

## BOOK REVIEWS

ANNUAL REVIEW OF ENTOMOLOGY, Volume 31, 1986. Thomas E. Mittler, Editor. Annual Reviews, Inc., Palo Alto, CA 94306. 565 pp. \$31.00 USA; \$34.00 elsewhere.

The 1986 reviews continue to reflect the highly sophisticated level of current entomological research. This year ecology and behavior appear to characterize a majority of the 22 papers. Only one review will be of direct interest to culicidologists, namely, "Microbial Control of Black Flies and Mosquitoes" by L. A. Lacey and A. H. Undeen. One of their conclusions is that integrated control may succeed when pathogens, predators, growth regulators, and conventional insecticides are combined. *Bacillus thuringiensis* (H-14) has been shown to be compatible with fish and with some natural invertebrate predators. The reader of this paper will be impressed by the fact that there are 270 references cited. The thorough editorial treatment of each review insures excellent quality.—W. E. Bickley.

INTEGRATED MOSQUITO CONTROL METHODOLOGIES. Volume 2. Marshall Laird and James W. Miles (eds.) 1985. Academic Press Inc. (London) Ltd. 444 pp. \$85.00

The second volume of this two volume treatise provides a complimentary balance to the initial publication. It is well organized and gives the reader a good working knowledge of those integrated mosquito control agents currently available, to include those still under investigation. Following the Introduction, the book begins most appropriately with a chapter by M. W. Service entitled, "Some ecological considerations basic to the biocontrol of Culicidae and other medically important species." This chapter forms a basis from which the subsequent chapters build. Some of the topics in this chapter include brief discussions of augmentation versus introduction of a biocontrol agent, advantages and disadvantages of biocontrol, life history strategies, specificity of natural enemies, aggregation and stabilization, and genetic manipulations.

The remaining 19 chapters are assigned to specialty sections according to their respective subjects. These subjects include: predators, chemosterilization, insect growth regulators, gregarine parasites, bacteria, fungi, economic aspects and large-scale field trials.

The economic section contains a brief but interesting chapter on industry's viewpoint in marketing bira-tional pesticides, coupled with a chapter that discusses the future prospects for commercial development of nematodes in biocontrol strategies. In addition, several chapters address the use of biocontrol strategies in the international community.

This volume is truly worldwide in scope relative to the number and geographical distribution of the contributors. The topic itself demanded more than twice the number of contributors (32) for Volume 2 than were used in Volume 1 (chemical control). The editors solicited contributors from 12 countries that included Tuvalu, Union of Soviet Socialist Republics and the United States to name a few.

The editors and chapter contributors should be commended for not only providing a thorough review of their specialty areas, and an appropriate list of references, but they often included frank discussions of the attributes and deficiencies of the biocontrol agents.

In summary, this book has the versatility to serve as a classroom text and/or as an informational reference in a personal library. I recommend this second volume to entomological students, teachers and researchers and to mosquito control specialists in the managerial level of abatement operations. This recommendation would also extend to management personnel responsible for controlling other medically important, biting fly populations.—C. Lamar Meek, Department of Entomology, Louisiana State University, Baton Rouge, LA 70803-1710.

MALARIA. (The Institute of Biology's Studies in Biology no. 152). R. Stephen Philips, 1983. Edward Arnold, 3 East Read Street, Baltimore, MD 21202. iv + 60 pp. \$8.95

Covering the field of malaria in 58 pages of text is a rather daunting exercise, but the author of this small volume has succeeded remarkably well in distilling the subject matter. Most of the topics, e.g., history, life cycle, pathology, biochemistry, chemotherapy, etc., while confined to two or three pages, does give the interested reader a broad overview of the pertinent facts. The level of explanation is on par with any of the popular lay journals such as *Scientific American* and is equally readable. A few quibbles: more rigorous proof reading would have uncovered several misspellings, e.g., "culcine", "exo-erythrocytic" and "erthrocytic"; specialized terms such as "rhoptries" and "micronemes" are not defined and the rather minute scale of some of the diagrams on which they are sketched will not do much to further enlighten the reader. The emphasis on scanning electron micrographs to depict the various stages in both vertebrate and invertebrate hosts seems somewhat misplaced. Stained specimens of oocysts or exflagellating male gametocytes as seen through a light transmitting microscope would have been more informative.—I. Schneider, Walter Reed Army Institute of Research, Washington, DC 20307-5100.

**ECOLOGY OF MOSQUITOES: PROCEEDINGS OF A WORKSHOP.** Edited by L. P. Lounibos, J. R. Rey and J. H. Frank. 1985. Florida Medical Laboratory, Vero Beach, Florida, 32962. 579 pp. (Available from ESA Sales Department, 4603 Calvert Road, College Park, MD 20740. Price \$15.00 + postage, \$1.50 USA, \$3.00 other countries).

This book contains the presentations of 53 researchers at the Mosquito Ecology Workshop held in Welaka, Florida, January 1984. These contributions are placed in 33 chapters which are divided into six main sections: Communities and Interactions (7), Population Dynamics (4), Forecasting and the Environment (4), Ecology and Epidemiology (4), Ecology and Genetics (6), and Strategies and Patterns (8). Almost two-thirds of these chapters concern mosquitoes that breed in tree holes, artificial containers or phytotelmata habitats. I believe that the book would have been more concise and less diverse had the contributions covered only those kinds of mosquitoes that breed in such habitats.

In regard to tree hole mosquitoes, if one harks back to Jenkins and Carpenter's 1946 contribution on the ecology of tree hole breeding mosquitoes of nearctic North America which covered only 14 pages, it is quite evident the tremendous wealth of knowledge that we have gained in the past 38 years in this area.

On a somewhat negative note, I am disappointed that the authors of Chapter 1 refer to *Aedes thibaulti* as a tree hole species. It does not breed in true tree holes, that is, in holes in trees that do not touch ground level. While *Ae. thibaulti* often occurs in basal and root cavities of tupelo and cypress that are flooded with rainwater, it also breeds in oaks, sweetgum, etc. that have ground level holes or cavities which fill with winter and spring rains. If one considers *Ae. thibaulti* to be a tree hole species, then one could also call *Culex peccator* a tree hole species, since its primary breeding areas are in basal and root cavities in tupelo and cypress swamps.

Much of the information presented in the various chapters represent new data and ideas. Readers that are interested in the many aspects of mosquito ecology should find this a very fascinating book. The discussions that follow each section are very interesting and informative. It is also evident from the various chapters that all is not known in this area of ecology of mosquitoes and that much research remains to be done.

Both the contributing authors and editors are to be congratulated on the paucity of errors in this book. I highly recommend this contribution to all who are interested in mosquitoes, in their ecology and in the interactions of the many factors that influence mosquito populations.—Harold C. Chapman, 1725 Whispering Woods Drive, Lake Charles, LA 70605.