

CADDIS-WORMS AS AGENTS IN DISTRIBUTION OF FRESH WATER SPONGES.

FREDERIC H. KRECKER.

A freshwater sponge, which is probably *Spongilla fragilis*, is found in great abundance on the rocks and other solid objects in the region of the Bass Islands, Lake Erie. It is a green sponge which usually grows as a delicate incrustation on the objects to which it is attached; at times it assumes a cylindrical shape. While examining some material which had been dredged from what is known as Gibraltar Bar in Put-in-Bay, I noticed that the cases of a caddis-fly larva belonging to the *Rhyacophilidæ* were covered by *Spongilla*. The dredging had been done in five feet of water on a stony bottom.

The case of these *Rhyacophilidæ* is made of a parchment-like material in the form of a cone approximately 12 millimeters long. The broad end has an opening through which the larva is able to protrude its body and crawl about with its case. The cases examined were encrusted to a varying extent by the sponge. Several were entirely covered except for a small patch on the ventral side near the opening. On other cases merely a small spot was occupied. Between these extremes there were cases showing all intermediate stages. Professor Stephen R. Williams informs me that he has seen shells of aquatic snails similarly covered. His observations were made at Cedar Point, which is also on Lake Erie, but about twenty miles from Put-in-Bay, near Sandusky, Ohio.

Spongilla fragilis is of course a sessile animal without any very rapid means of distribution. On the other hand, a comparatively active animal, such as a rhyacophilid larva, in the course of its wanderings, would be likely to carry a sponge some distance from its point of origin and thus aid the more rapid spread of the species.

That a sufficient number of the caddis cases are invested with *Spongilla* to make the larvæ a factor in distribution is to be seen from the percentage of covered cases observed among those collected. In one mass of material dredged over a distance of twenty-five to thirty feet, there were twelve caddis-worm cases and eight of them were encrusted with sponges. In another haul there were three cases and one was covered. These results, compared with other more casual observations, indicate that from a third to a half of the cases bear the sponges.

Ohio State University, Columbus, Ohio.

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