REVIEWS AND ABSTRACTS

TREATMENT OF MOSQUITO LARVAE AND ADULTS WITH RADIOACTIVE PHOSPHORUS. By W. W. Yates, C. M. Gjullin, and A. W. Lindquist. Jour. Econ. Ent., 44(1):34–37, Feb., 1951. Studies were made to determine how to introduce radioactive phosphoric acid (P^{32}) into both larvae and adult mosquitoes in amounts that would be detectable with radioactive measuring devices. *Aedes sticticus* (Meig.) and *A. vexans* (Meig.) mosquitoes gave 544 to 897 cpm. above background after they had been allowed to feed on the blood of rats that had received 0.375 millicurie of P^{32} in aqueous solution intraperitoneally 24 hours earlier. In three dissected specimens an average of 72 per cent of the radioactivity was found in the abdomen and 4 per cent in the legs.

Second- and third-instar larvae of *Culex tarsalis* (Coq.) reared in water having an unknown concentration of P^{32} had radioactivity ranging from 164 to 417 cpm. Fifteen per cent of this radioactivity was present in the legs and 45 per cent in the abdomen.

Aedes sticticus females fed on water having an unknown concentration of P^{32} gave readings of 577 to 1,192 cpm. one to 13 days later. The legs had approximately 9 per cent and the abdomens 41 per cent of the total radioactivity.

Aedes sticticus and *A. vexans* adults reared from the second-stage larvae in water containing 0.05 μc of P^{32} per milliliter gave average readings of 41,147 cpm. for females and 39,072 for males. In later tests dosages of 0.01, 0.001, and 0.0001 μc per milliliter gave 14,911, 1,612, and 522 cpm. respectively for the females.

It is suggested that a concentration of approximately 0.0001 μc of radioactive phosphoric acid per milliliter may be a practical dosage for the treatment of larvae in flight studies of adults. Since adults may be readily tagged by feeding them sugar solutions containing small amounts of P^{32}, the use of this method may be desirable in many studies.—Authors' summary.

DDT-RESISTANT HOUSE FLIES AND MOSQUITOES. King, W. V. Jour. Econ. Ent. 43:527–532, Aug., 1950. This article reports briefly on the work conducted by the Orlando laboratory during 1949. Chlordane emulsions showed promise as residual treatments against DDT-resistant house flies. Flies from different sources showed varying degrees of susceptibility to DDT in consecutive generations. Evidence was obtained that salt-marsh mosquitoes, *Aedes sollicitans* and *A. taeniorhynchus* from previously intensively treated areas are continuing to develop resistance to DDT and TDE, but they were susceptible to lindane, chlordane, parathion and dieldrin in laboratory tests. In laboratory tests with adults of *A. pseudopunctipennis* from a Mexican village where all premises had been treated with DDT residual sprays once each year during the previous three years, there was no indication of increased resistance to this material.—Wm. E. Bickley, University of Maryland, College Pk., Md.

AERIAL SPRAY TESTS ON ADULT SALT-MARSH MOSQUITOES RESISTANT TO DDT. Deonier, C. C., Cain, T. L. Jr., and McDuffie, W. C. Jour. Econ. Ent. 43:506–510, Aug., 1950. Field observations and laboratory tests gave evidence that *Aedes taeniorhynchus* and *A. sollicitans* in the Cocoa Beach area of Brevard County, Florida, were resistant to DDT in 1949. Several series of tests were carried out to evaluate the effectiveness of lindane, technical benzene hexachloride (12 per cent gamma isomer), toxaphene, parathion, chlordane and dieldrin as well as DDT. Lindane at 0.1 pound per acre is reported as being the most effective. Technical benzene hexachloride, dieldrin, and parathion compared favorably with lindane in certain concentrations, under certain conditions.—W. E. B.

BARRIER STRIP AND PRE-FLOOD TREATMENTS WITH DDT TO CONTROL *Anopheles quadrimaculatus*. Ludvick, F. F. Jour. Econ. Ent. 43:516–517, Aug., 1950. A barrier strip was treated by means of ground equipment with a residual spray at a rate of approximately 280 mg. DDT per square foot or about 136.5 pounds of DDT per acre. The barrier strip was 50 feet wide and 10 feet high, and dense marginal vegetation bordered most of the breeding area of about 22 acres. Rhodamine B was used to dye 5,000 insectary reared *A. quadrimaculatus* which were released within the barrier. During the eight weeks after treatment 0.12 per cent were recovered. The results suggest that the barrier was highly effective in controlling *A. quadrimaculatus*.

A pre-flood application of DDT by airplane at the rate of 1.4 pounds per acre to about 125 acres of marsh appeared to retard larval development for about seven weeks and to delay the build-up of the adult population.—W. E. B.

ECOLOGICAL SURVEY OF THE MOSQUITOES OF GREAT WHALE RIVER, QUEBEC. Jenkins, D. W. and Knight, K. L. Proc. Ent. Soc. Wash. 52:209–223, Oct., 1950. The area surveyed is on the eastern shore of Hudson Bay and is in the Transition Zone between the arctic tundra and the northern transcontinental conifer forest. The principal habitats of mosquito larvae are modified rock pools, bog and tundra pools, and small oxbow lakes. Fifteen species of culicids including four chaoborines were observed and biological data on each of them are given. The most important pest species were *Aedes communis, A. pullatus,* and *A. excrucians.*—W. E. B.

FACTORS INFLUENCING SPRAY AND THERMAL AEROSOL APPLICATION BY AIRPLANE. Cutkomp, L. K., Hess, A. D., and Keener, G. G. Jour. Econ. Ent. 43:456-462, Aug., 1950. The T.V.A. is continuing extensive studies on the most practical and effective methods of applying DDT and other insecticides for the control of *Anopheles quadrimaculatus* larvae, and this report supplies new information as to the conditions under which thermol aerosols and sprays can best be used. A Consolidated Vultee BT-13 was equipped with both a thermol aerosol unit and a five-nozzle spraying system. Factors compared and discussed are: type of breeding place; degree of atomization; size, number and deposition of particles; swath width; density of spray; application height; and temperature. Ordinarily the aerosol could not be effectively used above 35 feet. The spray is often advantageous because it can be applied from a height greater than 50 feet.—W. E. B.

SOME HABITATS OF EGGS OF *Aedes vexans*. Bodman, M. T. and Gannon, N. Jour. Econ. Ent. 43:547-548, Aug., 1950. Soil samples from ten stations subject to inundation in Champaign County, Ill. were removed to the laboratory, and the number of viable eggs determined on the basis of the number of hatched larvae. Eggs were present in debris on the surface and down to a depth of 2 inches. Heavier soils are more suitable for oviposition than lighter soils. Eggs were found only in spots which have some form of shade. Where the margin of transient pools is steep, the band around it where eggs are deposited is narrow. All of these situations influence retention of moisture.—W. E. B.

FOUR NEW MOSQUITO RECORDS FROM UTAH (Diptera: Culicidae). Don M. Rees and Lewis T. Nielsen. Pan-Pacific Entomologist, 27(1):11-12, 1951. Additional species of mosquitoes listed as occurring in Utah are: *Aedes impiger* (Walker)—fairly common in northern Utah at elevations ranging from 6,000 to 9,000 feet; *Aedes nearcticus* Dyar—found in an alpine meadow at an elevation of 10,100 feet in the Uintah Mountains, Summitt County; *Culex apicalis* Adams—a single larva taken at Kamas, Summitt County, at an elevation of 6,400 feet; and *Culex quinquefasciatus* Say—males recorded from northern and southern areas of Utah in lower valleys at elevations below 5,000 feet.—Ernestine B. Thurman, National Institutes of Health, Bethesda, Md.

HALLAZGO DE *Anopheles aztecus* HOFFMANN NATURALMENTE INFECTADO CON PLASMODIUM EN LA ZONA DE XOCHIMILCO, D. F. (The finding of *Anopheles aztecus* Hoffmann naturally infected with Plasmodium in the zone of Xochimilco, D. F.) By W. G. Downs and E. Bordas. Revista del Instituto de Salubridad y Enfermedades Tropicales 10(4):3-7. Mexico, D. F., Dec., 1949. In dissections of *A. aztecus* Hoffmann from house captures in the Xochimilco-Mixquic region of the Valley of Mexico, one specimen was encountered with an oocyst infection of the gut and one specimen with an oocyst infection of the gut and sporozoites in the salivary glands. This finding, coupled with epidemiological observations, serves to implicate *A. aztecus* as the vector of malaria in the region.—Authors' summary.

TRANSMISSION OF *Plasmodium relictum* GRASSI & FELETTI BY *Anopheles freeborni* AITKEN. Frances F. Mok. Science 113(2939):485, April, 1951. This is the first report of the successful transmission of *Plasmodium relictum* from canary to canary by *Anopheles freeborni*. *Culex pipiens molestus* (most frequently referred to as the autogenous form of *pipiens* or as *C. pipiens autogenicus*) was used as the control species. The results of the described experiments furnish additional evidence that avian plasmodia can be transmitted by anopheline mosquitoes.—D. V. Jensen, National Institutes of Health, Bethesda, Md.

SOME NUTRITIONAL REQUIREMENTS OF ADULT MOSQUITOES (*Aedes aegypti*) FOR OVIPOSITION. Joseph Greenberg. Jour. Nutrition 43(1):27-35, Jan., 1951. By employing a previously described method for artificially feeding adult mosquitoes through a membrane (MOSQUITO NEWS 9(2):48-50, 1949), the nutritional requirements for oviposition by adult *Aedes aegypti* were studied. These mosquitoes laid 16 times as many eggs per female when fed defribinated sheep blood as when fed washed sheep erythrocytes. A series of inorganic salts, vitamins, and glucose, when added to sheep erythrocytes, failed to increase oviposition significantly. Oviposition was markedly increased by feeding such proteins as bovine plasma albumin, human plasma albumin, egg albumin, human gamma globulin, gelatin and casein, and a tryptic digest of casein. The proteins could be replaced almost completely by DL-isoleucine, but not by a combination of the other 9 amino acids which are essential for rats. However, even when sheep erythrocytes were supplemented with the optimum concentrations of proteins or DL-isoleucine, oviposition did not equal that achieved with defibrinated sheep blood. An extension of studies of this type could lead to the discovery of fundamental information not only in mosquito physiology but in the physiology of other insects and of higher animals as well.—E. S. Josephson, Biochemist, National Institutes of Health, Bethesda, Md.