BOOK REVIEWS

ANNUAL REVIEW OF ENTOMOLOGY, VOL. 23, 1978. T. E. Mittler, C. N. Smith, and V. H. Resh, Editors. Annual Reviews, Inc., Palo Alto, CA 94306. 523 pp. $17.00 from Entomological Society of America.

Of indirect interest to culicidologists is an excellent, 15-page biography of Dr. L. O. Howard by Louise M. Russell. Medical entomology received emphasis by Howard beginning in 1894, and he became an authority on mosquitoes. His well-known book, "Mosquitoes, How They Live; How They Carry Disease; How They Are Classified; How They May Be Destroyed," played an important role in mosquito control in Havana, Panama, and elsewhere.

Roger D. Akre and Harry G. Davis have an article, "Biology and Pest Status of Venomous Wasps," which will be of value to mosquito control workers and others who may involuntarily be asked questions about this problem.

Another article by Gordon W. Frankie and L. E. Ehler, "Ecology of Insects in Urban Environments," refers to several species of mosquitoes in a discussion of insects that have become will adapted to human environments.

A 26-page review, "The Future of Pyrethroids in Insect Control," by M. Elliott, N. F. Janes and C. Potter, summarizes useful information about the value of pyrethroids in mosquito control.

To readers of *Mosquito News* the most important of the 22 reviews in this volume is "Mosquito-Virus Relationships of American Encephalitides" by J. McLintock (20 pp.). During the past 20 years electron microscopy has made possible an understanding of the ultrastructure of viruses. There is an appreciable amount of information on the events that occur after viruses reach the midgut, but there are conflicting reports concerning such matters as the importance of the peritrophic membrane as a barrier, the actual penetration of cells by viruses, and cytopathic effects. Be that as it may virus replication often occurs rapidly, the virus moves from one tissue to another; the salivary glands are the last tissues to be infected, and the level of infection is higher than in other organs. Salivary glands have been intensely studied using newer techniques. Possibilities for using mosquitoes in the development of arbovirus vaccines are discussed. Two pages are devoted to "Vertical Transmission of Viruses." This terminology makes possible the inclusion of transmission in either egg or sperm. Virologists and entomologists have been busy acquiring new data, and Dr. McLintock has provided an excellent review.—W. E. Bickley

CLAVES GRÁFICAS PARA LA CLASIFICACIÓN DE ANOFELINOS DE VENEZUELA (ILLUSTRATED KEYS FOR THE CLASSIFICATION OF ANOPHELINES OF VENEZUELA). Pablo Cova Garcia and Ezequiel Sutil 0. Publicación de la División de Endemias Rurales, Dirección de Malariología y Saneamiento Ambiental, Ministerio de Sanidad y Asistencia Social, Maracay Aragua, Venezuela, 1977, 92 pp.

This publication is in large measure a revision of "Clave ilustrada para los mosquitos anofelinos de Venezuela" by Stojanovich, Gorham and Scott, U.S. Public Health Service CDC, 1966, 44 pp. which contained keys to adult females and 4th instar larvae of 32 species of anophelines. The present work includes 35 species and contains keys to 4th instar larvae, adult females and males, as well as illustrations of eggs. The larval key includes all but *An. squamifemur*, the female key all but *An. thomasi* and the male genitalia key all but *An. lepidotus*. The 3 keys are well illustrated and appear to be easy to use, although the authors employ triplets and singlets as well as couplets, which might be confusing to those used to keys organized by couplets only. Arrows are used to indicate the salient characters in the illustrations. All 4 cycle stages are treated in 29 of the species.

Apparently the authors did not have the benefit of the taxonomic information contained in the new edition of *A Catalog of the Mosquitoes of the World*, Second Edition, by Knight and Stone, Thomas Say Foundation, 611 pp, 1977. It would have been helpful if the authors of each species had been mentioned at least once in the book. The following changes would be needed if the new catalog nomenclature is to be followed:

1. *An. strodei* Root should be called *An. evansae* (Brethes)
2. *An. emilianus* Komp is a synonym of *An. aquasalis* Curry.
3. *An. bachmanni* Petrocchi is a subspecies of *An. triannulatus* (Neiva & Pinto).
4. The following species are reported to occur in Venezuela but not included in the keys:

A. *An. (Anopheles) guarao* Anduze & Capdevielle.

B. *An. (Nyssorhynchus) triannulatus triannulatus* (Neiva & Pinto).

C. *An. (Kerteszia) boliviensis* (Theobald)

All stages of *An. guarao* have been described, and this species is known only from Venezuela so it is hard to understand why it was not included. *An. t. triannulatus* will come out to *An. bachmanni* in their keys as the 2 subspecies are very similar and in the past *bachmanni* has been considered a synonym of *triannulatus* (see, Lane 1953 *Neotropical Culicidae* Vol. 1, p. 274). Most specimens from Venezuela, previously considered to be *An. boliviensis*, would now be called either *An. pholidotus* Zavortink or *An. lepidotus* Zavortink. However, Zavortink (1973 Contr. Amer. Ent. Inst. 9(3):30) reported that *An. boliviensis* is still found in Venezuela, known only in the adult female stage.

Over 80% of the total of 38 anopheline taxa known to occur in Venezuela are correctly represented, including the important disease vectors, and the book constitutes a significant contribution. The morphology of each stage is presented clearly and the keys will be very useful to the entomological personnel who are responsible for anopheline identification.

The reporting of *An. lepidotus* Zavortink from Venezuela apparently comprises a new country record.

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OBITUARY

ROBERT L. SUHRBIER

The Desplaines Valley Mosquito Abatement District lost a longtime valued employee with the death on January 26, 1978 of Robert L. Suhrbier.

Mr. Suhrbier was first employed in May of 1937 by the late J. Lyell Clarke, first manager of the District. He served faithfully through the years, first as a field worker, later as Night Foreman and finally, for the past eleven years, as General Foreman. In 1942 he joined the U. S. Army and was sent overseas. Upon his return he resumed his employment with the District. He had also served as employee representative of the Illinois Mosquito Control Association.

Mr. Suhrbier was a member of Maywood Lodge No. 869, A. F. and A. M. and V.F.W. Post 1249, Westchester, Ill.

Mr. Suhrbier is survived by his wife, Dorothy, a son, a daughter and four grandchildren. He will be greatly missed by his many friends and fellow employees.