

**Pacific Coast Lepidoptera.—No. 19. Notes on a Singular Variety of the Larva of *Halesidota Agassizii*. Packd.**

BY HENRY EDWARDS.

It has generally been conceded by entomologists that variation of certain characters in either of the stages of insect life, so long as that variation is contained within what has been called the "well defined limits of a species," does not constitute a ground for founding new species upon trivial differences. But *remarkable* changes in the larvæ of certain forms are decidedly the groundwork upon which other ideas may arise, and are the beacons which light us to a better understanding of the laws which govern the many developments of animal life, which, with their almost countless variations, lead us to the conclusion that our positive knowledge of what really constitutes a species is very limited in extent, and compel us to the confession that we can say but little as to where a species is true to its original type, or how far its wanderings may extend. It is a singular fact that the genus *Halesidota* should present two kindred instances of the variation of the larval stage to such an extent as almost to warrant the assumption that new species had in these cases begun to assert their existence; but it is nevertheless so, the one to which I am about to refer being even more remarkable than that spoken of by the late Mr. B. D. Walsh, in Proc. Boston Soc. Nat. Hist., Feb., 1864, and further alluded to by him in the Proc. Ent. Soc., Phil., Nov., of the same year. To those who are not familiar with Mr. Walsh's papers, it may be briefly stated that he found feeding upon oak some larvæ of this genus, differing very much, both in color and in the arrangement of the pencils of hairs, from those of the well known Atlantic species, *H. tessellaris*, but which, upon arriving at their perfect state, could not possibly be distinguished from the imagos of that species. Mr. Walsh, regarding the larval condition as of equal value with the subsequently matured form, called his new discovery by the name of *H. Antiphola*, and always referred to it as a phytophagic species, and not a phytophagic variety. Mr. Grote, on the other hand, in Proc. Ent. Soc., Phil., December, 1864, alludes somewhat slightly to Mr. Walsh's experiments, and considers the *Antiphola* of the latter author as merely an accidental variety of the better known and more abundant form; and this, it is but fair to say, is the conclusion arrived at by most other entomologists. It gives me great pleasure to be able to add some few facts bearing upon this interesting question, and to present the description of some larvæ, which, at the time of their capture, certainly appeared to me to be those of a totally new and undescribed species, but which, in their imago condition, can in no possible character be distinguished from the well known California species, *H. Agassizii* of Packard, = *Phæoptera salicis*, Bois. My specimens were taken by myself in August, 1865, in Strawberry Valley, near Mount Shasta, one of them feeding upon alder (*Alnus viridis*), and the other upon a species of willow. For the better comparison of the singular

differences in the larvæ, I subjoin, in parallel columns, the description of both:

*Hal. Agassizii.*

Head, body and prolegs, entirely black. Abdominal legs, dirty yellow. Body, slightly depressed, with the three anterior and three posterior segments evenly clothed with velvety black hairs, out of which spring some pencils of white hairs, much longer than the general clothing of the body. The middle segments are clothed with very bright lemon yellow hairs, with a black lozenge-shaped patch in the middle of each segment. In some specimens the yellow extends further, both anteriorly and posteriorly, the black hairs being consequently less; but there is little or no change during the growth of the larva, save in size, the colors being quite similar through the successive moults.

*Hal. Agassizii.* Var. *Alni.* Hy. Edw.

Color of body, cream white, except the head, which is jet black. Bundles of hair of the same form and arrangement as in *H. Agassizii*, but wholly of a beautiful cream white, concolorous with the body of the caterpillar. Down the middle of the dorsal region, is a row of oblong, bright red, almost vermilion, lozenge shaped bundles of hair, wanting on first, second, third and anal segments.

Length, 1.00 inch.

Previous to the last moult, the caterpillars became very dull in color, and the subsequent condition was seen through the larval skin prior to its exclusion. The appearance then presented was much closer to the usual form of *H. Agassizii*, but with a few striking differences. The body was now wholly slate black. Head, jet black, shining. Mouth parts, black, with a streak of cream color above them. 2d, 3d, 4th, 5th, 9th, 10th, 11th, 12th and 13th segments, as in *H. Agassizii*, clothed with jet black hairs, with long white pencils interspersed. The middle segments, that is, the 6th, 7th and 8th, are bright golden, and not lemon yellow, without any black hairs whatever. Thoracic legs, black; abdominal, dull yellow.

It will thus be seen that the great difference of these larval forms consists in the stages previous to the last moult, the typical one being then lemon yellow, with black extremities, and black dorsal hairs, while the other is cream white, with vermilion dorsal hairs. Moreover, the last moult of my new variety is apparently specifically different from the normal form, the yellow being a much deeper and richer tint, and the black bunches of dorsal hairs being utterly wanting. It may be well to state that *H. Agassizii* feeds exclusively upon willows, whereas my Shasta examples thrived equally upon willow and alder.

They were found on the 17th of August, changed from the white and red stage on the 26th, and spun their cocoons on the 14th and 16th of September. In this condition there was no appreciable difference, except that the golden hairs gave rather a richer appearance to the cocoon. The moths emerged on the 1st and the 15th of March, both being females, and presenting, as I have said, no points of distinction from the ordinary coloring and markings of the typical species. For the sake of reference, I propose for this variety the name of *Hal. Alni*.

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REGULAR MEETING, NOVEMBER 20TH, 1876.

Vice-President Edwards in the Chair.

Nineteen members present.

Donations to the Museum: From G. A. Treadwell, specimen of inetacinnatarite, Lake County, Cal.; from Henry Edwarus, silver ore and fossils from White Pine, Nev.; from C. D. Gibbes, stamp copper and fine copper, Penabic mine, Michigan; fossil shells, Fresno County, Cal.; sandstone and infusorial earth from same place; petroleum from Gibbes' oil spring, with samples of burning and lubricating oils, Fresno County; asphaltum from naphtha oil springs, Kern County, Cal.; from G. Yale Gay, lusite, from Soda Lake, Churchill County, Nev., also manufactured product; from C. L. Scudder, Arizona rubies; from Mrs. Elizabeth Bush, San José, 40 specimens of copper ore, 20 specimens sulphuret of iron, and sulphurets of zinc, from Buchanan copper mine, Fresno County, Cal.; 20 specimens andaluriate crystals from near Buchanan mine; 23 specimens crystals of calcite anceforsil shells, from Penitensia Cañon, Santa Clara County, Cal.; three specimens rock from Black Spring, Penitencia Cañon; three specimens of sandstone; two specimens of conglomerate, containing andalusite crystal; 13 crystals (California diamonds), Lake County, Cal.; fibre of milk weed, Fresno County; one pine and two spruce cones from Glen Falls, N. Y.; from Asa T. Hayden, Honolulu, land shells and fresh-water shrimps from the inormtum streams.