

92 (502)

Alleged rhythm in phototaxis synchronous with ocean tides.By **MAX WITHROW MORSE.**

[From the Harpswell Biological Laboratory, South Harpswell,
Maine.]

A series of observations upon the periwinkles, *Littorina litorea* and *Littorina rudis*, and the snail, *Ilyanassa obsoleta*, carried on from June 18 until August 26, failed to corroborate the conclusions of Bohn,¹ who describes a daily rhythm in the reaction to light in specimens of *Littorina litorea* and *Littorina rudis* corresponding to the times of high and low tide, even when the animals are taken from the sea and placed in aquaria, exhibiting thus a sort of "memory" of the tides.

In the present experiments the reaction to light was tested in each specimen, at least three times a day, and white and black screens were used, as in Bohn's experiments, to determine whether the forms were positively or negatively phototactic. During the days of June, they were, as a rule, negatively phototactic, and as night approached, they became positively phototactic. However, after July 18, the preponderance of positive phototaxis during the day was very noticeable. This period of transition corresponded to the time of change from spring to neap tide, during which the specimens out on the rocks were exhibiting a corresponding change in phototaxis, for the water did not reach them; their behavior tallied with the description of Mitsikuri,² who showed that when desiccated, periwinkles became positively phototactic, and when wet, turned negatively phototactic. In these observations there is an approach to Bohn's conclusions concerning rhythms in phototaxis with respect to *fortnightly* (spring and neap) rhythms in tides, if not to his conclusions concerning daily (high and low) oscillations. However, no other period was passed through while these animals were under observation, during which there was a return to *negative* phototaxis, and it is doubtful that this change was anything more than a variation in laboratory conditions which were not determined by suitable check. On the

¹Bohn, Georges, *Compt. rend. d. l'Acad. des sciences*, 1904, cxxxix, 610, 646.

²Mitsikuri, K., *Annot. zool. japonenses*, 1901, 4.

other hand, Bohn states that the rhythm disappears after a time, in laboratory specimens and my failure to observe anything farther indicating a change in phototaxis may be due to the disappearance of the rhythm from the animals. Details of the experiments are published in another journal.

93 (503)

The vaso reaction of hydrophobic rabbit blood serum in dogs.

By **J. P. ATKINSON** and **C. B. FITZPATRICK.**

[*From the Chemical and Research Laboratories of the New York Department of Health.*]

In November of last year we injected into the femoral vein of a dog 5 c.c. of the defibrinated centrifuged blood of a rabbit, which had previously been injected subdurally with a fixed seven days' virus of hydrophobia.

The arterial pressure taken with a mercurial manometer from the carotid artery showed a marked depression. Further trials of the same experiment gave the same results. Since these experiments, we have been able to demonstrate that the blood serum of rabbits, which have been infected with hydrophobia 72 and 48 hours previously as described, possess this depressor substance, and even in the serum of a rabbit which had been infected only 24 hours previous to bleeding, there was a decided indication of a depressor substance.

If the blood of a rabbit suffering from hydrophobia be run into absolute alcohol and the filtered alcoholic extract be evaporated on the water-bath or *in vacuo*, there will be found a water-soluble substance which causes a marked arterial depression. We obtained this depressor effect in the alcoholic extract also from the blood of the rabbits injected only 48 and 24 hours respectively before the test.

Choline is a poisonous nitrogenous base derived from the phosphorylated fat of nucleo-protein, in which brain and nerve tissue are very rich. It has been demonstrated that hydrophobia travels along the nerve from the point of injection to the brain. It seems to us quite possible that in the development of the disease nucleo-protein is decomposed; among its decomposition products choline