

OBSERVATIONS ON THE LIFE HISTORY OF A  
FINGERNAIL SHELL OF THE GENUS  
SPHAERIUM

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ABSTRACT

Very little work has been done on the life history of the fingernail shells. Most of the conchologists interested in the bivalves have confined their work to the larger pearly fresh-water mussels about which much information has been published. The studies that have been made on the fingernail shells have been, for the most part, taxonomic in character. Those comparatively few which are not taxonomic are chiefly morphological.

This study, suggested by Dr. H. J. Van Cleave of the University of Illinois, focuses attention on the life history and reproductive habits of the Sphaeriidae. The material studied was taken from a small ox-bow pond near Muncie, Illinois, in a series of monthly quantitative collections beginning in February of 1930 and extending throughout the year to and including March of 1931.

The conclusions were founded on a statistical analysis and microscopical examination of these collections. From the data obtained by this method of approach, an attempt has been made to interpret the life history and reproductive habits of *Sphaerium solidulum*, one of the numerous species of genus *Sphaerium*, a widely distributed animal group of North America.

Observations made and conclusions formed as a result of this study are summarized as follows:

1. Twelve monthly quantitative collections made from the same habitat gave 7,022 individuals, or an average monthly collection of 585 individuals of the same species (*Sphaerium solidulum*).
2. Distribution curves were prepared based upon numbers of individuals falling into eighteen size-groups depending upon the thickness of the animal.
3. Correlation of size groups with material taken from different habitats was noted.

4. No individuals of maximum size were present during the months from August to February.
5. Individuals of the species under observation have a distinctly limited life span of approximately one year.
6. The analysis of distribution curves of each quantitative sample indicates two size-groups in each collection as shown by the bimodal character of each graph.
7. The maximum period of reproduction of this species does not occur in the summer months as previously believed but in the winter months.
8. Seasonal growth rings are not present on this shell although concentric lines are characteristic.
9. Anatomical investigation of marsupial pouches of the December and July adults reveals:
  - (a) Marsupial pouches generally contain either two or four embryos.
  - (b) When four embryos occur, two are distinctly larger than the other two.
  - (c) Embryos are found in individuals of size groups that have attained one half maximum adult size.
  - (d) A larger percentage of "young" adults appears in December than in July.
  - (e) Distribution curves of embryos feature the bimodal character of the young and adult.
10. Maximum size adults are apparently sterile.
11. Claspings habits of the young when disturbed may be a factor in the distribution of the species.