

*Euzoa octogaster*

variations due to climatic conditions—they observe these "dates" with wonderful regularity. The "bugs" or perfect insects of the more injurious species are on the wing from late in April to end of August.

Almost the first business of the females after coming out of their "swaddling clothes" is to mate and then proceed to lay eggs on their chosen food plant, which may be leaves of trees, shrubs, grasses or weeds. Some of them, however, are not fastidious and are so strangely awaking in the parental instinct that they will deposit their eggs on a window, fence post, or practically any bit of hard substance or soft goods, leaving the youngsters when they burst the shell to crawl, it may be, many yards in search of food. These eggs are laid in clusters and are therefore not difficult to locate.

What seems remarkable to the writer (who has observed and collected in entomology for over forty years) is the absence in these books of any reference to the idea of getting after the parent insects by means of the sugaring process or the moth traps commonly used by collectors.

A single female of the "Cut-worm" species will lay anything from two or three hundred to over 1,000 eggs, which will hatch in from ten days to a fortnight, sometimes in less time. These diminutive caterpillars begin to feed at a terrific pace, and many of them are full fed, have gone through their chrysalis stage and emerged as the perfect insect before the end of summer, depositing in their turn a big contribution of eggs. The caterpillars from these starting life late in the summer or fall will feed up to a certain point only, until the first breath of winter warns them that it is time to "cease firing." They will then find themselves cosy winter quarters a few inches underground among the roots of stubble and practically any description of plant; there they will curl up and go to sleep, or "hibernate," much as the squirrels and their kindred do throughout the winter.

*Agrotis ypsilon*
(The sworn foe of the market gardener)

As soon as the voice of spring is heard, these voracious worms will uncurl, wake up, and after their long fast attack everything in sight that their jaws can tackle, and do their business of eating in a style that astonishes observers who have long been accustomed to witness their voracity. Some wonderful stories have gone abroad as to what a caterpillar will eat in a given time. In one of the books published by a well-known authority in the early '0's it was gravely announced that the caterpillar of say the common cabbage butterfly will eat 30,000 times its original weight in a fortnight!

But the books on entomology even at this date are far from being reliable or even moderately comprehensive as to their useful facts, and in common with many other Nature lovers, the writer has gained far more from observation and practice in the field than from all the books he possesses.

Every succeeding year proves that the practice of hunting the caterpillar with "Paris Green" and other poisons introduced into suitable bait is not effectively meeting the case. The cut-worm pest is more deep-seated today than it ever was and it cannot be fought successfully by simply going after the worms. The root of the trouble is the perfect insect or moth that breeds these worms, and something very definite can be done at little cost of time or money to destroy this source of all the mischief. This article suggests a plan which the writer has practised for many years with invariable success.

on the subject—with one brilliant exception, viz., that of "The Butterfly Farmer," published monthly by a very observant young lady—Miss Ximena McGlashan, of Truckee, Cal. And the wonderful assemblage of facts compiled by this young lady is the fruit of incessant labor and painstaking care in the actual work of watching and recording the habits of these gay citizens of the Sunlight and Moonbeams. Her practical information and unpretentious monthly will turn the scale against most of the "standard" works on entomology to be found on the bookshelves to-day.

The purpose of this article is to seriously advise our farmers and market gardener friends. While neglecting nothing that the authorities advise in dealing with the caterpillar, they should also turn their attention to the root of the evil, viz.: the parent insect that will bequeath a family of probably a thousand rapacious mouths, busy every one of them for at least six weeks from the hour of their birth, eating and eating—and still eating. And the horror of the situation is that they do it out of sight, for "on deck" they are night feeders and disappear

underground or among the surface roots during the day.

This practice of trapping the insects by means of nectar or artificial light is a very old one. Indeed no collector can get to know what is living around him in insect life unless he follows it. Now if "bug-hunters" have trapped their quarry with the uniform success which the writer has met with, why not extend it from this circumscribed field of the naturalist pure and simple, and make it of practical service to the farmer or truck-farmer?

Suppose some farmer who is suffering from a hoard of "Cut" or "Army" worms goes out or sends out some of his young folks to an infested spot with some "mixture" containing Paris green or to hand pick all the robbers they can lay their hands upon: if they return with a pail containing a few hundreds, or even a few thousands—is not this considered a most gratifying result, and does it not encourage the he to to

*Manestra timbri/era*

some hundreds of yards of any one of the trees or fence posts which have been painted.

With the above (costing at the outside 20 cents) 50 or 60 trees or fence posts can be effectively "doctored," and these may be at a distance of 30 yards or more from each other. It is quite unnecessary to "paint" the posts with anything beyond a couple of strokes of a moderate sized painter's brush—near the top of the post, or breast high if on a tree, as the liquid will naturally trickle down and the little rivulets formed become ideal "drinking saloons" for these confirmed tipplers. On a favorable night, that is to say almost any night that is not wet or unusually cold or stormy, many thousands of "Cut-worms" and their kindred will settle at these "open bars." They become so drunk or so completely overcome by the stuff that they can be approached with a strong lantern and swatted as they sit, not in tens or hundreds, but often in thousands, depending upon the strength of their forces in that particular neighborhood.

This painting job should be done just after sunset. Half-an-hour will suffice to cover the trail suggested by the above and to dispense this small quantity of liquid evenly on the trees or fence posts. Time should then be allowed for the creatures to settle and become thoroughly "incapable." At the date of writing (15th July) eight o'clock would be about right to start out with the paint pot and say 10.30 to follow it up with the lantern.

Then there are the "moth traps" which are made of nothing more than an ordinary oil lamp allowed to burn all night at some strategic point in the open. This lamp is fixed in a box into which are fitted sheets of glass so arranged that the moths will find their way into the lamp, but cannot get out again. Under the lamp there is a receptacle—it may be an ordinary bucket—in the bottom of which a few lumps of cyanide of potassium have been placed. Should the moths find their way into the lamp in such numbers as to choke up the space around it, the cyanide overcomes them, they drop into the bucket, and are dead in a few seconds.

On this page we illustrate one of these moth traps made by one of the leading entomological supply houses. It is rather an expensive affair for the purpose of

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