puzzler.) Several physiology experiments that could be easily duplicated in the classroom are described and illustrated. Two new, relatively unexplored areas for careers are described—tracking turtle migrations and farming turtles commercially.

This book would appeal particularly to the teacher who is looking for well written low level reading material in the content area. The chapters and paragraphs are so uncluttered and direct they could easily be used for exercises in outlining, yet the information in them is generally interesting enough to hold the attention of anyone even faintly interested in turtles, be he an elementary student or adult.

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THE PRIVATE LIFE OF THE RABBIT, by R. M. Lockley. 1974. Macmillan Publishing Co., New York. 152 p. $6.95 (hardback).

Despite the 1974 copyright, this book is based on observations made in the 1950s and 1960s, and its first copyright date is 1964. The only new part is a two-page introduction by Richard Adams. Still, if you want to know anything about rabbits, this is the book for you to read. The subjects are not fictional Peter Cottontails or Br'er Rabbits. They are real rabbits, living the struggle of life as real rabbits must. In the words of the author, this book "attempts to give a picture of the social structure of rabbit communities from first hand observation." Naturally, to do this, the author must describe rabbit behavior under various circumstances. He takes the liberty of attributing human characteristics to the subjects of his study—thinking, wonderment, loneliness, love, jealousy. Despite this bit of anthropomorphism, the book is a scientific study, well planned and well executed.

Five rabbit-proof enclosures of varying sizes and terrain were set up. The largest covered several acres of farmland. Central to these five areas was a large elm tree with an observation blind in which the observers could watch the rabbits with telescopes. A fifth enclosure housed an underground warren. It butted up against the plate-glass window of a hut where the observers could sit and watch the rabbits in their burrows. Every rabbit was marked with a large tatoo and a numbered ear-tag. Males were tagged in the right ear and females in the left. Each animal could be identified readily from a distance.

Lockley and his staff recorded the rise and fall of a series of rabbit dynasties. They observed the growth of a society, the struggle of dominance, the establishment of a peck order. At the top of the social structure is the "King" buck rabbit. He controls the domain. He has a "Queen" doe rabbit as his consort, and perhaps a few concubines on the side. Other bucks and does step aside when he passes, allow him the best grazing and the best living quarters. They are allowed to live in peace, in corners of the royal domain, as satellites, as long as they do not challenge the king's dominance or trespass on his territory. One usually thinks of rabbits as baby-faced, cuddly things. But Lockley describes brutal attacks, physical battles to the death, biting, kicking, tearing of fur, cutting of hamstrings.

One of the most significant concepts growing out of Lockley's research relates to overpopulation. When rabbit population becomes too great for the territory to support, the stress becomes intolerable. This is especially so for the young and the subordinate. They are hounded and threatened by the more aggressive, older, and dominant animals. They fail to reproduce. Even if a female becomes pregnant, the young are likely to be resorbed before pregnancy is half way through. This is a

sort of natural birth control process, similar to abortion, but far less traumatic. Naturally the starved, underprivileged rabbits are retarded in growth, subject to disease and early death. How similar this is to the human world when overpopulation is rampant!

Lockley concludes his book with a summary which he calls "The Rabbit Wild and Free." Here he reviews the reproduction, life history, and social structure in a wild rabbit community. This chapter contains all you ever wanted to know about rabbits but didn't know whom to ask. After reading the book, one is inclined to agree with the author that, "Rabbits are so human. Or is it the other way around—humans are so rabbit."

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LISTENING IN THE DARK, by Donald R. Griffin. 2nd ed., 1974. Dover Publications, Inc., New York. 424 p. $4.00.

The book is primarily a history of the research on echolocation in bats, but about 65 pages are devoted to orientation in other taxa—aquatic beetles, fish, nocturnal birds, whales, porpoises, and humans. The popularized title to the contrary, this is not light passive reading. It is a comprehensive account of the details of comparative studies of echolocation in several families of bats. Readers with casual interest or teachers preparing a general lecture on the subject might more profitably read summarized accounts. A cursory reading would be almost meaningless; the reader must follow the line of thought closely, perhaps make notes, to comprehend the significance of most data and calculations.

Biologists with a genuine interest in specific mechanisms of animal orientation will find the book well written with a researcher's enthusiasm and a teacher's skill in explanation. Griffin was the first to confirm high frequency echolocation in bats; and after 35 years of research, he is the world authority on his subject. Writing in first person and in conversational tone, he gives the reader a first-hand view of the problems, methods, and discoveries as they unfolded.

The book was interesting to me in terms of research design, practical execution of experiments, and interpretation of data. The author is imaginative in formulating hypothesis and methods, but conservative in interpreting data. I would recommend parts of the book to advanced undergraduate and graduate students as an introduction to research.

The major disappointment is that the 1974 edition is a reprint of the 1958 edition with only a new preface and bibliography to update it. Knowing that much more research has been completed, it is disconcerting not to know which statements have been superseded. Even so, the book is valuable to those interested in delving into the acoustic theory to obtain a basic background in this unfamiliar anatomical and behavioral adaptation.

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For Young Readers

LIVING THINGS: AN INTRODUCTION TO NATURAL HISTORY, by Donald M. Allred. 1974. Brigham Young University Press, Provo, Utah. 143 p. $9.95.

Natural history is defined as encompassing all of the biological and physical forces related to living organisms in their natural environment and therefore the first six chapters of this slim volume review basic biological information, such as physiology, genetics, and taxonomy. While the book purports to be for laymen, particularly children, it is doubtful that these fundamental concepts can be understood when they are discussed in so little depth. Chapters 7-11, however offer a review of the various types of organisms and are especially noteworthy for the dramatic illustrations of relationships between living things. The entire book is beautifully illustrated with color plates that have been tastefully selected and arranged; at times the photos overshadow the text, however. Chapters 12 and 13 introduce the reader to the current problems in conservation and ecology which seem especially important after seeing nature at its best in the previous pages.

This artistic book is a beautiful addition to anyone's library and is sure to be an enjoyment to any child who peruses its pictures.

Sylvia S. Mader
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Wellesley

Games and Simulations

THE CELL GAME. 1974. Tecolote Press, Tombstone, Ariz. $2.95.

The purpose of this game for four players is to familiarize students with the structures and functions of cell organelles and inclusions. Each player begins with an equal supply of components (for example, ATP and H_2O), which are each worth a set point value. Moves for each player are determined