

BOOK REVIEWS

Adventures in Medicine: One Doctor's Life Amid the Great Discoveries of 1940–1990. Sibley W. Hoobler, M.D. 1991. Case Western Reserve University Press, Cleveland, OH. 150 p. \$11.00 paper.

When people are asked to name a heroic figure, many kinds of people come to mind. Politicians, athletes, generals, and the like are all commonly equated with great victories and conquests. Rarely, if ever, do people mention the conquerors of foes such as smallpox, polio, or tuberculosis, while these heroes are equally deserving of recognition. In fact, the most noble aspect of these medical victories is that they were not performed to benefit one select group but all of humankind. When one reads *Adventures in Medicine*, this is the feeling imparted.

In his book, Dr. Hoobler discusses many of the hallmark discoveries in medicine, especially those that took place during his fifty years of practice and training. Although it can be argued that some notable accomplishments may have been excluded, Dr. Hoobler does a wonderful job relating these monumental discoveries to the reader.

The book's title, *Adventures in Medicine*, is quite appropriate since Dr. Hoobler tells of the medical efforts to conquer disease as one would tell an adventure story. The beauty of the book is its simplicity. The author has been very successful in simplifying the medical jargon to make the book accessible to many ages and professions. The book is published in paperback, using relatively large type, and is of a length that makes it easily readable in a few sittings. All of these factors help to provide an inexpensive, light look at medical history.

For the reader who desires either more depth on the subject or more scientific detail, Dr. Hoobler goes to great effort to provide the original sources of his accounts as well as other references to help encourage further reading on the subject.

The first chapter chronicles the medical accomplishments of Louis Pasteur and William Osler. The next chapter consists of interesting, biographic information about Dr. Hoobler. It describes his life from his youth as a physician's child through medical school at Johns Hopkins, residency at the University of Michigan, and service in World War II, to faculty positions at the University of Michigan and Case Western Reserve schools of medicine. There are many significant medical accomplishments in which Dr. Hoobler has played a part and throughout the book he modestly provides an insider's view into these efforts.

Each of the remaining chapters explains a specific medical achievement and the events that surround that accomplishment. Dr. Hoobler chronicles Fleming's almost happenstance discovery of penicillin. The discovery of penicillin has reshaped the face of medicine and saved countless millions of lives from the bacterial plagues of the past. Hoobler does a great job in this chapter and throughout the book in describing the cooperation between the researchers, working toward a common goal. In later chapters, Dr. Hoobler discusses the conquest of polio by Salk, the cure for tuberculosis, and the accomplishments that led to the elimination of smallpox.

Hoobler devotes four chapters to cardiovascular medical achievements. In one chapter, he explains the great advances made in the treatment of high blood pressure, his field of research. Chapter 9 presents the events that led to open heart surgery. The following chapter goes on to describe coronary bypass surgery and its success in lengthening the lives of millions of people.

The field of medical genetics is highlighted from the time of Mendel through Watson and Crick's discovery of the DNA double helix to the future goals of gene therapy, the field Dr. Hoobler and many others consider the future of medicine. The author also discusses the ramifications of conquering measles and its positive effect on decreasing the incidence of birth defects. One of the most ironic stories told describes the discovery of a suitable lens replacement in cataract surgery resulting from studying fragments of plastic embedded in the eyes of World War II pilots. The chapter topics are rounded out with discussions of the discovery of using cortisone for arthritis and other ailments, and magnetic resonance imaging and its usefulness.

In the prologue Dr. Hoobler expresses his desire for this book to be worthwhile for young people considering a future in the medical professions and for his contemporaries who would remember many of the advances. I feel that the author underestimates the general public's interest in medical history. Although the book would be perfect for the aforementioned groups, it would also be enjoyed by anyone else interested in history, medical research, or the power of human accomplishment.

Adventures in Medicine is a wonderful, well-written book that would make a nice addition to someone's personal collection, or a great inexpensive gift.

THOMAS M. SHEHAB

School of Medicine
Wayne State University
Detroit, MI 48202

The Tiger Beetles of Ohio (Coleoptera: Cicindelidae). Bulletin VIII (4) NS. Robert C. Graves and David W. Brzoska. 1991. The Ohio Biological Survey, Columbus, OH. 42 p. \$7.00 paper.

The Ohio Biological Survey continues its 80 year tradition of producing outstanding reference works on the biodiversity of Ohio. Michael Flynn's color photograph of *Cicindela sexguttata*, found on the cover of this bulletin, should be framed and hung on the office wall of anyone interested in the Coleoptera.

This thin volume is packed with information on the Cicindelidae of Ohio. Graves and Brzoska open with a brief discussion of the group, including the known ecology and morphology, and follow with a key to the Cicindelidae of Ohio. Drawings of key characteristics are particularly useful to anyone who has just developed an interest in tiger beetles. The body of the bulletin consists of systematic, ecological, and distribution information on each of the species of Cicindelidae found in Ohio.

Traditional distribution maps provide a basic knowledge of the distribution of each species of tiger beetle in Ohio. The maps also demonstrate the woeful state of biodiversity studies on insects. Counties often lack records

because they have never been surveyed for any insect group. In spite of the considerable efforts of The Ohio Biological Survey, much of Ohio is either unsurveyed, or the surveys are so old as to be of historical interest only. The authors point out that several species of *Cicindela* are considered to be threatened or endangered in Ohio resulting from the loss of habitat. This is probably true of a number of insects, including several Lepidoptera and Hymenoptera which also have specialized habitat requirements. Critical habitat is being lost at an unprecedented rate in Ohio, and insects are almost never considered in environmental impact statements.

Graves and Brzoska's useful volume should be in the kitbag of anyone who is interested in the Coleoptera of Ohio. In a brief space it provides a comprehensive account of this interesting group.

ERIC V. NELSON

Department of Biological Sciences
Ohio Northern University
Ada, OH 45810

An Introduction to Molecular Neurobiology. Zach W. Hall with 11 contributors. 1991. Sinauer Associates, Inc., Sunderland, MA. 540 p. \$46.95 cloth.

This book is an excellent introduction to molecular neurobiology for individuals with a background in basic neurobiology. The text is organized to encompass several topics in neurobiology which range from methods of communication within the nervous system to development and diseases of the nervous system. The first chapter provides a brief overview and summary of the anatomy and physiology of the nervous system so that the reader has some background before proceeding to specific sections. The remainder of the book is divided into four sections. The first section, "Signaling in the Nervous System," contains four chapters which discuss the molecular properties of the electrical and chemical signals used by the nervous system. The second section, "The Cell Biology of Neurons and Glia," examines the G protein coupled signal transduction pathways in nervous cells. The function and molecular components of the neuronal cytoskeleton are also considered. The final chapter in this section deals with the molecular composition of myelin. "Neuronal Development," the third section of this text, covers the molecular mechanisms involved in neuronal development, including the interaction between cells and the formation of synaptic connections between neurons. The final section is "Complex Interactions of Neurons and Neuronal Disorders." This section contains two chapters that discuss molecular approaches that are utilized to study diseases of the nervous system and cellular and molecular mechanisms of plasticity in the nervous system.

Individual chapters are well organized and current references are provided at the end of each chapter. The literature cited is divided into groups so that general citations are designated, but specific references for major topics are also provided. The organization of the text, as well as the literature cited, makes this a valuable text for advanced undergraduate or graduate students of neurobiology, as well as professional neurobiologists.

The major advantage to this book is that it is a single source that can be used to provide the current understanding of molecular neurobiology. One extremely useful characteristic of the book is that each chapter includes one or more "boxes" which describe current research approaches used in a particular area of neurobiology or, in some cases, the information in the box may describe a recent development in the field or offer historic perspective in a particular area.

An Introduction to Molecular Neurobiology is a well-organized, detailed, and current description of the field. It includes 250 illustrations and more than 250 references. This text represents an excellent overview of molecular neurobiology that is suitable for both students and researchers.

PHYLLIS CALLAHAN

Department of Zoology
Miami University
Oxford, OH 45056

Walker's Mammals of the World. Vols. I and II. Edited by Ronald M. Nowak. 1991. Fifth Edition. The Johns Hopkins University Press, Baltimore, MD. 1,929 p. \$89.95 hardcover, two volumes.

"To the MAMMALS, GREAT AND SMALL, who contribute so much to the welfare and happiness of man, another mammal, but receive so little in return, except blame, abuse, and extermination." Thus reads Ernest P. Walker's dedication for this monumental tome, first published in 1964. His goal then was to present a description and basic natural history of each genus of living mammals, written for both the general public and the professional. Nowak, who was Walker's assistant, took over the project after Walker's death in 1969.

Each genus (1,116 of them!) is followed by an account of approximately one page, including a list of species (4,444 total) with notes on distribution, physical description, habitat, locomotion, daily and seasonal activity, diet, population dynamics, home range, social life, reproduction, longevity, relationship with humans, and conservation status. Not covered to any extent are internal morphology, physiology, genetics, lab experiments, parasitology, pathology, or paleontology. A major goal of Walker's was to include a photograph (black-and-white) of at least one representative of each genus. In the years since the first edition many new photographs have been added and Walker's goal has been nearly achieved; in addition, the text has expanded considerably. A big improvement is the use of specific references for facts presented in the text, making it possible to consult the primary literature. Although the bulk of them are from the 1970s, some are as recent as 1990. New for the fifth edition are more than 100 generic accounts, and mention of species that are classified in a category of concern by the IUCN or listed by CITES. Each volume contains the index to both volumes, with the references (approximately 6,000) found at the end of Volume II.

It is quite easy to find a particular genus if one knows to what order and family it belongs, since both are printed at the top of each page. Although the accounts are brief, they give the basics and get one started on a

search for more information. Most of the photographs are of good quality. The only thing this reader found lacking is distribution maps; the huge table showing world distribution of each genus by geographic region is not very helpful.

Researchers in North America will still want to keep their copies of Hall's *The Mammals of North America*, which is a species-by-species account emphasizing physical measurements and distribution maps. Also available are the more detailed *Mammalian Species*, published by the American Society of Mammalogists; however, only 400 or so accounts have been completed, and most of those are of North American species.

These volumes are not something you will want for the coffee table, but if you have a question about the distribution or natural history of a mammal, no matter how obscure the genus, these volumes are the place to look first. Anyone teaching about mammals will want to own a set, and it is an essential purchase for libraries.

STEPHEN H. VESSEY

Department of Biological Sciences
Bowling Green State University
Bowling Green, OH 43403

How Monkeys See the World: Inside the Mind of Another Species. Dorothy L. Cheney and Robert M. Seyfarth. 1992. The University of Chicago Press, Chicago, IL. 377 p. \$13.95 paper.

This book is largely based on Cheney and Seyfarth's long-term study of free living vervet monkeys conducted at the Amboseli National Park in Kenya, Africa. While their observations, lasting 11 years, covered all main aspects of vervet social behavior, the authors' interest has been focused on the cognitive abilities of these primates. In *How Monkeys See the World*, they summarize their findings on the cognitive abilities of vervet monkeys as suggested by the observation and interpretation of their social interactions and communication skills.

The problem of exploring inside the mind of another species is addressed here within an evolutionary and functional framework. First of all, vervet intelligence is investigated in a natural context where individuals are confronted with tasks posed by the real world, rather than in a lab setting. Furthermore, the individuality of the species is stressed; the life history of a vervet monkey, of course, is different from that of a mouse, a pigeon, or even another primate. Because it evolved under unique selective pressures, the mind of vervet monkeys applies different rules and is structured for different tasks than that of any other species. Only by acknowledging these differences can scientists hope to uncover the boundaries, homologies, and links between the human mind and that of other animals.

The purpose and background of the book are discussed in the first chapter.

The second chapter effectively describes the social structure and behavior of vervets. Here we learn about the importance of kinship, alliances, social status, aggression, and reciprocity in the everyday life of a group. The description of all these social interactions alone can give

us a feeling of the complex amount of information each individual must memorize and interpret in order to survive and reproduce successfully in the group.

From the third chapter on, we start our journey through the mind of vervet monkeys. Their knowledge of their own and other individuals' relationships is detailed, as revealed both by their spontaneous behavior, and by their responses to the authors' manipulations.

Vervets can evaluate the group and family identity of other individuals and their social status within the group; they can assess relationships of kinship and friendship or rivalry between group members; they remember past alliances and reciprocate altruistic acts; they can even foresee who is likely to raise in status rank and consequently direct their requests for alliance!

Most importantly, there is some evidence that vervet monkeys can represent, classify, and compare in their minds different social relationships between conspecifics, applying a certain level of abstraction.

Chapters 4 to 6 report the results of fascinating studies on vocal communication begun in 1977 in collaboration with Peter Marler. The studies reveal the complex and articulate use and interpretation of vocal calls by vervet monkeys. Also of great interest is the investigation of the development of vocal abilities, which in many ways parallels that of language in humans.

Throughout the book but with most emphasis in the last chapters (7 to 10), the authors also address the ambitious question of whether the monkeys "know about what they know." Are they conscious, like humans are, of their own knowledge? Can they transfer a particular reasoning skill to new contexts? Can they attribute beliefs and emotions to other individuals and try to influence them?

Although the evidence is still far from conclusive, the answer to all these questions is so far negative. Monkeys seem to lack that consciousness and accessibility of one's own knowledge that allow for the great flexibility of human intelligence. As the authors suggest, these limitations could be drawing the line between the capabilities of the human mind and that of other primates.

How Monkeys See the World is overall a captivating book, and is for the most part a pleasure to read. Only rarely, the writing becomes slow, mainly caused by discussion of a still fragmentary and anecdotal literature.

The text is supported by numerous pictures, drawings, and graphs, and completed by frequent comparisons with results from studies on macaques, baboons, and other primates. It will be useful for graduate students and specialists in the field of primatology, animal behavior, psychology, and cognition.

More in general the book is valuable to readers interested in the recent methods and findings on primate intelligence and behavior, and in the rich, fascinating world of vervet monkeys—not as much their world as the human observers see it, but most importantly as (we think) the monkeys see it themselves.

MARIELLA ZUCCHI-BINGMAN

Department of Biological Sciences
Bowling Green State University
Bowling Green, OH 43403