

A COMPARATIVE STUDY OF RIVER POOL AND POND  
COMMUNITIES, WITH SPECIAL REFERENCE  
TO THE SPHAERIIDS

BY

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In connection with life history studies on the finger nail shell, *Sphaerium solidulum*, carried on at the University of Illinois under the direction of Dr. H. J. Van Cleave, observations were made concerning the habitat relations of this species.

Collections were taken from an oxbow pond near Muncie, Illinois. This pond formed part of the stream bed of Stony Creek until the stream was straightened during the building of a railroad grade in 1872. Part of the pond was deepened by removal of soil for the railroad grade. Since then the portion of the old stream-bed connecting the pond with the stream has been filled by sedimentation and the encroachment of vegetation. This area now supports cat-tail, willow, and button-bush. Elodea and algae grow in the pond near the shore.

The sphaeriids are numerically predominant in the pond community. A bottom sample from 1/16 sq. m. of bottom yielded 120 *Sphaerium*, 3 *Physa*, and 1 leech. Other animals taken at different times were: snails, *Helisoma* sp.; other sphaeriids, *Musculium* sp., and *Pisidium* sp.; mussels, *Uniomermis tetralasmus*; backswimmers; water beetles, *Petlodytes 12-punctatus*; burrowing dragonfly larvae, *Gomphus* sp.; mosquito larvae; red chironomid larvae; leeches; crayfish, *Cambarus propinquus*; amphipods, *Hyallata knickerbockeri*; isopods, *Asellus communis*; frogs, *Rana pipiens* and *Acris gryllis*; turtles, *Chrysemys* sp.; sunfish, *Lepomis* sp.; minnows, *Notropis* sp.; suckers, *Catostomus* sp.; mud cat, *Amieurus* sp.

Collections from pools connected with the stream in Stony Creek and in Salt Fork into which it flows yielded: crayfish, *Cambarus propinquus*; minnows, *Notropis whipplei*, *N. gilberti*, and *Hyborhynchus notatus*; suckers, *Catostomus nigricans*; black bass, *Micropterus salmoides*; isopods, *Asellus communis*; burrowing dragonfly larvae, *Gomphus* sp.; red chironomid larvae; mussels, *Lasmigona complanata*, *Cyclonaias tuberculata*, and *Lampsilis* sp.; water beetles, *Petlodytes 12-punctatus*; snails, *Goniobasis livescens*; sphaeriids, *Sphaerium solidulum* and other species of *Sphaerium*; Bryozoa, *Plumatella* sp.; caddis worms *Hydropsyche* sp.; mayfly larvae, *Hexagenia* sp., and *Heptagenia* sp. Of these the crayfish were numerically predominant. The sphaeriids were not numerous.

Trematode larvae of the family Allocreadiidae develop in the sphaeriids of this locality. The metacercaria encyst in *Hexagenia* nymphs, and the adults are found in fishes (*Lepomis* and *Amieurus*). Thus the entire life history of these trematodes is accomplished within the pool community.

The stream-bed pools represent the earliest stage in a hydrosere leading to dry land. The pond fits into this sere, and the marshy area adjoining the pond represents a stage still more advanced. The pond has a number of species in common with the stream pools. These include *Cambarus propinquus*, *Sphaerium solidulum*, *Asellus communis*, the chironomid larvae, and some of the fish. Other species (as *Goniobasis*, *Hydropsyche*, and *Heptagenia*) taken in the stream pools are typically rapids forms which are only visitors to the pool community. Other stream pool species (as the *Hexagenia* and the mussels) disappear altogether in the pond. The sphaeriids, however, which occupy only a minor place in the stream pool community, become overwhelmingly predominant in the pond.