OBSERVATIONS ON *CERCARIA GORGONOCEPHALA* WARD.

STEPHEN R. WILLIAMS,
Miami University, Oxford, Ohio.

Since the Ohio State University Lake Laboratory moved to Put-in-Bay in 1918 there have been found each summer specimens of the compound cercaria discovered in that locality in 1898 by Dr. H. B. Ward.

The primary host and the adult worm are not yet identified but the life history must run roughly like this: The snail Goniobasis is very probably the secondary host and from it the cercaria come, numbers at a time, and fuse together by their tails. The mass of cercariæ with each cercaria tail extending and contracting drifts about as a sort of living bait for some aquatic creature, either a secondary or the primary host from which the embryoes reinfect Goniobasis.

There is no evidence of any purposive locomotion, though the mass can change its position in the water. On a bright sunny day around noon, if the water is quiet, a half hour of surface towing from the Gibraltar dock will usually yield one or two specimens. By inference one would assume that on a cloudy day they might be found at a little depth.

The evidence for Goniobasis is as follows: About the first of August, 1920, as the session was closing, Dr. F. H. Krecker called me over to see a Goniobasis which he had removed from the shell. As I looked through the microscope he jabbed the kidney region of the snail with a needle and out of the opening there sprayed numerous cercaria in a way that I can compare only to a "flower-pot" fire work as it is discharging. These cercaria had sticky tails and would attach to a needle or scalpel which touched the tails. I could see no accumulation of these artificially freed specimens into knots, however.

When ripe the cercaria must be released from the snail in groups or waves and as they writhe about the tails collide and stick, until balls of 25 to 60 individuals are formed. Fig. 1, photograph.

The cercaria tails are made up of two parts, the distal portions glandular, (Fig. 2) as a whole or in part, and the proximal parts strongly extensible. As long as the cercariæ are in place on the tails they are kept in constant motion, some tails contracting while others are extending, which makes the specific name very realistic.

The longer such a group drifts, the fewer cercariæ remain, and when all are lost the quiet ball of permanently contracted tails may be found at the bottom of the container.

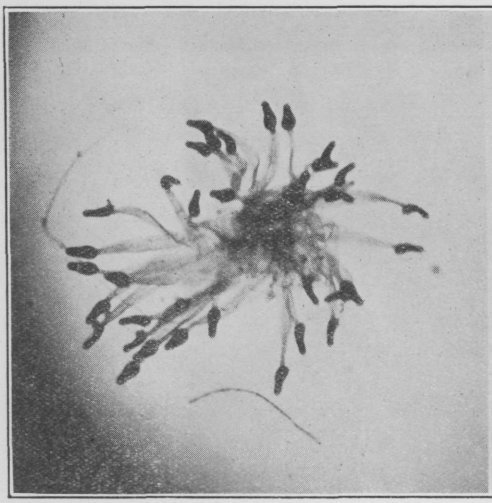

FIG. 1.
Cercaria gorgonocephala. Photo × 25.

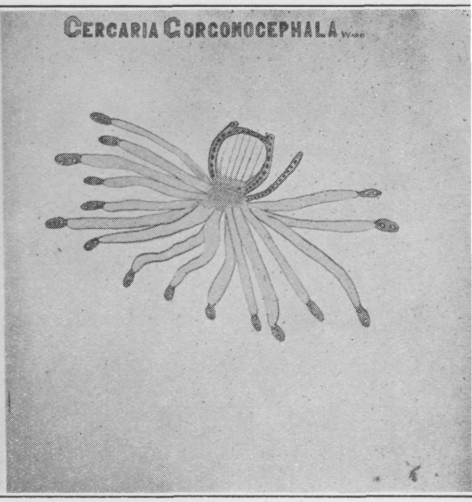

FIG. 2.
Photo of diagram based on camera sketch.

On July 30, 1929, a specimen was taken from the surface of the harbor by the dock which had a bubble of air enclosed by the free ends of the glandular portions of the tails. (Fig. 2). As a result the whole combination was floating about on the surface of the water much as a Portuguese man-of-war may float, and the cercaria were being thrust downward and outward as they extended. It was difficult to keep the creatures under observation because the breath of the observer carried the mass out of the field of the microscope.

The compound specimen photographed in figures 1 is less than 2 mm. in diameter as contracted. Single specimens are shown in figures 3 and 4 and the tip of the tail from which the

animal has been lost in figure 5. The separate nuclei show rather plainly in these specimens. The preserved animal is less than 0.2 mm. in length and half that in width at the widest part. Figure 4 is put in to show the point on the dorsal side at which the tail is attached.

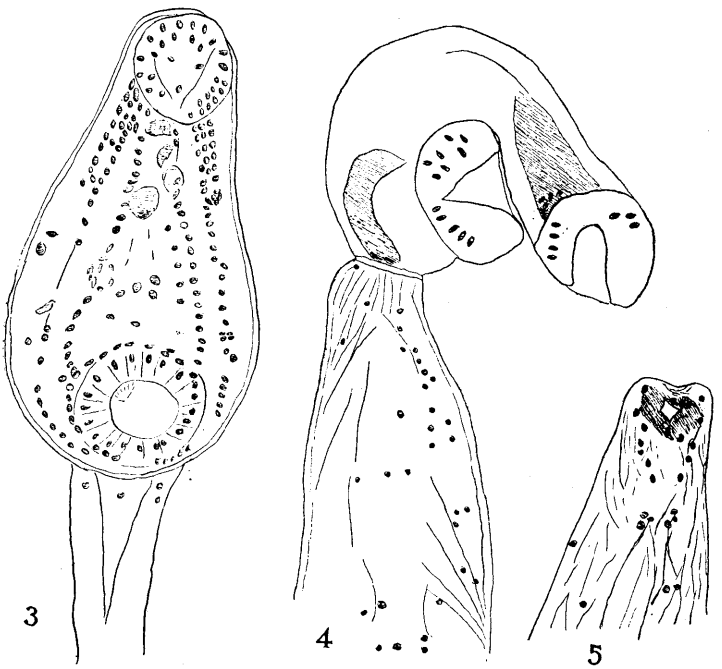

FIG. 3. Ventral view, one cercaria.
FIG. 4. Lateral view, one cercaria and attachment to tail.
FIG. 5. End of tail with cercaria lost.

Whatever the balance of the life history, this grouping of the cercaria into a mass, whether floating or submerged, and the constant motion of the separate parts makes an adaptation for infecting the next aquatic host as a part of its food that can hardly be surpassed.