

THE COPEPOD PARASITES.

By CHARLES B. WILSON, Professor of Biology, State Normal School,
Westfield, Mass.

Three species of *Argulus*, two of *Ergasilus*, and one of *Achtheres* were found upon the fish of the lake. The species of *Argulus* have all been described elsewhere (Proc. U. S. Nat. Mus., XXV, pp. 709, 715, 718). The life history of one species, *A. maculosus*, was obtained in full, and a brief account was published in 1907 (Proc. U. S. Nat. Mus., XXXII, p. 416). Of the two species of *Ergasilus*, one (*E. centrarchidarum*) has been described by Wright.* This species is common everywhere on all fishes of the perch family. The other species was new to science; it was named *E. versicolor*, and a full description with figures was published in 1911 (Proc. U. S. Nat. Mus., XXXIX, p. 341: pl. 45).

The single species of *Achtheres*, *A. percarum*, has also been described by Wright, Nordmann, Kroyer and others, but several details were here supplied that had hitherto been lacking.

The complete life-history was also worked out for both genera; that of *Achtheres* had been partially described before by Claus and Kellicott, while not a single detail had ever been published for *Ergasilus*.

1. *Argulus catostomi* Dana & Herrick.

Found in the gill-cavity of the white sucker, *Catostomus commersoni*. The discovery of this species in Indiana, together with those recorded from Lake Champlain and the rivers of Massachusetts, Connecticut and New York, shows the distribution of this parasite to be identical with that of the host it infests. The specimens here obtained and those from Lake Champlain include males, the first of that sex to be recorded for this species.

2. *Argulus americanus* Wilson.

Found on the outside surface of the Dogfish or Bowfin (*Amia calva*). This species does not appear to be very common at Lake Maxinkuckee, but possibly an examination of a larger number of fish would show a different result. This is the first instance of the species having been obtained from fish in their native haunts.

3. *Argulus maculosus* Wilson.

Found on the outside surface of the Common Bullhead (*Ameiurus nebulosus*), the Yellow Catfish (*Ameiurus natalis*), and the Rock Bass or Redeye (*Ambloplites rupestris*). Only two females were found on the Redeye; both were full of ripe eggs; evidently they were hunting

* Proc. Canadian Institute (N. S.), 1, p. 243.

for a suitable place to deposit them, and were only using the Redeye as a temporary host.

The Yellow Cat is the true host of this *Argulus*, and nearly half the fish of that species that were examined yielded specimens of this parasite.

4. *Ergasilus centrarchidarum* Wright.

Found on the gill-filaments of the Calico Bass (*Pomoxis sparoides*), the Redeye (*Ambloplites rupestris*), the Warmouth (*Chænobryttus gulosus*), the Bluegill (*Lepomis pallidus*), the Small-mouthed Black Bass (*Micropterus dolomieu*), the Large-mouthed Black Bass (*M. salmoides*), the Yellow Perch (*Perca flavescens*), and the Walleyed Pike (*Stizostedion vitreum*), and would have been found almost certainly upon the different sunfishes had there been an opportunity to examine them.

As its name rightly implies, it is a family rather than a specific parasite, and is very widely distributed, as are the hosts upon which it lives.

5. *Ergasilus versicolor* Wilson.

Found only on the two species of Catfish (*Ameiurus nebulosus* and *A. natalis*), the latter of which was the more badly infested. This species was not found upon any other fish in the lake, although many hundreds of them were searched for it, nor was *Ergasilus centrarchidarum* so common on the other fish, ever found on these catfish.

E. versicolor has since been obtained from the Channel Cat (*Ictalurus punctatus*), and the Eel Cat (*Ictalurus anguilla*), in the Mississippi River.

The species is thus distinctively a Catfish parasite in sharp contrast to *E. centrarchidarum*, which is a Perch parasite.

The life history of *Ergasilus* worked out upon these two Maxinkuckee species was published in Vol. 39, Proc. U. S. Nat. Mus., pp. 313-326, and still stands as the only contribution to the ontogeny of the entire family.

6. *Achtheres ambloplitis* Kellicott.

Found on the gill arches of the Redeye (*Ambloplites rupestris*), the Bluegill (*Lepomis pallidus*), the Small-mouthed Black Bass (*Micropterus dolomieu*), the Large-mouthed Black Bass (*M. salmoides*), and the Walleyed Pike (*Stizostedion vitreum*). It was particularly common on the Redeye and the Small-mouthed Bass, two-thirds of the specimens examined being infested with this parasite. Like the first species of *Ergasilus* mentioned above, it is a family rather than a specific parasite, as its name implies. But it is even more widely distributed; for it is as common on the European as on the American Perch, and is probably as widely distributed as the Perch family itself.

The life history of this species appeared in Vol. 39, Proc. U. S. Nat. Mus., pp. 194-224: pls. 29-36.