REVIEWS AND ABSTRACTS

MAN'S MASTERY OF MALARIA. By Paul F. Russell, M.D., M.P.H., Division of Medicine and Public Health, Rockefeller Foundation. 308 pp., 19 figures. London, New York, Toronto: Oxford University Press. 1955. This book consists of a series of lectures on malaria, published under the title, "Man's Mastery of Malaria." The lectures are grouped in five sections: I, The Unfolding of Malaria Aetiology; II, The Unravelling of Malaria Therapy; III, The Development of Malaria Prophylaxis; IV, Some International Aspects of Malaria; and V, Malaria and Society. More than 500 selected references from the enormous literature on this subject are included.

This book tells the story of how man has at last mastered malaria. The story is told by reviewing the developments in knowledge of the disease and its control from the earliest recorded history to the present time. In the preface the author indicates that the title may seem misleading since malaria is still a serious problem in many areas of the world, but he emphasizes the fact that malaria, after centuries of effort, is now universally controllable, and thus man is at last the master. Dr. Russell points out that the disease is now retreating with spectacular speed and says, "While keeping in mind the realities one can nevertheless be confident that malaria is well on its way towards oblivion."

The book is written in an easy style which makes it highly readable and it can be recommended as an excellent, though brief, historical account of man's experiences leading from "mystery to mastery" of malaria.—Stanley J. Carpenter, Walter Reed Army Medical Center, Washington 12, D. C.

ORGANIC INSECTICIDES, THEIR CHEMISTRY AND MODE OF ACTION. By Robert L. Metcalf. Interscience Publishers, Inc., N. Y., 392 pp., 1955. This well-documented book summarizes our knowledge up to June, 1955, concerning the chemistry and modes of action of nicotine and related compounds, rotenoids, pyrethroids, organic thiocyanates, dinitrophenols, DDT, 9 different acaricides, BHC, cyclodiene insecticides, organic phosphates, carbamates, and various miscellaneous insecticides. A chapter each is devoted to the joint action of insecticides and to insecticide resistance.

There are 1,223 references (titles not given), 70 tables, numerous formulas and equations, and 7 figures. The index is not as complete as one might wish: most of the several hundred species mentioned throughout the book are not indexed (e.g., different species of *Anopheles, Calliphora, Loxostege, Oncopeltus* and *Porthetria*). Relatively few and innocuous typographical errors are present. The book is well-bound and clearly printed.

Very little information about mosquitoes is given in this book, but it will be invaluable to entomologists, physiologists, and chemists interested in insect control for it is written with clarity, gives well-authenticated details and presents conflicting theories impartially. This monograph should stimulate ". . . the logical and orderly development of the subject of insect toxicology, so that the practical achievements of the future will result from the application of basic concepts rather than from laborious empirical sorting."—Jack Colvard Jones, Nat. Inst. Health, Bethesda, Md.

FIFTY YEARS OF MALARIA CONTROL IN THE PANAMA AREA. By E. J. Dehné. Amer. J. trop. Med. Hyg. 4(5):800–811. 22 refs. 1955. The efforts to control malaria in the vicinity of the Panama Canal during the half century were progressively more successful as new methods developed. Sanitary engineering works of a permanent type have controlled mosquito breeding in the vicinity of communities in the Canal Zone. A battery of chemicals are in use for destroying mosquitoes in all phases of their life cycle and new drugs for effectively attacking the malaria parasite in the human carrier and patient are now at our disposal.

Malaria has been reduced to an uncommon disease in the Canal Zone, and urban communities of the Republic of Panama enjoy a considerable degree of freedom from infection, but rural communities and hamlets continue to lose much of their economic production potential due to malaria. Aggressive antimalaria programs temporarily reduce the disease but eradication has not been achieved in Panama. Temporary inactivity of malaria in a community may delude the inhabitants but the disease is unlikely to remain quiescent for long. Continuing and unremittent application of control measures by the individual and the community aimed at reducing the vector and treating the carriers is the solution to this problem in the Panama area. Once initiated, the control should be integrated into the community functions and become a permanent part of the community routine.—Author's summary.

A MOBILE LABORATORY FOR FIELD RESEARCH IN ENTOMOLOGY AND INSECT PATHOLOGY. By R. B. Baird and C. F. Nicholls. Research Notes Series Entomology E-10. 7 pp. 4 photos, 4 drawings. 1955. Dept. Agric. Science Service, Entomology Division, Ottawa, Canada. The basic unit was designed to satisfy the needs of two research workers required to remain in the field for extended periods. It can function as a temporary field laboratory for additional workers if extra living accommodation is provided by a tent. The basic unit can be modified for use in a wide variety of field programs by this addition of the necessary specialized equipment. . . . The laboratory was built and equipped, excluding the specialized scientific equipment, for approximately $6,500. Further construction details may be obtained from the authors.—Excerpts from author's discussion.

The unit is very compact. The outside dimensions are: overall length, 21 feet, 5 inches; width, 90 inches; and overhead clearance, 114 inches. The inside dimensions of the laboratory and living space are: length (not including the cab portion), 133 inches; height, 76 inches; and width of aisle between the benches, 37 inches. The gross weight of the vehicle is under five tons. The compact size permits the use of the vehicle over any road or terrain where a car can be used. . . . The laboratory is equipped with electricity, liquid propane gas, and water. . . . The laboratory being equipped for studying microorganisms, it is provided with such equipment as microscopes, a potentiometer, a hygrothermograph, a small incubator, and a pressure cooker and a temperature-controlled oven for steam and dry sterilization respectively. The two-cubic-foot, temperature-controlled incubator is heated by a single light bulb and operates from room temperature to 36° C. It can be operated from either six-volt or 110-volt electricity. Materials such as culture tubes, flasks, reagent bottles, and culture media are kept in the specially fitted wall cupboards.—Excerpts from text.

ACTIVITIES OF THE TRINIDAD REGIONAL VIRUS LABORATORY IN 1953 AND 1954 WITH SPECIAL REFERENCE TO THE YELLOW FEVER OUTBREAK IN TRINIDAD, B. W. I. By W. G. Downs, T. H. G. Aitken and C. R. Anderson. Amer. J. trop. Med. Hyg. 4(5):837–843. 8 refs. 1955. Serological surveys of Trinidad residents by the Trinidad Regional Virus Laboratory demonstrated yellow fever immunes in 8 individuals 15–19 years of age, and in a high proportion of older individuals. Yellow fever virus was isolated from a human case in April 1954. Subsequently virus isolations have been made from 13 other human cases, 7 red howler (*Alouatta*) monkeys which were brought in dead, 21 pools of *Haemagogus* mosquitoes, and 1 pool of mixed mosquitoes—a total of 43 virus isolations. Yellow fever virus was repeatedly recovered from *Haemagogus* mosquitoes captured at ground level.—Author's summary.

The repeated isolations of virus from mosquitoes lend heavy support to the *Haemagogue*-monkey cycle in yellow fever transmission in the New World. An additional point of great interest is the relative ease with which *Haemagogus* are captured on the ground in Trinidad, and the frequent recovery of yellow fever virus from those ground-captured *Haemagogus*. . . . *Haemagogus s. spegazzinii* is the only species of the genus that we have recognized thus far in the island. While not to be considered as a domestic species, during its peak months of August and September this mosquito may be a pest inside houses near the forest, entering freely and biting viciously in the daytime. . . . It has been observed that captures of this mosquito in the forest canopy exceed numerically those made at ground level, as has been shown in many regions. However, it is not at all uncommon to collect *Haemagogus* biting at ground level in the forest—particularly on sunny days—at a roadside, or in a clearing. Captures may run as high as several hundred in a few hours' collecting at ground level under favorable circumstances. The repeated isolations of yellow fever virus from *Haemagogus* biting at ground level point out that these mosquitoes in Trinidad must be feared by anyone entering the forest or even parking at the roadside.

The Health Department of the Government of Trinidad and Tobago started an intensive anti-*Aedes* campaign in June 1954, and an island-wide immunization program in July 1954. By the time the epidemic was at its apparent peak, during August and September 1954, a large proportion of the residents in the forested areas of the island had received immunizations with 17D vaccine, and extensive *Aedes aegypti* control had been accomplished in the urban areas. Before the Health Department program had started, a large part of the island population had never been immunized against yellow fever (except for the considerable immunization of older inhabitants as a result of earlier epidemics) and *Aedes aegypti* house indices were high, both in urban and rural areas. The stage was set for an explosive outbreak of yellow fever. Whether the Health Department's prompt and vigorous campaign averted a serious epidemic will never be known. But the fortuitous finding of an early case in April, 1954, permitting a control campaign to be well under way before the epidemic peak was reached, may well have averted a major outbreak. —Excerpts from the text.

UEBER DIE ZUSAMMENHANGE ZWISCHEN VERBREITUNG UND UEBERWINTERUNGSMODUS BEI DER STECHMUCKE *Aedes* (*Ochlerotatus*) *rusticus* ROSSI. (BEITRAGE ZUR KENNTNIS DER CULICIDAE III). E. Kirchberg and K. Petri. Zeitschr. fur angewandte Zool. No. 1 (Reprint):81–94. 1955. *Aedes rusticus,* unlike other northern and far-northern European *Aedes,* normally hibernates in the last (?) larval stadium ("completely developed larvae") rather than in the egg stage.

This paper is concerned with relating the distribution of *Aedes rusticus* in its "Atlanto-Mediterranean" range with the degree of severity of the winters. The authors find that *rusticus* larvae are "greatly weakened" (40–70 percent mortality) when their breeding places are covered with a layer of ice (thickness not given), and are killed when the larval breeding areas are frozen solid to the bottom.

The *rusticus* species finds its optimum conditions during "mild" winters west and south of the $-1°$ C. January isotherm where ice does not cover larval breeding sites. The authors point out the probability that in addition to the temperature other factors doubtless limit the range of *Ae. rusticus*, e.g., nature of the soil, amount and seasonal distribution of rainfall, humidity, etc. The collection of these types of data was not undertaken in the present report.

Many intriguing questions arise from a study such as this one, e.g., does the depth of the ice layer have a relationship to larval mortality excluding solid frozen states.—Jack Colvard Jones, National Institutes of Health, Bethesda 14, Md.

Inactivacion de Los Depósitos de DDT en Las Superficies de Barro. By E. Bordas, W. G. Downs and L. Navarro. Bol. Oficina Sanitaria Panamericana 37(2):167–186. 17 refs. 1954. The problem of the inactivation of DDT deposits on dry and mud surfaces is presented and its causes outlined. The phenomenon is found to be due to adsorption of the DDT crystals present on the surface; this adsorption appears to be the initial step in the catalytic decomposition of DDT by the iron oxides present in soils, since there is a direct relation between the amount of oxides present and their capacity to inactivate DDT deposits.

The DDT inactivating capacity of soils can be determined by testing them for catalytic activity in the thermal decomposition of DDT. The adsorption of DDT by soils is influenced by environmental relative humdity. Inactivated deposits may be reactivated by increase of the atmospheric humidity.

Several substances proposed for the protection of the DDT deposit from inactivation were tested without success. Reference is made, however, to the encouraging findings of some other workers. Limewashing is recommended for the protection of DDT deposits.—Authors' summary.

Malaria in the Torres Straits Islands. Mackerras, M. J. and Sandars, D. F. South Pacific Commission Technical Paper No. 68. Noumea, New Caledonia. 1954. 27 pp. 7 tables, 2 maps, 8 text photos, 18 refs. Malaria surveys were made in the Torres Straits Islands and adjacent mainland of Australia in 1949, 1952, and 1953. The eastern islands were found to be normally free from malaria, but an epidemic of pure *P. falciparum* infection occurred on Murray and Darnley Islands in 1952. By 1953, the infection had disappeared from Murray, but had persisted on Darnley Island. The natives showed considerable racial tolerance to their infection.

In the western islands, a few cases of malignant tertian malaria were found on Boigu and Dauan close to the New Guinea coast. Saibai, which is also very close to New Guinea, was remarkably free from infection. Two quartan infections were found at Kubin on Moa Island. *P. vivax* was seen only once, in a native of Saibai living on Cape York.

No malaria was found in Australian natives in settlements on the mainland near Cape York, nor in other native settlements in the Gulf of Carpentaria. There is no evidence that malaria is now endemic anywhere on the mainland of Australia.—Authors' summary.

Anopheline mosquitoes are widely distributed, and it is a real puzzle why malaria is not prevalent on many of these islands, and, in particular, why Boigu and Saibai are not hyper-endemic areas.

Investigations on Murray Island in 1952. . . . The mosquitoes concerned: The only anopheline found on the island was *Anopheles farauti*, which was breeding in freshwater pools thoroughout the whole length of Bruce Brook in June, 1952. A small number of adults of this species was taken at night biting man. Measures taken to reduce the mosquito population consisted of clearing the mouth of Bruce Brook to allow seawater to flow in freely, and in spraying the creek with diesel oil. Later a DDT preparation was used for spraying houses and breeding places.

Investigations on Darnley Island in 1952. . . . the mosquitoes concerned: The only anopheline taken was *Anopheles farauti*, which was found breeding in abandoned 4-gallon drums half-filled with debris and rainwater. It was stated by the natives that mosquitoes had been particularly abundant at the end of the wet season. All natural breeding places adjacent to the settlement had been sprayed heavily with diesel oil before our arrival. No adults were taken, although searched for in several localities using natives as bait.

Nepean Island. . . . Only one species of mosquito was found on Nepean Island, *Aedes scutellaris scutellaris* (Walker), which was breeding in domestic water containers and clam shells.

York Island. . . . the only mosquito so far recorded from the island is *Aedes scutellaris scutellaris*, which was found breeding in 44-gallon drums of rainwater.

Coconut Island. . . . No mosquitoes have been recorded from this island, but survey visits have been very brief and without adequate opportunity to search for them.

Yam Island. . . . No anopheline mosquitoes were found.

The Anopheline Fauna of the Mid-Western Islands. Adult anophelines were not abundant during the time of our visit (April–May). Two species were found on Badu, *Anopheles novaguinensis* Venhuis and *A. meraukensis* Venhuis. The former was the only species taken on Mabuiag. On Moa, three species were taken, *A. bancrofti* Giles, *A. meraukensis* and *A. farauti*. The last named, which is an important vector in New Guinea and on the mainland of Australia, was only found at Gerain. However, it is probably far more widespread during the wet season, and there seems no good reason why it should not eventually be recorded from Badu and possibly also from Mabuiag. Although *A. bancrofti* was breeding freely in a large, fresh-water swamp close to the village at St. Paul's, it did not seem to be a troublesome species, and was only rarely taken biting man during our stay there.

THE ANOPHELINE FAUNA OF THE FAR-WESTERN ISLANDS. This was in marked contrast to that of other islands visited. On Boigu and Saibai, we were assailed from dusk throughout the night by hordes of *Anopheles farauti* and *A. amictus hilli* Woodhill and Lee. Both breed readily in brackish water, and their breeding grounds on these two islands were extensive. *A. bancrofti* was also found on Saibai. On Dauan, which was only visited for a couple of hours one afternoon, *A. farauti* was found breeding in a fresh water pool.

THURSDAY ISLAND. . . . The natives concerned were living near a small creek on the western side of the island. Two species of anophelines were taken breeding in this creek, namely *Anopheles annulipes* Walker, and *A. meraukensis*. Either could have acted as the vector. On the adjacent Horn Island, two other species were found, *A. powelli* Lee and *A. novaguinensis*, which may well occur on Thursday Island, too.

THE ANOPHELINE FAUNA OF CAPE YORK PENINSULA. . . . It supports a rich mosquito fauna, including six species of anophelines. These are: *A. powelli, A. bancrofti, A. annulipes, A. farauti, A. novaguinensis* and *A. meraukensis*. A few adults of *A. powelli, A. bancrofti* and *A. novaguinensis* were taken biting horses at dusk near a creek at Bamaga, but they were not obtrusive on man in-doors or out-of-doors, either in July, 1952, or in May, 1953.—Excerpts from text and discussion of authors, Queensland Institute of Medical Research and Department of Social and Tropical Medicine, University of Queensland, Australia.