

REVIEWS AND ABSTRACTS

On behalf of the Association, I wish to thank our collaborators who have so kindly translated abstracts and reviews into Spanish. H.L.T.

PRACTICAL MALARIOLOGY. By Paul F. Russell, Luther S. West and Reginald D. Manwell. 683 pp., 238 illus. W. B. Saunders Co., 1946. In "Practical Malariology," prepared under the auspices of the Division of Medical Sciences of the National Research Council, the authors have made readily available to the world much of the new information on malaria and its control and have sifted the wheat from the chaff among the older works.

In thumbing through the pages one is struck at once with the excellent paper, topography, illustrations and the convenient and logical topical arrangement with an abundance of headings that greatly aid in the quick finding of desired information. Following the foreword of Dr. Raymond Fosdick and the preface and acknowledgments, a concise historical account by periods is presented of the development of our knowledge of malaria. The remainder of the 648 pages is divided into six sections, an appendix and index.

Section I deals with the host range, life cycle, morphology and physiology of the Plasmodia, laboratory and field techniques. The development of a number of the Plasmodia is well illustrated with 14 plates, five of which are in colors. Extremely useful tables are included comparing the Plasmodia of man, monkeys, reptiles and amphibians. Section II deals with the mosquito; its morphology, taxonomy, life cycle, bionomics, distribution, field and laboratory techniques. A convenient feature of this section is the tabulated information, by regions, on the range and larval habitats of the several malaria vectors. In Section III the pathology, clinical aspects, and the treatment of malaria in man are dealt with. Immunity, latency and relapse are authoritatively presented and attention is given to various aspects of blackwater fever.

In Section IV the epidemiology of malaria is presented followed by a discussion of climatological factors influencing *Anopheles* abundance and malaria incidence, and the conduct and interpretation of malaria surveys. The reviewer feels that the authors in their consideration of malaria surveys unduly subordinate the study of the habits of adult *Anopheles* mosquitoes and especially their relation to the habitations of man. After all it is the direct mosquito-man relation that produces malaria and the house index means much. Such indexes should be based on day time collections of mosquitoes, all night observations, and collections in typical dwellings.

Section V on prophylaxis and control is of special interest and value to the entomologist and

public health worker. In the short discussion of drug prophylaxis, the authors sum up the situation in that field as follows:

"But with regard to the eradication of malaria in malarious communities by chemoprophylaxis it may be stated definitely and clearly that: (1) in spite of many attempts, this has never been accomplished; (2) nothing in the record leads one to hope that this ever could be realized with drugs now available; (3) except in times of an epidemic, the results achieved by mass therapy in malarious populations are usually not worth the effort or the cost; (4) attempts at mass prophylaxis by drugs may do more harm than good by delaying more helpful antimosquito measures."

Chapter 22 of this section, containing 17 pages, is devoted to mosquito larvicides and methods of preparing and applying them. Various types of drainage are briefly discussed in the next chapter and some indication is given of the place of use and limitations of these. A number of other methods of controlling *Anopheles* mosquito breeding through the use of natural enemies, control of sunlight, and water manipulation are given appropriate consideration.

In discussing the control of adult mosquitoes it does not seem to the reviewer that residual spray treatment with DDT is given attention in proportion to its importance. It is also noted that not one of the numerous articles dealing with the results of the pioneer research in this field and in the extensive testing of repellents reported by the Orlando laboratory of the Bureau of Entomology and Plant Quarantine is cited in the bibliographic references, despite the fact that their formulas and procedures are closely followed. The absence of any reference to the use of water dispersible DDT as a residual spray is unfortunate.

The discussion of spray equipment is inadequate to guide workers in choosing equipment for residual spraying, a method destined largely to displace space spraying in large scale operations. The total absence of any discussion of thermal and exhaust aerosol equipment and of recently developed devices for aerial application of sprays is a conspicuous weakness.

The authors have forcefully and properly called attention (Chapter 26) to the contribution man is making toward the propagation of malaria through his ignorance and neglect. Community organization, economic, and social consideration in antimalaria work are well presented. In Chapter 28 we find a concise discussion of organization and procedures applicable to malaria control under military conditions. The authors conclude that: "Directives and organization, co-operation and integration, training and skill, supply and transport, have as much meaning in military malaria control as in any other phase of warfare. These basic factors, and above all, a

'malaria-conscious' high command are essential if malaria is to be controlled in highly endemic areas."

Section VI deals with therapeutic malaria. The techniques and safeguards in using malaria as a therapeutic agent are well presented.

Of special value to the field entomologist are the keys to the adult and fourth instar larvae of the *Anopheles* of the world by regions, as presented in the appendix. Each chapter is accompanied by a useful, though of course far from complete, list of bibliographical references.

F. C. BISHOPP

THE STORY OF THE MOSQUITO. Associated Executives of Mosquito Control of the State of New Jersey, N. J. Ag. Expt. Sta., Rutgers Univ. and County Mosq. Ext. Comm. Circular 502. Dec. 1946. 32 pp. Mosquito control in the State of New Jersey will be greatly facilitated by the recent publication of this booklet. For the compilation of this excellent pamphlet we are indebted to the Associated Executives of Mosquito Control of the State of New Jersey. It is designed particularly for use in the schools and by interested citizens of the State, and should be not only an effective force for Mosquito Control in New Jersey, but also an inspiration to all who desire to place educative materials in the hands of the present and uprising generations.

The front cover page of this well-prepared booklet (see inset) not only shows how the mosquito larvae develop and sustain life, but also depicts some of the chief operations in their control. The booklet tells how the control movement was started in New Jersey at Rutgers University in 1902 by Dr. John B. Smith, and how it has been spread by county commissions throughout the State.

The moving spirit and directing genius of the mosquito control movement in New Jersey, for 31 years after Woodrow Wilson signed the county commission bill into law, was the late Dr. Thomas J. Headlee. When Dr. Headlee came to New Jersey as State Entomologist in 1912, mosquitoes were a tremendous menace to the economic progress of the State. It was he who envisioned the vast improvement that would result from the elimination of the mosquito pest. Working through the county commissions, which are composed of six men appointed by the Supreme Court justices of the various counties, Dr. Headlee and his technical assistants, through careful planning and indefatigable efforts, brought the mosquito menace under control in New Jersey. They made it possible for that State to become one of the world's leading industrial centers. The inspiring leadership and vast accomplishments of Dr. Headlee brought him recognition and renown as one of the world's leading entomologists. The booklet indicates that his great work is now being carried on by capable hands.

In fascinating style and by well-drawn diagrams

the booklet explains the life histories of the *Anopheles*, *Aedes*, and *Culex* mosquitoes, and how to identify them at any stage, particularly at the larval and pupal stages when their destruction is most desirable and readily effected. The relationship existing between mosquitoes and the incidence of malaria and other diseases is made quite clear.

A preliminary step in mosquito control, the pamphlet explains, is to determine both the density of the mosquito population and the kinds of mosquitoes prevalent. This is done by setting traps and studying the catch. Various methods of control are used for different kinds of mosquitoes which come from different breeding places.

Ditching is presented as the most feasible type of control for mosquitoes from salt water marshes. Ditches drain large areas, deter egg-laying by the tidal action of the water, and serve as highways for minnows which live on the larvae.

Fresh water, the booklet explains, presents a different problem. It must be drained off quickly after the rains, and oil applied where the drainage is incomplete. Toxic oils are more effective, because they both suffocate and poison the mosquito. Pyrethrum larvicide has all the values of oil, but is harmless to other aquatic life. Because of the dangers inherent in DDT its use is restricted, and it has not yet emerged from the experimental stage.

That the public should understand the principles and process of mosquito control is indicated throughout the pamphlet. How the public may participate is effectively presented in the explanation of what residents may do for the control of house mosquitoes. This section enumerates the ways of ridding the premises of all unnecessary mosquito breeding places, and advises the householder on everything from breeding fish in lily ponds to screening the house. "Ten commandments" of mosquito control climax the plea of the compilers for public cooperation.

The captivatingly conversational style and the wealth of well-selected illustrations will not only bring the lay reader a fascinating account of what is being done and what can be done for mosquito control, but will also develop the knowledge and inspire the desire to cooperate in the process.—Perry W. Ruth, Pres., Virginia Mosquito Control Assoc. and Past President, American Mosquito Control Association.

MOSQUITOES OF OKINAWA AND ISLANDS IN THE CENTRAL PACIFIC. By Richard M. Bohart and R. L. Ingram. NAVMED 1055. 110 pp., 16 plates and 2 maps. Bur. Med. and Surg., Navy Dept., Wash., D. C., 1946. This is another in the series of fine publications of the Navy Department on mosquitoes from relatively unsurveyed areas that became important during the war. The manual presents in readily usable form the available information on the taxonomy, distribution, and bionomics of the mosquitoes of Hawaii, Samoa, the Marshall Islands, the Caro-