

is, with the exception of *Dejeanii*, the largest of the group, and is, in sculpture, intermediate between *californicus* and *Audouinii*. The head and thorax are much smoother than in the former species, while its very much larger size, and the extremely deep transverse fovea of the thorax, will serve to distinguish it from the latter.

I am not aware whether the two last named species were published by Mr. Crotch, but I know that careful descriptions of them were drawn up by him, and that he communicated them to friends in Europe and elsewhere under the names which I have here adopted.

*Henry Edwards.*

San Francisco, May 7, 1875.

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### On the Insect Fauna of the White Mountains.

New Hampshire holds within her limits as a State, a region which is proving itself more interesting to the entomologist than any other in the United States east of the Rocky Mountains. The summit of Mount Washington, with an elevation of 6293 feet above the sea level, and with a climate giving an average temperature of  $47.7^{\circ}$  during its short summer, and that of Mount Adams, might well harbor species peculiar to a restricted locality and contrasting in character with the insect species afforded by the rest of New Hampshire and the New England States, which would throw important light on the questions of the effects of isolation and interbreeding on specific forms; and if the Glacial Epoch had aught to do with the distribution of the insects, we might expect these summits to harbor, as on aerial islands, species coming from a remoter north, valley inhabitants during the continuation of the cosmical winter, which ascended to the summits to find their congenial climate as the lengthening summers laid the mountains more and more bare of ice. Evidence of this seems to be afforded by the scientific labors of Mr. S. H. Scudder on the Grasshoppers and Butterflies. Say has described a species of the genus *Oeneis* from the summit of Mount Washington, whose congeners inhabit Labrador, Siberia, the Alps, the Ural and Rocky Mountains, and, from a study of specimens, it seems to be concluded



that the White Mountain butterfly offers features which will allow of its separation from its allies of Labrador and Arctic America. Lederer remarks that a figure of semidea resembles an eyeless form of Taygete (W. E. M., viii, 369), and also notes the resemblance of *Argynnis montinus*, another inhabitant of Mount Washington, to the boreal *A. Freija*. We thus have, in these two isolated White Mountain forms, a basis for an inquiry into the amount of change which they have undergone since they became separated from the main body of the species. Parallel observations might be expected in the moths. The only paper on the Noctuidae of Mount Washington known to us as yet is Mr. Morrison's in *PSYCHE* for February of the present year. This author records, from the "Ledge," two species of "Agrotis", under the names *scopulana* Morr., and *opipara* Morr., which might reasonably be supposed to offer interesting characters for comparison with Labradorian or Alpine forms in the genus. Without knowing the boreal species it is obviously unsafe to write a paper on the Noctuidae of the White Mountains. My material is scanty and limited to a single specimen of the former species, sent me as "*scopulana* Morr., Type", in which the legs are defective. On comparing it with three specimens of *Pachnobia carnea* Thun., from Labrador, it seems to me probable that a larger series may show that the species are the same. The three Labrador specimens vary greatly, one female being quite like the White Mountain specimen in tone and narrowness of the reniform. The basal black marks are more prominent in the White Mountain specimen. With regard to *opipara*, I have a single specimen from the White Mountains, of which my determination is not absolute, but I believe it to be the species, since it came from Mr. Morrison, though unnamed. If so, I think we have to do with *A. islandica*, and, if my locality for this specimen be correct, this Labradorian species will be found on Mount Washington. Until these points are cleared up, we shall want the proper data for an interesting discussion on the questions arising from an accurate knowledge of the moths of the White Mountains.

A. R. Grote.



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