their work of devastation, which goes on for some seventeen days, when the little creatures retire below the soil in order to undergo the pupal condition. After a delay of ten or fourteen days, the perfect insect comes into being, and the business of egg-laying commences anew. In this way, according to recent observations, three broods follow each other, the last as just stated wintering below the surface of the ground.

"It has been calculated by the Entomologist to the United States Department of Agriculture that, if the progeny of a single pair were allowed to increase without molestation for one season, the result would amount to over sixty millions.

"No description can do justice to the marvellous voracity of this insect, especially in its larval state. When once a field of potatoes has been attacked all hope of a harvest must be given up; in a very few days it is changed into an arid waste, a mere mass of dried-up stalks."

Description of the Insect.

Eggs of a deep orange colour, glued to the under-side of leaves. The larvæ when hatched are nearly black, passing through shades of reddish-black, when a week old, to reddish-yellow, varying to orange or flesh colour in the mature larvæ. In the pupa or chrysalis, and perfect insect, the colour varies from a creamy colour to pale-orange.

It will only be necessary to add that varieties of this beetle are found some of whom have been raised to the rank of species. They are said by some authors to breed promiscuously, travel together, and are all equally destructive. They may be all known by the black longitudinal stripes on the wing-covers, which in *Doryphora decem-lineata* are distinct and ten in number, while in one, called *Doryphora juncta*, the second and third lines are united at bottom. Although in general appearance the insect could hardly be mistaken if compared with the drawing, they vary so much in the details of the markings that a careful examination might fail to find many exactly alike; they also vary much in the shade of colour, being found from orange to flesh colour.

Remedial Measures if introduced.

In England fear of the insect culminated in the Destructive Insects Bill passed by Parliament; but, unless potatoes be imported in the future in far greater quantities, and with less care than heretofore, it is believed that the danger of their coming concealed among tubers to be very small. It is certain that the beetle swarms on the Atlantic seaboard of the United States, so that there is every chance that it has over and over again been conveyed on steamers and other vessels leaving for Europe, and the pest is more likely to be introduced in a general manner than from any special association with potatoes. There exists more danger of the insect being introduced by sending living specimens as study objects, as the chance of escape is not small.

The evidence for and against remedial measures by the use of poisons is very conflicting. One writer in Carrol City, Iowa, says: "About seven years ago they first made their appearance at Hamilton, Ontario, Canada, in some numbers, and were shown as specimens of some strange beetle. The next year they appeared quite numerous, and we had to adopt measures to destroy them. Some tried handpicking, others used Paris-green in different ways. Some mixed 1 lb. of Paris-green to 14 lbs. of fine shorts, others the same quantity of fine ashes or plaster. A calm morning should be selected, and while the dew is on the potato tops then dust the mixture over the foliage; the beetles in eating the leaves partake also of the poison, and in a short time die. Some mix the Paris-green with water, and water with a fine water-can. There should be some means used, as soon as the beetles appear, to destroy them, and prevent them from laying their eggs, as they increase very fast if not prevented."

We do not trouble about the Colorado beetle, as we can master them with Paris-green.

Another writer in Ontario offers a very different opinion on the use of Paris-green:—

"Persistent picking by all the potato-growers in this neighbourhood has lessened the virulence of this pest to perhaps one-tenth of the damage sustained at the commencement of the present season, and this without poisoning our ground; and we beg leave hereby, for the benefit of any unfortunate cultivators of the delicious vegetable aforesaid, who may be visited by these creatures, to enter our solemn protest against the use of Paris-green, or any other mineral poison, to destroy not only the offending insects but also the enemies now occupied in the destruction of the eggs, and bugs and beetles themselves. Not many miles from this place horses and cattle have been poisoned by eating the poisoned potato haulm, and in the eastern provinces even the poor little sparrows, that have cost so much to import from England, have been sacrificed to this mode of destroying the enemies they would have dealt with in the ordinary course of nature."

By Authority: George Didsbury, Government Printer, Wellington.—1877.

Price 3d.]