ZOOLOGY

Chairman: RUSSELL MUMFORD, Purdue University

J. HILL HAMON, Indiana State University, was elected chairman for 1967

ABSTRACTS

New distribution records for *Sorex longirostris* and *Citellus tridecemlineatus* in Indiana. RUSSELL E. MUMFORD, Purdue University.—Since 1962, *Sorex longirostris* (southeastern shrew) has been collected for the first time in the following counties: Boone, Dubois, Martin, Parke, Pike, Vermillion, Vigo, Washington. The thirteen-lined ground squirrel (*Citellus tridecemlineatus*) has been observed at a new locality (Edinburg) in Johnson County and for the first time in Bartholomew County. An unconfirmed sighting from Decatur County may be valid.

Intra-mammary pressures in response to graded levels of intravenous oxytocin. E. H. ROW, P. V. MALVEN, D. L. HILL and J. L. ALBRIGHT, Purdue University.—Intra-mammary pressures were measured both before and after several machine milkings in four Holstein cows producing 25-30 lbs. of milk per day. All cows were injected prior to and following milking with graded levels of intravenous oxytocin via a polyethylene cannula placed into the external jugular vein.

Intra-mammary pressure was determined by inserting a metal cannula into the right front teat cistern. The cannula was connected to a closed system containing a fluid trap and a mechanical pressure gauge. The pressure gauge had been previously calibrated with a mercury manometer.

Intra-mammary pressures measured before milking and prior to any oxytocin administration varied from 14 to 25 mm. Hg. Massage of the other teats or threshold injections of oxytocin markedly elevated the pressure (30-59 mm. Hg). The minimum dosage of injected oxytocin which caused an appreciable increase in pressure was 15 mU. The time between the injection and the pressure increase varied from 30 to 90 seconds.

Using conventional milking machine procedures, the intra-mammary pressures 10-15 minutes after milking varied greatly between animals. A range of zero to 18 mm. Hg. was observed. Our attempts to determine the threshold dosage of oxytocin were inconclusive for several reasons. The magnitude of the pressure increase following a threshold dosage was considerably less than that observed prior to milking. Consequently, small pressure fluctuations caused by movement of the animal's rear legs could not be clearly distinguished from responses to oxytocin. (This research was financed in part from funds provided by a Purdue Faculty Research Foundation David Ross Grant.)

Some Aspects of Mating and Egg Development in *Betta splendens*, the Siamese Fighting Fish. PATRICK F. OLIVER, Ball State University.—This study was conducted to observe the courtship, mating and egg development in *Betta splendens*, the Siamese Fighting Fish.

Due to their uniqueness, the courtship and mating have been observed many times; however, little work has been done with the development of the fertilized egg.

In this study, eggs were observed and photographed at two hour intervals from the time of fertilization until hatching. Some material was sectioned and stained for more detailed analysis.

The *Betta* eggs exhibit meroblastic discoidal cleavage as is found in most teleost eggs. The most noteworthy factor is the great rapidity of development. Hatching takes place within 42-48 hours after fertilization.

Inhibition of Fertility with an anticonvulsant (Elipten) in female rats. W. J. EVERSOLE and D. J. THOMPSON, Indiana State University.—Since evidence from many sources indicates that central nervous system depressant drugs affect reproductive physiology, a series of studies on the effects of elipten (anticonvulsant) on ovulation and fertility were initiated in 1964 and are now continuing. In these particular experiments on fertility in female rats, injections were made daily using varying doses of elipten. Appropriate controls were injected with saline solution. Animals were injected for two weeks prior to mating and for two weeks during cohabitation of males and females. In one series of experiments vaginal smears were studied throughout the injection period and vaginas were checked for sperm and copulation plugs. Treatment resulted in erratic and mixed vaginal smears and few, if any, of the animals exhibited evidence of normal cycles or smears typical of the estrus period; less than 20% of the females exhibited copulation plugs. Most all control females ran regular cycles and more than 90% of them exhibited typical estrus smears and copulation plugs. Most of the control females became pregnant and delivered normal litters. In the treated groups, even at the lowest dosage of 25 mg/Kg/day, less than 30% of the females became pregnant and delivered young. Litter size was usually reduced in treated mothers but delivered young appeared normal in appearance. Detailed data will be presented and possible sites of drug action will be discussed.

Effects of Amino-glutethimide on the Ovulatory Process in the Albino Rat. D. J. THOMPSON and W. J. EVERSOLE, Indiana State University. —Female albino rats were given daily subcutaneous injections of the anti-convulsant amino-glutethimide (Elipten) for a period of fourteen days in an effort to determine the effects of the drug on the ovulatory mechanism. Dose levels ranged from 25 mg/kg to 100 mg/kg. Controls received 0.2 ml. saline per 100 gm body weight. The animals showed no adverse side effects to the drug and exhibited a higher percentage weight gain than controls. Histologic examination of ovaries from treated animals revealed an increase in size and number of vesicular follicles and a decrease in number of corpora lutea as compared to controls.

Other female rats were subjected to 14 hours light and 10 hours dark per day in order to standardize their "critical period" (the time of neurohumoral stimulation of LH release). Animals showing at least two previous four day estrous cycles were given a single 100 mg/kg intraperitoneal injection of amino-glutethimide 2 to 3 hours before the "critical period" on the day of proestrus. Absence of tubal ova the follow-

ing day indicated that ovulation had been completey blocked. It is suggested that the drug exerted its effects on the ovulatory mechanism by blocking the release of LH-RF from the hypothalmus or other areas of the brain.

Beta-alanine utilization in ebony and non-ebony *Drosophila melanogaster*. M. E. JACOBS, Goshen College.—Into the hemocoel of ebony and non-ebony newly formed female pupae and adults of Drosophila melanogaster was injected 3 x 10^{-5} ml of water containing 1500 cpm of first or second carbon-14 labeled beta-alanine. At the end of each hour for six hours and at the end of 24 hours, some flies were microautoradiogrammed and others were dissected and the C-14 count of the internal organs and cuticles determined. The counts of the internal organs gradually dropped during this period. Ebony showed highest internal organ counts, while heterozygotes were intermediate. The 1-C and 2-C water soluble materials of the internal organs were beta-alanine. Appreciable amounts of 2-C were bound to the internal organs, especially the ovaries and eggs, and resisted water and ether extraction. Ebony bound the highest percentages. Non-ebony homozygotes incorporated most beta-alanine in the cuticles, heterozygotes were intermediate, and ebony failed in this incorporation.