

INSECTS INJURIOUS TO THE APPLE.

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I. AFFECTING THE ROOTS.

THE WOOLLY APHIS OF THE APPLE (*Schizoneura lanigera*.) This insect is a small plant-louse with its body covered with a delicate, filmy cottony-like coat, which projects like a brush behind the body. It exists in two distinct forms, one inhabiting the roots and the other inhabiting the stems, the former being by far the more injurious. Throughout the summer the infested branches are very noticeable.

Galls and other enlargements arise on the affected roots, with the result that sooner or later death occurs. In the cracks which open up in the galls, the aphids live in clusters, and in a short time the vitality of the tree is very much reduced.

Treatment. Hot water, but little below the boiling point, when applied about the base of young trees in sufficient quantity to wet the soil to a depth of several inches, has been found to be effective and practicable. Tobacco stems, broken up finely and distributed about the base of the infested trees. The surface soil should be first removed, the tobacco applied, and the soil replaced. The roots of nursery stock suspected of bearing aphids should be dipped in a strong solution of tobacco stems, or in hot water (temp. 150 degrees F.) for a few seconds, or in hot soap solution, before the trees are planted.

III. AFFECTING THE TRUNK, TWIGS OR BRANCHES.

1. THE ROUND-HEADED BORER (*Saperda candida*). This borer is the grub of a brown beetle with two white stripes. It makes a round, oval tunnel in the trunk between the bark and the sapwood. At the end of the third year it changes to a pupa, which later changes into a winged beetle when it emerges. The eggs are laid on the bark in June and early July. The presence of this borer is betrayed by the sawdust-like castings at the opening of the tunnel, and by discolored bark.

Treatment. Probe or cut out the borer in fall and spring; apply to the trunk a white wash or carbolic soap wash before the first of June.

2. THE FLAT-HEADED BORER (*Chrysobothris femorata*). This borer has a large, flat thorax, and makes a wide oval tunnel. It is probable that the borer becomes mature in one year. The adult is a bronzy, greenish black beetle, about half an inch long.

Treatments. Same as for Round-Headed Borer.

3. THE BUFFALO TREE-HOPPER (*Ceresa bubalus*). A greenish insect, somewhat triangular in form, with an enormously developed prothorax, which projects in front into two horns. This insect does much harm by making slits in the bark, which open and form large oval scars.