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CAN INSECTS SURVIVE FREEZING?*

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In a foot note to his paper on "The Butterflies of Laggan" (CAN. ENT., XXII., 129), Mr. Bean says: "I hope none of my younger readers entertain the absurd mediæval superstition that hibernating caterpillars pass the winter in a *frozen condition*. In successful hibernation they do not get near to such a condition; but if they do absolutely freeze, then are they undone caterpillars. Valkyria gives them sleep, unmixed with dreams, and they wake in Valhalla."

Without entering into any discussion as to my relative age in comparison with Mr. Bean's, I may confess that I have long believed that *some* caterpillars, as well as insects in other stages, can and do survive freezing. And, finding my belief so distinctly challenged, I have endeavored to find some light upon this subject from such literature as is accessible to me, and from personal testimony.

The first work to which I turned was Scudder's "Butterflies of New England".

In this work there is an Excursus, No. XVII., on "Lethargy in Caterpillars", and another, No. XXII., on "The Hibernation of Caterpillars," but in neither is any light thrown upon this question.

In the same author's "Butterflies" but little more is said upon this subject. On page 135, in writing of *Colias philodice*, he says: "Winter overtakes at once caterpillars of various ages, chrysalids and butterflies, and probably eggs. The experience of breeders, and the diversity in the time of appearance of the butterflies in the spring, render it probable that the cold season kills not only the butterflies and eggs, but perhaps the chrysalids as well, leaving the caterpillars to renew the life of the species in the spring."

* Read before the Annual Meeting of the Entomological Society of Ontario, November 25th, 1891.