the seventh and eighth segments, and another on the two hindmost segments. Each segment was adorned with semi-transparent tubercles, which were pale on the pale patches and dark on the other portions of the body; each tubercle was armed with a few short black spines. On each side of second segment is a prominent tubercle with two smaller ones between them; the third, fourth and fifth segments have six tubercles on each, arranged in irregular transverse rows; the remaining segments have only two tubercles. Body thickest towards the front, tapering behind.

MOTHS INJURIOUS TO VEGETATION.

BY A. R. GROTE, A. M.

Under this head one might arrange nearly the whole of our moths, except, perhaps, a little species, the *Euzephora coccidivora*, which Professor Comstock has discovered to be predaceous, and to live upon plant-lice in the larval state, and one or two others, which, perhaps, have similar habits. A good many species become unusually numerous, however, in certain years and localities. Almost always this seems to be owing to the temporary cessation of action of the checks which keep down species from excessive multiplication, and disturbing the order of things. When we cultivate a large quantity of any cereal or plant of economic value, we in effect afford abundant food for the insects which habitually infest it. Many will recollect that the maple and other shade trees in Brooklyn and New York used to be completely defoliated by the middle of summer by the common Brown Drop or Measuring Worm, *Eudalimia subsignaria*. The English sparrow rid us of this nuisance; it eat every one of them. This Measuring Worm sought refuge in the cities from the birds which attacked it, and kept it down in the country. In the cities the birds were less plentiful and, this check being removed, they thrived exceedingly. When the Measuring Worms were gone their place was taken by a different moth, the Gray Vaporier, *Orgyia leucostigma*, whose caterpillars, being hairy, were unpalatable to the sparrows. In Philadelphia this substitution merely exchanged one nuisance for another, so plentiful have the Vaporier caterpillars become. In Buffalo, where the Vaporier was always the prevailing pest, no change has been made upon the entry of

the English sparrow into that city. Other species occasionally increase largely in certain seasons for some unknown cause. On Mount Desert one season I saw myriads of the Pretty Pine Spanner, *Cleora pulchraria*, which is not usually so plentiful. Some of the principal species which injure our cultivated plants are the Army Worm, *Heliothrips unipuncta*; the Cotton Worm, *Aletia argillacea*; the Cabbage Cut-worm, *Hadena devastatrix*, and other Cut-worms belonging to the genera *Agrotis* and *Hadena*. The pine trees are bored by the larvæ of several moths, and so with the hickories, as well as the fruit trees in our orchards. Some excellent scientific work towards working out the natural history of all these species has been done by the Department of Agriculture at Washington and the various State Governments. Taking into consideration the damage inflicted by these insects, it may be said that money is well spent towards understanding all about these pests, and the way to abate them is to understand their histories and modes of attack first. The fact remains that in many instances we can do comparatively little to check the ravages of insect pest; we have them chiefly removed by the multiplication of their natural enemies.

CORRESPONDENCE.

COAL TAR FOR THE PLUM WEEVIL.

Dear Sir,—Respecting the use of coal-tar in the matter of driving away the plum-weevil about which Prof. Claypole inquires (p. 180), I have seen it recommended several times, and perhaps the source of the different commendations of it was Prof. Alex. Winchell's paper. I have tried the coal-tar and found it of no avail. Some have followed advice published at one time, and applied the tar directly to the bark of the trunk and branches and thereby destroying the life of the tree, as has also been done with carbolic acid. All similar ways of fighting the plum-weevil must be classed as *parrying* methods. Systems aiming at wholesale slaughter, permit me to say, I deem are more judicious. There are at least two very reliable *exterminating* methods in use against the pest, both of which are explained by Mr. B. Gott in his article on the "Plum Curculio," in Annual Report of Entomological Society of Ontario, 1879.

Very respectfully yours,

Clyde, N. Y.

W. L. DEVEREAUX.