

In no case can I find any evidence to warrant the belief that any of our native forms are double-brooded, and it seems highly probable that the same could be said of all North American Cicindelidæ. From my investigations I was inclined to think that no specimens emerged from pupæ in the springtime, but Mr. E. D. Harris writes that he has collected specimens in the early spring that "bear unmistakable evidence of very recent emergence from the pupa condition," and he suggests that these are belated specimens which failed to appear at the usual time in the early autumn.

I can give little information as to the habits of the larvæ. Most of, and probably all, the Manitoba Cicindelas pass one winter as larvæ, and indications point in some cases to two winters being passed in this condition. Unfortunately, I am unable to write with exactitude in this matter, but think it well to draw attention to the subject.

The larvæ are by no means the helpless creatures out of their holes some writers think. They can crawl readily, and, undoubtedly, in some cases leave one hole and dig another. At the approach of winter they commence deepening their holes, and, like those of the beetles, when completed the holes vary in depth with the different species. In digging, the insects loosen the earth with the mandibles, and then shove that flat shovel-like structure of the head and prothorax under the loosened earth until sufficient has been received to make a load, when the insect turns round and works its way up, holding the "shovel" in a horizontal position until it gets level with the top of the hole, when the head and "shovel" is suddenly jerked backwards, which throws the earth two or three inches away. Larvæ that were watched took from 70 to 113 seconds between each load of earth when the holes were about 14 inches deep.

The plates of the head and prothorax form a most interesting structure, which has apparently been specially modified for the purpose of digging and carrying earth to the surface.

For the first portion of the season most of the work is done at night or in the evening and early morning, but as the season advances digging is also done in the daytime, especially if the weather is cold. Usually larvæ are found digging a week or more later in the season than the imagoes. As the holes get deeper the sand becomes gradually piled up so that the insects are unable to throw it so far away, and at last the earth, by rolling back, blocks the entrance, though not, I believe, until the correct depth has been attained, as in some cases the hole is built up