## THE CANADIAN ENTOMOLOGIST.

In Southern Michigan the life-history of this species in brief is as follows : The eggs are laid during the latter part of July and the first part of August. They are placed on the under side of the leaflets, and drop with the leaves to the ground in the fall, where they remain, more or less covered by snow, until the following spring. I have not gathered the fallen leaves and searched them for the eggs, but that the eggs are there during the winter I can entertain no doubt, a point, however, which I shall hope sometime to demonstrate. The caterpillars emerge from the eggs during the middle of the following April. There are five instars, and the majority of the bred specimens reached the chrysalis between the 15th and the 20th of June, and the butterfly between the 26th of June and the 2nd of July. In the bog I believe these dates would be about two weeks later, as the conditions indoors were probably more favourable to rapid development than they would be outdoors, and this corresponds better so far as my observations have as yet gone with the dates of appearance of the butterflies in the field. This is further confirmed by the following : Of 14 caterpillars found in a bog near Ann Arbor, I raised 8 to maturity. These yielded butterflies from July 16th to 22nd, dates considerably later, but, on June 13th, 1910, when this lot was secured, all of these caterpillars. except one, were in the third instar, while on the same date nearly all of the egg-bred caterpillars reared within doors were in the fifth instar, many nearly ready for the chrysalis, and two had already changed. It will thus be seen that from the time the egg is laid to the death of the resulting butterfly about one full year is taken.

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I kept records of the time passed in the different instars and chrysalis of as many examples as I could. The table below shows the average number of days passed in the different instars and chrysalis, and also the shortest and longest time spent in any instar or chrysalis.

Instar.	Number of specimens.	Average num- bar of days.	Shortest time.	Longest time.
First	41	18.6	13	30
Second	28	12.3	9	16
Third.	26	8	5.5	12
Fourth	26	10.7	8	13
Fifth	27	13.8	II	18
Chrysalis	32	10.I	8	15

I should rather have expected that the lengths of time spent in the different instars would have become successively shortened, but instead of

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