REVIEWS AND ABSTRACTS

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The Anatomical Life of the Mosquito. By R. E. Snodgrass. Smithsonian Misc. Coll. 139(8): 1–87. Publication 4388. Nov. 1959. A copy of this publication has arrived on the eve of Mosquito News' going to press, and I hasten to bring it to the attention of AMCA members.

In 79 pages, Dr. Snodgrass traces the anatomical development of the mosquito, discusses homologies of the parts, and when he considers clarification necessary makes his own interpretation and arrives at "an acceptable" terminology. For this we should be most grateful.

Chapter I, The Larva (37 pages) is divided into 5 sections: the head, the feeding organs, the thorax, the abdomen, and the internal anatomy. Chapter II, The Pupa (14 pages) is composed of 3 sections: the pupal development, the mature pupa, and the pupal metamorphosis. Chapter III, The Adult (32 pages) has essentially the same 5 subdivisions as Chapter I.

The bibliography of 120 references (8 pages) is comprehensive. Dates of publication range from 1855 to 1959; four references are prior to 1900, 10, within the last decade. Dr. Snodgrass has documented his contribution well and has taken care to call attention to papers with good bibliographies.

The text is written as only a master of his subject *can* write—simply, authoritatively, and with a sparkling style that sustains interest to the very last word. Every page is brimful of information. Other insects, as well as the biological and physiological aspects are discussed only insofar as they relate to, or are necessary to clarify or explain, structural adaptation or modification in the mosquito. Illustrations are ample, with every drawing clearly labeled and pleasing to study.

The following excerpts from the text illustrate the scope and tenor of the monograph:

From the Introduction—"It is commonly said that the larva is metamorphosed into the adult during the pupal stage. Actually it simply returns to its parental adult structure after having undergone during its evolutionary history a metamorphosis by which it took on a form and structure suited to a way of living quite different from that of its parents."

From the Feeding Organs of the Larva—"The insect mouth parts, therefore, are all *outside* the mouth; the space between them may be termed the *preoral food cavity,* but by a long-perpetuated error it has commonly been called the 'pharynx.' For want of a revised nomenclature we still speak of the upper wall of the preoral cavity as the *epipharyngeal surface,* and call the tongue-like lobe that projects below the mouth the *hypopharynx.* This is just a part of our heritage from the early insect anatomists, who had only vertebrate names to draw from, and applied them to insects on a functional rather than a morphological basis."

Under Internal Anatomy of the Pupa—"The insect larva has no idea of the meaning of its life or of what is to become of it. The hereditary factors automatically determine its destiny by converting it into a pupa and finally into an adult. Yet physiologically, the larva is loaded with responsibilities. Not only must it maintain its own existence, but at the same time it must provide for the future nutritional needs of the pupa and for its transformation to the adult. In the mosquito pupa there is a minimal breakdown of larval tissues to furnish food for the developing adult organs."

In Pupal Metamorphosis—"The mosquito pupa breaks with the tradition that a pupa is a 'resting stage' in the life of the insect. When an ordinary pupa is broken open it is seen to be full of a creamy mass of soft material resulting from the disintegration of the larval tissues. The inside of a mosquito pupa is as clean as that of the larva or the adult, and the organs appear to be intact."

From the Adult—"The newly emerged mosquito is really an elegant insect as it stands high on its long slender legs, the abdomen held straight back beneath the neatly folded wings, and the long proboscis extended from the head. A remarkable thing about the mosquito is that, after the whole previous life spent in the water, on emergence from the pupa it is at once at home in the air. Without a flutter of the wings or any practice trial, it makes a perfect takeoff, flight, and distant landing. During the pupal stage, therefore, the mosquito has not only been equipped with a complete mechanical apparatus of flight, but in its nervous system a mechanism of control has been fully elaborated."

It is a fascinating account of the anatomical life of the mosquito. Novice and seasoned investigator alike will profit from a careful reading.—H. L. Trembley Durkee.

A Synoptic Catalog of the Mosquitoes of the World. By A. Stone, K. L. Knight, and H. Starcke. Thomas Say Foundation, Vol. VI, 358 pp., 1959. Published by the Entomological Society of America, Washington, D. C. Prices: $6.50 to ESA members; $7.25 to non-members. This work is an up-to-date version of Edwards' mosquito catalog published in 1932 as Fascicle 194 of *Genera Insectorum.* It was supported in part by a transfer of funds from the Office of Naval Research to the Smithsonian Institution.

The catalog includes all generic, subgeneric, and trivial names applicable to mosquitoes published prior to 1959, including the citation to the original description for each. In the first two categories the genotype and the method by which it achieved this status is cited. Each specific and infraspecific name is accompanied by information about the location and life-history stages of the holotype or of syntypes and the type locality. For

each valid trivial name those references are cited which most adequately present information on life-history stages, biology, or vector relationships not available in the original citation. References to nomenclatural matters are given in some cases, and distribution in broad terms appears for each valid species, subspecies, and variety.

The volume includes 111 valid genera and subgenera and 2247 valid species. There are 339 names of the genus group and 4068 of the species group, exclusive of the *nomina nuda*. No new names are proposed.

This reviewer, having had a brief association with mosquito systematics in the past and a first-hand knowledge of this catalog as editor, can attest to the care with which this thorough-going work was prepared. It is indispensable for everyone who concerns himself with mosquitoes in any way.—Richard H. Foote, Entomology Research Division, ARS, U. S. Department of Agriculture, Washington, D. C.

MALARIA SURVEILLANCE IN THE UNITED STATES, 1958. By Brody, J. A. and Dunn, F. L. Amer. J. Trop. Med. Hyg. 8(6):635–639. 1959. Ninety-four cases of malaria were reported to the Communicable Disease Center during 1958 from 23 states and Hawaii. Confirmed and presumptive cases numbered 72. Of these 65 were of foreign origin. Thirty-three of these cases were in military personnel, the majority contracting their disease in eastern Asia (Korea 9, Philippines 9). A total of 32 civilian cases of foreign origin came from 17 different nations. Mexico with 7 cases still leads the list although the numbers of cases acquired in Mexico has been dropping rapidly in recent years. The malaria eradication campaign in Mexico is considered to be a major factor in this decline.

Only 3 naturally acquired indigenous cases were reported—one from California, one from Arizona, and one from Pennsylvania. The actual places of origin of these cases could not be determined and no associated cases or endemic foci were found.

Four cases apparently resulting from blood transfusions were reported. A blood donor in one of these cases was identified as having a silent *P. malariae* infection, implying that, in 1958, the risk of acquiring malaria in the United States was greater from blood transfusions that from natural causes. The occurrence of these transfusion-acquired cases suggests the possibility that there may be numerous silent malaria infections in this country. These silent parasitemias do not, however, appear to be an important source of plasmodia capable of introducing the infection into the mosquito population and creating endemic foci.

As long as malaria prevails in other parts of the world, the threat of malaria outbreaks in the United States remains. Anopheline mosquitoes are abundant and their opportunities for survival increase with the increasing amount of land under irrigation. Only through careful surveillance of malaria and investigation of each reported case with the promptness and vigor customary in the investigation of smallpox or plague can we preserve the near freedom from malaria we are currently enjoying.—Authors' summary and conclusions.

MUSEUMS IN BOSTON AND CAMBRIDGE

(Continued from p. 58)

Cambridge

Harvard—Fogg Art Museum, Quincy Street and Broadway.
Busch-Reisinger Museum of Germanic Culture, Kirkland Street and Divinity Avenue.
Museum of Comparative Zoology, Oxford Street.
Mineralogical Museum, Oxford Street.
Botanical Museum, Oxford Street.
Geological Museum, Oxford Street.
Semitic Museum, Divinity Avenue.
Peabody Museum of Archaeology and Ethnology, Divinity Avenue.

Massachusetts Institute of Technology, Massachusetts Avenue.