Book Review

ZUMPT, F. 1973. The Stomoxyine Biting Flies of the World (Diptera: Muscidae); Taxonomy, biology, economic importance and control measures. Gustav Fischer Verlag, Stuttgart. viii + 175 pp., 97 figs., 451 refs. Price DM98.

This book, "a summarizing treatise for the entomological, veterinary and medical professions" is the fruit of a project begun in 1938. Opening chapters deal with general morphology and anatomy, and classification of the ten genera. A systematic catalogue and keys to genera and species are included; I found the keys easy to use.

The greater part of the book consists of notes on the taxonomy and biology of the 47 known species, including two new descriptions from the Ethiopian region *Parastomoxys mossambica* and *Prostomoxys saegerae.* The usual stomoxyine mode of life is a close association with large ungulates, the adult flies sucking blood or feeding on sores and the larvae developing in the dung. The most widespread of the synanthropic species, the stable fly *Stomoxys calcitrans* (L.), is more catholic in its tastes, developing not only in dung, but also in decaying vegetables, seaweed and even, by the Tennessee river, on the accumulated dead bodies of mayflies. A more aberrant form of development may be followed by *S. ochrosoma* Speiser which has been found only near columns of army ants (Dorylinae) in East Africa. Thrope once observed a female hovering over a column and dropping a whitish object, possibly an egg which was borne off by a worker to develop, he suggested, in the bivouac. Unfortunately this observation has never been repeated.

Stomoxys bites are intensely irritating. They have been shown to cause reduction of milk yield in cattle, and even to drive lions from their territories. However, there are no reliable records of severe toxic reactions, such as are known from the bites of *Simulium.* The author, himself a world authority on myiasis, dismisses the few reports of Stomoxyine myiasis as accidental or pseudomyiasis.

Certain Stomoxyinae have been incriminated in mechanical transmission of human diseases and in both mechanical and cyclical transmission of diseases of other animals. Animal pathogens transmitted include: *Habronema,* an enteric nematode of horses; *Trypanosoma evansi* the causal agent of surra in camels, horses, and other animals; and *Brucella abortus* of cattle, which may also be transmitted to man. Early reports of the transmission of human poliomyelitis by *S. calcitrans* have been rejected by later workers.

Actual and potential control measures are discussed. Various insecticidal treatments are widely used for the control of the horn fly, *Haematobia irritans* (L.). Stable fly larvae may be controlled without resort to insecticides simply by drying the dung before the larvae can pupate. Scarabaeid beetles have proved helpful in this respect; their tunnelling dries the dung and exposes the larvae to predation by ants. One of the most complete studies of parasitism of horn fly pupae by Hymenoptera is Depner's in Southern Alberta. He concluded that the parasites kept down hornfly populations in the parkland and foothills but not on the prairies. It may be possible to control *S. calcitrans* by sterile males since its populations are focal and the females mate only once, but this method has not yet been put into practice.

The concluding chapter gives notes on methods of collection, preservation, and cultivation of Stomoxyinae.

This book will be a valuable reference work. However, it could have been made easier for non-dipterists to use if the orientation of the male terminalia (figs. 9 and 10) in the intact

fly had been indicated. Fig. 9 seems to be a postero-ventral view of the tip of the abdomen, but the orientation of the disarticulated parts in Fig. 10 is not clear to me.

J. E. Hudson
Department of Entomology
University of Alberta
Edmonton, Alberta T6G 2E3