

LIFE-HISTORY.

The development of the last and overwintering brood was studied. Females were observed ovipositing on September 13th. The time occupied in the process varied. A single female, which was isolated for observation, remained in the same position for $1\frac{1}{2}$ hours (see Fig. 20) with her ovipositor inserted in the cocoon. She then removed her ovipositor and walked away, moving about for twenty minutes, after which she returned and inserted her ovipositor in almost the same spot as before and remained in this position ovipositing for fifty-five minutes.



FIG. 20.—Female *C. nematocida* ovipositing on cocoon of *Lysaeonematus erichsonii* Hartig, $\times 2\frac{1}{2}$.

In several instances two females were seen ovipositing in the same cocoon. The numerical abundance of the eggs that may be deposited in a single cocoon may be judged from the fact that in one case eighty-one eggs were counted on a single larva; in another case forty-seven pupæ and adults were contained in a single cocoon. The sawfly larvæ in cocoons in which the chalcids had deposited eggs appeared less active than those in uninfected cocoons; this may be due possibly to some paralyzing action on the part of the female when ovipositing.

The eggs are .3 mm. in length and transparently white. In shape they are ovally elongate, having one end broader than the other, and are slightly curved (Fig. 21). They are deposited externally upon the larva,

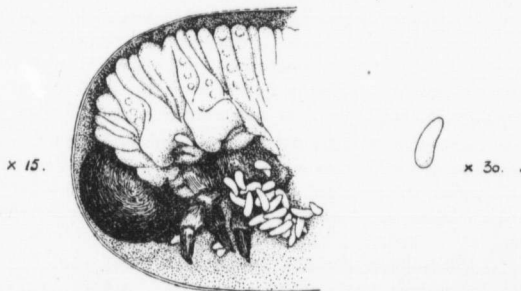


FIG. 21.—Interior of anterior end of cocoon of *L. erichsonii*, showing eggs of *C. nematocida* deposited on the sawfly larva, $\times 15$. Also single egg of *C. nematocida*, $\times 30$.

chiefly in the anterior and thoracic region and appear to be laid in masses