

ZOOLOGY

CHAIRMAN: WILLIAM HOPP, Indiana State College
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ABSTRACTS

Growth Rate of the Boa Constrictor. WILLIAM B. HOPP, Indiana State Teachers College.—Observations were made on the food intake and growth rate of two specimens of boa constrictor (*Constrictor constrictor*). Over a period of 26 months, a juvenile individual increased 28.5 centimeters in length, from 53.5 centimeters to 82.0 centimeters, and gained 218.7 grams in weight, from 43.5 grams to 262.2 grams. In 25 months, a partially-grown specimen increased approximately 20 centimeters in length, from 1750 centimeters to 1770 centimeters, and gained 420.5 grams, from 1621.5 grams to 2042 grams, in weight.

The Effect of Graded Dosages of Lithospermum ruderales on Ovulation in the Hen. FRANK J. ZELLER, Indiana University.—Our laboratory has been interested for the past few years in the effects of extracts of the plant *Lithospermum ruderales* on the female reproductive system. The extracts have been shown to inhibit ovulation in both mice and laying hens and this activity is believed to be a result of an inhibiting action on the interstitial cell stimulating hormone of the anterior pituitary gland. The term lithosperm is used as a generic designation for the hormone inhibiting principle, or principles, present in the genus *Lithospermum*. In an attempt to determine an effective lithosperm dosage three separate amounts of a spray-dried water soluble powder from an active extract were administered to laying hens on the basis of body weight. These dosages, per 100 grams body weight, were as follows: 0.5 mg., 1.5 mg., and 2.5 mg. The lithosperm was injected daily for 14 days and a daily egg laying record was kept for 14 days before and after the experimental period as well as during the period. The results indicated that only the highest dosage of lithosperm, 2.5 mg. per 100 grams body weight, was successful in stopping ovulation. Comb size was also depressed by this dosage but not by the lower two concentrations of the lithosperm. It would appear, therefore, that there is a threshold level of effect for the lithosperm and this would indicate that there may be a threshold level for the interstitial cell stimulating hormone which is necessary to cause ovulation.

Mammals of Ripley and Jefferson Counties, Indiana. DWIGHT LINDSAY, Georgetown College, Kentucky.—A study was made of the mammals of Ripley and Jefferson Counties, Indiana, to determine the occurrence of species in the area and to relate their occurrence to the known

distribution. This area is largely composed of an unusual physiographic feature of low relief and poor drainage known as the "flats."

Field studies, including observations and collections were made over a period of six years. The mammals were trapped, shot, taken by hand, found dead or obtained from trappers and hunters. Museum skins and skulls were prepared from these specimens. Local residents were interviewed concerning their knowledge of the past and present occurrence of easily recognized mammalian species. Museum specimens of mammals from this area were examined. Particular attention was given to establishing the taxonomic status of critical subspecies. These results were correlated with the known distribution as given in the literature.

Thirty-five species of native or naturalized mammals were found to inhabit the area, and twenty-four additional species were listed as possible inhabitants because their known ranges are nearby. Gaps in known distributions were filled in some cases but unexplained anomalies remain in others. The mammalian response to the changing ecological complex as indicated by the past and present occurrence of the several species provided a basis for the study. The ecological situation in this area is basically one of disclimax, in which the mammals are responding as a major part of the ecosystem. It is in the light of this readjustment that the present status of the mammalian fauna is studied and speculations made concerning its future.

Effects of Removal and Replacement of a Diffusible "Cleavage Factor" in Disaggregated Frog Blastomeres. CHARLES F. LYTTLE,¹ Indiana University.—Small numbers of disaggregated blastomeres from the blastula of *Rana pipiens* (Shumway stage 8) isolated in a Ca^{++} — Mg^{++} free medium (modified Niu-Twitty solution) divide only once or twice and stop. This occurs at a time when these cells would be dividing rapidly in vivo. Further experiments indicate that this failure to continue normal division may be due to the loss of a diffusible 'cleavage factor' associated with the increased permeability of the cells in a Ca^{++} — Mg^{++} free medium.

Observations which support this explanation include the following: (1) large numbers of blastomeres from whole disaggregated embryos continue to divide many times in a Ca^{++} — Mg^{++} free medium; (2) small numbers of cells isolated in the supernatant of whole disaggregated embryos also continue to divide many times; (3) small numbers of cells isolated in regular Niu-Twitty solution (containing Ca^{++} and Mg^{++}) divide fewer times than cells in the supernatant but more times than cells in a Ca^{++} — Mg^{++} free medium.

Surface phenomena may be directly involved in these differences in cleavage but morphological observations on the cells indicate that a more likely explanation is the release and reentry of a diffusible 'cleavage factor'. Preliminary experiments indicate that depletion of this 'cleavage factor' may be involved in the eventual slowing of divi-

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sion observed in isolated cells and may also be important in normal control of division rates in vivo.

The Effects of an Ataractic Drug on Oxygen Consumption and Survival to Decompression. JAMES D. WITHERSPOON and WILLIAM A. HIE-
STAND, Purdue University.—Adult Rockland Swiss mice were subjected to rapid decompression at 47 mm. Hg., 226 mm. Hg. and at 179 mm. Hg. Survival and oxygen consumption of control animals were compared with those receiving 25 mg./kg. of chlorpromazine at 2 hours previous to each test. Rapidly decompressed ataractic-treated animals tolerate hypoxia for much longer periods than do controls. Under less severe decompression the rate for control mice is considerably increased by slow decompression. The greater adaptability seems to enhance survival in certain cases.

Spinal Blocking Frogs for Physiology Laboratory Study. JACK W. EDDS, Indiana State Teachers College.—A spinal blocking method was devised to take place of pithing. The spinal block is accomplished by a solution of Adrenalin Chloride and Novocain injected into the spinal canal. The specimen may be used immediately for study of capillary flow, opening of the body cavity, or other physiological experiments. The frogs that receive the spinal block for capillary study will revive in a few hours and may be used again. The frogs maintain an almost normal heart rate for a long period of time, even when the body cavity is opened for observations and physiological experiments. The method is quick and results are more nearly normal than those when the usual pithing procedure is used. The method is inexpensive and utilizes compounds that may be easily acquired by any high school or college laboratory.