

BOOK REVIEWS

VENTURES IN WORLD HEALTH, THE MEMOIRS OF FRED LOWE SOPER. John Duffy, ed. 1977. Pan American Health Organization, Washington, D. C. Scient. Publ. 355:1-365.

The accomplishments of Fred L. Soper are well known. In the Foreword Paul Russell states that Fred Soper was the most successful practitioner of preventive medicine and public health in the middle fifty years of this century. He was an organizer who knew how to apply medical knowledge. *Building the Health Bridge*, edited by Austin Kerr, documented many of Soper's achievements and philosophies. In *Ventures in World Health* Soper tells how he reached many of his goals. His persistence in seeking the eradication of several diseases dominated his career.

There are ca. 143 pages devoted to yellow fever in Latin America; 33 pages deal with the eradication of *Anopheles gambiae* from Brazil; 20 pages describe the eradication of *An. gambiae* from Egypt; and 23 pages concern the failure of the U. S. to eradicate *Aedes aegypti*. It is well to have consolidated records of so much work of the Rockefeller Foundation. Dr. Soper's papers, books, photographs and memorabilia published and collected during his professional lifetime were bequeathed to the National Library of Medicine. His *Memoirs* were undoubtedly made possible by his extensive diaries. The internationally known medical historian, John Duffy has done a superb editorial job, but a methodical man like Fred Soper might wonder why there is no index.—W. E. Bickley.

AN INTRODUCTION TO THE AQUATIC INSECTS OF NORTH AMERICA. R. W. Merritt and K. W. Cummins (eds.). Kendall/Hunt Publishing Co., Dubuque, Iowa 52001. 441 pp.

Aquatic insects are of increasing interest to those concerned with environmental quality as well as to those concerned with recreation and health. This book was written to serve as a reference on the systematics and biology-ecology of aquatic insects. There are 23 contributing authors, more than one of whom is a member of AMCA. There are 6 introductory chapters which deal with morphology, collect-

ing, rearing, ecology, distribution, and classification. Each of the following 16 chapters is devoted to a taxonomic group, in most cases an order.

H. V. Daly has provided a key to the 13 orders in which there are immature or adult aquatic or semi-aquatic insects. This key, with accompanying explanations and illustrations, should be easy to use even by one who is unfamiliar with insects. Except for small insects, it appears that specimens may be keyed to order by using only a hand lens. There are frequent references to line drawings.

In each chapter devoted to an order there is a rather brief introductory statement, a section entitled "External Morphology" (a phrase abhorred by R. E. Snodgrass because it very literally means external study of form, not external form), a key to the appropriate families, a list of references, and a table summarizing ecological and distributional data. For the Megaloptera and aquatic Neuroptera there are keys to genera.

The order Diptera is treated in 5 chapters. There are keys to families based on larvae and on adults, and there are separate discussions and keys (for larvae and adults) to the genera of Tipulidae, Culicidae, Simuliidae and to the tribes of Chironomidae. There are also keys based on pupae for culicid genera and chironomid tribes. H. D. Newson has done an excellent job in covering the family Culicidae.

There are 3 strong features of this book: 1. The line drawings are superior qualitatively and quantitatively; 2. There is a wealth of information condensed in the tables on ecology and distribution; 3. The bibliography appears to be very complete—1712 listings.

Mosquito control workers will find the book particularly useful for identifying aquatic insects which they may encounter in association with mosquitoes.—W. E. Bickley

MOSQUITOES OF CALIFORNIA THIRD EDITION, by R. M. Bohart and R. K. Washino, University of California, Division of Agricultural Sciences, Berkeley, CA. 94720. Printed Publication Number 4084, 154 pp, March 1978, \$6.00.

The third edition of the *Mosquitoes of California*, written 27 years after the second (Freeborn & Bohart, 1951, Bull. Cal. Insect Sur. 1(2):25-78) reflects the authors' long

years of association with the subject—a combined total of 55 years. The amount of detail is truly amazing. A total of 463 references are cited in the text.

It included sections on the zoogeography of California; specimen preparation; morphology; keys to species for females, males and larvae; and keys to genus for pupae. In the treatment of each species four subjects are discussed: systematics, ecology, distribution, and disease transmission. The last three are thoroughly covered; however, complete species descriptions, such as may be found in Carpenter and LaCasse (1955, *Mosquitoes of North America*) are not included. The salient characters by which the species can be recognized in their various stages are given under systematics.

The second edition listed 40 species. Now 47 (48 taxa) are known from California. The species added are: *Aedes atropalpus* (Coquillett), *Ae. campestris* Dyar & Knab, *Ae. niphadopsis* Dyar & Knab and *Aedes schizopinax* Dyar, all detected in the extension of the Great Basin into the State; *Ae. deserticola* Zavortink and *Psorophora signipennis* (Coquillett) found in the southwestern desert zone; and *Ae. melanimon* Dyar, a widely distributed species, separated from *Ae. dorsalis* (Meigen) in 1955.

It should be noted that the authors have given the name *Aedes hemiteleus* Dyar to the California representative of the subgenus *Aedes* and have given differences between it and the related form, *Ae. cinereus* Meigen, widely distributed in the United States and Canada. Likewise, they have identified the California population of the species, formerly named *Psorophora confinnis* (Lynch Arribáizaga) as *Ps. columbiae* (Dyar & Knab). Prior to this designation, *Ps. columbiae* had been applied only to that part of the *Ps. confinnis* complex occurring in eastern and southern United States (See Belkin et al., 1970, *Contr. Amer. Entomol. Inst.* 6:137 and Bickley, 1976, *Mosquito News* 36:376).

The illustrations are grouped in the center 56 pages. Included are: parts of the adult females of 31 species, including full portraits of 4 species and dorsal view of the whole body of another 12; male genitalia of 8 species in 4 genera; parts of the pupae of all 8 California genera; and head and terminal segments of the 4th instar larvae of all California species, except *Ae. atropalpus*, presumably because that species is known to be in the State from collection of only a single female. The reader will encounter difficulty in referring to the illustrations because of their location, especially when using the keys, albeit the key characters are well illustrated. It would have been helpful had

the authors placed the number beside each seta shown in the drawings of the larvae and pupae. The well-recognized setal nomenclature (Belkin, 1952, *Proc. Entomol. Soc. Wash.* 54:115 & 1953, *ibid* 55:318) was used to designate only a few setae in the larval drawings.

An interesting feature of the book is the key to adult females of California mosquitoes, starting on page 9. It is integrated, intergeneric, and not the usual generic key followed by a species key under each genus. The authors intermixed generic and specific characters. For example, all species with hind legs banded with pale scales are grouped together, regardless of genus. Thus, species of *Coquillettia*, *Psorophora*, *Aedes*, *Orthopodomyia* and *Culex* fall in this category. It is this writer's opinion that once the users become familiar with this different approach to identification, they will find it quite useful.

There is no doubt that the work constitutes a major contribution to the knowledge of mosquitoes of the region and will serve California as well as surrounding states which share a similar fauna.

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BRIEFLY NOTED

PATHOGENS OF MEDICALLY IMPORTANT ARTHROPODS. D. W. Roberts and M. A. Strand (eds.). World Health Organization Supplement No. 1 to Vol. 55 of *Bull. WHO.* 1977. 419 pp.

At the Vth International Colloquium on Insect Pathology in 1973 the need for updating the Jenkins 1964 compilation was recognized, and WHO sponsored the project which resulted in the new lists. For each group of arthropods there is a Host-Pathogen List. References and Abstracts follow each list. Pathogen-Host Lists consume 74 pages. Nine authors have prepared Host-Pathogen Lists and Abstracts concerning Culicidae, 159 pages. Obviously this volume is indispensable to anyone interested in diseases of mosquitoes and other medically important arthropods.—W. E. Bickley.