

## AESTIVATION OF *LYMNAEA LANCEATA* (GOULD)

BY HENRY VAN DER SCHALIE

Through a grant in aid from the H. H. Rackham fund, intensive collecting of land and fresh-water mollusks in the Green Bay region of Wisconsin was made possible during the summer of 1939. In the course of this work an interesting observation was made on the aestivation of a colony of *Lymnaea lanceata*. This colony was found aestivating on tree trunks. So far as can be determined, this behavior is different from that of any other species of aquatic pulmonates living in temporary woods-pools.

It is now common knowledge that several species of aquatic pulmonates, such as *Aplexa hypnorum*, *Lymnaea palustris*, *L. caperata*, *L. stagnalis*, and *Gyraulus parvus*, among others, during periods of drought bury themselves in the mud at the bottom of the pools they normally inhabit. One naturally assumes that most aquatic pulmonates inhabiting temporary pools behave in this manner. However, *Lymnaea lanceata* may be an exception to this generalization. The suggested difference in its behavior is emphasized by the fact that Sterki<sup>1</sup> reported a somewhat similar observation for *L. lanceata*. He found this species in a marsh near Hudson, Ohio, aestivating "on stems and leaves of sedges, several inches above the ground."

The colony of *L. lanceata* in Wisconsin inhabited a swamp about six miles west of Oconto Falls. Hundreds of them were found aestivating on the trunks of the elms that formed the border around a dense growth of cedar trees. They were attached to the bark by an epiphragm. A collecting bag could be filled with specimens by merely running a hand downward along the bark, catching the specimens as they fell. Many specimens were orientated with the apex of the shell pointed upward, but this situation was by no means common to all of them. Several were seen as high as five feet above the ground. Among the leaves, soil and dried vegetation surrounding the base of the trees, the following additional species were collected (given in the order of their abundance):

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<sup>1</sup> NAUTILUS, 26, 1912, pp. 64-65.



*Aplexa hypnorum* (Linneus)

*Physa gyrina elliptica* (Lea)

*Lymnaea caperata* Say

*Sphaerium occidentale* (Prime)

Since *Lymnaea lanceata* is often confused with *L. kirklandiana* and *L. exilis*, it would be interesting if this unusual habit of aestivation should prove to be an adaptation not shared by the species to which *L. lanceata* is so closely related. Additional information on the seasonal habits of *L. lanceata* must be obtained before the significance of its characteristic form of aestivation can be appreciated fully.

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## NOTES AND NEWS

REMARKABLE CALCIUM DEPOSITS IN *EUNATICINA OLDROYDII* (DALL).—During a gross anatomical study of the anatomy of the gastropod, *Eunaticina oldroydii* (Dall), a large female of this species was found whose body contained abnormal calcium deposits. One of the principal deposits was situated at the mouth of the gonoduct in such a manner as to completely occlude it, thus preventing the successful completion of the copulatory act. Two such other deposits were firmly fixed between the lamellae of the gill which is normally situated on the left side of the mantle cavity and the large intestine which rests in close proximity to the right side of this cavity. The leverage provided by these two calcium deposits pulled the gill from its normal position over to the right side of the mantle cavity. Another deposit was attached between the posterior face of the head just behind the right tentacle and to the muscular covering of the crop which excludes this structure from the mantle cavity. Thus the head which normally occupies a position forward to the above named cavity was drawn posteriorly and dorsad into this cavity. The final deposit of note was embedded in the left wall of the pericardial cavity over the auricle. When this deposit was dissected away it was found that its inner surface, which was perfectly smooth, was attached directly to the wall of the auricle. The side of the mass which was attached to the auricle wall was triangular in outline and measured 3 mm. across its long axis. Numerous other smaller



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