WESTERN LEPIDOPTERA — II.

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The Synonymy and Habits of *Pseudohazis eglanterina* Boisd.

Dyar, in a footnote to his description of the preparatory stages of *Pseudohazis shastaensis*,[1] remarks, "The common form of *Pseudohazis* with purplish fore wings has, strictly, never been described. Boisduval says of *eglanterina* 'alae anticae albidocarneae,' which applies to the form described as *arizonensis* by Strecker. Behren's *shastaensis* was described from very black examples of the purple winged form, so this name will retain. The form is constant, and has as good right to specific recognition as any species in the genus." The species of *Pseudohazis* commonly found in California, and plentiful in this valley, I had considered as *eglanterina* Boisd., but recently I sent a specimen to Dr. Dyar and he pronounced it *shastaensis* Behrens. In fact, the eggs for his life-history of *shastaensis* came from Watsonville in this valley. He also gives Yosemite, Monterey County and Portland, Oregon, as localities in which *shastaensis* occurs and in his list of the lepidoptera of North America (Bull. 52, U. S. Nat. Mus.), he gives Rocky Mts. to Arizona as the habitat for *eglanterina* and Pacific States and Colorado for *shastaensis*. The only distinction between the two, so far as known to me, is that *shastaensis* has a more or less pronounced purplish tinge to the wings. Behren's types were very heavily marked specimens. Strecker[2] writes, "The best known and by far the commonest is the Californian form *eglanterina*; it is very variable in the black markings; in some instances being almost as heavily blacked as the variety of *P. hera*, in others it is scarcely more so than in *P. nuttalli* ♀; nor is this diminution of the black confined to the females only as I have males with as little black on as any female I have yet seen, and even less. An extreme case in point is the male aberration (fig. 9) in which the black marks are almost totally obliterated on both surfaces. Though the upper surface of primaries is more generally flesh colored or pinkish, this is not always the case, as I have seen and possess examples of both sexes in which the primaries are the same yellow color as the secondaries, and others in which part are yellow and part flesh colored."

Mr. J. G. Grundel, who has collected by the hundreds the *Pseudohazis* found here, tells me it is quite distinct from Mt. Shasta specimens which he considers typical

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[1] Psyche, p. 91, 1894.
[2] Strecker, Supp. Rhop., Heter. Exotic + Indig., p. 138.

shastaensis. I recently saw these and they are strikingly different from our form, being very black, while ours have but little purplish, occasionally but a tinge, and I think specimens could be found quite destitute of purplish. Dr. Dyar says, "The form is constant" and if that is the case the specimens from Mt. Shasta would represent a new variety at least, if the insect found here is *shastaensis*. Dyar also writes that Boisduval's description applies also to *arizonensis* Strecker, but this he places as a synonym of *eglanterina*. Also according to Dyar, *eglanterina* ranges from the Rocky Mountains to Arizona yet Dr. Boisduval (Lep. de la Californie) says of his specimens "Ce bel insect a été élevé de chenilles sur les *Eglantiers*, rosiers sauvages, sur les bords du San Joachim." Holland[1] places both *shastaensis* Behrens (not Behr) and *denudata* Neum., as synonyms of *eglanterina*. Smith[2] gives both *eglanterina* and *shastaensis* specific rank, with *arizonensis* as a synonym and *nuttalli* Strecker as a variety of *eglanterina*, and *denudata* as a variety of *shastaensis*. Dyar's arrangement concurs with this as does Grote's.[3] *Eglanterina* I would consider the common Californian form as that is the insect to which Boisduval gave his name. *Shastaensis* is the northern or mountain variety and is very black, with scarcely any of the characteristic ground color of *eglanterina*. This coming season I hope to gather a large series of specimens for comparison and would be particularly grateful for any representatives of the genus from the Rocky Mountain region. *Eglanterina*, or the California Orchard Moth, as it may be called, flies in California in early fall. In this valley it comes out in September but I have had imagos emerge in confinement as late as the middle of October. Seen flying through the streets of the towns, as it occasionally does, it appears to be a very wary insect but in the prune orchards, where it flies in countless numbers, it may be taken very easily for the flight there is low and lazy and sometimes as many as five or six may be taken with one sweep of the net. They are strictly diurnal and begin flying from ten to eleven in the morning and remaining on the wing until about three in the afternoon. The condition of the weather seems to have no effect on their flying habits. The female is much rarer than the male. Upon emergence, she frequently finds herself the center of attraction of a cluster of frenzied suitors. I have occasionally noticed the fact, reported by Wright, that when a male touches the female with his antennae, he becomes alarmed and leaves the spot with all possible speed. The flight of an ova laden female is very labored and slow and she is frequently obliged to rid herself of some of her burden before being able to reach the proper situation. Eggs are thus commonly found on the bark at the base of trees and even barb-wire fences are sometimes studded with

[1] Holland, Moth Book, p. 93, 1903.
[2] Smith, Cat. North American Lepid., 1903.
Grote, Die Saturniiden 1896.

them. Once upon a suitable twig, the female commences to oviposit. Sometimes she stations herself above with her head pointing towards the end of the branch, or rarely towards the trunk, and stretching her abdomen, places the eggs in a solid, naked belt about the twig, without releasing her legs. Again she may hang suspended from the twig and thus oviposit. Egg laying appears to be a rather tedious business as she sometimes remains on the same branch for a whole day or even more. I do not believe, however, that she deposits all her eggs in a single mass. The greatest number of eggs which have been found in a single ring numbered 301. Often two or three masses will be found adjacent to one another. These are undoubtedly laid by different females, as can be seen by the different coloration. The eggs are subovate in shape and vary in color from stone color to a much darker brown. The condition of the weather has much to do with this as eggs laid in confinement are very lightly and uniformly colored. The eggs are affixed to the twigs by a practically insoluble substance. The young larvae emerge in early spring, as soon as the leaves of their food plant have grown sufficiently enough to afford them food. They do not devour the empty egg shells. They are gregarious and remain so until the last or next to the last moult. As to the stinging propensities of the larva, Riley (5th Annual Report Missouri State Entom., p. 126) writes: "The other species of the tribe to which *maia* and *io* belong, will doubtless prove to have the same properties in the larva state; and Mr. G. M. Levette, of Indianapolis, Ind., informs me that *Pseudohazis eglanterina* (Boisd.), which, like *maia*, deposits its eggs in a belt, also possesses urticating power; as he was cautioned against the too free handling of some larvae received from California and which fed on wild rose." As Riley points out, this is caused by the prick of the sting spines, and not by their getting broken in the flesh. As the spines are hollow, it might be supposed that the urticating power proceeds from a poisonous injection, but no apical aperture to the spines has yet been discovered. I have never myself investigated the irritating effects of the spines, but Mr. Grundel tells me that he believes that the sting can only be caused when the larva is diseased or parasitized or when moulting.

The pupa is invariably formed in the ground or in the rubbish at the base of the tree. In confinement, however, the pupa is almost always naked. Considerable difficulty will be met with in breeding Pseudohazis unless they are given plenty of room, moisture and shade. Dryness kills them very quickly. It is best to have a thick layer of damp leaves in the bottom of the breeding cage. They are also heavily parasitized by Tachina flies. I am glad here to acknowledge my indebtedness to Mr. J. G. Grundel of Alma and Mr. Earl Morris of San José for various favors and notes.