

ZOOLOGY

Chairman: W. R. BRENNEMAN, Indiana University

Professor H. H. Vogel, Jr., Wabash College, was elected chairman of the section for 1946.

Determination of the life history of *Cercaria szidati*, a furcocercous larva of the Vivax type. DORCAS J. ANDERSON, Purdue University.—Further studies on *Cercaria szidati* Anderson, 1944, have revealed that the larvae penetrate and encyst in the muscle tissue of minnows, especially in the tail region. Several groups of newly hatched chicks were fed heavily infected minnows. In one series of five chicks, immature flukes were recovered five hours after feeding, and in another similar series, all chicks were passing fluke eggs three days after feeding. Two of the five were sacrificed and found to harbor 14 and 30 sexually mature worms respectively. The remaining three lost the parasites in less than a week. A Great Blue Heron nestling was infected to provide a continuous source of eggs for study of the miracidium. The adult worm is a species of *Linstowiella* similar to *L. viviparae* as described by Szidat, but the morphology of the cercaria and the type of second intermediate host show that the species are distinct. The life history is of interest since both the cercaria and adult are monostomes, whereas closely related species are distomatous.

Gonad stimulating hormones from the anterior pituitary gland and other sources. W. R. BRENNEMAN, Indiana University.—Three major sources of gonadotropins have been recognized in vertebrates, (1) implants of the anterior pituitary gland or extracts of this gland, (2) urinary extracts and (3) blood serum. Preparations of the pituitary gland have been referred to generally as the A. P. (anterior pituitary) substances and those from other sources as the A. P. L. (anterior pituitary-like) hormones. The protein nature of all these gonadotropins has been well established but many complicating factors still prevent their exact chemical and biological determination. This is illustrated by the fact that only one of these has been prepared in pure form, by differences in the physical and chemical nature of substances which have been shown to have the same physiological action, by physiological differences between extracted hormones and the secreted ones and, finally, by the incomplete understanding of pituitary changes during the life cycle of any organism.

The concept of the anterior pituitary as the "master gland" or as a producer of "trigger hormones" which stimulate the release of "target hormones" from other sources has been an over-simplification. The anterior pituitary is influenced by gonad, thyroid and adrenal hormones as well as by variations in light and nutrition. Illustrations in the chick demonstrate that there is a very pronounced sex difference in

pituitary weights; that the pituitary of the cockerel has greater gonad-stimulating potency than that of the pullet and that limitation of diet, unilateral castration, complete castration and hormone injection greatly modify pituitary growth and secretory activity. The experimental data from mammal and bird, when correlated with a detailed study of normal pituitary function, promises to clarify some of the discrepancies which exist at present.

Notes on the life history of *Neoechinorhynchus emydis* (Leidy), an acanthocephalan parasite of turtles. WILLIAM B. HOPP, Purdue University.—Specimens of *Graptemys geographica* (Le Sueur) from the Tippecanoe River have been found to harbor adults of *Neoechinorhynchus emydis* (Leidy), an acanthocephalan parasite reported from several species of North American turtles. Although experimental determination of the life cycle is not yet completed, juvenile forms which occur in the foot of the snail, *Campeloma* sp., are believed to be young stages of *N. emydis*. Immature worms have been recovered from the intestine of painted turtles *Chrysemys bellii marginata* (Agassiz), which had been fed infected snails after examination of several of a lot collected from a pond proved to be negative for acanthocephala. Experimental attempts to infect snails by feeding eggs of *N. emydis* are in progress. To the writer's knowledge, a molluscan intermediate host has not been reported to occur in the life cycle of any other thorny headed worm. The present study indicates that, unlike other groups of parasites, closely related species of acanthocephala may differ greatly in the type of intermediate host utilized in the life cycle.

Notes on a giant cystocercous cercaria and its life history. PHILIP G. SEITNER, Purdue University.—Specimens of *Pleurocera acuta* Rafinesque and *Goniobasis livescens* (Menke), collected from the Eel River near North Manchester, have been found to harbor a new cystocercous cercaria which is remarkable for its size and the close similarity of its adult stage to *Proterometra macrostoma*, a species having a very different larval form. The cercariae may attain a length of over 19 mm., which may be as long as the shell of the snail host. Unlike other azygiid larvae, the tail furcae are weakly developed and not used in swimming. Movements are not vigorous but consist of flexing the tail stem near the middle, alternately left and right as a rule: thus the larva may be driven slowly forward or backward. Seldom, however, does it rise from the bottom of the dish. The cercaria is progenetic and the uterus may contain over 50 eggs, many of which are in an advanced stage of development. The usual criteria for distinguishing species of adult trematodes reveal no significant differences between the present species and *Proterometra macrostoma*, yet, because of differences in their larvae, the species must be regarded as distinct. This is in contrast to the usual observation that cercariae are more alike than are their adult stages.

Natural history of Indiana, a 16 mm. kodachrome motion picture illustrating the social behavior of animals. HOWARD H. VOGEL, JR.,

Wabash College.—This motion picture is designed to illustrate the types of social behavior shown by some of our common Indiana birds and mammals. A series of pictures of nesting mourning doves and of an experimental flock of chickens are used to indicate some of the important types of avian social behavior. Allelomimetic behavior (mutual imitation) is seen clearly in the young chicks. Epimeletic behavior (care of the young by parents) and et-epimeletic behavior (young calling to parents), fighting, and several kinds of defensive reactions are photographed in these birds.

A short scene shows unusual protective behavior by a wounded woodcock; the camera follows hunting dogs retrieving bobwhite quail.

The behavior of five Indiana mammals, the opossum, woodchuck, chipmunk, deer mouse, and rabbit, are photographed. There are also pictures of a captive great horned owl running on the ground in an attempt to escape; a large black snake, basking in the sun; and a frog, sitting among the lily pads of a pond.

A group of beetles on a fence post show social aggregation. Nearby a praying mantis shows its method of securing food.

The object of this film is twofold: first, to illustrate graphically some of our common Indiana animals, and second, to show their various types of social behavior.