

ZOOLOGY

Chairman: J. HILL HAMON, Indiana State University

J. O. WHITAKER, Indiana State University,
was elected chairman for 1968

ABSTRACTS

Sugar Preference and Water Uptake in Heat-stressed Chicks. NAN EICHELKRAUT and W. C. GUNTHER, Valparaiso University.—Fertile White Rock eggs were subjected to a nonoptimally high temperature of 41°C for the first three days of incubation. The eggs were then returned to normal temperature of 37.5°C and permitted to hatch. Upon hatching the chicks were presented daily with three different sugar solutions of two concentrations (lactose, sucrose, and dextrose each at 8% and 16%). Water was available at all times. The heat-stressed birds drank significantly less water than the controls. The controls preferred both the 8% and 16% sugar solutions (all sugars combined for total consumption) to a greater degree than the experimentals. Both the stressed and the control chicks preferred the 8% dextrose and lactose solutions over the 16%, but preferred the 16% sucrose solutions over the 8% concentration of sucrose.

Morphogenetic and Antigenic Studies on *Aeolosoma hemprichi* (Oligochaeta).¹ JO ANNE MUELLER, University of Evansville.—*Aeolosoma hemprichi* is a versatile laboratory tool especially suited to morphogenetic and regeneration studies, aging experiments, and antigenic analysis. Antisera have been made against crushed *A. hemprichi*. The serum obtained contains antibodies that cause cilia on the ventral surface of the prostomium to stick together. Animals affected by antiserum writhe about on the bottom of the culture vessel unable to progress forward through the fluid, feed, or produce zooids. The antisera are specific and no cross reactions were detected between animals and serum obtained from different cultures of *A. hemprichi*.

A marking technique has been devised which facilitates morphogenetic and regeneration studies. Animals exposed to methylene blue concentrate the stain in lipoid epithelial globules. The stain remains in the globules throughout the organism's life span thus enabling the investigator to follow globule distribution as the worms reproduce, age, and die. The marked globules are used to distinguish newly formed tissue from old tissue during morphogenesis and regeneration.

The Manipulation of Mouse Ova in a Cytochemical Study of Early Cleavage. Sr. M. JEAN WALLACE and TERESA M. MENKE, St. Mary's College, Notre Dame.—A simple method for manipulating mouse ova is described along with preliminary observations on the distribution of mucopolysaccharides during early cleavage made using this technique. The method involves two main procedures: (1) the micropipetting of

¹Supported by American Cancer Society grant #E-416.

individual specimens from culture to slide and (2) fluid change in fixing, buffering and staining. The techniques were developed for use in a study of murine ova by fluorescence and light microscopy. The study proposes to locate mucopolysaccharides, proteins, lipids and nucleic acids by the uptake of specific stains during the first four cleavage divisions. The preliminary work reported on the deposition of mucopolysaccharides in mouse ova was based on the absorption of the fluorochrome acridine orange at pH 5.0 and by the reaction to Alcian Blue and to the Periodic Acid-Schiff test.

The Effect of the June Opening of Giggling Season on Indiana Bullfrogs (*Rana catesbeiana*). F. DON FULK, Indiana State University.—A large number of female bullfrogs, *Rana catesbeiana*, taken in June, 1963, during the Indiana giggling season, were gravid. The present study was conducted to determine if the number of egg-bearing females being taken during the giggling season could affect the population. Collections of 507 frogs were made along twenty miles of the White River, and from twelve strip pits in Owen County, Indiana, in June through August of 1964, 1965, and 1966. The frogs were sexed, measured, and the females checked for eggs.

Averaged for three years, 79 per cent of the females were gravid in June, 31.3 per cent in July, and 14.3 per cent in August. The time required for the collection of frogs increased from 7.5 minutes per individual in 1964 to 10.5 minutes per individual in 1966. It would appear that there had been a population decline in this area during the time of the study. It is recommended that June be eliminated from the Indiana bullfrog giggling season since a high proportion of females are gravid at that time.

Effects of Ultraviolet and Antibiotics on *Halteria grandinella*. MICHAEL E. DAMIANO and HENRY TAMAR, Indiana State University.—*Halteria grandinella* in a pond water-fly medium and in a balanced salt-milk medium were exposed to 0.7 watts per square foot of a principal wavelength of 2537 Å. Fluid depths under 1 mm. were used (27°C, pH7). In the fly medium most died after three minutes, and all after five minute exposures. In the balanced salt medium most died after two minute, and all after four minute exposures. A greater quantity of amino acids in the fly medium may have been protective, as has been reported for bacteria. The bacterial plate count (24, 240 hrs.) after five minutes exposure was 250 for the fly medium and three for the balanced salt medium.

Antibiotics were dissolved in balanced salt solution or distilled water and diluted with balanced salt-milk medium containing *Halteria grandinella*. After one hour in 10 mgs. per cc. streptomycin sulfate (27°C, pH7), almost all of the protozoans were dead, but the bacterial plate count was still 9. After 15 minutes in 1.25 mgs. per cc. erythromycin estolate most *Halteria* died, but the bacterial plates were overgrown.

NOTES

Fishes, Amphibians, and Reptiles in the Indiana State University Collections. DAVID RUBIN, Indiana State University.—Fish and amphibian and reptile collections begun at Indiana State University in 1962 have grown rapidly. Since the material contained in the collections may be of research use to Indiana ichthyologists and herpetologists, these people should be aware of the existence of these collections.

Specimens are catalogued by lot. One collection number is given for each jar which includes specimens of one species from one locality on one date. One collection number may cover more than one specimen and often does. Several species are represented by very large series. Because of this, the collections can be used not only as teaching reference collections and for locality data but also for comprehensive work on particular species or groups.

All specimens are fixed in 10% formalin and then transferred to alcohol for permanent storage. A label giving complete data is inserted with each collection number in a jar. Two catalog books are kept, one for fishes and one for amphibians and reptiles, in which collection data are entered in numerical sequence as specimens are catalogued. In addition, separate data cards are kept for each species. Thus data on all specimens of a given species in the collections can be quickly obtained by going to the card file in which the species are arranged alphabetically within their families. The collection number serves as the link among specimens in the jars, the catalog books, and the species cards.

The fish collection includes 39,069 specimens representing 159 species. The majority of the specimens are from Vigo County, Indiana and were collected during the course of a survey of the fishes of the county by J. O. Whitaker, Jr. and D. C. Wallace. There also are specimens from elsewhere in Indiana as well as some from Florida, New York, North Carolina, and Tennessee. Forty-seven species are represented by over 100 specimens and several Cyprinids by over 1000 specimens.

The amphibian and reptile collection is more diverse than the fish collection and contains specimens from all over the United States as well as a few from other countries. The collection includes 9,104 specimens representing 227 species. Most polytypic species are represented by more than one subspecies. A large number of specimens are from Indiana, North Carolina, Arizona, and Arkansas.

The amphibian section is particularly strong because there are large series available for many species. There are 4,458 specimens of salamanders representing 47 species. The genera *Plethodon* and *Desmognathus* are especially well represented and there are several rare species in the collection (*Ambystoma mabeei*, *A. annulatum*, *Desmognathus ocoee*, *Eurycea tynerensis*, *Plethodon caddoensis*, *P. longicrus*, *P. ouachitae*, *P. yonahlossee*, *Typhlotriton spelaeus*). There are 3,747 specimens of frogs representing 48 species. *Pseudacris triseriata* and the genera *Scaphiopus* and *Bufo* are particularly well represented.

The reptile section is more of a synoptic collection with only one

or a few specimens for most species. The reptile section includes 25 species of turtles (159 specimens), 47 species of lizards (212 specimens), and 61 species of snakes (529 specimens). Among the more uncommon reptiles in the collection are *Clemmys muhlenbergi*, *Tantilla wilcoxi*, *Micruroides euryxanthus*, and *Crotalus tigris*.

Loans of materials will gladly be made for research purposes. Institutions to which loans have already been made include the University of Chicago, University of North Carolina, and Ohio State University.