

slightly favored the oil alone. Larvae of *Aedes pseudoscutellaris* and *Culex fatigans* were introduced into two drums halved lengthwise. One was placed in the open and the other under a roof. They were sprayed with 2 cc. of a 5 per cent solution of DDT in a non-volatile mineral oil. A week later all in the exposed drum were alive and all in the sheltered one were dead. The 14.52 inches of rain which fell during the period overflowed the exposed drum, carrying away the larvicide. In a subsequent test no eggs were deposited for seven weeks in the drum which had been oiled, whereas in the drum treated with oil plus DDT none were found for 12 weeks. A 5 per cent oil solution of DDT was tried with success against *Culex fatigans* in an airraid shelter and in a pool infested with this species and *C. annulirostris*. DDT was also found effective as a dust (1 part DDT to 9 parts soapstone) on part of the latter breeding area. The author concludes that DDT is suitable as a larvicide under Fiji conditions where an annual rainfall of 120 inches occurs.—F. C. Bishopp.

SPRAY-KILLING OF MOSQUITOES IN HOUSES—A CONTRIBUTION TO MALARIA CONTROL ON THE GOLD COAST. By L. G. Edey. Trans. Roy. Soc. Trop. Med. and Hyg. 38 pp. 167-188 with discussion pp. 188-197. November 29, 1944.

The war made necessary a serious consideration of malaria control in the native port village of Takoradi, where suddenly in 1941 large numbers of Europeans began to arrive. To supplement more prompt control operations a test was carried out with a number of spray-formulas applied to the interiors of the houses. *Anopheles gambiae* constituted the principal local vector of malaria. *A. funestus*, an effective carrier, was recorded occasionally and a few other species were met with rarely. Dissections indicated a malaria rate among *A. gambiae* of 3 per cent. The treatments used consisted of pyrethrum dust at the rate of 0.35-2 oz. per thousand cubic feet, pyrethrum-kerosene, cresol-kerosene, and pyrethrum-aerosol. Pyrethrum-aerosol proved to be the insecticide of choice, with pyrethrum-kerosene next best in order of labor economy. Each of these methods, however, appeared to be satisfactory from the standpoint of mosquito kill. There appeared to be a marked lowering of malaria morbidity rates especially among the Europeans, although the precise effect of the spraying operations could not be differentiated from the results of the general malaria control efforts.—F. C. Bishopp.

OBSERVATIONS ON *Anopheles gambiae* AND OTHER MOSQUITOES AT WADI HALFA. By D. J. Lewis. Trans. Roy. Soc. Trop. Med. & Hyg. Vol. 38, No. 3, pp. 215-229, Dec., 1944.

Observations are recorded on *Anopheles gambiae* and other mosquitoes at Wadi Halfa, Sudan, especially from the standpoint of the zoogeographic position of the area. Much importance is attached to maintaining a barrier between the Sudan, where this dangerous malaria carrier occurs

normally, and Egypt where the species has appeared recently and from which it may be eliminated. The author presents an interesting account of the Wadi Halfa area of the Nile and of the climate and other conditions as influencing mosquito distribution and breeding.

Eight of the 22 species recorded for Egypt and the Sudan are present in Wadi Halfa—3 *Anopheles*, 3 *Culex*, an *Aedes* and a *Theobaldia*. *A. gambiae* is by far the most important species and paris green, oiling, grading and filling are employed in its control. Paris green, 1 per cent in Nile silt, is distributed by hand. In the Farar basin and canal *Gambusia holdbrooki* is a useful control agent. The other two *Anopheles*—*multicolor* and *pharvensis*—were controlled by the measures employed and the other species except *C. pipiens* are unimportant as pests of man.—Fred C. Bishopp.

DR. F. C. BISHOPP DELIVERS HERMAN M. BIGGS MEMORIAL LECTURE. At the invitation of the New York Academy of Medicine, Dr. Fred C. Bishopp, Assistant Chief in Charge of Research, U. S. Bureau of Entomology and Plant Quarantine, delivered the Herman M. Biggs Memorial Lecture before a distinguished group of medical men and others in the Academy Auditorium (New York City) on April 5, 1945. The title of Dr. Bishopp's lecture was "The Medical and Public Health Importance of the Insecticide DDT." This was the twelfth annual Biggs lecture and the first delivered by a scientist not of the medical profession.

H. H. Stage.

FORMULATION OF DDT SPRAYS AND DUSTS.¹ By R. D. Chisholm, U. S. Department of Agriculture, Agriculture Research Administration, Bureau of Entomology and Plant Quarantine.

A survey was made of the methods used by many Federal and State investigators in the formulation of DDT sprays and dusts. Attention was called to the patented status of DDT, and to the need for the consideration of the legal phases before formulation suggestions are used commercially. The form of DDT used for general agricultural purposes is known as "technical DDT" and is specified to have a setting point not lower than 88° C. Mixtures of DDT and a diluent, such as talc or pyrophyllite, containing up to 50 per cent of DDT may be ground, provided that care is exercised to avoid overheating the mill. More concentrated mixtures do not have desirable physical properties. Ground mixtures are difficult to wet and require vigorous agitation or a wetting agent to maintain uniform suspension in the spray tank. The use of a minimum of wetting agent was suggested to avoid excessive run off. Various other methods of formulation were suggested, such as

¹Read at the joint meetings of the American Association of Economic Entomologists and the Entomological Society of America at New York City, December 13-15, 1944.