

76 [0.53] [average, 0.52], the first representing the earlier broods. Of the 69 pupae of June 1879 (PSYCHE, p. 4), 34 yielded butterflies the same season; and of the 35 of same lot, which were iced, 16 emerged the same season.

By this it does not appear that cold made any butterfly emerge in 1879 whose natural term was 1880. It is impossible to be absolutely certain of this fact, but the probability is very strong that the change produced by cold was in coloration, or in the clothing (as in the frontal hairs). What

should have emerged in 1879 as the summer form did so emerge in shape, but presented the coloration of the winter form.

I call to mind only two species of North American butterflies in which there is a decided difference of shape between the winter and summer forms, namely, *P. ajax* and *Grapta interrogationis*. In other species, as the shape is identical in both forms, it could not be ascertained whether the application of cold had affected anything beyond the coloration or clothing.

### LARVAE OF THE FAMILY PYROCHROIDAE.

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The larva of *Dendroides canadensis* is a type of the larvae of the *Pyrochroidae*, of which family I have bred four species, namely, *D. canadensis*, *D. concolor*, *Pyrochroa flabellata*, and *Schizotus cervicalis*. These larvae all have a much flattened and appressed body, a vertically compressed head slightly broader than the prothorax, and, attached to the final segment, a corneous plate, produced into two distant, horizontal, more or less curved processes. Three of the species are honey yellow, and approximate very nearly in size. The fourth, *Schizotus cervicalis*, is of a smoky tint and smaller. The color separates this last from the other three, which may be separated from each other by the corneous plate and processes. In *D. canadensis* the processes are nearly one third longer than the basal portion, are rather slender, regularly though moderately curved inward, and have fine granulations which are more numerous toward the tips. Between these processes at their bases, are found two small blind cavities, or *cul-de-sacs*, which

do not appear at all when looked for from above.

In *D. concolor* the processes are stouter, nearly straight, and hardly longer than the basal portion. The tips are obliquely cut off on their inner side. The *cul-de-sacs* between them are larger than in *D. canadensis*, and have at their lower side a slightly projecting lip, which can be seen from above. The modification of these characters in *P. flabellata* is more marked; the processes are straight on the inner edge, still shorter in proportion to the base than in the previous species, and the granulations are much stronger. On the under side of each process, near the base, there is a tooth-like projection, and the outer edge at the base has two such projections, one smaller than the other. The *cul-de-sacs* are very large, with the projecting lip prominent and emarginate at the middle.

In conclusion a word in regard to the curious *cul-de-sacs*. They are deep, and suggest a possible organic use; but thus far, though I have carefully dissected for the purpose, I have not found that they are in any way connected with the internal organs, or have any opening into the interior of the body.



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