

problems, and these all trivial. Reproduction of plates and other printing aspects are quite good. The brash neon yellow hard cover should help you find your bearings even during a power outage.

The adaptationist program is alive and well and still producing frass. Few of the authors considered or even mentioned the importance of historical or phylogenetic influences on caterpillar evolution. Too often comparisons made between species are cross familial, even cross superfamilial or ordinal. Only Baylis and Pierce give phylogenetic considerations any serious mention. Clearly this is one of the most important shortcomings not only of the book, but of the studies in this discipline.

Overall, I found the volume outstanding, and well worth the price. The chapters are so thoroughly referenced and up-to-date that anyone studying herbivory or insect-plant interactions will need access to the book. All but Janzen's chapter are meant to be reviews. Nevertheless, many of the authors provide considerable unpublished data and observations. Hats off to the individual(s) who added the comprehensive subject and taxonomic indices. These are invaluable, especially to the occasional user. They make the book an important reference to a far larger audience of behaviorists, ecologists, and systematists. I have already found myself grabbing the volume to find out more about silk use in caterpillars, wasp predation, and notodontids, etc.—all made immediately accessible via the indices.

Laying aside technical aspects, I found most chapters interesting and enjoyable, some fascinating—what caterpillars lack in morphological diversity, they more than make up for in behavioral intricacy and complexity. I intend to bring many of the studies in "Caterpillars" into my classrooms. The authors and editors are to be congratulated for setting the table to which many researchers will now be drawn to carve out research programs of their own.—*David L. Wagner, Department of Ecology and Evolutionary Biology, The University of Connecticut, Storrs, Connecticut 06269.*

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The World of Nematodes.—David R. Viglierchio. 1991. agAccess, Davis, California. 266 pp. \$24.95.

Many entomologists' knowledge of nematodes is predominantly based on nematodes that are natural enemies of insects and vertebrate-pathogenic nematodes vectored by insects. A few more entomologists are probably aware of the diversity of plant pathogenic nematodes. This book does an excellent job at piquing further interest in this fascinating, ubiquitous, and abundant, yet little-known phylum. The author begins with some statistics that should intrigue and startle many entomologists: the exact number of nematode species is unknown but has been estimated as equal to the number of insect species. Yet, entomologists publish almost 9 times more manuscripts than nematologists, largely because there are few nematologists to study this speciose group.

Dr. Viglierchio's excitement with this subject permeates the pages. While the 13 chapters follow an expected progression of subjects, i.e., evolution, morphology and physiology, ecology, control, and human impact, the reader is captivated throughout

by the recurrent themes of ubiquity and diversity. As examples, nematodes can range from microscopic sizes up to 7–8 m in length (a parasite of sperm whales). Although nematodes are aquatic, they have colonized every habitat imaginable including hot springs and glaciers, ocean trenches and the top of the Himalayas, as well as many plants and animals. Nematode life strategies are equally varied but the most poorly understood group appears to be the omnipresent microbivorous nematodes; little is known regarding the ecological interactions of this group or even their levels of abundance although it is generally agreed that they must make significant contributions. Examples of nematodes pathogenic to vertebrates are especially compelling because they touch close to home, i.e., eating raw fish as sushi or sashimi can lead to nematode infections, it was proposed to replace all of the sand on Ipanema and Copacabana beaches in Rio de Janeiro to eliminate pinworm populations, dog heartworm (vectored by mosquitoes) has only recently invaded California but is unfortunately now established in the native coyote populations.

This book does not specifically emphasize insect/nematode interactions although these relationships are discussed. As an entomologist, I found ample opportunity for marveling at the overall similarities and differences between insects and nematodes. The ground plan for nematode morphology is quite standard while insect morphology is much more varied. Yet, the basic structure of nematode cuticle can be very similar to that of insects. Experiments have proven that nematodes use unknown sex pheromones for communication. While insects also use sex pheromones, many of these have been chemically characterized and are even used for control. Plant damage caused by nematodes is frequently less apparent than insect-caused damage. However, similar problems with pesticide resistance plague control of both nematodes and insects although fewer nematicides are available for control of this group.

This book was written as an introductory overview to stimulate the interest of non-nematologists interested in nature. It is clear that attention was paid to defining technical terms within the text and an extensive glossary is also provided to make this book accessible to non-biologists. References are not cited in the text and instead a list of suggested readings is provided toward the end. The many figures, including the traditional color plates showing nematode diseases of plants and animals, are invaluable in helping the reader to visualize descriptions. Abundant examples and statistics keep the text entertaining and down to earth and are accompanied by occasional cartoons and quotes. This book provides a vast amount of information on this phylum but Dr. Viglierchio also shares many of his own views, interpretations, and insights with the reader. For example, Dr. Viglierchio clearly includes his own cynicism regarding the potential use of many strategies for nematode control and mentions his frustration with the limited adoption of nematodes for biological control of insects.

The extremely reasonable price of this soft-cover book is a surprise and delight. Dr. Viglierchio's book is priced to make this information accessible to the general public, and thereby increase knowledge about nematodes. This book has certainly convinced me that nematodes are a significant and fascinating phylum, and I'm sure that many readers will also be persuaded by Dr. Viglierchio that "Nemas are forever."—*Ann. E. Hajek, Boyce Thompson Institute, Tower Road, Ithaca, New York 14853-1801.*



Hajek, Ann E. 1994. "The World of Nematodes by David R. Viglierchio [Review]." *Journal of the New York Entomological Society* 102, 124–125.

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