ciency of the cloth units and indications are that durability is good.

SUMMARY. An improved artificial resting device for *Anopheles* mosquitoes made of cloth and a wooden frame more portable and less expensive than the red box type is described. In field tests conducted in north Alabama, they gave consistently higher counts of *A. quadrimaculatus* than counterpart red boxes when competitively compared.

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COLONIZATION OF *WYEOMYIA SMITHII* (COQUILLETT) FROM CONNECTICUT

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Wyeomyia smithii is a mosquito commonly found breeding in water collections at bases of the leaves of pitcher plants. However, little has been reported concerning the habits of this mosquito since early accounts of its biology by Smith (1904) until Price (1958) successfully colonized it in the laboratory from material collected in Minnesota. Price (1958) reported the unusually high incidence of a unique type of teratological phenomenon in monster embryos. He suggested that colonization and study of this species in other regions would be necessary to determine the significance of this phenomenon. Consequently, the purpose of this communication is to report the successful colonization of this species from material collected in Connecticut, and details of the bionomics.

Though the distribution of most of the species of the genus *Wyeomyia* is confined to the tropical and subtropical regions of the New World, *W. smithii* is found in a wide region of southeastern Canada and the northeastern United States. The larvae occur in water at the bases of leaves of *Sarracenia purpurea* and may be found during any season of the year, and during the winter months they low as −14° C. (Owen, 1937). Haufe (1952) observed larvae in water in pitcher plant leaves as far north as Goose Bay, Labrador, throughout the summer, where larval activity was noted in large plants exposed to the sun during the day, even when temperatures were near freezing and ground pools were covered with ice.

Smith (1904) gives a detailed account of the biology of this species. He observed that adult females rest in the pitcher plant leaves in a peculiar head-down position, with the hind legs curled back up over the abdomen. He further observed that the female deposited eggs in the young leaves which had not yet collected water, as well as on the sides of older leaves above the water line. The eggs were deposited singly, and larvae hatched from them after the water level rose in the pitcher plant.

The female is not known to feed on man, and no observations have been reported concerning a source of blood for this species.

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Material for this study was obtained during a routine collecting trip in August, 1965. Larvae were found in pitcher plants in Bethany Bog, Bethany, Connecticut, and several hundred were transported to the laboratory for observation. They were transferred to white enamel photographic trays (30 x 18 x 5 cm.) containing one liter of distilled water at a constant temperature of 23° ± 1° C. Routine rearing measures were utilized as described by Trembley (1944) with the exception that larval food was provided in the form of Gaines dog food pellets.

As pupae developed they were transferred to water in one-half liter cardboard cups and covered with gauze-topped lantern chimney cages. When adult mosquitoes emerged from the pupae they were allowed to remain in the cages. Cotton pads soaked with 5 percent sucrose solution were placed on the gauze top of the cages to provide food. The water and the moist sides of the pupal container at the bottom of the cage became an oviposition substrate for egg deposition.

As adult mosquitoes from the first laboratory-reared generation were available, attemps to feed the females on human blood were unsuccessful. However, 6 days after emergence egg deposition began. Eggs were oviposited singly on the surface of the water and floated to the moist substrate at the edge of the water surface. At 23° C. the small dark eggs hatched in 4 to 6 days. Freshly oviposited eggs collected from the water surface and allowed to dry for 4 days failed to hatch when they were immersed in water.

Newly hatched larvae were transferred to fresh rearing pans for observation of larval activity. The larvae confined their feeding and developmental activity to the bottom of the water and seldom came to the surface. Development and growth were completed in as little as 15 days at 23° C. when an optimum amount of food was maintained. Under these conditions usual larval development time was 18 to 21 days. However, when food was withheld, the larvae suspended growth and development for as long as 3 months; when food was added, development continued.

Little variation in the duration of the pupal stage was observed. It ranged from 4 to 6 days at 23° C.

Mating of adults, egg development, and oviposition occurred in the small lantern chimney cages with or without feeding on sugar solution as reported by Price (1958). Initially, small screened cages (30 x 30 x 30 cm.) were used for housing adults in a laboratory room maintained at 23° C. ± 1° C. and 70 percent ± 10 percent relative humidity. However, adults regularly died within two or three days in these cages. When a cage was completely enclosed in a plastic envelope, adult survival was prolonged by several days but was still inadequate to attain the oviposition period. Because of this, it was decided that adults would be left in the very small, completely enclosed lantern chimney cages over the water in the pupal emergence cups in an attempt to duplicate the enclosed humid environment of the leaf container of pitcher plants. Under these conditions, relative humidity was stable at 75 percent ± 5 percent and adult survival was extended to an average of 12 days, which was adequate for egg development and oviposition.

From these results it is apparent that the successful colonization of *W. smithii* is due to the stenogamous nature of the adults and particularly to the autogeny of the females. Smith (1904) noted the stenogamous nature of the adults in his observation that they tended to remain within the confines of the leaves of the pitcher plants and exhibited little tendency to venture from that space. While this may account for the fact that little is known of the host-seeking activity of this species, it is likely that the autogeny of the females is of greater significance. If the autogenous female can develop eggs without a blood meal, then host-seeking activity is not necessary for survival of the species, and no strong urge occurs in the female to leave the protective environment of the leaves of the pitcher plant.

From the experience of rearing ten generations of this species in the laboratory, it seems that the requirement for high relative humidity and the extreme sensitivity to desiccation are both very important factors in limiting the activity of the mosquito to the immediate protective niche in the vicinity of the larval breeding habitat.

Observations of the oviposition activity of this species in the laboratory indicate somewhat different conclusions from those of Smith (1904) concerning placement of eggs. He reported that eggs were oviposited in young pitcher plant leaves and hatched when subsequently flooded. However, in our colonies eggs were predominantly oviposited on the water surface. From here they floated to the water's edge and stuck to the sides of the container as the water level diminished. These eggs, as well as those removed from the water surface after being allowed to dry were not viable when subsequently submerged in water. This supports the observation of Price (1958) that most of the eggs are oviposited on the surface of the water rather on moist substrate at the water's edge. Initial study of the developing embryos within the eggs has not indicated the presence of monster forms as found by Price (1958) in material from his colony. However, the successful colonization of this species in Connecticut makes possible further study of this aspect of the biology of *W. smithii.*

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