Obesity and Diet

Physiological and Behavioral Aspects of Taste. Morley R. Kare and Bruce P. Halpern, Eds. University of Chicago Press, Chicago, Ill., 1961. xvi + 149 pp. Illus. $6.

As Pfaffmann points out in a thoughtful preface to this book, which is the outcome of a 1960 symposium at Cornell University, taste, as a model stimulus-response system and as the mediator of powerful rejection and acceptance responses, has much to offer both the sensory physiologist and the behavioral scientist. The ten papers that comprise the bulk of this book stem from these approaches, although it is the behavioral aspects of taste, and their relation to food and metabolism, which are emphasized.

As is common in symposia volumes, the discussions are too often haphazard and diffuse; much of the material has appeared elsewhere; and the quality of the papers, both in style of presentation and in content, varies widely. In addition, this symposium, restricted as it was to a small group of American workers, does not give a comprehensive view of current research in this area. This is unfortunate, since the study of taste is a rapidly expanding field in which work of wide biological significance is in progress. Although some of these findings are mentioned in the preface, few of the papers suggest that recent, powerful techniques of biology are being applied to the basic problems in taste. However, a large and important section contains the discussions, and these are often effective. There is little evidence of extensive revision, and some sharp and even amusing exchanges that expose methodological differences are preserved. Little attempt is made to relate findings to what is known about other sensory systems.

Among the individual contributions, Jacobs expounds and criticizes the generally accepted view that osmotic factors can largely account for rats' long-term preferences for sugar solutions, and he suggests that caloric values are involved. Kare's paper is mainly a summary of his group's work on taste preferences in poultry, pigs, and calves, while Christensen covers the methodology of preference testing in rats, as developed by P. T. Young's group. Electrophysiological studies are represented by Kitchell, who makes some pertinent comments on quantification of neural responses, and by Frommer, who summarizes his own and other important work on the representation of taste in the thalamus.

In an interesting review of research on taste in the Soviet Union, Pick presents material which is not otherwise easily accessible. Here, as in some other areas of Russian physiology, the Pavlovian conditional-reflex approach dominates to the virtual exclusion of electrophysiological and simultaneous choice techniques; Pick concludes that the main Soviet contribution in this area has been more to methodology than to fact. Other papers deal with the interaction of suprathreshold taste stimuli (Pilgrim), metabolic and taste interactions (Tepperman), metabolic factors in food intake and utilization in weanling rats (Heggeness), and "What is a sense?" (MacLeod).

The book is carefully edited and there is a useful terminal bibliography.

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Marine Biology

Fungi in Oceans and Estuaries. T. W. Johnson, Jr., and F. K. Sparrow, Jr. Cramer, Weinheim, Germany, 1961. xxiv + 668 pp. Illus. Plates. $25.

The ships of a dozen nations are to comb the Indian Ocean in a major exploration of this least known sea; Congress is studying means to double our national effort on marine sciences; and the President of the United States has sent a special message to the Senate emphasizing the importance of marine research for the national safety and welfare. There could hardly be a more fitting time for the appearance of a scholarly monograph on an aspect of marine biology never before brought out between the covers of a book. The fungi in oceans and estuaries, as visualized by these authors, constitute an area of biological science that is relatively young, though its beginnings go back a hundred years; that is economically important, though its precise data are still far from complete; and that is fascinating because of the pioneering efforts already made and the broad vistas that are open for the future.

Biologists' libraries are well stocked with books on almost every group of marine plants and animals, yet few biologists have wondered about the presence of fungi in the marine environment or have been concerned about their possible activities. Few even of the mycologists themselves have been more than dimly aware of the occurrence and the importance of fungi in the oceans. Among many thousands of described species of Mycota, some two or three hundred, we are now told, can be linked with fair certainty to those estuarine and ocean waters that are distinguished by their increased salinities and by numerous other hydrographic and ecological characteristics. Johnson and Sparrow are eminently qualified to weigh the evidence and present this account, the former by virtue of his active interest and research contributions to this field during the past ten years and the latter as an internationally known authority on and monographer of the aquatic Phycomycetes, who, as early as the 1930's, recognized the possible role of these and other fungi in pelagic waters.

Originally intended as a two-volume work, *Fungi in Oceans and Estuaries* was published in a single volume of two approximately equal parts—the first, a comprehensive and stimulating account of the general biology of these microorganisms; the second, a critical and useful treatment of their morphology and taxonomy. Two volumes would be more convenient to handle (the present one weighs close to 1.5 kilograms!), but combining taxonomic and dynamic aspects in one volume returns us to the fine tradition set by de Bary and reemphasizes the essential unity and interdependence of all facets of modern biology.

Among the numerous interesting features of this book, each reader or expert will find many to praise and some to complain about. The authors have concerned themselves with such fundamental aspects of marine fungi as their origin, their function in the marine environment, and their adaptation to it. The authors are equally forthright in stating that no clear picture of any of these aspects has yet emerged. No structural features that show a specific adaptation to salt water have yet been revealed. Indeed, the marine and estuarine fungi as a group appear to merge structurally and phylogenetically into the nonmarine, freshwater or terrestrial forms. One