

bobbinet around the tip of an otter trawl this *Acetes* sometimes is obtained in gallons at a time, especially in late summer and early fall."

ZOOLOGY.—*The eggs of Goniobasis virginica Gmelin and Anculosa carinata Bruguière.*¹ CHARLES P. WINSOR, Johns Hopkins University. (Communicated by RAYMOND PEARL.)

So far as I know the eggs of these two species have never been reported. Jewell² has described the eggs of *G. liviscens correcta*, and Van

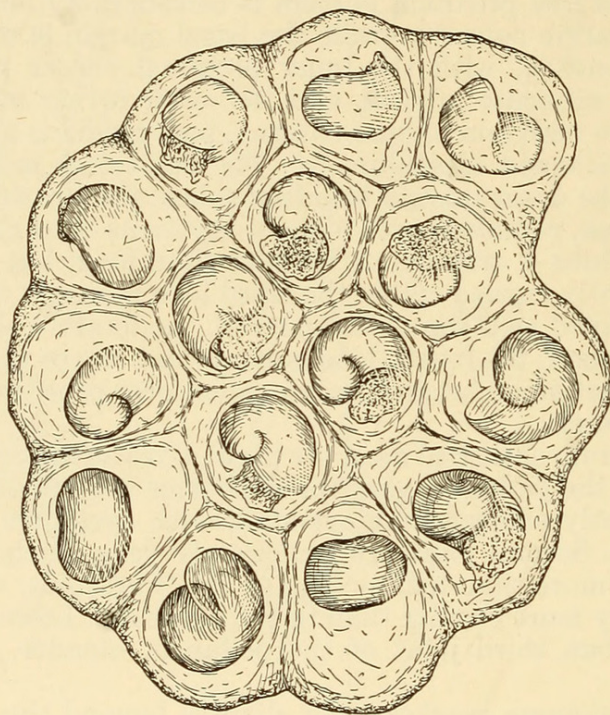


Fig. 1.—Egg mass of *Goniobasis virginica*. $\times 36$.

Cleave³ has described the eggs and egg-laying habits of species of *Pleurocera Lewisii* and *P. acuta*.

During June of this year several trips were made to Gunpowder Falls, a stream about 15 miles north of Baltimore, in which *G. virginica* and *A. carinata* are abundant. (A description of the locality

¹ From the Department of Biology of the School of Hygiene and Public Health of the Johns Hopkins University. Received September 23, 1932.

² Jewell, Dorothea Dodd, Observations on reproduction in the snail *Goniobasis*: Nautilus, vol. 44, pp. 115-119, 1931.

³ Van Cleave, H. J., Studies on snails of the genus *Pleurocera*. I. The eggs and egg-laying habits: Nautilus, vol. 46, pp. 29-34, 1932.

will be found in a paper by Baily, Pearl, and Winsor.)⁴ An examination of the rocks in the stream-bed showed large numbers of egg-masses, which proved in the laboratory to be those of *G. virginica*. Further search on the rocks in mid-stream showed numerous egg-capsules of a different type, obviously those of *A. carinata*.

The eggs of *G. virginica* are laid in masses of from two to fifteen or more, attached to the rocks in the stream bed. The egg mass, as may be seen from Fig. 1, resembles closely that of *Pleurocera* as described and figured by Van Cleave. The spiral arrangement of the eggs in the egg mass of *G. virginica* is generally marked. There is a fairly tough outer membranous covering, which forms septa dividing the mass into compartments. Within each of these is a much thinner egg-membrane, enclosing the albumen and embryo. A considerable amount of foreign matter is generally rather firmly attached to the mass.

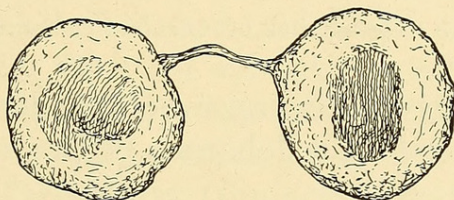


Fig. 2.—Eggs of *Anculosa carinata*. $\times 36$.

The eggs of *A. carinata* resemble generally those of *G. liviscens* as described by Jewell. They are laid separately, usually in lines of three

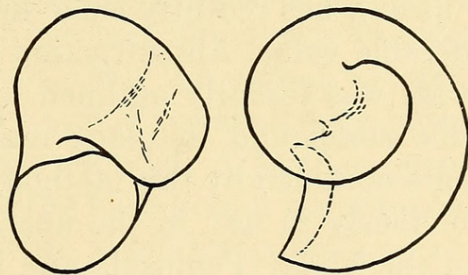


Fig. 3.—Young shell of *Goniobasis virginica*. $\times 72$.

to six or more; the successive capsules may be connected by a thread-like portion of the outer membrane. The capsules are circular or slightly elliptical, flat against the rock and convex on the outer side. A thin egg-membrane surrounds the albumen and embryo. The outer

⁴ Baily, Joshua L., Jr., Pearl, Raymond, and Winsor, C. P., Variation in *Goniobasis virginica* and *Anculosa carinata* under natural conditions: *Biologia Generalis*, vol. 8, pp. 607-630, 1932.

surface of the capsule is granular owing to the sand grains that adhere to it. (Compare Van Cleave's description of *Pleurocera* eggs.)

No data are available on the duration of embryonic development for either species, though it is probably not widely different from the $11\frac{1}{2}$ days reported by Jewell. Figure 3 shows a young specimen of *G. virginica* hatched in the laboratory; Figure 4 shows a young *A. carinata* found in the river; unfortunately none of the eggs brought in hatched.

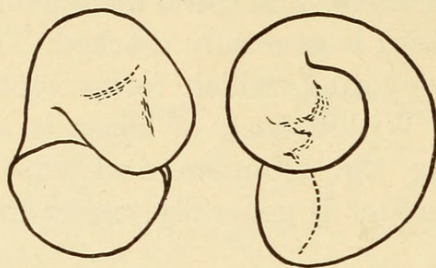


Fig. 4.—Young shell of *Anculosa carinata*. $\times 72$.

All of the drawings in this paper were made by the staff artist of this department, Mr. Arthur Johansen, with a camera lucida.

CHEMISTRY.—*The rotenone content of derris root, cube root, and other plant materials.*¹ HOWARD A. JONES, Bureau of Chemistry and Soils. (Communicated by C. M. SMITH.)

Rotenone, a constituent of derris root (*Deguelia* sp.) and of cube root (*Lonchocarpus nicou*), has recently come into prominence as an insecticide of considerable value. An extraction method² making use of carbon tetrachloride was recently outlined by the author for the determination of this compound in plant materials. The present article gives the results obtained by this method, and by an ether extraction method previously in use, in the analysis of plants of the genus *Deguelia* from the Malay Peninsula and the East Indies, and plants of the genus *Lonchocarpus* from South America.

Rotenone has been previously reported as occurring in species of both of these genera of plants. Nagai³ was the first to isolate rotenone from a species of *Deguelia*, the roots of *D. chinensis*. By ether extraction of the roots of *D. elliptica*, Kariyone and Atsumi⁴ obtained 6.65

¹ Received October 12, 1932.

² Ind. Eng. Chem., Anal. Ed., vol. 5, no. 1, Jan. 15, 1933.

³ Jour. Tokyo Chem. Soc., vol. 23, p. 744, 1902.

⁴ Jour. Pharm. Soc., Japan, no. 491, p. 10, 1923.



Winsor, Charles P. 1933. "The eggs of *Goniobasis virginica* Gmelin and *Anculosa carinata* Bruguiere." *Journal of the Washington Academy of Sciences* 23, 34–36.

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