

MOSQUITO BREEDING IN LEAF AXILS OF
THE TEASEL (*DIPSACUS LACINIATUS*
LINN.) IN NEW YORK¹

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Mosquitoes are known to breed in a variety of plant-associated containers such as tree holes, pitcher plants, leaf axils, and others, particularly in tropical regions, but I have found only one reference to mosquito breeding in the leaf axils of the teasel. Borobév (1968) reported finding larvae and pupae of *Anopheles maculipennis* Mg. as well as larvae of *Culicoides obsoletus* and *Dasyhelea* sp. (Ceratopogonidae) in leaf axils of *Dipsacus laciniatus* Linn. in Russia.

The cup-like receptacles formed by the leaf axils of the teasel (*Dipsacus* spp.) usually contain water throughout the summer (Fig. 1), providing a suitable breeding place for mosquitoes which breed in small containers. *Dipsacus laciniatus* Linn. grows to a height of 6-9 feet and has an average of 6-8 water-holding receptacles, one at



FIG. 1.—Water-holding leaf axil receptacle of
Dipsacus laciniatus Linn.

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Although no references have been found to indicate that these species have been collected from leaf axils before, this is not an unlikely breeding place, since the plants containing the larvae were located in a cool, low shaded section of the field, and since both species are known to breed in a variety of containers including tree holes, rain barrels, discarded tires and other artificial containers. This is apparently not a common occurrence, however, since larvae were not found in teasels in other places in the State, even in fields containing several acres of the same teasel species which were adjacent to brooks containing many *A. punctipennis* larvae and woods in which *A. triseriatus* larvae were found.

Literature cited

- Borob'ev, B. A. 1960. Dipterous larvae inhabiting water lying in the leaf axils of the teasel. Ent. Rev. 39:579-580.

MOSQUITO REARING AND SORTING CHAMBERS MADE FROM EGGSHELLS AND EGG CONTAINERS

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Chicken or duck eggshells, and egg containers, can be used as temporary or permanent field or laboratory chambers for rearing mosquitoes. The compressed cardboard or polystyrene containers in which eggs are usually sold by the dozen can also be used for sorting both adults and larvae. Any size of uncooked eggs can be utilized, although the extra-large and jumbo sizes result in larger chambers.

PREPARATION OF EGGSHELLS FOR EGG-TO-ADULT REARING CHAMBERS. The following items are needed for this purpose: one dozen extra-large or jumbo eggs; a cardboard or polystyrene egg container for holding 12 eggs; a roll of 1/2-inch adhesive tape; one dozen steel split-type key rings having a hole 1 1/4 to 1 1/2 inches in diameter; a round screw-cap, 3/8 or 1-inch in diameter, such as the plastic cap of a prescription bottle; cotton or nylon mosquito netting, or a substitute made from a gauze bandage 4 inches wide, open-mesh curtain material, or silk bolting cloth; a sharp-pointed pair of forceps or large safety pin; and a sharp-pointed dissecting or surgical scissors. The preparation of one complete unit

is described below, and this can be repeated to provide 12 rearing chambers. The steps in the preparation of these units are shown in Figure 1.

The screw-cap is placed over the narrow end of the intact, fresh egg, and by following the bottom edge of the cap with a sharp pencil, a circle is drawn upon the shell. If the key ring is now placed upon the shell, it should rest from 1/8 to 3/8-inch below the pencil line. Refer to the two shells, front row, left, in Figure 1.

The adhesive tape is cut into 5 pieces, each 1 inch long. Each piece is pressed in turn upon the shell so as to form a complete circle of tape with its upper edge against the pencilled circle. Separate pieces of tape are used for this purpose because the curvature of the shell usually does not permit using a continuous strip of tape to form the circle. This tape has two purposes: (1) the shell will not break below the upper edge of the tape because of the reinforcement provided, and (2) the tape forms a pad for firm seating of the key ring. Masking tape may also be used, but it does not cushion the ring to the same extent.

The fine point of the sharp forceps or large safety pin is pressed gently into the center of the top of the shell until it penetrates. The shell can then be cut away easily with the fine scissors. Before reaching the pencilled circle, the contents will usually begin to ooze out. At this point the egg should be turned upside down and the entire contents shaken out into a container, to be used as food later. The shell is then cut away down to and along the pencilled line. It now has a 3/8- or 1-inch opening at the top (Fig. 1, both rows), and should be rinsed out with water. It can be used without further reinforcement, but if desired the shell can be completely wrapped with 1/2-inch adhesive tape or dipped into melted paraffin.

The prongs of the key ring are spread apart with a knife or sharp instrument, and the mosquito netting or gauze bandage is fed into it, rotating the ring until the netting is through the entire ring, except where the ends of the prongs oppose each other. The tight slit holds the netting fast. Then, with the fingers or with any round, blunt object, the netting is pushed out until it forms a cone- or dome-shaped umbrella above the ring, to whatever height is desired (Fig. 1). A stitch is then taken in the netting at the point where the prong ends are opposed. The excess netting below the ring is cut away until only 1/4-inch projects, and the ring is placed upon the open-ended shell, where it rests upon the adhesive tape. If the ring is heavy enough, it will need no further support, but if desired it can be held in place with additional adhesive tape. The net-unit does not have to be put in place until the pupal stage has been reached, as the open shell is sufficient for hatching of eggs, development of larvae, and holding of pupae. A larger opening may be cut in the shell if desired. The number of larvae is varied, depending on instar and size. If key rings

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