more effective than dichlorvos or malathion. DDT was ineffective.

Larvicide applications were made to rice paddies infested with *C. tritaeniorhynchus*. Fenthion appeared to be the best larvicide. It was 90 percent effective at concentrations of 0.066 and 0.093 lb. per acre and was 1.6 to 1.8 times better than dichlorvos, 2.4 to 2.7 times better than trichlorfon, 2.3 to 3.2 times better than Bayer 39007, and 2.8 to 3.1 times better than naled. DDT and malathion were the poorest materials tested. Indications were the toxicity of these compounds lasted only a short time after application to the breeding areas.

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STERILANT EFFECT OF SOME MATERIALS ON *AEDES AEGYPTI* (L.) FEEDING ON TREATED MICE

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Chemicals which interfere with development of insects, especially their reproductive capabilities, are presently creating considerable interest due to their possible use in pest control. The effectiveness, and both practical and potential use of such compounds in control and eradication programs have been discussed in reviews by Lindquist (1961), Knipling (1962), and Smith *et. al.* (1964). Some of the earliest research was done on *Drosophila* by Goldsmith *et. al.* (1948) and Goldsmith and Frank (1952). More research has been conducted on materials which affect metabolism in house flies (*Musca domestica* L.) such as that reported by Mitlin *et. al.* (1957), LaBrecque *et. al.* (1960), and LaBrecque (1961).

LaBrecque (1961) reported that three alkylating agents (tepa, aphoxide, and aphomide) were effective house fly sterilants and Weidhaas *et al.* (1961) found that when they were fed to adults in honey solutions they caused sterility in two species of mosquitoes, *Anopheles quadrimaculatus* Say and *Aedes aegypti* (L.). In further work Weidhaas (1962) showed that these chemicals would sterilize the mosquitoes either as larvae or as adults. During 1961–62 Darrow and

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Lewis (unpublished data) showed that larvae and adults of *Culex tarsalis* Coq. could be sterilized by a number of methods. Plapp *et al.* (1962) studied the metabolism of metepa in mosquitoes, house flies, and mice, and Dame and Schmidt (1964) investigated the absorption and degradation in mosquitoes and house flies.

This paper reports the observations of the effects of four chemosterilants on *Aedes aegypti* after engorgement on treated mice.

The compounds tested were tepa, metepa, apholate, and hempa (hexamethylphosphoric triamide). The materials were dissolved in distilled water and administered intraperitoneally to adult female white mice. Some samples of apholate were not completely soluble in water. This may have been due to impurities caused by partial polymerization or other factors. Two to six mice were treated at each dosage and a similar number of tests made at various time intervals after treatment.

Usually 10 or more 4–5-day-old female mosquitoes were allowed to engorge on the mice just prior to treatment and at various intervals after treatment. Males were present in the cages prior to removal of the females. Engorgement of females usually took 5 to 10 minutes. We allowed 4 days for egg development and the following 24 hours for egg deposition. Eggs were then conditioned for 4 days in a water-saturated atmosphere, after which 100 to 300 eggs from each sample were flooded and the percent hatch determined 24 hours later. All tests were conducted at 75–80° F. and 55 percent relative humidity.

RESULTS. The data in Table 1 show that three of four compounds affected egg fertility. Although data on egg production are not shown, the materials had little or no influence on the number of eggs deposited or on the longevity of the mosquitoes. Tepa appeared to be the most active material with the minimum effective dose being approximately 25 mg/kg. The compound also showed some effect at a dose as low as 10 but not at 1 mg/kg. The minimum effective dose for metepa appeared to be near 100 mg/kg, whereas that for apholate was between 50 and 100 mg/kg. Hempa was not effective at the highest dose tested (200 mg/kg).

The active materials appeared to be rapidly absorbed by the mice since they were most effective during the first hour

TABLE 1.—Fertility of eggs laid by *Aedes aegypti* after a single feeding on intraperitoneally treated mice.

Compound	Dose, mg/kg	Hatch of eggs from females allowed to feed at indicated intervals after treatment (%)							
		0[a]	15 min.	30 min.	1 hr.	2 hrs.	4 hrs.	6 hrs.	24 hrs.
Metepa	50	87	64	17	..	83	..	..	..
	100	91	7	7	24	61	..	89	94
	200	93	0	1	6	20	..	77	..
Apholate	10	95	69	80	80	..	..	..	..
	50	97	30	55	80	85	..	..	..
	100	82	0	0	6	50	..	61	75
Tepa	1	92	..	90	..	..	..	..	..
	10	93	42	82	..	100	..	..	..
	25	90	8	12	..	45	..	..	..
	50	96	0	2	0	26	..	..	..
	100	95	0.2	0	0	0	..	56	75
Hempa	10	79	76	52	..	100	..	..	..
	100	72	84	70	..	100	..	..	81
	200	99	86	67	..	95	100	98	..

[a] Controls—mosquitoes allowed to feed just before mouse treated.

after treatment. They showed little or no effect 24 hours after treatment. This result is in agreement with the findings reported by Plapp *et al.* (1962) in their work with metepa. In studying the metabolism of P^{32}-labeled material in mosquitoes and mice, they found the greatest radioactivity, as well as that partitioning as metepa, during the first hour after treatment. Their data, as well as those in Table 1, indicate the materials are rapidly degraded by mice.

In other tests considerable variation was noted in the fertility of eggs from individual females, even though they were allowed to engorge at the same time on the same mouse. The area of the mouse on which the mosquitoes fed did not appear to be a factor. Some data were obtained which indicated that eggs from mosquitoes feeding on female mice treated with tepa at 10 mg/kg were more viable than those which fed on treated male mice. No observations were made of effects of the materials on the mice, although tepa appeared to have caused the death of two mice at 100 mg/kg.

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Please refer to pages 227, 237 and 239 for this important information. See especially the last paragraph in the second column on page 239.