PRINCIPAL INSECTS LIABLE TO BE DISTRIBUTED ON NURSERY STOCK, PP. 3 - 45

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Principal Insects Liable to be Distributed on Nursery Stock, pp. 3 - 45 by Nathan Banks

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Trieste

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
Washington, D. C., April 29, 1902.

SIR: I have the honor to transmit for publication a manuscript prepared by Mr. Nathan Banks, of this office, in which are considered the principal insects liable to be distributed upon nursery stock. The inspection of nursery stock under State laws has become so general throughout the United States that the desirability of some publication of this sort has become very evident. I had the matter in mind last autumn, and at a conference of the official horticultural inspectors for the United States, held at Washington October 11–13, 1901, a resolution was unanimously passed requesting this Department to prepare and publish an article on those nursery pests of the country which are capable of transmission on nursery stock to the injury of the purchasers. Since it is desirable that this manuscript shall be put in available shape for distribution to all horticultural inspectors and to all nurserymen and others immediately interested, I recommend that it be issued as Bulletin No. 34, new series, of this Division.

Respectfully,

L. O. HOWARD,
Entomologist.

Hon. JAMES WILSON,
Secretary of Agriculture.

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ILLUSTRATIONS.

THE PRINCIPAL INSECTS LIABLE TO BE DISTRIBUTED ON NURSERY STOCK.

INTRODUCTION.

In preparing this descriptive catalogue of the insects liable to be transported upon nursery stock, it has appeared that there is a great disparity of views as to what insects should be included. To include only such as are known to be very destructive would exclude a great many species that will be found by anyone who examines a tree in the fall or early spring. To include all the species that are known to be found in any stage upon fruit trees in winter would make the list too bulky. Therefore, all species known to be of more than local interest have been treated. Notes on the species infesting fruits are added at the end. The insects have been arranged according to their natural orders, and in the Hemiptera (bugs, scale insects, plant-lice) according to the families. In the Coleoptera (beetles, weevils) and Lepidoptera (butterflies and moths), such an arrangement did not seem desirable. No account of the remedies to be recommended or used is given, as these differ greatly, according to locality and conditions, and the various State laws specify certain treatments.

It will be a great help to those interested in the growth and sale of young fruit trees to be able to recognize the appearance of the various insect pests during the winter; therefore, much attention has been paid to this phase of the subject.

In using this bulletin one should remember that, besides the insects here treated, there may be upon a tree other insects of less importance.

TABULAR STATEMENT OF INSECTS UPON THE TREE IN WINTER.

Insects upon the roots:
- Forming swellings on apple roots.....Woolly aphis.
- On peach and plum roots .....Black peach aphis.

Insects upon the bark of trunk or branches:
- Plant-lice or aphids .....Woolly aphis.
- Small brown clear-winged insect in the crevices of bark.....Pear psylla.
- Scale insects or bark-lice.....See Coccidæ.
- Caterpillars in cases or cocoons.....Fall webworm, bud moth, apple Bucculatrix, codling moth, pistol-case and cigar-case bearers.
- In nests or bunches of shriveled leaves attached to branches.....Leaf-crumpler, and brown-tail moth.

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Insects upon the bark of trunk or branches—Continued.
- In a case or bag hanging from twigs ..... Bagworm.
- Clusters of eggs on bark ..... Cankerworms, tussock moth, and gipsy moth.
- A belt of eggs around twigs ..... Apple-tree tent caterpillar.
- Single small blackish eggs often in groups on twigs or branches ..... Plant-lice.
- Smaller reddish eggs ..... Clover mite.

Insects beneath the bark:
- Tiny holes usually near a crotch, each covered by a bit of frass ..... Peach twig-borer.
- Small brown beetle within the twig ..... Apple twig-borer.
- Small holes in bark of trunk or larger branches ..... Fruit-tree bark-beetle.
- A gummy exudation of sap at base of tree ..... Peach tree-borer.
- Discolored spots or cracks and evidences of frass ..... Round-headed and flat-headed apple tree-borers, and sinuate pear borer.

TABULAR STATEMENT OF INSECTS FEEDING ON THE BUDS AND YOUNG LEAVES IN EARLY SPRING.

Feeding on the buds or young shoots ..... Bud worm, peach twig-borer, leaf-crumpler, brown-tail moth, pistol-case and cigar-case bearers.

Feeding upon the leaves:
- Plant-lice ..... Apple plant-lice, plum plant-louse, and cherry aphis.
- Caterpillars in tents ..... Apple-tree tent caterpillar.
- Hairy caterpillars ..... Tussock moth, brown-tail moth, gipsy moth.
- Bare caterpillars ..... Canker worms.
- A blister or gall upon leaves ..... Pear-leaf blister-mite.
- Small caterpillars within little cases ..... Pistol-case bearer, cigar-case bearer, leaf-crumpler, and bagworm.

HEMIPTERA (BUGS, SCALE INSECTS, AND PLANT-LICE).

The members of this order obtain their food (which is liquid) by sucking it up a slender tube into the mouth cavity. This tube or beak is composed of several needle-like pieces so shaped and arranged that they inclose a minute channel up which the liquid food is drawn. The beak is inserted in the plant often to some distance beneath the surface. The members of this order do not pass through a pupal or chrysalis stage like the butterflies and moths, but there is an approach to it in the males of the scale insects. The insects of this order to be treated are arranged in four families, which may be separated, for our purposes, as follows:

The insect from above apparently without legs, antennæ, or wings, and fixed to the host plant; the adult male (not often seen) usually has two wings ..... Coccidæ. (scale insects).

The insect shows distinct legs and antennæ, and often four wings.
- Most of the specimens wingless, and provided with two small tubes or cornicles (see fig. 16) near tip of body; not hopping when disturbed ..... Aphididæ (plant-lice).
- Adult always winged, without the cornicles; hopping when disturbed.
  - The prothorax not enlarged, with hyaline wings ..... Psyllidæ.
  - The prothorax greatly enlarged; wings obscured ..... Membracidæ.