

FARM AND FIELD.

INSECTS INJURIOUS TO THE POTATO.

Some notice of the insects injurious to the potato come next in order. First of these is the too-well-known Colorado beetle, of which an illustration in its various stages of development is given. (See Fig. 14.) Having its home originally in the Rocky Mountains, it travelled eastward as it found itself within reach of the cultivated potato plant of which it is so greedy a consumer. Mr. Bethune thus describes its arrival in Canada. He says:—

"It kept moving eastward, still increasing in numbers, until it covered the whole of the States west of us. In 1871 I found it very abundant at Chicago, and on the shores of Lake Michigan; it was then unknown in Canada. I wrote some articles in the daily and weekly *Globe* and *Canada Farmer*, calling attention to the insect, and warning the people of this country of the invasion which was about to take place, and proposing that some measures should be taken by the Legislature to ward it off, if such a thing were practicable. Nothing, however, was done, and the following year the insect made its appearance, crossing the River St. Clair.

"We supposed that it would have gradually come eastward, but, to our surprise, it took advantage of the railways and canals, and spread itself with great rapidity, even to the remote parts of the Province. Having once arrived in this country, there was no possible means of repelling the invasion, and the only plan was to keep it under as far as possible."

At first its appearance created a feeling of some dismay, and a want of acquaintance with any effective means of destroying the pest occasioned serious loss to the potato crop. But public attention having been fully aroused, action was taken, and now the potato bug, as it is called, is not the cause of very much alarm. Mr. Bethune says with regard to its suppression:—

"As the result partly of the experiments of Professor Riley, and partly of those of Mr. Saunders and Mr. Reed, who were appointed a committee by the Department of Agriculture, Paris green was found to be the most effective remedy. The information being communicated to the public by the Department of Agriculture and the newspapers, our farmers at once became informed of the best mode of attacking the insect, and ever since it has been kept in fair check. At first the crop of potatoes was short, and the price raised, but, since the first two or three years, it has not been looked upon as a very serious pest, simply because everybody is on the *qui vive* against it. I am certain, however, that if the community were to relax their efforts, it would soon eat up all our potatoes. There is no doubt that it is now a permanent resident of the country, and that we shall never be entirely free from it.

"It lives upon all the members of the solanaceous family; it will occasionally attack the tomato; it is very fond of the egg-plant, and of the wild members of the family, such as the bitter sweet and the deadly nightshade. "It is a disputed point whether

THE COLORADO BEETLE.—*Doryphora decemlineata*.



Fig. 14.

Shows the Colorado Beetle in its various stages of development.

THREE-LINED LEAF BEETLE—*Lema Trilineata*.

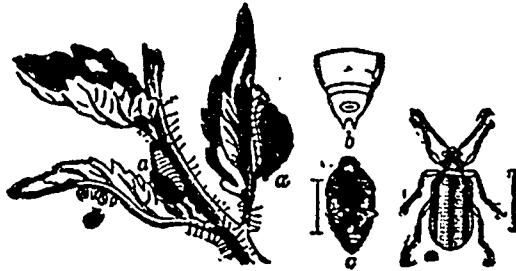


Fig. 15.

THE STRIPED BLISTER BEETLE—*Epicauta vittata*.



Fig. 17.

Fig. 15 represents the larva of this insect; and Fig. 16, the beetle.

THE SPHINX QUINQUE-MACULATA.

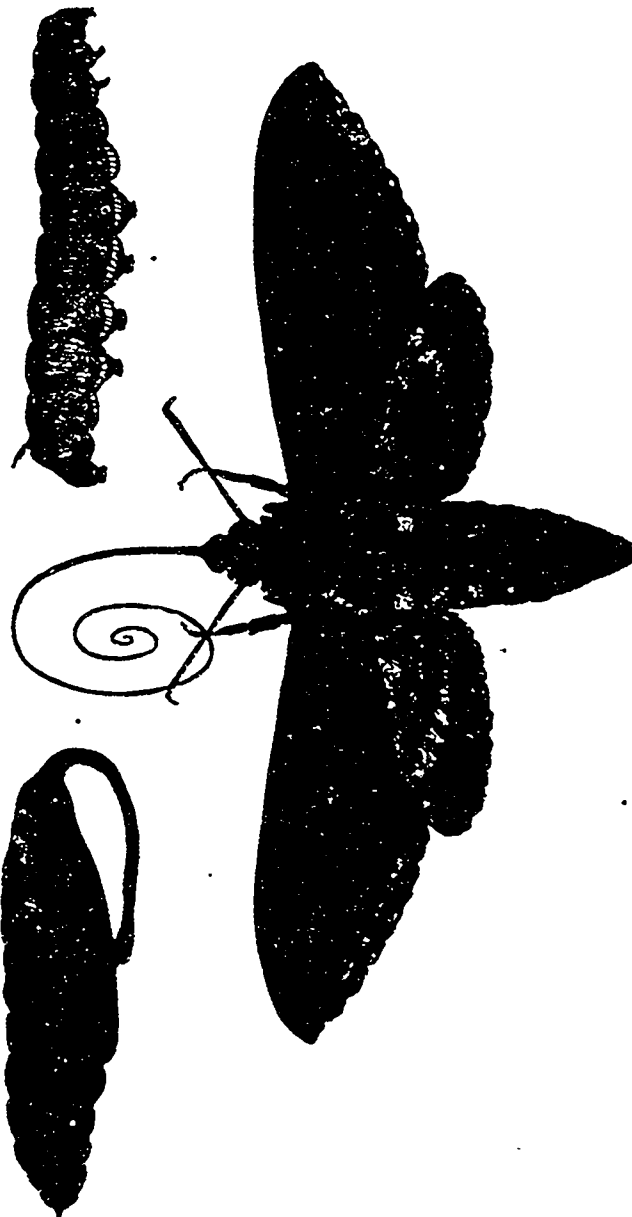


Fig. 18.

Fig. 18 shows the larva partly grown, the perfect moth, and the chrysalis.

Paris green prejudicially affects the potato plant, but there is no evidence, so far as I know, that it does. It is a question whether, if used year after year on the same piece of ground, it would not affect the soil somewhat. I think our farmers are not sufficiently careful in handling it. It is excessively poisonous, and there are every year a number of cases of poisoning arising from its use, which ordinary care would be sufficient to guard against.

There are a number of insect parasites which attack the Colorado beetle, but, of course, the application of Paris green kills these as well as the beetles. If the potato were not grown to such an enormous extent, these parasites would keep the beetle down to the dimensions of an ordinary plague, without artificial remedies."

London purple is another remedy very similar in its effect to Paris green. In using these powerful poisons where potatoes are grown in large quantities, the best way, says Mr. Bethune, "is to apply the poison dry, mixed with lime, ashes or earth, but wherever there is a danger of its being blown on other vegetables, the better way is to mingle it with water and apply it with a whisk. It can be done just as rapidly in this as in any other way."

The careful and persevering daily destruction of the eggs, a work in which children can be very well employed, is usually the means of greatly reducing the numbers of this pest.

The three-lined leaf beetle (*Lema trilineata*)—see Figs. 15 and 16—and the striped blister beetle (*Epicauta vittata*)—see Fig. 17—are also enemies of the potato, and may be destroyed, if they become damagingly numerous, by the use of Paris green.

The potato or tomato worm, feeding on both these plants, although preferring the latter, is thus described by Mr. Bethune:—

"When disturbed, it raises its head in a very threatening manner, and altogether looks so ferocious that it is popularly supposed to be very poisonous, which, however, is not the case, its bite being so feeble as not even to penetrate the tender skin of one's hand or arm. When connected with the *Canada Farmer*, I looked into a number of cases in which the bite or sting of the insect was alleged to have caused poisoning, and found every one of them utterly unfounded, and came to the conclusion that the stories had been caused either by the juices of the tomato plant getting into an open wound, or by the sting of a wasp sometimes found amongst these plants. This worm has been ascertained to be identical with the tobacco-worm, which is so great a pest in the Southern States."

The Sphinx moth (*Sphinx quinquemaculata*) is the mature insect of the tomato worm. The Sphinx is described as living through the winter in its chrysalis state; the moth, a handsome creature, derives its name from five orange spots on each side of its body. (See Fig. 18.)—From Ontario Agricultural Commission Report.