

ZOOLOGY

Chairman: JOHN O. WHITAKER, JR., Indiana University
JAMES C. LIST, Ball State University, was elected chairman for 1969

ABSTRACTS

Temperature Preferences in the Eastern Garter Snake (*Thamnophis sirtalis sirtalis*). DAVID C. KRAMER, Ball State University.—Nine Eastern Garter Snakes were maintained in a thermal gradient box with a controlled photoperiod for 54 days. The snakes were observed twice daily and the environmental temperature selected by each was recorded. After 20 days' exposure to a daily photoperiod of 14 hours, the snakes were exposed to a photoperiod of 10 hours for 34 additional days, but no change in temperature preferences was noted. The average temperature selected by all of the snakes for the entire test period was 22.9 degrees C. However, there was a consistent tendency for all snakes to select a slightly warmer temperature in the afternoon than in the morning. The average difference between the preferred morning and afternoon temperatures was approximately 2.0 degrees C.

Relationship between Emergence Rhythm and Metabolic Rhythm in *Drosophila melanogaster*. WILLIAM J. BRETT, Indiana State University.—A population of wild type *Drosophila melanogaster* was maintained in a twelve-hour-light—twelve-hour-dark cycle with light onset at 9:00 a.m. Females were allowed to oviposit over a 24-hour period to provide comparably aged samples. The oxygen consumption for a number of pupae obtained from each sample was determined for a one-hour period at three-hour intervals over a 48-72 hours period. The remaining pupae in each sample were permitted to emerge and number of adults determined at three-hour intervals. The peak for emergence occurred at 12:00 noon. Oxygen consumption exhibited a major peak at 10:00 p.m. and a minor peak at 1:00 p.m. With the exception of the minor peak the two curves were almost mirror images of one another. These results suggest that emergence may actually occur during a metabolic-low.

The Effects of Chicken Luteinizing Hormone on the Pullet Ovary. JOHN M. BURNS, Indiana University.—Mammalian luteinizing hormone (LH) has very little effect on the immature chicken ovary and, therefore, a study was initiated to determine the response of the pullet ovary to chicken LH. As no purified samples of chicken LH were available it was necessary to develop a method for obtaining LH activity from chicken pituitary glands without interference from the pituitary follicle stimulating hormone (FSH). This was done by treating chicken pituitary glands with neuraminidase which inactivated the FSH. The administration of chicken LH to immature chickens resulted in:

- (1) a significant ^{32}P uptake by the ovary in 15 minutes.
- (2) an increase in ^{32}P incorporation into the RNA fraction of the ovary.

- (3) a marked increase in the levels of ovarian 17-B estradiol, estrone, and estriol.

Tracheal Mucous Velocities in the Rabbit, Dog, and Rat. ANDREW W. GRUENHOLZ and HENRY TAMAR, Indiana State University.—The tracheas of 24 Dutch rabbits, 16 dogs, and 6 Charles River albino rats were excised, opened, and immersed in oxygenated Tyrode's solution. The transit time of a 1 mm. platinum disc over 5 mm. of pseudo-stratified ciliated epithelium was determined at 39° C for the rabbits and dogs, and at 37° C for the rats. The insulated test chamber was leveled, extraneous heat was eliminated, and a 15-minute adaptation period was allowed. Transit times for the rabbit and dog remained constant for one hour. The mean mucous-flow velocity was 0.292 mm./second for the rabbit, 0.585 mm./second for the dog, and 0.167 mm./second for the rat. The difference between the rabbit and dog values was significant at the 0.1 level. Solutions of 0.2M and 0.25M NaCl depressed ciliary activity in the dog respectively 1.9 and 1.68 times more than the equivalent concentrations of KCl. In the rabbit as well 0.2M NaCl was more depressant than 0.2M KCl. The trachea of the rabbit exhibited rhythmic contractions of its blood vessels following immersion in 0.2M KCl.

Studies on the Growth Rate of the Juvenile Pilot Black Snake (*Elaphe obsoleta*). ROBERT E. GEYER, JR. and WILLIAM B. HOPP, Indiana State University.—Fifteen pilot black snakes were hatched from eggs in the laboratory. These snakes were individually housed and divided into five groups of three snakes per group. Each snake in group I received 1 cc of food per week, group II, 1.5 cc per week, group III, 2.0 cc per week, group IV, 2.5 cc per week, and group V, 3.0 cc per week. The snakes were force-fed a mixture of strained baby foods consisting of beef, beef liver, and veal by the syringe-catheter technique. Although several measurements were taken, weight gain was found to be the most reliable basis for determining growth. Weekly recordings of weight were made during the 12-week period this experiment was conducted.

At the end of 12 weeks the snakes in group I had gained an average of 1.93 grams, group II, 2.80 grams, group III, 3.33 grams, group IV, 4.77 grams, and group V, 6.25 grams. The average gain in weight per week for each group was 0.16, 0.23, 0.28, 0.40, and 0.52, respectively.