

BIOLOGY

(Papers numbered 1 to 8 were presented at meetings previous to that of 1922, but were not published in the earlier volume. Papers numbered 9 to 32 were presented in the meetings of 1922.)

II. A NOTE ON THE RELATION OF HEAT AND MOISTURE TO THE BEHAVIOR OF THE TEXAS

LAND SNAIL

Ed. D. Crabb

From the Zoological Laboratory of the University of Oklahoma.
Contribution No. 7, Second Series.

The observations were made at Camp Bowie, Fort Worth, Texas, in the late summer and fall of 1917 and spring of 1918, upon *Pylimulus decalbatus*, Say, *B. mooreanus* and *B. parriarcha*, Pheib., as determined for me by the late Louis P. Gratcap, Curator of Mollusca, at the American Museum of Natural History.

In warm dry weather these molluscs may be seen cemented to

the vegetation. Sometimes they were so numerous and their nearly white shells so noticeable as to suggest that the prairie weeds were blossoming snails.

These snails are rarely active between eight o'clock in the morning and sunset, unless cloudy weather prevails. My observations, however, lead me to believe that moisture rather than darkness is responsible for the activity of the molluscs for immediately after a hard shower none were cemented to the weeds, rocks, or other objects, but all that I saw were moving.

Prompted by these observations the writer performed some simple experiments. Three living specimens, which had sealed their shells with epigrams were immersed in water. One of these emerged in just six minutes. The epigram of one of the other two was then punctured and all three placed in a dry cup in my locker. The next morning the one that had emerged while immersed had climbed out of the cup, but neither of the other two had emerged. Before noon they emerged but soon retreated into their shells and sealed the entrances. During the afternoon six others which had been in my locker several days without having removed their epigrams, emerged, and after crawling about some, cemented themselves to the sides of the till and to articles in the locker. The activity of these specimens was doubtless due to the humidity of the atmosphere, for it is really great when the sun shines just after an August shower; even the clothes in the locker were damp the day after the rain. In another case a number of snails that had been placed in the locker during dry hot weather sealed their shells and all estivated until awakened by moisture. These observations lead to the conclusion that not heat but moisture is the factor which determines the behavior of snails during observation.