THE LEPIDOPTERISTS' NEWS

Volume 8 1954 Number 5

THE TURGORATOR, A NEW DEVICE FOR REARING INSECTS

by GEORGE F. PRONIN

The Turgorator is used to stimulate artificially turgor in any part of a plant separated from a growing plant. For an example, a branch cut from a tree, subjected to the Turgorator treatment and placed in water, will retain its life and natural moisture for several days, even if the temperature of the surrounding atmosphere is maintained constantly as high as 45° C.

The instrument, as illustrated in the attached drawings, consists of a tank (A) capable of withstanding air pressure up to 4.5 atmospheres. The size and shape of the tank may vary. The tank is supplied with not less than three openings:

Opening (B) contains a self closing air induction valve;

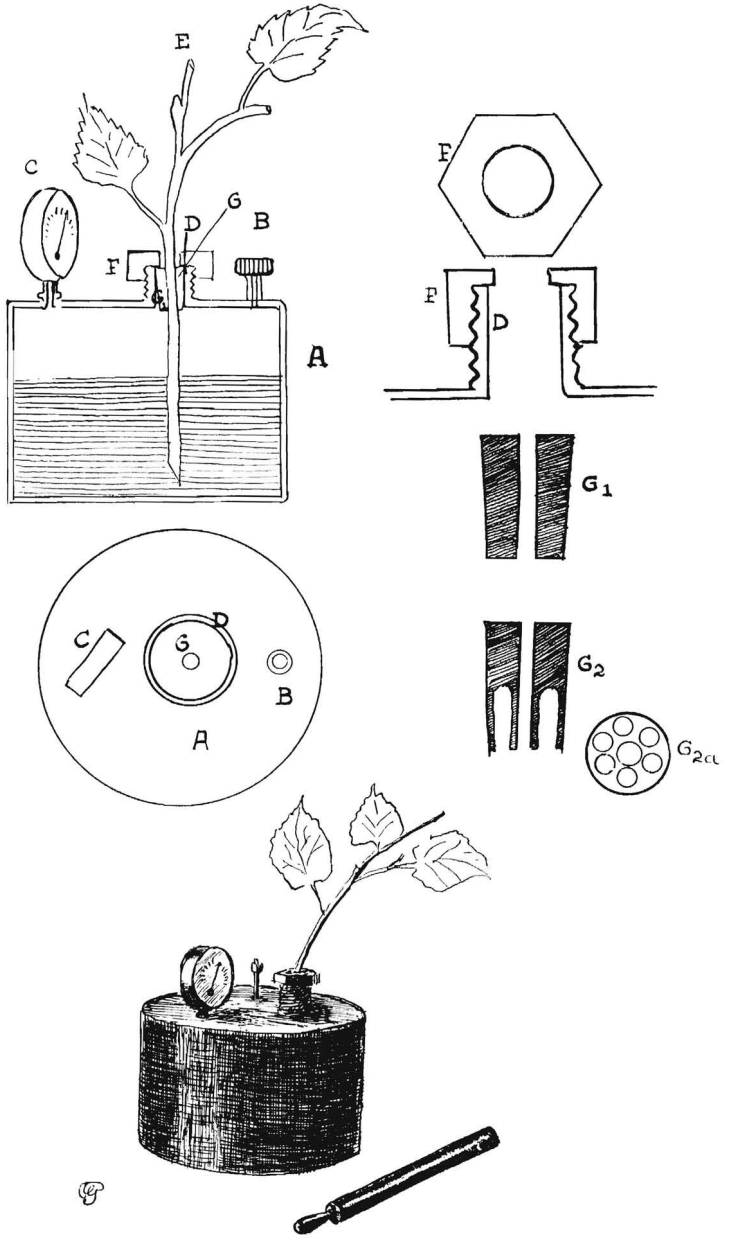
Opening (C) is supplied with air pressure gauge, manometer;

Opening (D), supplied with a threaded neck, is used for filling the tank with liquid, emptying the tank, and placing into the liquid in the tank a branch of a plant in the following manner.

The stem of a branch cut from a growing plant is put through threaded nut (F) and through vertical hole of rubber cork (G or G_2). The branch is then placed in the tank through the threaded neck (D), the rubber cork is fitted in the opening, and the nut is screwed on the neck pressing the rubber cork down and around the stem until the tank is made air-tight. After that, air is pumped into the tank to establish the desired pressure (the "air cushion") which is controlled by the manometer.

The possibilities offered by the use of the Turgorator are innumerable; a few of them are as follows:

RAISING SILK WORMS. The Turgorator makes it possible to use whole branches covered with live leaves for the purpose of feeding the silk worms instead of using the leaves alone, which quickly wilt, dry up, and must be frequently replaced. The leaves on the Turgorator-treated branches placed in the hatchery are devoured by the larvæ before the stimulated turgor is exhausted. Before removing the leafless branches, fresh branches are placed nearby, and the silk worms readily find their own way to the new supply of food by themselves. This method provides an abundant supply of always fresh and naturally moist food, and eliminates the tedious work of transferring the worms from the dried leaves to the fresh ones as well as the waste in discarded dried leaves. The possibility of constantly maintain-



Legend: (*A*) — tank; (*B*) — air induction valve; (*C*) — air pressure gauge; (*D*) — valve with threaded neck; (*E*) — plant; (*F*) — air locking threaded nut; (*G*) — rubber stopper with round vertical opening; (G_1) — vertical section of *G*; (G_2) — self-closing rubber cork (alternative to *G*); (G_{2a}) — bottom view of G_2.

ing in the hatchery a high atmospheric temperature safeguards the worms from intestinal infections.

This abundance of always fresh, naturally moist food and the sanitary, even temperature in the hatchery result in raising healthier and more vigorous worms with much stronger silk glands. This method of feeding further results in the larvæ arriving at the cocoon stage in approximately 18 days, instead of the period of approximately 36 days now required. The quality of the silk produced by the larvæ raised by this method is equal to or better than that of the silk produced by the larvæ raised by the methods now employed. The output of the silk wadding substantially increases.

HORTICULTURE. The uses of the turgorator in the various fields of horticulture are so numerous that at the moment it is possible to indicate only a very few: rooting of plants difficult to root; grafting of species difficult to graft; preserving of cut plants; nourishing of cut stems; inducting of salt and other solutions into stems; measuring the quantity of water consumed by a plant, etc.

I have applied for a U. S. patent for the method of establishing artificial turgor in cut plants with the help of my turgorator. Any questions of commercial nature regarding this invention must be directed to my commercial agents, Paul Semion & Co. Inc. 1655 Polk Street, San Francisco 9, California.

516 Cole St., San Francisco, Calif., U.S.A.

SEX DIFFERENCES OBSERVED IN LARVÆ OF *DANAUS BERENICE*

by ALICE L. HOPF

In the first week of July, 1953, while vacationing at Daytona Beach, Florida, I was surprised to note several *Danaus berenice* Cramer flying in the neighborhood. I had supposed that this butterfly was confined to the southern part of Florida, around the Everglades. Since for the previous two years I had been breeding *Danaus plexippus* Linné for migration study, I thought it would be interesting to see how *D. berenice* compares to its northern cousin. Accordingly, I looked around for milkweed plants. We were staying near the river and the beach, and where there was vegetation, the ground was thickly covered with a kind of low palmetto which gave scant room for flowering shrubs. It was not until shortly before our departure that I discovered a few milkweed plants at a distance along the road from our cabins. These were a different species from our northern milkweed, and it was only