

## BOOK REVIEWS

ESSENTIAL MALARIOLOGY, Second edition, Leonard Jan Bruce-Chwatt. 1985. William Heinemann Medical Books Ltd., London. 452 pp. £22.50 (ELBS edition £7.50).

The second edition of *Essential Malariology* has been directed towards the needs of workers in the developing nations who require a succinct review of the prevention, diagnosis, treatment and control of malaria. Professor Bruce-Chwatt has presented the material in an easy to understand manner in a compact volume that will undoubtedly become dog-eared before a third edition is contemplated by the author.

There is a core of 11 chapters concerning the historical aspects of malariology, basic parasitology and clinical aspects of the disease in man, diagnosis, anopheline vectors and epidemiology, chemotherapy and chemoprophylaxis, malaria control and eradication, and future prospects. This is followed by a Selected Bibliography and Selected References. The former is especially useful as it even provides the mailing address for requesting WHO documents. Seven annexes (22 pp.) provide names (both proprietary and non-proprietary) for antimalarial drugs, common formulations of the above drugs, bionomics of major anopheline vectors, lists of common insecticides and their generic names, malaria risk by countries or geographic areas, formulations and dilutions of insecticides, and various conversion tables and nomograms.

The book is extremely well illustrated with a large number of photographs which have not been reproduced elsewhere. A photograph of the spleen palpation method (p. 181) serves to demonstrate more than would several pages of detailed description. The single color plate of stained malarial parasites from thin film preparations is reproduced with extremely high fidelity. I was especially pleased to see the figure (p. 170) showing the duration of sporogonic development of malarial parasites (*Plasmodium vivax* and *P. falciparum*) in *Anopheles* in relation to environmental temperature. This figure is not only useful for field epidemiological studies, but also for laboratory attempts on infecting mosquitoes from in vitro cultures of falciparum gametocytes.

Chapter 10, Rationale and Technique of Malaria Control, is the longest chapter (98 pp.) in the volume. This is an extremely well balanced presentation with Biological Methods given an appropriate amount of space (slightly over five pages; of which larvivorous fish occupy almost two pages) under the topic of Environmental Management for Mosquito Control. Definitions of the terminology in this area will materially assist personnel concerned with mosquito research and control. It is worth quoting a portion of a paragraph from pp. 273-274:

"The relatively new term of environmental management has been defined as 'planning, organisation, implementation and evaluation of deliberate changes of environmental factors, with the view to preventing the propagation of vectors and reducing the man-vector-pathogen contact.' Any long-lasting or permanent changes of land, water or

vegetation aimed at the reduction of the habitat of the vector are often referred to as 'environmental modifications', while similar temporary or recurrent activity may be known as 'environmental manipulation'. The often used term 'source reduction' refers to any measure that will prevent or eliminate the breeding of mosquitos in their natural or man-made habitats."

In conclusion, if my library of the literature on malariology had to be restricted to a single volume, it would consist of *Essential Malariology*.—Ronald A. Ward.

VIRAL INSECTICIDES FOR BIOLOGICAL CONTROL. Edited by Karl Maramorosch and K. E. Sherman. 1985. Academic Press, Inc., Publishers, Orlando, Florida 32886, 809 pp. \$69.50.

This comprehensive volume encompasses both the basic and applied aspects of many viruses that may be used against many different target insects in various habitats in the environment. The contents of this book are broken into six main sections (Taxonomy and Identification; Pathology; Ecology and Environmental Biology; Physical, Biological, and Chemical Characteristics; Replication; and Production and Field Application).

The first section on taxonomy and identification covers three contributions (taxonomy and nomenclature; classification, identification and detection by serological techniques; and identification by viral proteins).

The second section on pathology is divided into five contributions, each dealing with the pathologies associated with baculoviruses, CPV's, iridoviruses, densoviruses, and small RNA viruses.

The third section in ecology and environmental biology covers five contributions broken into the natural dispersal of baculoviruses, stability of viruses in the environment, development of resistance, safety, and the role of viruses in the ecosystem.

The fourth section on physical, biological and chemical characteristics covers two contributions (structure and physical characteristics of baculoviruses and the nature of polyhedrin).

The fifth section on replication covers six contributions which are replication of iridoviruses in host cells, replication of baculoviruses, replication schemes in host cells, quantitation, receptors in the infective process, and multiple interactions.

The sixth and final section on production and field applications possesses contributions on considerations of large scale and commercial production and strategies for field use of baculoviruses.

Although representatives of these groups of various viruses occur in mosquitoes, the contribution on the pathology of iridoviruses by D. W. Hall would be of most interest to readers of JAMCA since such viruses commonly occur in many mosquitoes and to a lesser extent in ceratopogonids, chaoborids, and

simuliids. Certainly, the contributions on natural dispersal, stability, resistance development and safety should also be of interest to our readers.

This author was surprised at the omission of the denonucleosis virus literature on this virus in the mosquitoes of the USA, although mention was made of later Russian literature (second section). The initial reports were by Kellen et al. (1963, 1966) in California with later reports from Louisiana by Clark and Chapman (1969) and Stoltz et al (1974).

This comprehensive book which collates literature, that heretofore has been scattered, should appeal to scientists of many disciplines.—H. C. Chapman, Lake Charles, LA 70616.

**HANDBOOK OF TOXICITY OF PESTICIDES TO WILDLIFE** (Second edition). By Rick H. Hudson, Richard K. Tucker and M. A. Haegele. 1984. United States Department of the Interior, Fish and Wildlife Service. Resource Publication 153. 90 pp., paperbound. U.S. Government Printing Office, Washington, D.C. 20402. \$4.00.

This brief handbook summarizes results of pesticide toxicity tests conducted through 1976 at the Denver Wildlife Research Center by U.S. Fish and Wildlife Service personnel, under the auspices of the Environmental Contaminant Evaluation Program. Its purpose is to provide a desk reference for those persons needing information on acute and subacute toxic effects of commonly-used pesticides to wildlife.

Following a literature review and a methodology section are data summaries of toxicity tests on 196 different chemicals (181 pesticides, 15 "other environmental pollutants") listed in alphabetical order [usually] by common name. Each summary contains the following subheaded paragraphs: alternative names; chemical name; primary use (e.g., insecticide, herbicide); sample purity; signs of intoxication; other toxicity data (optional paragraph); and notes (optional paragraph). Each summary has an acute oral toxicity summary table listing the species of animals used in the acute toxicity tests, the number of animals used, their sex and age, and the estimated oral LD<sub>50</sub> values. For comparative purposes, the authors include 95% confidence intervals to the LD<sub>50</sub> if sample sizes were sufficiently large. Interspersed among the data summaries are extensive listings of trade names and numbers cross-referenced to the common name headings. Following the data summaries is a useful glossary containing definitions of the many medical terms used in description of the signs of intoxication. The book ends with an index to the species tested.

Both acute and subacute toxicity tests are summarized in the handbook, but emphasis is placed on acute tests. Acute tests were done mainly by oral route although some percutaneous tests were done. In general, 4 dosage levels were used with 2-7 animals per dosage, but sample sizes varied considerably among tests. Strangely, the authors felt that the number of animals per dosage within a test had to be equal to estimate an LD<sub>50</sub>, so that (p. 6) "... more individuals were tested than were used in the calculation" of the estimate. In subacute tests, various dosages of a

chemical were administered orally to groups of 6 animals each day for 30 days. The lowest daily dosage that caused mortality to 1-2 out of 6 animals was called the "30-day empirical minimum lethal dosage." The authors standardized subacute tests by creating a "cumulative toxicity index" (the ratio of the LD<sub>50</sub> to the 30-day empirical minimum lethal dosage). This index provides a means of comparing cumulative action of different chemicals: a high index indicates a high degree of cumulative action, whereas a low index indicates little cumulative action.

The broad use of the word "wildlife" in the title of this handbook is somewhat misleading. Although 26 species of birds and 4 species of mammals were used in tests, 56 tests were done on mallards only, and another 43 tests were done on mallards and pheasants only. Nearly all tests included mallards, so the reader is left with this as the main species for comparison of toxicity of different pesticides. The text itself contains some occasional slight lapses of objectivity: in the fourth paragraph of the introduction, "pesticide" becomes "pesticide pollutant" and finally just "pollutant." Also, in the summary of tests done with methoprene (only 9 mallards tested), the authors note (p. 52) that "treatment levels as low as 500 mg/kg produced signs of intoxication in the mallards" even though the LD<sub>50</sub> estimate was >2,000 mg/kg. One is left to wonder if any mallards treated with dosages of methoprene higher than 500 mg/kg showed no signs of intoxication.

Despite some minor objections, the handbook represents a well-documented, terse presentation of data and observations. It would be useful to operational mosquito control workers who need information on the toxicity to wildlife of the materials they use. At only \$4.00, the book is a bargain.—Edward D. Walker, Vector Biology Laboratory, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556.

**MAJOR RICELAND MOSQUITOES, AN ANNOTATED BIBLIOGRAPHY.** E. O. Paine, Ed. 1983. Office of Research and Development, U. S. Environmental Protection Agency, Washington, D. C. 252 pp.

In recent years rice production in the United States has more than doubled. Research is continuing with the idea that integrated pest management strategies may be applied so that mosquito populations will be suppressed. This bibliography represents a comprehensive list of research publications concerned with the 7 riceland mosquito species.

For each species the references are placed into 6 major categories: general, distribution, seasonal occurrence, egg stage, larval stage, and adult stage.

The second section is entitled "Survey and Prediction Techniques." The third section is entitled "Management." Additionally some comprehensive types of references of a general nature are listed. The total number of publications listed is 1275. An appreciable number are listed more than once. Annotations are very brief, and many papers have not been "reviewed." The sources of listings are not mentioned. There are numerous spelling errors.—W. E. Bickley.