokyo: Iwanami Shoten, 1953. 315 pp. 79 plates. 2500 yen.

This is the second of a series of monographs on the fauna of Sagami Bay, edited by Hirotaro Hattori of the Biological Laboratory of the Imperial Household, the first study being of the Opisthobranchia. The present account represents 81 species of Ascidians found in the eastern half of the bay. Of these, 60 are species previously known but imperfectly described, and these together with 21 new species are here given precise and concise descriptions which will be welcomed by acidiologists and marine ecologists everywhere. The text is presented both in Japanese and in English. There are three plates excellently produced in color and 76 full pages of line drawings of superb quality. Altogether, the book is a valuable scientific contribution to marine biology and to systematic ascidian zoology and is beautifully produced. It is to be hoped that His Imperial Majesty the Emperor will continue to encourage marine zoological investigations and that many volumes as good as this will be forthcoming.

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The Neurophysiological Basis of Mind: The Principles of Neurophysiology. Being the Waynflete Lectures delivered in the College of St. Mary Magdalen, Oxford, in Hilary Term 1952. John Carew Eccles. New York: Oxford Univ. Press, 1953. 314 pp. Illus. $6.50.

Eccles' work is unquestionably the best text available in any language which gives an authoritative description and evaluation of the electrophysiological basis of modern neurophysiology. The first two chapters, dealing with a detailed analysis of the relation between resting and action potentials and ionic changes in the peripheral nerve, are chiefly based on the recent work of the Cambridge school. This is followed by a chapter on the physiology of transmission of impulses across the neuromuscular junction and sympathetic ganglia.

A highly informative discussion is devoted to the changes in potentials of the spinal cord which accompany excitation and inhibition of various reflexes. Furthermore, it is pointed out that prolonged changes in neuronal excitability result from activation and disuse. These results are successfully applied to an interpretation of the mechanisms underlying conditioned reflexes and learning processes in general.

Models of complex neuronal circuits are discussed at length in order to show that the reverberatory activity which exists in the cerebral cortex greatly enhances these "plastic" changes, and to correlate specific mental states such as consciousness, will, and perception with changes in the cortical neuronal network. This latter part appears to the reviewer peculiarly unsatisfactory in an otherwise brilliant work. Recent studies made in this country seem to suggest that a more fruitful approach to the correlation of mental states (consciousness, etc.) with physiological processes can be achieved by the investigation of actual cortical and subcortical events and their mutual relations rather than by ingenious calculations concerning the behavior of schemes of nerve nets.

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Advances in Carbohydrate Chemistry, Vol. 7. Claude S. Hudson, Melville L. Wolfrom, Sidney M. Cantor, Stanley Peat, and Maurice Stacey, Eds. New York: Academic Press, 1952. 370 pp. $7.50.

This book, the seventh volume of a series indispensable to a chemistry library, continues the periodical review of selected topics in carbohydrate chemistry. Of the eight articles, five have British authors and one a German author. The material presented is essentially for specialists but others will find information of interest particularly in the chapter on The Size and Shape of Some Polysaccharide Molecules. Other topics discussed are The Methyl Ethers of the Aldopentoses and of Rhamnose and Fucose, 1,6-Anhydrohexofuranoses, a New Class of Hexosans, Fructose and Its Derivatives, Psicose, Sorbose and Tagatose, Acetals and Ketals of the Tetritols, Pentitols and Hexitols, The Glycals, and The Chemistry of the 2-Amino Sugars (2-Amino-2-deoxy-Sugars).

In addition to good indexes for this volume, a listing of the tables of contents for each of the first six volumes is included.

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New Books

Principles of Transistor Circuits. Richard F. Shea, Ed. New York: Wiley; London: Chapman & Hall, 1953. 535 pp. Illus. $11.00.

Within the Living Plant. An introduction to plant physiology. Erston V. Miller. New York: Blakiston, 1953. 325 pp. Illus. $5.00.

Industrial Inorganic Analysis. Roland S. Young. New York: Wiley, 1953. 368 pp. Illus. $5.75.

Resources and the American Dream. Including a theory of the limit of growth. Samuel H. Ordway, Jr. New York: Ronald Press, 1953. 55 pp. $2.00.

Ultra High Frequency Propagation. Henry R. Reed and Carl M. Russell. New York: Wiley; London: Chapman & Hall, 1953. 502 pp. Illus. $9.50.

A Manual of Australian Soils. C. G. Stephens. Melbourne, Australia: Commonwealth Scientific and Industrial Research Organization, 1953. (Order from: Tait Book Co., 349 Collins St., Melbourne.) 48 pp. + plates. 25s.