

the beetle state takes place in the fall, for we have several times found fresh specimens at this season, showing by their softness that they had but lately escaped from the pupa case. Such perfect insects secrete themselves under ground during winter, and appear with the rest of their troop in spring.

*Remedies.* Man can do but little towards checking the ravages of this insect pest, but nature has provided many means for keeping them within due bounds. Some birds, such as the crow and common fowl, eat them greedily, indeed the crow may often be seen following the track of the plough in search of these choice morsels. As already stated pigs eat them with avidity, and will root up the ground most thoroughly in their search for them, and no doubt many other insect eating animals and birds devour them with equal delight. These grubs are also liable in some parts to the attacks of a peculiar disease, which manifests itself in the development of a fungous growth, which sprouts out in a curious manner from about the head, and the result is the death of the insect so occupied. The beetles, as already stated, may be best destroyed by shaking them from the trees and throwing them into scalding water.

#### AFFECTING THE LEAVES.

### 3. A STRAWBERRY-LEAF ROLLER (*Anchylopera fragaria*, RILEY.)

This insect, which is also known in some parts of the United States as the strawberry leaf-roller, is but one of the several insects which affect the strawberry in this way. It has been found very troublesome in some of the adjoining States for several years past, and in all probability it occurs in Canada also. In the *Canada Farmer* for August, 1867, some account is given of a leaf-roller found by Mr. Chas. Arnold, of Paris, Ont., eating the leaves of his strawberry plants, which has been referred, and probably correctly so to this species. Possibly some of our readers may recognise the insect after reading the following description of its appearance and mode of working, condensed chiefly from a paper by Mr. C. V. Riley, State Entomologist of Missouri, and published in the *American Entomologist* for January, 1869:

The larva or caterpillar measures when full grown a little more than one third of an inch. It is largest on the front segments, tapering slightly towards the hinder ones. In colour it varies from a very light yellowish brown to a dark olive green or brown, with a body soft and somewhat semi-transparent. Its head is of a shining yellowish brown colour, with a dark eye-spot on each side. The second segment has a shield above similar in colour and appearance to the head, and on each segment or ring of the body are a few pale spots, from each one of which arises a single hair. The hinder segment has two black spots, while the under-surface, feet and prolegs are about the same colour as the body above. In certain parts of North Illinois and Indiana this insect has been ruining the strawberry beds in a most wholesale manner. It crumples and folds the leaves, feeding on their pulpy substance, and causing them to appear dry and seared. It most usually lines the inside of the fold with silk. There are two broods during the year, and the worms of the first brood, which appear during the month of June, change to the pupa state within the rolled up leaf, and become moths during the fore part of July.

The moth has the head, thorax, and fore wings reddish brown, the latter streaked and spotted with black and white; the hind wings and abdomen are dusky. The wings when spread measure nearly half an inch across. After pairing the females deposit their eggs on the plants, from which eggs in due time there hatches a second brood of worms, which come to their growth towards the end of September, and changing to pupæ pass the winter in that state.

FIG. 9.



In the accompanying figure 9, drawn from nature by Mr. Riley, *a* represents the larva natural size, *b* the head and four succeeding segments of the body, and *d* the terminal segment, all magnified; *c* the moth, also enlarged, the hair lines at the sides showing the natural size.