Ecological and Environmental Physiology of Insects by Jon F. Harrison, H. Arthur Woods, and Stephen P. Roberts
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ferent point of view, with scattered highlights of clear and fascinating physical explanations of biological phenomena.

SHEILA PATEK, *Biology, University of Massachusetts, Amherst, Massachusetts*

ECOLOGICAL AND ENVIRONMENTAL PHYSIOLOGY OF INSECTS. *Ecological and Environmental Physiology Series (EEPS), Volume 3.*

By Jon F. Harrison, H. Arthur Woods, and Stephen P. Roberts. Oxford and New York: Oxford University Press. $117.00 (hardcover); $62.99 (paper). ix + 378 p.; ill.; index. ISBN: 978-0-19-922594-1 (hc); 978-0-19-922595-8 (pb). 2012.

The field of ecological physiology, which examines how organisms respond to environmental variation, is of increasing importance in light of anthropogenic climate change. This book, written by three senior researchers at the cutting edge of their fields, focuses on how insects, the dominant terrestrial heterotrophs, do this.

The book is organized into eight chapters. The first two are general introductions to the ecological importance of insects, their evolutionary history and diversity, and principles of functional anatomy and physiology. This introduction makes the volume accessible to anyone interested in how organisms work. The next four chapters, the heart of the book, address the four main environmental factors that affect insects: temperature, water, nutrition, and oxygen. Each of these chapters starts with a section entitled Defining the Problem, which provides theoretical and functional background for the rest of the chapter. A clever techniques and applications chapter follows, which is a basic experimental guide on how to collect physiological data along with potential pitfalls. The final chapter poses explicit "big questions" for future directions in insect ecological physiology.

The fact that all three authors are strong experimentalists is evident throughout the text. One of its strengths is that topics are presented in a hands-on way, such that even when addressing physiological subsystems, it is easy to see how they relate to the whole insect, a common weakness of many physiology textbooks. The writing style is particularly engaging, making the subject matter accessible to beginning students, while sophisticated enough to inform experienced researchers. The figures are clear, crisp, and provide enough detail to make the point without clutter. If there is one weakness, it is that the book is too short! I highly recommend this volume to anyone with an interest in understanding how organisms cope with their environment, laboratory or field, insect or not.

GOGGY DAVIDOWITZ, *Entomology, University of Arizona, Tucson, Arizona*

CELL AND MOLECULAR BIOLOGY

INTEGRATED MOLECULAR EVOLUTION.

By Scott Orland Rogers. Boca Raton (Florida): CRC Press (Taylor & Francis Group). $99.95. xv + 359 p. + 31 pl.; ill.; index. ISBN: 978-1-4398-1995-1. [CD-ROM with digital data included.] 2012.

One of the most important concepts in biology is the evolution of the biosphere at a macroscopic and microscopic level. The most visible aspect of evolution is macroscopic, such as morphological and behavioral diversity, adaptability to many different environments, and variability in physiological and metabolic characteristics of organisms (just to name a few). However, none of this variation would be possible if evolution was not acting at the genetic (microscopic) level. Therefore, to truly understand evolutionary processes and mechanisms, the first step is to understand the evolution of genes and genomes. This book captures the complexity of life from its origin to its increasing complexity.

This volume can be roughly organized into two sections: one (Chapters 1–12) that addresses concepts of introductory and molecular biology (e.g., origin of life, central dogma, gene families) and a second one (Chapters 13–18) dedicated to the description of genomes and their properties. The style of the book is clear and simple, which makes it suitable for undergraduate education. Despite much of the first part being devoted to basic introductory concepts, the author addresses more complex concepts such as the evolution of gene families (Chapter 11) and the reconstruction of evolutionary histories (Chapter 12). The information in these two chapters allows a basic understanding of the complex approaches routinely used in evolutionary analyses that can become a solid basis to support more specialized knowledge.

The second half of the volume has a somewhat unusual structure in which genomes are described not by phylogenetic relatedness, but by size. It is an interesting approach as it shows evolutionary parallels dictated by size instead of (or in addition to) phylogenetic constraints. Within this section, two of the chapters are dedicated to interspecies relationships, whether beneficial, neutral, or detrimental (Chapters 16 and 17). These two chapters pave the way to address the symbiotic origin of eukaryotes, which are discussed in the last chapter. Most of the figures in this section are pie charts that summarize the functional diversity of the genes in a genome. Although functional and or-