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This study is an extension of investigations on the effects of DDT administered to neonatal rats. Male and female Wistar rats and their offspring were injected with 0.5 mg. or 1.0 mg. of o,p'-DDT on days 2, 3 and 4 after birth. No gross abnormalities were noted in the 1st generation; however, in a total of 26 offspring (15 females, 11 males) injected with DDT, 7 females had vaginas which failed to open, 1 female had a closed uterine horn, 3 females went into permanent estrus, and 1 male had an abnormal right seminal vesicle. In untreated offspring (8 females, 8 males) 2 females had closed vaginas and 3 males had an atrophied testis. The experiments are being extended and repeated.

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The Effects of Orally Administered Synthetic Sex Steroids Upon Numbers and Morphology of *Schistosoma mansoni* Maintained in the Golden Hamster

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Experiments on the relationship of synthetic sex steroids (Orthonovum, Enovid) to *Schistosoma mansoni* infections in hamsters (*Mesocricetus auratus*) were conducted. In Experiment I, hamsters given 0.5 mg. Orthonovum daily 2-3 weeks after infection harbored fewer schistosomes than did the controls. In Experiment II, daily dosages of Orthonovum were begun 2 weeks prior to infection; no differences were found between worm burdens of experimental and control animals. In Experiment III, Enovid was used; no differences were found in experimental and control worm burdens when dosage was begun 2½ weeks before infection but there was a tendency (not statistically significant) toward a decreased worm burden in hamsters receiving steroid beginning 3 weeks after infection.

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Recent Additions to the Naiad Fauna of the Eastern Gulf Drainage (Bivalvia: Unionoida: Unionidae)

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With dark pigmentation and some arborescent incurrent papillae, *Elliptio mcMichaeli* Clench and Turner 1956 of the Choctawhatchee river system is a valid, primitive species. An undescribed unionine genus in the Escambia river system resembles *Elliptio*, but its incurrent aperture is unsubdivided. *Elliptioideus sloatianus* (Lea 1840) of the Apalachicola river system monotypically represents a valid, extremely primitive amblemine genus, exhibiting arborescent incurrent papillae; a ventrally papillose, unsubdivided excurrent aperture; and poor differentiation of marsupial and non-marsupial structures. "*Lampsilis jonesi* van der Schalie 1934 of the Choctawhatchee sys-

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of relative sizes of predator and prey. In the study illustrates the idea that in the same basin adult *A. splendens* about equal or exceed in length most fish associates which would likely feed on the small fishes.

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Corp in the Old Field Mouse (*Peromyscus polionotus*)

existence of the old field mouse in the presence of atmospheric hypoxia. Laboratory simulation of these stressors varies with ambient temperature and concentrations of atmospheric oxygen with and without food deprivation. Burrowing mammals may reveal their thermoregulation responses.

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Effects on Mycorrhizae of Yellow Birch (*Liriodendron tulipifera* L.)

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studies on the structure of mycorrhizae of *Liriodendron tulipifera*. The fungus is endomycorrhizal in the innermost zone of cortical cells. It forms a twisted hyphal network. Endodermal cells and steles are colonized. Colonized roots are swollen and dichotomously branched, or the roots show bead-like constrictions. Invasive hyphae penetrate at several sites through root hairs. As the fungus advances there is little tangential spread of hyphae between cortical cells. Instead, the fungus moves through intercellular spaces in the cortical region. In this region the fungus tangentially to form a complex network that may be several cells wide. Hyphal aggregations in these cells eventually disintegrate into masses. Older parts of roots are colonized by mycorrhizal fungus.

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the Goodeid Fish *Ameca splendens* (Osteichthyes)

potential predator or other threats and immatures of the Mexican goodeid *Ameca splendens* often feign death by the paired and median fins, pectoral and branchiostegal rays, and rolling over to the right. The head and body often become rigid. The disturbance persisted, fish in a stationary position or sank slowly to the bottom. Death-feigning has no survival value. Death-feigning is observed in the presence of predaceous

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Production of Homocytotropic Antibodies in *Spirometra mansoni* Infected Mice (Cestoda: Pseudophyllidae: Diphyllbothriidae)

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A study was made of homocytotropic antibody production in mice infected with plerocercoids of *Spirometra mansoni* (Joyeux and Houdemer, 1928). Serum samples were tested for the presence of antibodies using the technique of passive cutaneous anaphylaxis. Two classes of homocytotropic antibodies, 7S gamma₁ and 7S gamma₂-like antibody were produced. Both classes of antibodies were capable of reacting with both plerocercoid antigen and adult worm antigen.

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The Role of Temperature in Bulbil Production in *Lycopodium lucidulum* Michx. (Lycopsidea, Lycopodiales, Lycopodiaceae)

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Ten 50-plant samples of *Lycopodium lucidulum* Michx. were collected from the Elkins, West Virginia area. From all samples combined, the annual mean number of bulbils produced were calculated from 1966 through 1971. Annual bulbil production was then compared to mean monthly temperatures from September through April for the same period of time. Considerable variation was found in yearly bulbil production. Annual bulbil production from highest to lowest was as follows: 1967, 1968, 1969, 1966, 1971, 1970, with a range of 2.42 to 0.27 bulbils per year. When annual bulbil production was compared to mean monthly temperatures, only the mean temperatures for January were found to be directly related to annual bulbil production, which indicated that low temperatures were critical in bulbil formation. Further, it was observed that when bulbils were not produced, either leaves or what appeared to be aborted bulbils occupied their positions. The fact that bulbil primordia are laid down in the fall suggested that there was a critical period of time during the winter months in which temperature could influence bulbil development.

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tem occurs in the Escambia system, also, and belongs in *Ptychobranchus*: the egg masses occupy the lower part of the outer (female) demibranch, which is folded when gravid. "*Lampsilis*" *australis* Simpson 1900 of the Escambia system occurs in at least the Yellow river system, also, and represents an undescribed lampsiline genus resembling *Ptychobranchus*, but with an unfolded gravid marsupium.

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Observable Cellular Response of the Larvae of the Flour Beetle *Tribolium confusum* to Single Infection with the Cestode *Hymenolepis microstoma*

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The present study deals with the effects of a single infection with the tapeworm, *Hymenolepis microstoma* on the larvae of the flour beetle, *Tribolium confusum*. *T. confusum* has been observed to respond to metazoan infections by encapsulation. Heyneman and Voge have reported encapsulation of *Hymenolepis citelli* in adult *T. confusum* but did not find encapsulation of *H. microstoma*.

Nine groups of uniformly sized larvae were starved for 48 hours and exposed to tapeworm eggs for 24 hours. The larvae were then fixed at 24 hour periods and prepared for paraffin sectioning. After sectioning the larvae were stained and observed under a light microscope for any observable cellular reaction by the beetle to the tapeworm.

Encapsulation was observed in the 96-120 hour cysticercoids in one of 20 observed at this stage of development. Nothing unusual could be distinguished in the morphology of the host or parasite. The total response of *T. confusum* to infection with *H. microstoma* was ineffectual.

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Technical Problems in the Measurement of Population Dynamics in *Trypanosoma lewisi*

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This study deals with the effort to observe the normal population fluctuation in an infection with a particular strain of *Trypanosoma lewisi* in a particular strain of rat. The normal population fluctuation must be known in order to have a means of measuring the effects of experimental situations imposed upon the parasite and/or its host. Population size was determined by using a hemocytometer. Individual size was measured by means of drawings made with a camera-lucida. Variation in individual size was expressed in terms of the coefficient of variation.

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Particulate Organic Matter in St. Louis Bay Salt Marsh-Estuary

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Ash-free organic matter categorized as particulate ($\geq 1.0 \mu$) and subparticulate ($0.5 < 1.0 \mu$) fractions

of waters of a salt marsh estuary in St. Louis Bay, Mississippi was determined by ignition loss at 550°C for 2 hrs. Generally, the particulate fraction was 3-4 times more than the subparticulate. Analysis of monthly values revealed higher particulate organic content during the summer months and the subparticulate fractions during the fall. Mean of monthly values of total particulate organics obtained from September 1971 to August 1972 for the tidal creek, river, and bay stations are 0.05, 0.16, 0.82 g l⁻¹ respectively. The seasonal variation in organic load of the water is correlated with detritus production on the marsh. The implications of the gradient of values obtained for the 3 sampling locations and the preliminary data on dissolved organic fraction are discussed.

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Validity and Reliability of Open-field Tests

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Activity measurements taken by a variety of different open-field tests have produced numerous reports which are conflicting and confusing results. This may be due in part, to the failure to establish a measure of the validity and reliability of these different tests. In an attempt to establish confidence in this test male cotton rats (*Sigmodon hispidus*) were subjected on successive days to three variations (treatments) of a basic open-field test. The treatments were arranged in a Latin Square design to measure the direct and residual effects of the treatments as well as the sequential (time) effect. The results are discussed and related to validity of behavioral tests and their usefulness in studies of natural populations.

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Light and Electron Microscope Studies on the Gut of *Cotylaspis insignis* Leidy, 1857 (Trematoda: Aspidobothria)

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The gut of *Cotylaspis insignis*, a common symbiont of the fresh water clam *Lampsilis claibornensis* (Unionidae) was studied by light and transmission electron microscopy. The anterior portion of the gut consists of a muscular cavity, prepharynx, muscular pharynx, and esophagus. All are lined by an integument similar in structure to that of the host. The esophagus is lined by a single layer of nucleated subtegument. The posterior portion of the gut is commonly referred to as the intestinal sac and is lined by a single layer of columnar epithelial cells. The cells elaborate a labyrinthine system of cytoplasmic filaments along their luminal surfaces. Anterior intestinal epithelial cells differ in size and in organelle content from those found more posteriorly. Spherical enlargements of the endoplasmic reticulum are prevalent in the more anterior cells. Positive reactions for acid phosphatase were seen on the luminal side of the membranes of the cytoplasmic folds and in lysosome-like vesicles. The material incubated in Thorotrast before fixation showed no reaction by the gut integument or by the intestinal epithelium.

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Relationships Between Genetic Heterozygosity in (Mammalia: Rode)

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Research in behavior-genetic heterozygosity and behavioral performance of hybrid parental strains suggests small associations with genetic heterozygosity. This hypothesis, oldfield mice localities in the southeastern United States, general activity, aggression, behavior were examined in relation to genetic heterozygosity. Starck's 20 loci was used to estimate genetic heterozygosity in individuals and populations. Relationships of heterozygosity to behavioral dynamics are discussed in relation to population dynamics.

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The Availability of Radioisotopes of a Streambed Contaminant Reactor I

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Levels of radiocesium content of Steel Creek are among the lowest in the natural system. Although the concentrations are not as high as those of Lake, Oak Ridge, Tenn., the radiocesium of the Steel Creek cesium. The major clay in the system is kaolinite in White Oak Lake is illite. The Steel Creek sediments have a radiocesium is not tightly held by the clay. The radiocesium concentration of magnitude less than that of the concentration of radiocesium from Steel Creek is an order of magnitude less than that of those sampled from White

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Colony Dispersion by the Pogonomyrmex b. Hymenoptera:

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The dispersion or distribution of *Pogonomyrmex badius* colonies were observed in abandoned fields of the Savannah River, Georgia. The dispersal appears to be more uniform in the more open areas. The rate of dispersal of the summer colony was measured. The rate of dispersal of the winter colony was measured. The rate of dispersal of the ant colony was measured.