

are sometimes visible, are of a dull brown, and with no distinctive features. The silk tubes are quite conspicuous; mouth-parts dark.

The anterior segments are longer than the others, and the large, strong, clawed feet seem to spring from the middle line of the venter, making a semicircle terminated by the claws. When the larva is resting in the day these claws are all bunched up, at the mouth of the case, or withdrawn within it, only one remaining attached to the branch from which it is thus momentarily suspended.

At night the larva spins a number of threads from the case around the branch, and retires within its recesses. Ordinarily the mouth of the case, large and loose, falls together when not expanded by the larva's body. For the pupal change, it spins up the mouth and fixes it firmly to some stationary object, usually its food-plant.

If the case of one of these larvae be cut open, and an empty one be cut and applied to it, the larva, although preparing to enter the pupa stage, will rouse itself and unite these into one. The larvae also use for the construction of these cases various kinds of leaves, twigs, and vines. These are put on, one over the other, like shingles on a house, and frequently so near together that they stand out straight and look ruffled.

A larva having been removed from its case and put in a pill-box, with some raw cotton and its proper food, soon constructed for itself a new case from the cotton, lined it with silk, made a mouth for it, and then, crawling to a branch placed near, suspended itself as usual.

In order to remove it from its natural case I had only to touch this on one end, and the larva would continue retreating until it emerged at the opposite extremity. After many interesting exploits this larva disappeared.

HABITS OF *HYPOPREPIA PACKARDII*, GROTE.

BY MARY ESTHER MURTFELDT, KIRKWOOD, MO.

IN 1879 I had the pleasure of tracing the larval history of the pretty little Lithosian above named, the imago of which was described some years ago by Mr. A. R. Grote in the Proceedings of the Entomological Society of Philadelphia, April, 1863, v. 2, p. 31.

Upon my writing to Mr. Grote regarding its immature stages, he informed me that nothing had been published on the subject, and that he himself had never observed the transformations. As I have

seen nothing since that date referring to this species, I trust that the following notes may not be altogether without interest to those making a specialty of the group to which it belongs.

Two larvae were found in dormant state, 20 Dec., under loose bark of black oak (*Quercus tinctoria* Bart.). They were then about 6 mm. in length, hairy, and of a mottled light and dark gray color, the head being similarly clothed and colored. They bore a strong gen-

eral resemblance to the young larvae of some species of *Callimorpha*.

Fearing that they might succumb to the somewhat unnatural conditions of the rearing cage, I attached them, for hibernation, to a branch of the tree, under a thick muslin cover. They were not again examined until the middle of the following March, when, as the season was early, they were found to have awakened from their torpor and to be crawling about over the bits of bark upon which they had wintered. For more convenient observation they were again placed in the insect cage and liberally supplied with the most advanced buds. They did not, however, seem to feed upon the latter, and continued to crawl about restlessly over the bits of dry bark, which they covered with a great deal of fine cob-webby matter. On the 1st of April both molted and shortly after this I discovered that they fed upon the outer surface of the bark itself, or upon the lichens that covered it. Fresh bark was provided upon which they began gnawing with avidity and from this time growth was quite rapid. A second molt occurred 15 April and a third 1 May. At this date they measured 8.3 mm. in length by 2.5 mm. in diameter. The form was somewhat flattened and the width nearly the same throughout. Color pale cinereous, variegated with fine curved lines and dots of purple-brown; medio-dorsal stripe pale, margined on each side with a distinct purple line, not continuous, but composed of very minute dashes and dots. Venter translucent, dingy buff. Head and legs colored sim-

ilarly to the dorsum, all sparsely clothed with long, fine, light hairs springing directly from the surface.

On 7 May both larvae were enclosed under a veil-like smoke-colored web, closely appressed to the under side of the bark. They had shrunken somewhat and the thoracic segments appeared slightly flattened and bulging laterally, giving the insects the appearance of minute catocalid larvae. By 10 May both had completed their first transformation. Pupae, 6.2 mm. in length, oblong, depressed and of a glossy dark brown color. The imagines appeared on 27 and 28 May and proved to be of different sexes.

As Mr. Grote's description of the perfect insect is brief I take the liberty of appending it:—

Imago: "Anterior wings entire, silky, dark steel grey with a yellowish well defined spot on the costa near the apex. A band of same color on the internal margin, well defined and commencing near the internal angle and continuing to the base of the wing, showing a spot of the same shade as the ground color. Posterior wings rose color with a wide greyish border not extending quite to the anal angle. Under side of the wings showing the markings of the upper. Head rose color. Antennae darkish. Thorax yellowish. Abdomen rose color. Expands eleven sixteenths of an inch [17.5 mm]." In the male the yellow bands and spots on the anterior wings are broader than on the female, and the abdomen of the former terminates in a dense rose colored tuft.



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