

## OPERATIONAL AND SCIENTIFIC NOTES

### MOSQUITOES FEEDING ON ENGORGED MOSQUITOES<sup>1</sup>

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Harris, *et al.* (1969) reported that adult female *Aedes aegypti* would feed on lepidopterous larvae *Celero enphorbia* and speculated on the possibility that haemolymph of the newly discovered host could be adequate for the mosquito to produce viable eggs. He also considered the potential of insect pathogens being transmitted by these mosquitoes.

We have always considered that female mosquitoes obtained blood meals from vertebrate hosts and male mosquitoes fed on plant secretions. Of course we knew that both would take liquids such as sugar water, juices from raisins, oranges, apples or other fruit, but their potential for feeding on

One of our technicians, at the beginning of her work with us, reported that she thought she had seen one mosquito taking blood from another engorged one. Following Harris' report, experiments were designed to test her observation and to determine the prevalence of this behavior.

**MATERIALS AND METHODS.** Female pupae of *Aedes aegypti* and *Culex pipiens* were allowed to emerge in 5-inch cylindrical plastic cages 6 inches high. When the adults were 4-6 days old they were allowed to engorge with blood from a chicken. Immediately following engorgement of these mosquitoes, 15-20 starved female *A. aegypti* between 4-6 days old were introduced into the cages and observed. Small glass observation chambers were fabricated from No. 1 coverslips in which one or two engorged females were immobilized on a glass rod. Several starved *A. aegypti* were confined with them and photographic records of feeding were made from these chambers.

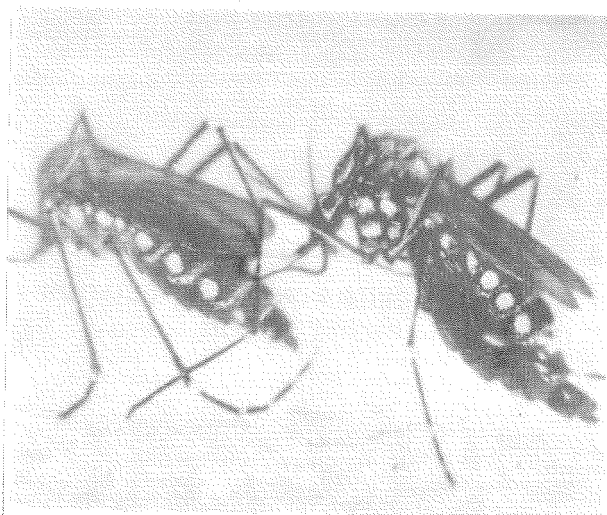


FIG. 1.—*Aedes aegypti* feeding on an engorged *Aedes aegypti*.

members of the same family or other arthropods had been overlooked.

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**RESULTS AND DISCUSSION.** When starved female *A. aegypti* are introduced into cages of blood-engorged mosquitoes they are attracted to them and will attempt to feed. Some fly immediately to an engorged mosquito which may remain motionless while the hungry mosquito probes and begins to feed. (Fig. 1)

A few engorged mosquitoes are disturbed and move away when another attempts to feed. Most

mosquitoes engorge rather rapidly while others, not so aggressive, delay probing and feeding. If feeding is not begun within 30 minutes from the time the "host" takes its blood meal the speed of feeding by the starved marauding mosquito is considerably slower than of those who feed immediately. *A. aegypti* will feed on *A. aegypti* as seen in Fig. 1, or on engorged *C. pipiens*. Sometimes two or more mosquitoes may feed on one host. Most unfed mosquitoes were attracted to the engorged mosquitoes.

Blood smears were prepared and stained from mosquitoes that robbed mosquitoes that had engorged on chicken blood infected with *Plasmodium gallinaceum*. As was anticipated, these mosquitoes also were infected with erythrocytic parasites and could be expected to develop an infection. Caged mosquitoes, especially from laboratory cultures, behave quite differently from wild mosquitoes but if this occurred in nature it would seem likely that a wider distribution of the malaria would be effected since it could be passed on to several mosquitoes. This might be especially true in the case where certain mosquitoes leave the protected environment of a house or barn at dawn and fly into woodland or jungle environment.

**ACKNOWLEDGMENTS.** The authors are grateful to Jan Smith who drew our attention to the mosquitoes' behavior.

### References

- Harris, P., Riordan, D. F. and Cooke, D. 1969. Mosquitoes feeding on insect larvae. *Science* 164:184-185.

### FIRST REPORT OF *Aedes thibaulti* Dyar and Knab IN CONNECTICUT AND NEW YORK

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The recorded distribution of *Aedes thibaulti* in the United States is in the southeastern region. According to Carpenter and La Casse (1955) this mosquito is found north to Ohio and west to Texas. Carpenter and La Casse also list it present in Alabama, Arkansas, Florida, Georgia, Illinois, Kentucky, Louisiana, Mississippi, Missouri, North and South Carolina and Tennessee. Up to the present time there has been no publication of collection records of this species in New England, and the purpose of this note is to report the first collection of *A. thibaulti* in Connecticut and also in New York.

**COLLECTION RECORDS.** At Chappaqua, New York, four females were found in biting collections on June 21, 1965.

In Connecticut, specimens of *A. thibaulti* were found at four locations in the state, ranging from the southern area near New Haven (Bethany Bog) to a northern area at Simsbury which is located near the Connecticut-Massachusetts border. All specimens were adult females from biting collections as follows: two from Mt. Carmel on July 26, 1968; one from North Branford on July 29, 1968; one from Simsbury on June 13, 1970; six from Bethany Bog, Bethany on June 30, 1970, and one additional specimen on July 8, 1970.

Since *A. thibaulti* has not previously been reported from New York, the finding of this mosquito at Chappaqua was of interest. However, it was of greater interest to have found it in Connecticut—particularly since it occurred in four different places over a two-year period. This indicates that its presence was not due just to an isolated breeding focus located in the southern portion of the state. The significance of its presence beyond the northern boundary of its previously known range is not known. However, the collection sites in Connecticut are located beyond the extent of southern type woodlands, which indicates that the breeding habits of this species may not be as restricted as previously believed.

### Reference

- Carpenter, S. J. and La Casse, W. J. 1955. Mosquitoes of North America, University of California, Rv. Berkeley and Los Angeles pp. vii + 353 and 127 pl.

### A ONE-PIECE ALUMINUM CAGE DESIGNED FOR ADULT MOSQUITOES

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The literature contains numerous references to methods and techniques for collecting, trapping, and rearing mosquitoes. However, little information is available concerning standardized holding cages for mosquitoes. Apparently, there are as many different sizes and types of cages as there are researchers.

The laboratory cages in use today undoubtedly evolved from wooden frames covered with screen wire. The adaptations included the use of glass, plastic, or cloth sides, an entry sleeve, and some-