

BOOK REVIEWS

ANOPHELINE NAMES, THEIR DERIVATIONS AND HISTORIES, By James B. Kitzmiller. 1982. The Entomological Society of America, Sales Division, Box 4104, Hyattsville, Maryland 20781. \$16.50 (ESA member), \$26.50 (Nonmember).

From time to time one chances on a book which refuses to be put down until it has been read from cover to cover. Kitzmiller's "Anopheline Names" falls in such a category, but I hasten to add it was not non-stop reading on my part. The book is much too long (and I am a slow reader). However, like a butterfly flitting from flower to flower, I found myself leafing here and there for "nectar delights," searching for entomological heroes of yesteryear who had been blessed with assignments to some far away romantic spot.

Perhaps I am biased in my thoughts since all of my life I have yearned for a life abroad, and, indeed, I began such a career at the age of seven. It wasn't until college days, however, when I had ample opportunity to glean among the tropical medicine, travel and natural history books of my college library that my imagination was really fired to the point where tropical service had to be my goal. I avidly read accounts of 18th and 19th century naturalists and medical officers who were unravelling the mysterious life cycles of parasites, pathogens, mosquitoes and what not in such distant places as the Straits Settlements, the Western Ghats, the upper reaches of the Congo, etc. What I'm trying to say is that I wanted to experience the (to me) exciting lives of such heroes as Ronald Ross (1857), Wilhelm Schüffner (1876), Malcolm Watson (1873), Rickard Christophers (1873), Jacques Schwetz (1876), Emile Brumpt (1877), Emile Roubaud (1882), John Sinton (1884), Raymond Shannon (1894), and a host of others.

Many of these tropical medicine specialists (medical men, entomologists, parasitologists, etc.) bear names well known in the field, but there are others more obscure and how much do we really know about any of them? What were their origins, what was their schooling and what influenced their lives? How did it happen they were posted to Sarawak or Timbuku? How did a medical doctor become involved in mosquito taxonomy or mosquito control? Obituaries and biographies abound but they are widely scattered. The stories are all here (or most of them); some read like western thrillers or John Masters' "The Lotus and the Wind," *vide baileyi*. Jim Kitzmiller has put together a fascinating account of one aspect of tropical medicine history through his biographical accounts of a multitude of individuals associated with anopheline mosquitoes. These sketches may be very detailed (witness over 5 pages devoted to Clara Ludlow) and provide an enlightening insight into the development of knowledge on a variety of diseases but with emphasis on malaria. One poignant historical reminder are the names of those workers whose lives were cut short in the World War II conflict in the Pacific.

Not only are all patronymics beautifully and painstakingly researched but other specific (and generic) epithets of a descriptive or geographic na-

ture are analyzed in a most scholarly fashion. It has always unsettled me that so many young students fail to understand the naming of the insects they are working with. A part of the fun of studying a group of animals (or plants) is in knowing their historical background. This book is a most useful and entertaining aid in this respect, especially to young culicidologists but also to the broader group of biologists as well. I note with pleasure the book's dedication to John Alexander Reid, outstanding student of southeast Asian anopheline biology and classification.

Time has not permitted reading all of the 767 entries, but rest assured they will be read by me and many times over. Very few errors mar the book. Aside from some printer's errors, the following are noted: p. 173 (*edwardsi*) spelling of *Blephariceridae* (par. 4); p. 177 (*emilianus*) spelling of Emilio; p. 187 (*Feltinella*) spelling of Ephraim; p. 481 (*sawyeri*) spelling of Hudson (par. 3); p. 491 (*shannoni*) discovery and isolation of yellow fever virus from *Haemagogus*, with due respect to Ray Shannon, is a controversial subject involving several investigators and is perhaps best stated in a less definitive manner. Shannon's posting to Trinidad was to a Rockefeller Foundation malaria laboratory; the Trinidad Regional Virus Laboratory was established after the war in 1953. A frequently cited biographical reference in the text is that of Pamela Gilbert which is "lost" on p. 589; it would have been helpful to list it again among the "G's" on p. 596.

The book is printed by the photo offset process, vi + 640 pp, with a Preface written by Leonard Jan Bruce-Chwatt. It represents Volume VIII 1982 of the Thomas Say Foundation published by The Entomological Society of America.—Thomas H. G. Aitken, Yale Arbovirus Research Unit, Dept. of Epidemiology and Public Health, 60 College Street, New Haven, CT 06510.

ANNUAL REVIEW OF ENTOMOLOGY, Volume 28, 1983.

Thomas E. Mittler, Editor. Annual Reviews, Inc. Palo Alto, CA 94306. 520 pp. \$27.00 USA, \$30.00 elsewhere.

A majority of the 19 reviews in this volume pertain to various aspects of insect behavior. Two articles are of special interest to medical entomologists and/or mosquito control specialists.

The first is "Mosquito Host Bloodmeal Identification: Methodology and Data Analysis" by R. K. Washino and C. H. Tempelis, pp. 179–201 with 91 references. Tempelis summarized information on methodologies and feeding patterns in 1975; consequently mosquito host bloodmeal identification studies included in this review are restricted to those papers which appeared since 1974. Nevertheless there is a background review of basic methods. Each of 3 newer methods, namely, fluorescent antibody

technique, passive hemagglutination inhibition technique, and enzyme-linked immunosorbent assay is about 1000 times more sensitive than the widely used precipitin test. The latex agglutination test has been used with *Culicoides*. Despite their limitations "only the precipitin test methods have been consistently used and have served investigators well." In general, host selection patterns are of 2 types: (a) fixed or active and (b) opportunistic or passive.

In 13 paragraphs the authors summarize results of recent studies of host feeding or host selection in various parts of the world. A discussion of the extent and detection of mixed bloodmeals and multiple feeding relies heavily on the work of P. F. L. Boreham, et al. Pitfalls in the interpretation of results are mentioned. All in all, this review is especially valuable to anyone concerned with mosquito biology and/or the epidemiology of mosquito borne diseases.

The other review is

INTRINSIC FACTORS AFFECTING VECTOR COMPETENCE OF MOSQUITOES FOR ARBOVIRUSES by J. L. Hardy, E. L. Houk, L. D. Kramer and W. C. Reeves, pp. 229-262 with 157 references.

The authors point out that there is a paucity of information about incompetent vectors. There are ill-defined, genetically controlled, barrier systems which affect virus transmission. This review evaluates current knowledge of factors and mechanisms that determine whether or not the virus in ingested blood can multiply and escape from the mesenteron and subsequently become established in the salivary glands and ovaries "whence it can be transmitted orally to vertebrate hosts and transovarially to progeny." Many readers will be impressed, possibly astounded, by the large number of publications reporting pertinent results in great detail. Certainly there is evidence of progress in obtaining an understanding of inter- and intraspecific mesenteron barriers which are responsible for vector competence.—W. E. Bickley, 6516 40th Ave., University Park, MD 20782.

INSECT NEUROHORMONES. By Marie Raabe. 1982. Plenum Press, New York, NY. 352 pp. \$42.50.

In our search for alternatives to chemicals, an understanding of endocrinology is essential for anyone contemplating the use of insect hormones and hormone mimics in a vector control program. In *Insect Neurohormones*, Professor Raabe has accomplished a most ambitious task in assembling and organizing a staggering amount of information, and provides an excellent overview of neurohormones and how they influence insect development, metabolism, and behavior. This is not a basic text in the field, however. Some knowledge of insect physiology and endo-

crinology is necessary in order to get the most out of this book.

The first chapter deals with the synthesis, storage, and release of neurohormones, and is a comprehensive survey of neurosecretory cells and their distribution in many different insect groups. The second chapter discusses the control of endocrine gland activity, and includes the secretion of ecdysteroids, brain hormone, and the control of corpus cardiacum and corpus allatum function. Subsequent chapters review the physiological effects of the hormones: diapause, reproduction, visceral muscle function, color change, behavior, osmoregulation, metabolism, and cuticular development. A chapter entitled "Concluding Remarks" attempts to put insect and vertebrate neurohormones in perspective, but would probably be more useful if it is read as an introductory chapter instead. Because insect endocrinology is such a dynamic field, the author has also assembled an Addendum that includes papers published through November, 1981. References include 2 pages of reviews and monographs on insect endocrinology, and close to 60 pages (over 1000 citations) of literature cited in the text. Both a species index and a general index are provided. Each chapter includes a "Conclusions" section that contains a summary of the chapter and often includes a critical appraisal of our knowledge in that area. Illustrations are clear and informative. Especially noteworthy are the excellent tables that summarize the literature and place it in perspective. Overall, the book is very well written and contains none of the grammatical and syntactical errors that commonly occur when texts are translated into a second language, as this one has been from French.

A particularly valuable chapter deals with the involvement of hormones in morphological and physiological color change. Much of the literature in this area is in German and French, and has not been readily available to those of us still struggling with English. However, the chapter on diapause was disappointing. It was much too concise, and the 10 pages devoted to the subject did not approach the same depth as other chapters. The mode of action of neurohormones at the cellular level is barely discussed; two sentences on page 267 hardly do this topic justice.

Mosquito physiologists will be disappointed by the minimal coverage given to those insects. The control of mosquito vitellogenesis is described without comment and much of the important work in this very controversial area has been ignored. However, in 277 pages of text, it would be difficult to cover all groups of insects in detail sufficient to satisfy every specialist.

My only hesitation in recommending this book is its certain rapid obsolescence. Insect endocrinology has taken incredible strides in recent years, and one may find it difficult to justify purchasing a book that has already been superseded by over a year's worth of literature.—Marc J. Klowden, Department of Plant, Soil and Entomological Sciences, University of Idaho, Moscow, ID 83843.