

ZOOLOGY

Chairman: HOWARD H. VOGEL, JR., Wabash College

Dr. A. E. Reynolds, DePauw University was elected chairman of the section for 1947.

ABSTRACTS

Studies of the behavior of birds and mammals. HOWARD H. VOGEL, JR., Wabash College.—This paper and the accompanying motion pictures illustrated some of the research work carried out during the summer of 1946 at the Hamilton Station of the Roscoe B. Jackson Memorial Laboratories at Bar Harbor, Maine, where the author was a summer investigator. Dr. Calvin Hall of the Department of Psychology of Western Reserve University did some experimental work on the differences in audiogenic seizures in inbred strains of mice. Motion pictures were taken of the fatal seizures usually seen when mice of the dba strain were exposed to the steady ringing of a telephone bell for a two minute period. Motion pictures show some of the large observation fields in which different varieties of dogs were kept for studies of normal behavior in the field. Experiments were carried out among eleven Springer spaniels to test for the social organization among these dogs. The results of these experiments show that the springer spaniels are not highly imitative. In addition to behavior studies in the field, physiological studies were carried on in the laboratory on the same dogs. Motion pictures showed some of the apparatus used by Dr. John Fuller, physiologist from the University of Maine, in charge of this work. Motion pictures of several birds of Mount Desert Island, Maine, illustrate differences in behavior in the following avian species: Loons (with young); young Hermit thrushes; Spotted sandpipers; immature Leach's Petrels; and the American Egret. The record of the egret was the first from Mount Desert Island, Maine.

The use of minor postglacial drainage connections by fishes in Indiana. SHELBY D. GERKING, Indiana University.—A detailed study of the distribution of the fishes of Indiana indicates that fishes used minor postglacial connections between the Great Lakes and Mississippi drainages in their northward migration as well as the major connections, i.e. the Chicago outlet and the Maumee river. The distribution of the iron-color shiner, *Notropis chalybeus*, distinctly shows that connections between the Kankakee-Iroquois drainage and the Tippecanoe river and also between the Kankakee and St. Joseph rivers were used as the minnow invaded Indiana. There is also evidence that the ecological habitat of the ironcolor shiner was present in northwestern Indiana in early post-

glacial times. Distributional patterns of the western banded killifish, *Fundulus diaphanus menona*, the western lake chubsucker, *Erimyzon succetta kennerlyi*, the spottail shiner, *Notropis hudsonius*, and the blackchin shiner, *Notropis heterodon* also imply use of the minor connections between the Great Lakes and Mississippi drainages. Many other fishes are so widespread in the state that their migratory routes are obscure, and it is assumed that these species used all, or at least most, of the available pathways.

The life cycle of *Samia cecropia*. JOHN W. BAECHLE, St. Joseph's College.—This paper consisted of a detailed description of the life cycle of *Samia cecropia* illustrated with 65 black and white slides and 12 Kodachrome slides. The kodachromes were copies of 12x16" hand colored enlargements of the outstanding phases of the life cycle. Photographs and slides were made by the author in connection with his raising and observing *Semia cecropia* over a period of three years.

The relation of survival time of the respiratory centers in the isolated mouse head to age. RICHARD K. THOMS and WILLIAM A. HIESTAND, Purdue University.—The isolated mouse head, cut off from the body at a level posterior to the posterior margin of the forelegs, shows a period of gasping until the respiratory mechanism fails. Gasping continues in the isolated head of one day old mice for over 25 minutes, the period growing less as age progresses until it reaches a final duration of only about 16 seconds in mice of 20 days of age. From 20 days on the period remains remarkably constant. The young mouse until it reaches about 19 to 20 days of age shows two periods of gasping, an initial period of gasping lasting anywhere from 10 to 32 seconds followed by a long period of slow gasps progressively growing shorter until it disappears completely. A similar condition has been reported for the white rat. It is believed that the energy for the initial series of gasps is aerobic while that for the second series is anaerobic.

The effect of posterior lobe principles and certain amines on the melanophores of *Anolis Carolinensis*. WILLIAM B. HOPP and WILLIAM A. HIESTAND, Purdue University.—In an investigation of various sympathomimetic substances on melanophore responses in *Anolis*, certain amines were found to have a "sympathomimetic" effect, others had none. Among other substances, pituitary extracts were tried. Isolated extracts of posterior pituitary as well as whole pituitary cause expansion of melanophores. Using commercial isolated posterior lobe principles, it was found that the pressor ("pitressin") but not the oxytocic ("pitocin") principle caused melanophore expansion. The effect of pitressin is not destroyed by prolonged autoclaving. No other substances used produced expansion of the melanophores; all others caused melanophore contraction or were inactive. Substances showing sympathomimetic effect similar to epinephrine were neosynephrine, nethamine, and privine. Aminoheptanes and aminohexanes tried were without effect. Ergotoxine does not reverse the effect of pitressin as it does with adrenaline, which latter fact was previously reported. To determine if tissue extracts in

general might have the same effect as pituitary gland extracts, aqueous extract of dried liver was also tried and found to be without effect on the melanophores. In all trials (totaling 44) each substance was injected hypodermically in the subscapular region of the live animal.