notable this particular biologic problem? Most pinnipeds, beginning when they are very young, swallow considerable numbers of rocks, often sharp-edged rocks, which may produce grievous stomach ulcers. This unexplained behavior trait would seem to be inadaptive, but is it? A great deal is known about some pinnipeds that have been studied because of their commercial value, but little is known of others; among the latter, curiously, is the Mediterranean Monk Seal, the first to enter the written record (by Homer) and the first to have had scientific study (by Aristotle). In each species account the history of its commercial exploitation (including instructions for flensing a sea elephant) is included where pertinent.

More than a third of the book is devoted to general discussions—distribution in relation to temperature and ocean currents; basic anatomy; physiology in relation to diving, locomotion, molting, reproductive cycles, sensory organs and their uses; fossil history (the diphyletic theory of the origin of pinnipeds is presented); a table summarizing distribution of parasites; and the derivation of all the generic, specific, and subspecific names (one might wonder otherwise why a population of fur seals should be called *gazella*).

An index and a five-page bibliography complete the volume. In these days of high publication costs, where else can one get so much for the equivalent of $1.55?

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Botany

Algal Cultures and Phytoplankton Ecology. G. E. Fogg. University of Wisconsin Press, Madison, 1965. xiv + 126 pp. Illus. $5.50.

This small book is based on a series of lectures given by the author while visiting at the University of Wisconsin in 1963. The content of the book, however, includes reference to research that was published after the lectures were presented. Three color plates add to the general attractiveness of the format, but they are hardly necessary for the subject matter of the text. The quality of the color reproduction in the frontispiece is poor, the green algae appearing brown like the diatom and dinoflagellate.

The text is an excellent general survey of recent research on algal cultures and phytoplankton ecology, with an attempt to relate the two disciplines. This purpose is admirably amplified to the full extent of the available data. An obvious shortcoming, which the author readily recognized, is the application of culture data for nonplanktonic algae to possible explanations for behavior of phytoplankton in its natural environment. The book is composed of two major sections, one on culturing of algae (chapters 1–3) and the other on phytoplankton ecology (chapters 5–8). Chapter 4 unites the two subjects through a summary of recent research on metabolism and growth of algae. In his discussion of Table 5 (of chapter 4), Fogg erred in attributing a thick cellulose wall to *Amphidinium*, one of the unarmored dinoflagellates. The author continues to tie the two subjects together in later chapters, but, as he admits, accurate data on phytoplankton cultures are too sketchy for intensive comparisons to be successful.

The chapters on ecology of phytoplankton are excellent summaries of different phases of recent research in this field. Particular attention is given to discussion of the increase during the spring of phytoplankton in bodies of water in temperate climates, and to seasonal succession of species. The author's discussion of diurnal rhythms of photosynthetic activity in some phytoplankton is interesting and worthy of note and application in forthcoming research.

The primary value of the book is that it provides a summary of recent research on cultures of algae and the physiology of algae as these subjects relate to phytoplankton ecology. Students of phytoplankton should study the volume carefully, and beginning students in this field will find it an especially valuable introduction to the ecology and culturing of these algae. It is unfortunate that the book was not published in a less expensive binding, perhaps as a paperback, so it could be required as a supplementary reference for students in courses on phytoplankton and algal ecology.

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Primate Field Studies

Naturalistic Behavior of Nonhuman Primates. C. R. Carpenter. Pennsylvania State University Press, University Park, 1964. x + 454 pp. Illus. $9.50.

The modern period of primate field studies, with its emphasis on long-term observation of the ecology and behavior of a species living in a free-ranging environment, may be said to have begun when C. R. Carpenter initiated his study of the howling monkeys of Barro Colorado Island in 1931. In the succeeding 30 years almost all of the accurate information available on the behavior of monkeys and apes living in natural environments was the result of Carpenter's research and writing.

This volume brings together all of Carpenter's major primate research papers, many of which have not been available for some years. Included are his monographs on howling monkeys and gibbons as well as briefer studies of red spider monkeys, captive gorillas, and a survey of orangutan habitats in northern Sumatra. Included also are two papers on the sexual behavior of the rhesus monkeys in the Cayo Santiago colony established by Carpenter, where behavioral studies were begun again in 1956 and are still going on. *Naturalistic Behavior of Nonhuman Primates* brings together for the first time all of the reports pertaining to the census made on the howler monkeys between 1932 and 1959. The volume also contains four papers, written between 1942 and 1954, on the social behavior and organization of nonhuman primates generally.

It is appropriate that this volume should appear at a time when research on nonhuman primates is proceeding at an unprecedented pace. The recent establishment of seven primate research centers and the active involvement of more than 50 persons in intensive field studies of primates is rapidly leading to new insights in the medical and behavioral sciences. Many of our previous generalizations about the nonhuman primates will inevitably be changed by these intensive efforts—an eventuality which Carpenter anticipated and repeatedly emphasized in the papers collected here.

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