

winter in this manner the parasite occupies that portion of the year, during which the climatic conditions would prohibit its activities in the way of attacking fresh cocoons, were it able to produce more broods.

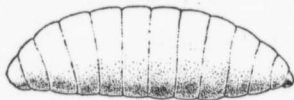


FIG. 22.—Full-grown larva of *C. nematocida*.  $\times 12$ .

#### *The Larva.*

The full-grown larva (fig. 22), measures 2.35 mm. in length. It is white, and the body, which consists of thirteen segments, has the

dorsal side more strongly convex. The larva feeds externally, usually with its head buried in the side of the host.

#### *Number of Broods.*

As it is not found possible in these experiments to follow the development of a single line of the parasites through the year, exact statements as to the number of broods during the season cannot be made at present. I believe, however, that it is safe to make inferences from the observations which were made on material collected in Massachusetts and in Canada. In one batch of cocoons, adults emerged on October 9th from cocoons in which eggs had been deposited on September 13th to 16th, from which it would appear that the time of development of a summer brood was about 23 days. It has been found that the females oviposit shortly after emergence, so that no lengthy period necessarily intervenes between the development of the broods if the parasite can find healthy cocoons of the sawfly.

The prevalence of healthy cocoons of the host would determine the efficiency of the parasite. It has been found in studying the life-history of the host *L. erichsonii* that the sawfly larvæ may become full grown and form the cocoons as early as June 12th to June 17th, which would mean that in any year cocoons of that year's sawfly larvæ could be found from the middle of June. Further, it has also been found that sawflies will continue to emerge from the cocoons of the larvæ of the previous year until the end of June, which indicates that there is a supply of the previous year's larvæ in their cocoons until the first or second week in June. In short, it has been found that cocoons containing larvæ of *L. erichsonii* may be found throughout the whole year, the time of least abundance being in June. It may be assumed, therefore, that if the Chalcid can find healthy cocoons, and this has been shown to be possible during the whole of the year, the production of broods may continue throughout that portion of the year during which the climatic conditions