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that the shaft can be grasped above the ball. By withdrawing the shaft partially from the tube and then returning it with force, as the lower end of the tube rests on the ground, both tube and shaft can be driven into the ground to any required depth. The shaft is then wholly withdrawn and the insecticide poured into the tube, by which means it is placed beneath the roots without coming into contact with them. The tube is then withdrawn and the hole made by it filled up with earth. The insecticide (coal oil, or whatever may be used) being volatile, rises through the ground and becomes diffused. In a later communication to the same journal (*Psyche*, iv., 143), Dr. Barnard speaks of the effective use of this instrument against the grape Phylloxera, and states that the same treatment applies in the case of all other root insects or subterranean pests, mentioning among others the insect now before us, the apple-root plant-louse, or American Blight-Aphis, as it is sometimes called. The great point in the application of this remedy is evidently the distribution of the coal oil, or other insecticide, beneath and beyond the danger of contact with the roots, the destruction of the insect pest being caused by the passage upwards to the surface of the vapour of the petroleum.

THE ARMY WORM.

Almost any caterpillar that appears in large numbers and covers a wide area of country is locally called "The Army Worm," but the species to which the name properly belongs from its habit of devastating whole fields at a time, marching on in regular column to fresh pastures and devouring all green things as it goes, is the *Leucania unipuncta*, Haw.

Fig. 33 represents the caterpillar in the attitude of eating, and fig. 34 the moth.



FIG. 33.

This insect may be found every summer in small numbers, and so far has seldom appeared in destructive hosts in Canada. The best and simplest remedy for it is to apply Paris green copiously to the fields where it abounds, or, when it has commenced its march, to broad strips of meadow immediately in front of its main body, taking care to plow under the poisoned surface as soon as the remedy has done its work. The moth, which appears towards the end of summer (we have taken it this year late in October), can easily be captured by hundreds by the process of "sugaring," that is by spreading a mixture of coarse sugar and stale beer on fence boards and trees at dusk, and visiting the bait

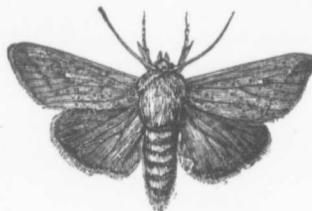


FIG. 34.

with a lantern during the night.

BARK LICE.

There are two or three kinds of bark lice injurious to fruit trees, but the species that is most common and destructive in Canada is that represented in the adjoining wood-cuts (Fig. 35A and 35B), and known from its shape as the oyster-shell bark louse (*Mytilaspis pomorum*, Bouché). To get rid of this pest, which if let alone will soon cover the bark of the whole tree from top to bottom, two or three operations are necessary: first, during the winter or in early spring examine the orchard and scrape the scales off every infested tree as far as they can possibly be reached; but as the scales will be found on the smaller branches and twigs which cannot be got at, the insect must be further fought at the time when the eggs are hatching



FIG. 35A.

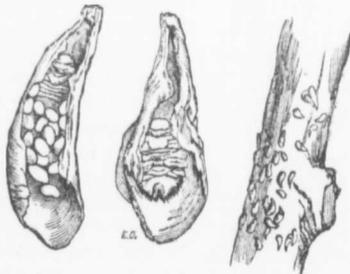


FIG. 35B.