

The Mottled Umber Moth (*Hibernia defoliaria*) is reported from Victoria and the surrounding district as injurious to the foliage of fruit-trees, especially plums and cherries. The larvae are slender loopers or measuring worms,  $1\frac{1}{2}$  inches in length, with chestnut red heads, dark reddish-brown backs, mottled with broken narrow black lines, the lowest distinct and waved; the sides bright yellow, paler beneath. There is a dark reddish patch shaded with black, surrounding each spiracle. The male moth is of a dull ochre-brown hue, expanding  $1\frac{1}{2}$  inches, and has the upper wings dotted and crossed diagonally by two dark waved bands; the space between these is pale and bears on each wing a dark discal spot; the lower wings are paler than the upper, and like them sprinkled with brown dots, and they have a dark spot near the middle. The female moth is brown, with two rows of conspicuous spots down the back. The wings are almost entirely aborted. When the moths appear in the autumn, the females crawl up the trunks of trees and lay their eggs on the branches. In this condition the insect passes the winter.

The usual remedies for the canker-worms are applicable for this species, and consist of tying sticky bandages or mechanical contrivances around the trunks of fruit trees to prevent the females from crawling up to deposit their eggs, or what will be found far more effective, spraying the trees in spring when the young caterpillars hatch, with Paris green and lime, 1 pound of each to 200 gallons of water.

The Bud Moth or Worm (*Trinetora ocellana*) is reported from Okanagan, Nanaimo, Victoria, and Ladner's Landing.

As soon in spring as the buds begin to open, the little caterpillars may commence work upon them, gnawing the miniature leaves and blossoms, but the attack is more likely to begin after the buds are about half open.

**Bud Moth.** The larvae then eat out the centres of the buds, where the leaves and flowers are least developed. The caterpillar forms for itself a protecting case, by using silken threads to bind together the leaves. As the season advances some of the leaves are killed, become detached at the base, and turn brown; the blossoms also are more or less webbed. The life history of this insect may be summarized as follows:—The moths appear in the orchard early in summer; during daylight they rest upon the bark of trees or other shelter; at night they fly about and deposit their eggs, one in a place on the underside of the leaves. About ten days later these eggs hatch into small green larvae, which feed upon the epidermis of the leaves, each making for itself a silken tube and a thin layer of silk for protection and concealment. In a day or two the green colour changes to brown.

As the larva increases in size and the area over which it feeds becomes larger, the tube is enlarged and lengthened along the mid-rib, sometimes becoming nearly one inch in length. The silken web under which the larva feeds covers the entire field of operations, but is so thin near the edges where the larva has last fed as to be scarcely visible. The excrement of the larva being retained by the web, appears as little black pellets scattered here and there over the feeding ground. The green portion of only one side of the leaf is eaten, the veins and veinlets being left untouched; these and the green on the opposite side die and turn brown, and thus become conspicuous. Late in summer, or early in autumn, the half-grown caterpillars desert the leaves and crawl upon the twigs, where they form little silken cases, generally near the buds or in creases in the bark. In these they remain throughout the winter. The following spring they emerge to feed upon the opening leaves. They again make tubes, which serve as protective cases. After feeding six or seven weeks they become full grown; then they form silken cocoons, generally in a rolled leaf or between two leaves, in which they change to pupae, to emerge a short time later as moths. The full-grown larvae are cinnamon brown in colour, with the legs, head and shield behind dead black. They are about half an inch long and of the general form. The moth has a general resemblance to the common codlin moth. It is dark ashen gray, with creamy white blotches on the front wings, which expand a little more than half an inch.

These little pests can most successfully be destroyed by spraying with the arsenites early in spring, when the buds are opening and the larvae just beginning the season's work. It is advisable to use the Bordeaux mixture and Paris green combination, in order to prevent injury by apple scab or other fungus maladies, as well as by insects. (See Spraying Mixtures.)

