

severe frost, and there remain in a torpid condition all the winter. The warmth of spring arouses them to activity, when they seek the surface of the ground, feeding at night on almost any green thing they meet with, eating with almost insatiable appetites as they approach maturity, and burying themselves during the day under the surface of the ground in the neighborhood of their depredations. When full grown they burrow in the earth to varying depths, and there change to chrysalids from which the mature insects escape in two or three weeks.

These insects are hurtful only while in the larval condition. As remedies, showering the plants with Paris green and water, sprinkling them with air-slacked lime or powdered hellebore, or strewing lime or soot, or mixtures of these substances around the plants on the surface of the ground, have all been recommended, and in some cases have been found useful. Plants have also been protected from injury by these caterpillars by strewing around them a little dry sand impregnated with coal oil, in the proportion of a teacupful of coal oil to a pailful of sand, thoroughly mixed; the application should be renewed every week. This method of warding off the attacks of injurious insects by the use of odorous substances repugnant to them, is rapidly growing in favor on account of the success attending its use. This coal oil remedy for cut-worms is said to be very effectual, and the cost of the application being so trifling, its usefulness should be extensively tested. It is manifest that none of these measures are feasible where field crops are invaded, as the area would be too great for any one to undertake to cover with such material. In such cases nature has provided efficient remedies to reduce the numbers of such injurious species. Besides the disease to which I have referred, there are armies of parasitic insects which prey on them. Some of these directly devour their living prey, others deposit eggs within the bodies of their victims, which hatching into grubs, consume them. Hence it often occurs that an insect which is very abundant one season is scarce the next.

These cut-worms are very widely disseminated. Early in July I received specimens from Manitoba from the Deputy Minister of Agriculture, of a caterpillar belonging to this group, which was found to be seriously injuring vegetables, and in some localities oats and barley also. This was a grayish-brown caterpillar with a semi-transparent skin, a brown horny head and a shield of the same character on the upper part of the second segment. There was a pale line down the back, two similar lines along each side, and a white band lower down, close to the under surface.