The Oriental Peach Worm
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THE ORIENTAL PEACH WORM

(*Laspeyresia molesta*)

By R. H. PETTIT

The Oriental Peach Worm, an enemy of peach, quince, plum, cherry, apple, Japan-quince, and some other trees, has finally established itself on peach in Michigan.

Probably the worst enemy of peaches and quinces, and one which is also a pest of importance on plums, cherries, and apples, the Oriental Peach Worm was discovered in the District of Columbia during 1916. It is believed to have been introduced into this country along with shipments of the Japanese flowering cherry, perhaps in the soil about the roots of trees shipped in a few years before 1916.

This major pest has gradually spread from state to state until it now has invaded the Atlantic seaboard and many of the South Central and North Central states. It has even reached Ontario in Canada and has been the cause of serious damage in that district. Michigan has been particularly fortunate in that it did not appear within the borders of the state until the summer of 1928, at which time it was found in Washtenaw county, where it had caused serious losses in a large orchard.

Like all lepidoptera, the pest passes through four stages: the egg stage; the larva or feeding stage; the pupal stage, which is passed inside of a small silken cocoon; and the adult or winged stage, devoted to the production of eggs for the following generation.

The adult moth is a small, dark, greyish-brown moth or "miller" which measures, across the extended wings, from two-fifths to three-fifths of an inch. The front wings are marked with white dashes along the anterior borders. The larva is pinkish-white with a light brown head and is slightly more than one-half inch in length. In different parts of the country there are from one to seven generations each year. Michigan may expect about three generations annually.

It is, of course, the larvae that do the damage. The eggs are laid either on the fruit or on the tender twigs near the tips, and the larvae during their feeding inflict two types of injury to the tree. The twig injury consists of a tunneling in the tender tips, which of course kills the twigs. This may be severe enough finally to kill the tree. The most severe injury of this

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type is done during the early part of the season. When the fruit reaches sufficient size, the larvae tunnel into the peaches, sometimes entering through the stem itself, so that no external blemish is seen for a long time. The larva then works around the pit, much as the codling moth works around the core of an apple, causing the flesh in the vicinity of the pit to rot and become slimy and gummy. A peach may be almost entirely ruined around the pit without the damage showing on the surface. Finally, the rot works outward and appears on the skin, giving one the impression that the peach has rotted from the inside outward, which is, after all, just what has happened.

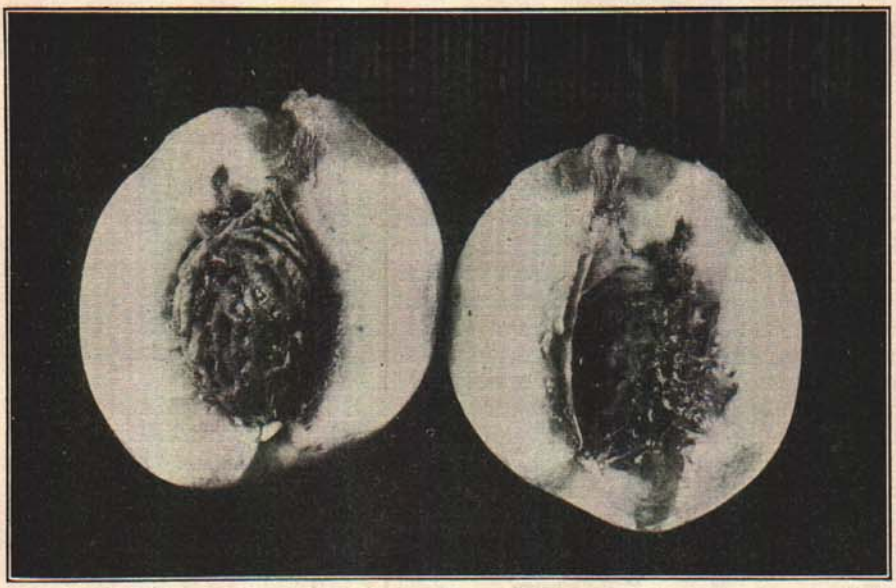

Fig. 1.—Work of Oriental Peach Worm in ripening peach.

Many of the larvae in attacking the fruit cut through the skin near the stem end, thus leaving a more or less visible blemish on the exterior. However, when making their entrance through the skin the larvae have been seen repeatedly to discard the first few mouthfuls of tissue cut out, thus guarding themselves against any poison that might be on the surface. For this reason, arsenicals have proved practically worthless in the control of this pest. When the larva reaches full size it spins a cocoon, often selecting a place where two fruits come together and are cemented by gum, or where leaves are gummed to broken twigs, or under loose bark flakes, or in any sheltered place on or about the tree. The late fall generation seems to prefer a location on the lower part of the trunk quite near the ground, or close to the tree on the ground, many individuals of the late generation build their cocoons in mummied fruit lying on the ground. Here they go through the winter as larvae, and in the following spring change to pupae or chrysalides, finally to emerge as winged moths and lay their flat, greyish eggs on the twigs.

CONTROL

In the absence of any immediate prospect of successfully controlling this pest by sprays, one turns to other measures which may prove helpful. It is unlikely that any one method of control will ever be found to keep the Oriental Peach Moth in subjection. It is, however, not inconceivable that by the use of a number of methods, each contributing its share toward the elimination of the pest, it may be possible to hold it within such bounds that fruit growers may learn to live with it.

Parasites are helping out even now. As many as 45 species of parasites are already known to be working on the Oriental Fruit Moth, and there is an encouraging report that in a single orchard in Ohio during 1927 the total parasitism averaged a little over 18 per cent. It seems justifiable to assume that when more parasites are established the percentage of benefit will be quite a bit higher. The attraction of moths to poison bait is so expensive a practice that it is doubtful that this method will ever come into general use.

The most hopeful recent discovery was brought out in March, 1928, by L. A. Stearns, of the Ohio Agricultural Experiment Station. He finds that the treatment with paradichlorobenzene, in common use against the common peach borer, is very effective in killing off the Oriental peach moths which have spun their cocoons near the bases of the trees. He recommends also that the orchards be disced to a depth of at least four inches early in April, to do away with cocoons of the pest which are under trash and in mummies lying on the ground. All cull fruit and that around packing houses and dumping grounds should be buried deeply as fast as it accumulates. It is also recommended that new plantings be made with the early peaches at a distance from the later fruit. The interplanting of peaches and apples is furthermore to be discouraged because, after the peaches are removed, the larvae are left to work on the apples late in the season. Peaches should not be over-pruned nor over-fertilized, since, as Mr. Stearns states, over-stimulated trees are injured most severely.

Much of the information in this paper was taken from the Bi-Monthly Bulletin of the Ohio Agricultural Experiment Station, No. 131, on the Oriental Fruit Moth, and was written by Prof. Louis A. Stearns, whose opportunity for investigation along this line, in other states, has been of the best.