

1941 (9)

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PRELIMINARY INVESTIGATIONS IN PELECYPODA, WITH  
EMPHASIS ON THE SUBFAMILY ANODONTINAE

INTRODUCTION

Last fall I began the study of the fresh-water Pelecypoda. At that time all knowledge pertaining to them which I possessed had been gained through occasional contacts with them in other courses taken at the University, and my own observations which were made during previous years. Once, when a 12-year-old boy, I made a stew out of what I now know as LAMPSISIS SIBIQUOIDEA and found it quite palatable.

Seeing that practically all my knowledge was superficial and quite unorganized I realized that before any amount of serious research could be done in the field of Conchology a certain amount of preliminary investigation quite elementary in nature should be completed. This has been my objective for the past semester. The nature of my investigation has been as follows:

1. The collection of Pelecypoda (and Gastropoda).
2. A study of their habitats.
3. Observations on any adaptations made by certain mollusca (Pelecypoda in particular) to their environment.
4. Observations of the Pelecypods collected while living as captives in aquaria at room temperature.
5. Taxonomic studies of specimens collected.
6. The forming of a workable bibliography.
7. Reading any of the literature pertaining to phases of molluscan biology of interest.

would act as a favorable host. Nina Winslow has stated that the green sunfish is a natural host to ANODONTA IMBECILIS. Careful observations were made and recorded as to the amount and location of glochidial infections. At present I am able to say that the glochidia remain attached to the guppies for two weeks (approximately). By that time they are partially imbedded in the fins. Then due to some factor they fall off. This is due either to an immunity of the fish or the fact that the fins are too lacking in thickness to allow complete imbedding. I believe the latter reason is most logical as the glochidia seem in good condition up to the time of falling.

The goldfish were a complete failure as hosts. The fins were too weak in texture for the glochidia to begin to imbed. After several days of exposure to glochidia all fins of these fish showed scallop-like lacerations where glochidia had fastened to the fin and had torn out a chunk of tissue.

Nina Winslow states that glochidia of ANODONTA IMBECILIS parasitized a "Johnny darter" so heavily in her aquarium that it died within a few hours. This happened also in every detail to my rainbow darter. Upon performing a post mortem I noticed that his lips and gills were covered with glochidia. This is the penalty the darter pays for lacking a swim bladder. The glochidia which had eventually sank to the bottom in great numbers were able to concentrate on the darter, causing its death.

On December 28 a member of the sunfish family was introduced. It is not a green sunfish. At present there is one glochidia sticking bravely on the left pectoral fin.. It has

been there slightly over two weeks and has become slightly imbedded.

At present (Feb. 5) a few of the guppies still harbor glochidia. Because of this fact we know that the adult clam has been shedding glochidia at least until two weeks ago (as the glochidia can remain on the guppies for about two weeks). This shows that the gravid ANODONTA IMBECILIS has been shedding glochidia continually since November 18, a period of over ten weeks. I believe that this must be repeated before any final statement could be made.

I have watched the other species of clams for the expulsion of glochidia. I found one TYCHOBRANCHUS FASCICLARE gravid during early November but injured it in the examination so that it had to be removed. To my knowledge none of the rest have become gravid as yet.

Many other observations were made which require too much space to be placed in type. As a side-issue I was able to draw by microprojection the larvae of Eucephalus elegans (identified by Dr. Woodhead) which emerged from MICROMYA IRIS (emergence also due to increase in temperature). Normally they would emerge in the spring.

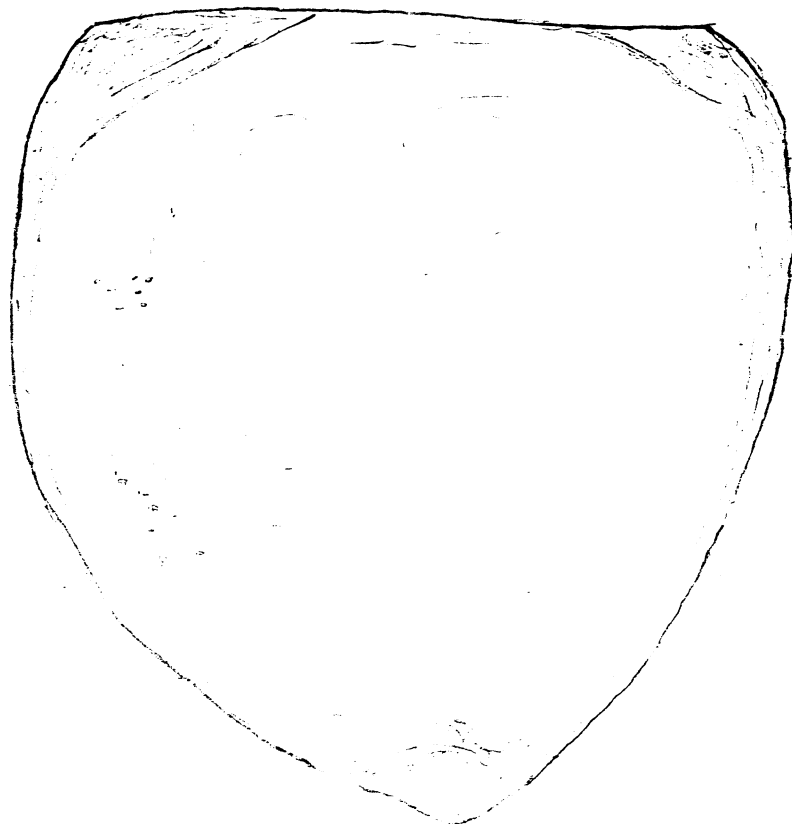
During the fall I collected land Gastropoda for my own collection. Many species from the area are not found in northern Michigan.

During December and January I have concentrated on my bibliography and the reading of literature pertaining to my field. At present I have listed about 800 useful references on cards. I have purchased as much literature as was financially possible.

My bibliography may be divided into the following divisions:

1. Items pertaining to the special phase of Conchology in which I am interested( ecological relationships, taxonomy, geographic distribution).
2. Items pertaining to other studies on Pelecypods( their Physiology, Morphology, etc.).
3. Items on Mollusca in general.
4. Items on corelated subjects. Example: Ichthyology(hosts); Parasitology(Trematoda, parasites of Mollusca).
5. Miscellaneous. Items of interest in any field. Later as a group of related entries becomes large enough it will be placed under a separate heading.

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Nov 19, 1940

## 8. Observations on Gastropoda.

### PROCEDURE

Because the study of mollusks is quite seasonal I decided that all collecting and out-of-door observations should be made in the early fall. This was wise because I noticed that the last two trips made in collecting (Nov. 16-17) gave poor results. According to Van der Schalie the clams had buried themselves too deeply by that time in the river bottom to be noticed. My observations on types of habitats coincided with those of Van der Schalie. However, on the last day of collecting (Nov. 17), although the ice had attained the thickness of one-half an inch, I located two beautiful specimens of ANODONTA IMBECILLIS about two miles below Ford's Dam on the Huron River. Both were very active and were found by following their trails left on the bottom. Van der Schalie states that many clams make sporadic journeys during winter so this also is not a new observation.

One of the ANODONTA IMBECILLIS began liberating glochidia in great quantities two days after being placed in an aquarium. This was due, I believe, to the sudden change of temperature which caused abortion. I have observed live-bearing Gastropoda (and fish) to do this many times due to a sudden drastic change in temperature.

An attempt was made to parasitize fish with glochidia in order to complete the life cycle of the clam. The only fish immediately available at the time were several pumpies and one rainbow darter. I bought three goldfish in the hope that they