usual in 1968 in the vicinity of London. Their occurrence in and around houses is in accord with the report of Horsfall (1955) that *P. ciliata* enters buildings and of Headlee (1945) that it is not infrequently sent with house captures.

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Culex pipiens L. FEEDING ON THE OLIGOCHAETE *Aeolosom hemprichi* EHRENBERG

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Most mosquito larvae feed indiscriminately upon algae and small organisms such as rotifers, protozoa, bacteria and fungal spores (Clements, 1963) and a few species, including apparently some filter feeders, are predators (Petersen *et al.*, 1969). Since *Culex pipiens* L. has not hitherto been regarded as being carnivorous on larger, more complex organisms, it is noteworthy that we have observed fourth instar larvae of this species feeding upon the oligochaete worm, *Aeolosoma hemprichi* Ehrenberg.

We suspected that *C. pipiens* might be ingesting the oligochaetes while we were observing the fate of mosquito larvae hatching from egg rafts deposited upon floating patches of decaying algae. Two fourth instar larvae had been collected inadvertently with the algal sample and one appeared to have devoured one of the many oligochaetes that were browsing among the strands of algae.

Ten worms were placed in a small evaporating dish with 5 fourth instar *C. pipiens* larvae. The mosquitoes did not actively pursue the worms but ingested them when they encountered them during normal feeding activities. When mature worms were drawn toward the larval oral cavity tail-first they were sometimes able to escape. On the other hand, worms carried into the oral cavity head-first were always ingested, apparently with ease.

Mature *Aeolosoma* are approximately 1 to 2 mm long and thrive in decaying algae and hay infusions (Ward and Whipple, 1945). They could well be an important item in the mosquito larval diet under certain conditions, especially where organic material is abundant in the water.

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COMPARISON OF THE EFFECT OF SIX PYRETHROIDS AGAINST A BACKSWIMMER, *Notonecta undulata* SAY

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Since 0.0025–0.02 p.p.m. Abate® *0,0*(-dimethyl phosphorothioate *0,0*-diester with 4,4′-thiodiphenol) killed 10–93 percent of the backswimmers, *Notonecta undulata* Say, in laboratory tests after 2 days of exposure (Fales *et al.*, 1968), it was used as a standard to evaluate the effectiveness of six pyrethroids against the same species in laboratory tests.

MATERIALS AND METHODS. The six pyrethroids tested were allethrin, *d-trans*-allethrin, dimethrin, Neopynamin® (2,2-dimethyl-3-(2-methylpropenyl) cyclopropanecarboxylic acid ester with *N*-(hydroxymethyl)-1-cyclohexene-1,2-dicarboximide), S. B. Penick 1382 ((5-benzyl-3-furylmethyl (±)-*cis-trans*-2,2-dimethyl-3-(2-methylpropenyl) cyclopropanecarboxylate), and S. B. Penick 1390 ((5-benzyl-3-furyl)methyl *d-trans*-2,2-dimethyl-3-(2-methylpropenyl)cyclopropanecarboxylate). As in the tests with Abate in 1966 and 1967, the WHO beaker method of determining susceptibilities of mosquito larvae (World Health Organization 1960) was used. However, in 1966, the stock solutions (prepared with acetone) were diluted with acetone and then added to distilled water containing the test insects; in 1967, the dilutions from the same stock solution were made with distilled water and then added to lake water containing the test insects. Since the results were the same for both methods, the tests reported here followed the procedure used in 1967 except that the test insects were placed in distilled water instead of in lake water.

Five adult backswimmers collected in the field were placed in 50 ml of distilled water which were, in turn, added to 200 ml of distilled water containing the desired dose of test compound; untreated checks were included. Each material was tested at doses of 0.02, 0.01, 0.005, and 0.0025 p.p.m., and S. B. Penick 1382 and 1390 were also tested at doses of 0.00125 and 0.000625 p.p.m. Mortality, including moribund insects, was recorded after 1 and 2 days.

RESULTS. Of the six pyrethroids tested, allethrin, *d-trans*-allethrin, dimethrin, and Neopynamin were much less effective than Abate, especially at the higher doses (Table 1), since they gave final kills of 40 percent or less, even when they were tested at the highest dose, 0.02 p.p.m.; at that dose, Abate killed 90 percent. S. B. Penick 1382 and S. B. Penick 1390 were superior to Abate; both gave 100 percent kill at 0.01 and 0.02 p.p.m.

The average mortality in the untreated checks was 11 percent in 2 days compared with 7 and 10 percent in 1966 and 1967. The average mortality after treatment with Abate was comparable over the 3 years.

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TABLE 1.—Comparison of 6 pyrethroids and Abate® against field-collected backswimmers, *Notonecta undulata* Say, in laboratory tests.

Compounds	Dose in water (p.p.m.)	Number of tests	% dead+ moribund at indicated days past treatment	
			1	2
Allethrin	0.0025	4	10	15
	.005	4	10	15
	.01	4	10	30
	.02	4	35	40
d-trans-Allethrin	0.0025	4	10	25
	.005	4	0	20
	.01	4	5	25
	.02	4	40	40
Dimethrin	0.0025	4	5	30
	.005	4	15	25
	.01	4	15	30
	.02	4	10	25
Neopynamin	0.0025	4	16	28
	.005	4	0	16
	.01	4	20	42
	.02	4	9	30
S. B. Penick 1382	0.000625	2	20	20
	.00125	2	0	20
	.0025	6	74	78
	.005	6	100	88
	.01	4	100	100
	.02	4	100	100
S. B. Penick 1390	0.000625	4	20	25
	.00125	4	20	30
	.0025	6	90	90
	.005	6	93	93
	.01	2	100	100
	.02	2	100	100
Abate (Standard)	0.000625	4	5	10
	.00125	4	10	15
	.0025	8	17	28
	.005	8	25	52
	.01	4	30	71
	.02	4	62	90
Untreated check	...	13	4	11