

GARDEN AND ORCHARD.

FOR THE RURAL CANADIAN.

INSECT DEPREDACTIONS IN A CANADIAN GARDEN.

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The class Insecta (insecta, I cut into) is one of the most important and interesting of the articulate animals, and a subject for investigation that cannot be ignored, on account of the vast amount of damage done to vegetation in all stages of growth. Although composed of twelve orders, the chief depredators are included in the following four: Hemiptera, Hymenoptera, Coleoptera, and Lepidoptera. It is not merely for the sake of a scientific or physiological knowledge, that this department of zoology should be more widely studied, but a knowledge of the structure, habits, transformations and food of insects is necessary in order to distinguish friends from enemies.

The most destructive Hymenoptera are rose bush, and pear tree slugs, saw flies in variety, and joint-worms. In Hemiptera we have plant and bark lice, vine-hoppers and thrips, squash bugs and other plant bugs. But the Coleoptera and Lepidoptera are a formidable array of enemies, often very beautiful in form and variety, but in the larval state eating incessantly and voraciously. The first of these, the Coleoptera, (Grabeolus, a sheath; and pteron, a wing) is often regarded by entomologists as the typical division of insecta. These insects are of solid structure, distinct in their articulations, and covered with hard external integument. Foremost as a depredator I should place the May Beetle, included in the genus *Melolonthia*. Every one is familiar with this brown, horny beetle, which, as evening approaches, makes such a buzzing among the branches of fruit trees, continuing on the wing until midnight. Our insect hunters have often during the season of the beetle's greatest activity brought in to be destroyed, three quarts of these insects, caught by the stratagem of a net, or tree jarring in a single evening. This is of some importance when we know that a single female deposits 200 eggs and that the whitish grub which is hatched in fourteen days, lives for a period of from three to five years destroying acres of grain, and feeding on the roots of the strawberry and other tender plants. Fortunately they in turn are a delicate meal for the weasel, rat, common-fowl and bat, while crows have been observed to follow the plow in an infested field, noisily enjoying a feast. The beetle most destructive to fruit trees is the *saperda brunnata*, while the larva of a small weevil or curculio by its destruction of the plum crop recalls Massey's lines that—

"Many a blossom of the spring,
Will never come to fruit."

Another insect that proves injurious to the season's crop of grapes is *Haltica Chalybea*, which feeds on the buds and leaves. The dreaded potato beetle, though seen for the last six years, has not proved destructive. The order Lepidoptera (Gr. lepis, a scale; pteron, a wing) is divided into three groups. Papilions, (butterflies); Sphingides (hawk-moths), and Phalaenae (nocturnal moths), over 3,000 Lepidoptera have been identified by entomologists on this continent and each species is distinguished by some modification of structure adapted to itself. There is hardly a plant in an ordinary garden free from the ravages of these insects in the larval state, of the genus *Papilio*, the *turnus* feeds upon fruit leaves, *troilus* on the lilac, and the beautiful *asterias*, with its rich black velvet wings, and spots of yellow and blue, was once a caterpillar two and a half inches long, feeding on the carrot, parsley and celery. The *Pieris rapae* and *Protodice* destroy

the cabbage family, leaving only the skeleton. It was imported from England to Quebec in straw used for packing, and commenced its depredations there three years previous to the wholesale destruction of the New York cabbage fields. The *Oleria*, delicate and purely white, feeds on the radish and turnip, and has lately taken a fancy to a meal of the mignonette. The *Colias* family feed on the hop and clover. It is sulphur yellow, bordered with black, and a perfect black butterfly found on our grounds some seasons ago created quite a *furor* among entomologists here. The *Nymphalca* prefer the honeysuckle, while *Danias*, *Argynis*, *Aphrodite*, *Myrina* and *Bellona* are enemies to the spring violet. While I class as friends many that feed on weeds, there are some that like variety, and the *Pyrausta* will leave a thistle for a dinner of hollyhock or sunflower, to gratify its aesthetic taste. The *Grapta* delights in elm, hop and grape, as do some of the skipper family, of the *Sphingides* only the family *Agerian* are to be dreaded. These are the squash vine and grape root borers which lay eggs in the pith of the plant and burrow down, causing it to wither. Of the nocturnal moths there are many injurious to vegetable life. This group is the largest and the moths differ greatly in size, colour and beauty. When resting the upper wings cover the lower, presenting a diversity of form. Some of the females are wingless and only live long enough to deposit their eggs, which, by a wise provision of nature they invariably place on or near the food best suited for the larva. By this means those bent on their extermination can readily discover them. In instance of this the *Amphidasyus* that feed upon the gooseberry, deposits its eggs along the under ribs of the leaves as soon as they unfold. By picking off these leaves before the larva hatch, it is quite possible to keep the bushes free from this little gray-winged enemy. Of the same family is the *Angerona*, so baneful to the life of the strawberry plant, and the canker worm moth which makes its appearance where apple trees are found, and, in speaking of fruit trees I may here mention the *Chus-campa Americana* and *Nestria* has proved so destructive in this locality the last few years that the orchards and forests that beautify the mountain side of Mount Royal present the appearance of having been destroyed by fire. During this period on our own fruit-farm, of nearly 2,000 trees, we suffered little damage by the simple expedient of paying children a cent per dozen for collecting the rings during the winter, when they are easily seen upon the terminal shoots, and can be reached by the aid of long-handled shears. In this way, by actual count, we have in one season collected ten thousand rings, each of which contained from three to five hundred eggs. Following this example, neighbouring fruit-growers have kept their fruit trees clear of this dreaded pest, and can reap a harvest, while two years' neglect, results in the death of the tree.

The *Emperor Cecropia* is the largest of Canadian moths, expanding six and a half inches. The cocoon, which we invariably find fastened longitudinally to a plum twig, is about three and a half inches long, and when the moth emerges from its chrysalis form it is "a thing of beauty" although not so famed for delicacy of tint and texture as the *Empress Luna*. This pretty creature lives only on the hickory as a depredator, and can hardly be called an enemy. It is pale green with a purple border, and on each wing an eye-like spot, transparent in the centre and encircled by a ring of yellow and black. The *Agrotis* moths supply the cut worms which conceal themselves all day and creep forth at night to feed on newly-set or tender grown plants. But in this brief article it is impossible to mention many

beautiful depredators that we meet in daily summer warfare, and I will only suggest that in every school and every home, the youth of to-day who are to be bye-and-bye, the pride of the twentieth century, be taught to search for, and admire, and understand, the wonders of the insect world—

And how the ant constructs its wondrous hill,
And how the locust wings its hungry flight,
How horny beetles nature's ways fulfil,
While Luna reigns fair Empress moth of night.

PRUNING APPLE TREES.

Pruning apple trees is a necessary evil, and should be avoided as far as practicable. If the tree from the first has been properly looked after, very little pruning will ever be required. Such branches or buds as would give the tree an undesirable shape, or which would cross other branches or crowd other branches, should be removed. Frequent inspection during the growing season is required in order that those buds or young shoots which would interfere with the form desired, may be removed with the thumb and finger. In this way the removal of large limbs in subsequent years will be avoided, and the trees saved from the danger attending such removal. In regard to the matter of pruning, Prof. Maynard a few years since very sensibly remarked: "It is very doubtful if we can improve upon nature's method in this matter. A tree growing out in the open field, fully exposed to the sunlight and air, naturally takes a fine form, and, if in good soil, grows vigorously, and bears abundantly. Most of our orchards are planted too close in the first place; then, to let in the sunlight and air, large limbs are cut out from the centre, and the wounds made left exposed, decaying in a few years. This practice of cutting out the central branches to let in the light is all wrong. Branches grow best in the centre of the tree, because here they find the most congenial shelter from the sun's rays. Cut away the branches with their foliage which shelter these roots, and they cease to grow, and the long bare branches exposed to the scorching sun during the summer, and continued freezing and thawing in winter, becomes much injured. If the time now expended in annual pruning were devoted to the care and attention of the soil, our orchards would be much more healthy and productive. The practice of removing nearly all of the top of the tree when it is grafted, leaving the limbs exposed to the hot sun, is a very hazardous proceeding, and is frequently followed by the loss of the tree. Very few limbs should be removed from a tree in any one season."

Bury the boxes that accumulate about the premises, and bury them at the roots of the grape vines. Throw in an occasional dead cat.

In making selections of apples for next spring's planting, don't be too ambitious as to varieties. Three or four varieties, (if they are the right ones,) will about fill the bill.

Nine out of every ten apple trees in America are being slowly starved to death. In most cases it is potash that is needed, say 200 pounds of muriate of potash to the acre spread broadcast.

Keep the vegetable and small fruit garden separate. Or at any rate have the fruit and perennials, like rhubarb and asparagus, on one side and the vegetables on the other. Let the whole plot be a run for the chickens from November to March.

Probably you should set out a few additional fruit trees next spring. Ride out among the neighbours who want to do the same thing, make up a little club for the purpose, and send on your order, in one lot, to some reliable nurseryman. May be you had better send to several of the reliable nurserymen first for their catalogues.