

A PRELIMINARY REPORT ON LERNAEA, A COPEPOD PARASITIC ON THE GOLDFISH.

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Lernaea has been reported previously¹ as parasitic on some 20 or more species of fishes, but so far as we have learned, no one has reported it on the goldfish.

In the autumn of 1928 our attention was called, by the officials of a large fishery in Indiana, to so-called "fish lice" on their goldfish which were the cause of considerable mortality among fish of salable size resulting in serious financial losses. These parasites have been shown to be members of the family Lernaeidae and genus Lernaea. They are found anchored in the flesh of the fish usually at the base of one of the fins and projecting backward from the point of attachment for 10 mm. or less. The anchor consists of four horn-like outgrowths from the cephalothorax two of which are usually branched. Near the distal end of the parasite two egg sacs may be attached. These are about 3 mm. in length and contain dozens of eggs in two or more rows.

Investigations are in progress to determine the life history and methods of control. The egg sacs are removed from a parasite and placed in water in a Syracuse watch glass which is then covered to prevent evaporation. Sacs may be removed repeatedly from the same parasite at intervals of two or three days.

Results thus far obtained indicate that the life history of this species follows the type for the genus. About three days after the appearance of egg sacs the eggs hatch into oval nauplii .12 mm. in length with three pairs of appendages. These swim about jerkily for a few hours, then in less than a day molt and become metanauplii. The metanauplii are also provided with three pairs of appendages but show a change in shape from the nauplius form, being now pear-shaped, .15 mm. in length and with a pair of spines on the sides.

The larvae remain in the metanauplius stage about four days, at room temperature, and molt again. After this second molt their appearance is considerably changed, showing now several free segments and seven pairs of appendages. They are now about .25 mm. in length and correspondingly less in breadth than the metanauplii since they have taken no food thus far. The second antennae and the maxillipeds are provided with claws which suggests that they are ready to attach themselves to a host. This is the first copepodid stage. They die in three to five days, in cultures not supplied with food. All the stages previously mentioned are free-living in the water.

¹ Wilson—Economic Relations, etc., of genus Lernaea. Bull. U. S. Bur. Fish., 35, pp. 163-198, 1915-16.

"Proc. Ind. Acad. Sci., vol. 38, 1928 (1929)."

This is as far as we have traced the life history thus far. If the life history of this species is similar to that of other species of *Lernaea*, we expect to be able to get the copepodid larvae to attach temporarily to the gills of a fish, and molt three more times before copulation occurs, after which the female seeks out her final location and anchors at the base of a fin.