

## BOOK REVIEWS

**SWORD OF PESTILENCE.** By John Duffy. Louisiana State University Press, Baton Rouge. 1966. 191 pp. \$5.00.

*Mosquito News* is 10 years late in calling this book to the attention of its readers, but a favorable recommendation is still in order. The subtitle is "The New Orleans Yellow Fever Epidemic of 1853." A vast number of details, obtained from contemporary newspapers, medical journals, official records, and from several other sources, have been analyzed, collated, and presented in readable form. Yellow fever first came to New Orleans in 1793, and there were outbreaks in various years through 1905. The worst epidemic occurred in 1853. The city had a population of about 150,000 during the winter, and an estimated population of 100,000 during the summer. Those who could, fled. There were ca. 40,000 cases of yellow fever and ca. 11,000 fatalities.

The disease first appeared in June along the waterfront, and its existence was denied in newspaper accounts. Although municipal authorities were slow to take action there was no actual panic even when the number of deaths per day peaked at 250 on August 20. The alleviation of suffering was a function of volunteer groups such as the Howard Association and the well-known Charity Hospital. More than \$250,000 was contributed by citizens from other parts of the United States and from Europe.

A Board of Health was created in July, but it had very limited authority and resources. Physicians disagreed with each other concerning the best means of preventing and treating the disease. The value of sanitary measures was questioned; a Dr. McFarlane asserted that the cause of yellow fever was not in dirt and filth. Ironically he was correct. Many of the residents of the city dumped "night soil," garbage, and other waste into street gutters which were flushed with water each morning and evening. This procedure probably provided habitats for mosquito breeding which would not have existed if the filth had been allowed to dry in the sun. However, there was an abnormally large amount of rainfall in 1853 which, in retrospect, must have affected *Aedes aegypti* populations.

During the crisis the mayor, on the advice of the Board of Health, ordered the firing of cannon at certain public squares, and "as a further means of purifying the air barrels of tar were . . . burned during the night." Physicians' remedies ranged from "huge and heroic doses of calomel and quinine and massive blood-letting to the opposite treatment of the homeopathic doctors" whose patients were left largely in the hands of nature.

Observations by medical practitioners proved to them that excessive medication was harmful. The city took positive action to improve its sanitation. There was a change in the thinking of

well-to-do citizens so that they did not object so strenuously to spending tax money upon the "dirty and dissolute poor." The tragic events of 1853 had some beneficial results, and the city made a rapid recovery. Dr. Duffy's book is replete with details, but this reviewer never had the feeling that he was bogged down.—W. E. Bickley.

**ANNUAL REVIEW OF ENTOMOLOGY, Volume 21, 1976.** R. F. Smith, T. E. Mittler, and C. N. Smith, Editors. Annual Reviews, Inc., Palo Alto, Calif. 94306. Pp. 1-451. \$12.00 in U.S.A.

This volume maintains the high standards of the series. In the preface there is a fitting tribute to Brian Hocking who died in 1974. Articles of rather tangential interest to mosquito workers are "Status of the Systems Approach to Pest Management" by W. G. Ruesink, "Biochemical Genetics of Insecticide Resistance" by F. W. Plapp, "Role of Male Accessory Glands in Insect Reproduction" by R. A. Leopold, and "Adaptations of Chironomids to Intertidal Environments" by Dietrich Neumann.

The review of greatest interest is by C. D. Steelman, "Effects of External and Internal Arthropod Parasites on Domestic Livestock Production." Mosquitoes and other blood-sucking arthropods are responsible for tremendous losses in meat and milk production throughout the world. Just as there are millions of square miles of Africa where tsetse-transmitted trypanosomiasis prevents cattle-raising, so there are known to be many areas in North America where cattle production is uneconomical because mosquito attacks reduce feeding time while the cattle are fighting mosquitoes and cause loss of blood.

Dr. Steelman's own research has helped provide a better understanding of cost-benefit relationships. The difficulties in establishment of economic thresholds are discussed. Often there is a complex of biting and non-biting arthropods plus disease possibilities. Much additional research will have to be conducted if effective and economical pest management systems are going to be developed. It is possible that at some future time large-scale, area-wide programs for controlling biting flies affecting livestock may be feasible.—W. E. Bickley.

**MEDICAL ENTOMOLOGY STUDIES. II.** The Subgenus *Anopheles* in Thailand (Diptera: Culicidae) by Bruce A. Harrison and John E. Scanlon, December 8, 1975. Contributions of the American Entomological Institute, Volume 12, Number 1, 307 pages, 96 figures.

This is a monograph on the systematics of the Subgenus *Anopheles* in Thailand. The subgenus is composed, as here represented, of 2 sections,

3 series, 7 species groups, and 33 species, one of which is reported as new (*aberrans*). The subgenus, sections, series, and species groups are all characterized, and essentially follow the subgeneric organization proposed by Reid and Knight (1961 *Ann. Trop. Med. Parasit.* 55:180).

The species descriptions usually include the female, male, pupa, and larva. For some species groups, one species is fully described and only the differences from it are stated for the other members of the group. For 28 species all 4 stages are discussed; in the other 5, only certain stages are described, i.e. male, pupa, and larva for 3 species (of the *aikenii* species group), larva for *kyondawensis* Abraham, and male for *bulkeleyi* Causey. In addition to the morphological account of the known stages, each species description includes the type data, complete geographical distribution, comprehensive taxonomic discussion, biology and medical significance.

One of the outstanding aspects of this book is the excellent illustrations. Each known stage has been superbly represented. Included are the Comstock-Needham wing venation system and Belkin's chaetotaxy nomenclature now widely adopted by culicidologists.

The book abounds with identification keys. It starts with keys to the sections, series, and species groups; continues with keys to Thailand species in each species group and ends with a key to all known females of Thai species in the entire genus *Anopheles*. It seems a pity that the authors did not also include a key to the 4th instar larvae of all Thai *Anopheles* which had been prepared by

Rattanarithkul and Harrison (1973 U. S. Army Med. Comp. SEATO, 14 pp.).

In reviewing this work, one cannot help comparing it with the *Anopheles of Malaya and Borneo* by Reid (Studies from the Institute for Medical Research, Malaysia, No. 31, 520 pp.). Reid lists 43 species in the subgenus, of which 28 are also found in Thailand. Therefore, 14 occur in Malaysia and not in Thailand, and conversely, 4 of the Thai species are not known from Malaysia. In many instances, morphological treatment is similar in the 2 monographs; but the biology, distribution, and systematic discussions are more detailed by Harrison and Scanlon, and the illustrations are superior in the latter even though Reid had available for his use the plates from Christophers' Fauna of British India, Diptera, Vol. IV, Family Culicidae, Tribe Anophelini.

The authors are to be congratulated for their work. It is a valuable contribution to the knowledge of the mosquito fauna of Southeast Asia.

It is puzzling to the reviewer that the *lindesayi* species group has not been found in Thailand. Collections of this group have been made by him both in the Himalaya Mountains of Nepal and the highlands of the Philippines and by Reid (loc. cit.) from Malaysia. True, its members are confined to higher altitudes, but it appears that Thailand has such highlands along its western and northern boundaries.—Richard F. Darsie, Jr., Vector Biology & Control Division, Bureau of Tropical Diseases, Center for Disease Control, Atlanta, Georgia 30333.

## CORRECTION

The April 1976 number (Vol. 25, No. 2) of TROPICAL MEDICINE and HYGIENE NEWS has an apology for a false report of the death of Sir Rickard Christophers: "Under date of March 9, 1976, Dr. Bruce-Chwatt has written, 'It gives me much pleasure to correct a vital error . . . You will be glad to know, I am sure, that Sir Rickard now aged 103 is alive and well.'"