

large numbers it marches ahead in swarms in true army-worm habit. In eastern Ontario, its favourite food are plants belonging to the Leguminosæ; cultivated peas and clover are specially attractive to the caterpillars, although asparagus and other garden vegetables are often attacked. It has also been found climbing young oak, black walnut, horse chestnut, elm, negundo and maple, which were being grown from seed on the Central Experimental Farm. In one instance at Ottawa the larvæ in the third week of May spread from a clover field to a three acre field of peas, which they soon devoured almost bare. They are in their later stages, exceedingly voracious, and in a single night do great damage. Although this insect is widely distributed in Canada, most of the complaints of injury by the caterpillars have been received from the provinces of Ontario and Quebec. From larvæ collected in the field near Ottawa we have reared the adult moths, the dates of emergence being from June 15 to June 30. Outside, we have collected the moths from about the middle of June until the middle of September. The larva hibernates when about half-grown and matures rapidly in spring, the injury being done before the end of May or early in June. When mature the caterpillar enters the earth in a similar way to ordinary cutworms, and in due time the moths appear. The full-life history of the insect is not as yet known.

Natural enemies.—On several occasions when these caterpillars were abundant in eastern Ontario, they were largely destroyed by a parasite fungus, viz. *Empusa virescens* Thaxter. In fields, as has been recorded by Fletcher, they were seen in large numbers on stones, fences, stems of grasses and other plants upon which they had crawled and to which they were fixed by the fungus. This army-worm is also attacked by parasitic insects. At Ottawa, the eggs of tachinid flies have been frequently observed on their bodies.

Remedies.—As the Black Army-worm becomes full-grown and disappears in most years about the end of May, it is often unnecessary, if the farmer knows the species, to apply any remedy. It has been found where we have advised correspondents not to resow the land to another crop, that the peas, or clover, recovered from the attack and later heavy crops were harvested.

When the caterpillars are present in ordinary numbers, however, they can be easily controlled by applying poisoned bran as mentioned on page 14. In years, when they are abundant enough to assume the marching habit, the remedies mentioned for the true Army-worm, on page 28, may be adopted. In one instance, near Ottawa, further damage was prevented by spraying a strip of peas 50 feet wide, ahead of the caterpillars, with a strong solution of Paris green, one pound in 100 gallons of water, to which four pounds of soap were added to make the mixture adhere better.

NOTE.

Farmers and others are invited to send specimens of cutworms, or of other insects, which are found causing injuries to their crops, should they wish to have them identified. Such specimens should be enclosed with a supply of food plant or grass in a tin or wooden box (not a paper box) which may be mailed "Free" if addressed to the Dominion Entomologist, Central Experimental Farm, Ottawa. In all cases the specimens should bear the address of the sender and should be accompanied by a letter giving the crops which are being attacked and the extent of the damage.