HYBERNATION OF FORMICA HERCULEANA, LINN.

BY G. J. BOWLES, MONTREAL, P. Q.

On the 20th October last, when in Brighton, Ont., I went to the woods in search of hibernating insects, and while examining the prostrate trunk of a small pine, found several female specimens of our large black ant, *F. herculeana* (*ligniperda* Latr.) in their winter quarters. Each ant was in an oval excavation in the wood, just under the bark, about an inch long and half an inch wide and deep. In each cell was found a single ♀ ant, together with from six to fifteen larvæ. On tearing off the bark, about half a dozen cells were exposed, on different and widely separated parts of the trunk. In one or two instances there was a single worker ant with the large ♀. The larvæ were about an eighth of an inch long, and were all alive. They were, in every case, crowded together in a mass, each one in the same position, with the head bent over in front. This observation is, I think, interesting, as it gives a clue to the manner in which colonies of this wood-destroying ant are established. It is probable that the mother ant and the larvæ would survive the winter, and be ready in spring, as soon as the larvæ had become perfect insects, to begin operations from the cell in which they had hibernated. The cells were very neatly excavated, and each seemed to have been entirely the work of the ♀ ant which occupied it, as there was no connection with any other cell, and the surface of the trunk around each was perfectly smooth and uninjured. Nor were there any galleries extending from the cells into the wood of the tree, as I proved by close examination.

NOTES ON ACMAEODERA PULCHELLA, HBST.

BY C. H. T. TOWNSEND, CONSTANTINE, MICH.

The common species of *Acmaeodera*, *A. pulchella* Hbst., which is marked with shining bronze-black and bright yellow, assimilates well in color with the flowers of *Rudbeckia hirta* L., so abundant along the edges of cultivated fields, upon which this Buprestid is found. The dark parts of the beetle, which are after an etched pattern, blend well with the rich dark stigmata of the flower, as the beetle lies next to these; while the bright yellow parts easily pass unnoticed in the inside border of the yellow corolla. It is noticeable that these flower-frequenting species are found

chiefly on the flowers whose colors suit them best for protection ; in fact the insects seem to have been modified in color to suit the flowers they live on. This species is seldom found upon any other flowers than those of *Rudbeckia hirta* L. I have once taken it upon the flowers of tansy, once upon a partially yellowed leaf of *Oenothera*, once upon a high dandelion flower, twice upon the orange-red flowers of *Asclepias tuberosa* L., and once flying about some of the many flower-bunches of a clump of sumachs. These are the only exceptions that I have noticed, and are but isolated instances.

The perfect beetles are very abundant here in July ; in my notes I find reference to them only from 3rd to 13th July. It is in the heat of the day that they are to be found upon the upper side of the flowers, probably feeding upon the pollen ; toward evening, and in cloudy weather, as well as sometimes in sunny weather, they are to be found on the under side of the flowers, clinging to the sepals or petals, where they doubtless spend the night. Thus these flowers furnish the perfect beetles with food and home ; and probably their larvæ bore the very stalks which support the flowers. The beetles seem to avoid generally the large patches, frequenting isolated clumps with only a few flowers, or single flowers. On one isolated flower I have taken five or more, mostly large specimens, while the same day (8th July, 1883) I went through large patches of the flowers without taking one, or only a few scattered ones.

CORRESPONDENCE.

ON WILLOW AS FOOD-PLANT OF PAPILIO TURNUS.

Dear Sir : As stated on page 140, willow is given in "Butterflies," p. 309. I asked Mr. Scudder for his authority, and he replies, "Gosse, in Canadian Naturalist." On page 293 of this book, London, 1840, I read : "I have taken it" (the caterpillar) "from willow, poplar," &c. So far as I know, in the 45 years since that line was printed, willow has not been noticed as one of the food-plants of *Turnus*. I asked Mr. John Akhurst, who has bred *Turnus* as often as any one living, if he had ever found the larva on willow. He says he never has, and enumerates a great number of other trees on which he has found it. I should like much to know if any of the readers of this magazine have ever found this larva on willow, or of their own knowledge can say that this is one of its food-plants.

W. H. EDWARDS, Coalburgh, W. Va.