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## Effects of Ultra-Violet Light on Diapause and Postdiapause Grasshopper Eggs (Orthoptera)

Malcolm Ray  
*State University of Iowa*

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experiment it is shown that by elimination of vitamins B and G in the diet, the resistance to heat of this protozoan parasite of the white rat is considerably lowered.

DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY,  
IOWA STATE COLLEGE,  
AMES, IOWA.

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EFFECTS OF ULTRA-VIOLET LIGHT ON DIAPAUSE  
AND POSTDIAPAUSE GRASSHOPPER EGGS  
(ORTHOPTERA)

MALCOLM RAY

In the irradiation of *Melanoplus differentialis* eggs, the entire spectrum of a quartz mercury vapor arc was utilized with the energy input and the distance from the lamp to the eggs kept constant. The dosages were controlled by varying the length of exposure. The eggs were irradiated on moist paper, under quartz plates and at constant temperature. Oxygen consumption and percentage of hatching was determined.

By the use of light-sensitive material (lithopone) it was found that neither the chorion nor the cuticle of the egg nor the exuviae would transmit ultra violet light. This being true the effects herein described must be due to some type of secondary irradiation of one or the other of these layers rather than to the action of the primary waves directly on the egg.

It was found and confirmed several times that at any stage of development of the eggs the chorion completely prevents any action of the ultra violet light at exposures up to four hours daily during the entire development. Longer exposures have not been tried.

Effects of daily exposures for 18 to 21 days on dechorionated, postdiapause eggs are: exposures of five seconds and 15 seconds seem to have no effect; exposures of one minute permit eight per cent hatch and of five minutes permit two per cent hatch; exposures longer than five minutes completely inhibit hatching.

Effects of single irradiations, at the beginning of postdiapause development, on dechorionated eggs are: exposures of less than 15 minutes have no measurable effect; exposures of one-half to four hours produce a retardation in development and a killing effect roughly proportional to the length of exposure but even the

latter exposure does not completely inhibit hatching. It appears then that frequent, short exposures are more effective than the equivalent energy in a single, long exposure. These eggs showed no effect when irradiated for one hour in nitrogen or in oxygen.

DEPARTMENT OF ZOOLOGY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

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## COMPARATIVE STUDY IN THE EMBRYOLOGY OF THE TURKEY

N. W. Fugo

It is a well known fact that the incubation period for the turkey is seven days longer than that of the chicken. A comparative study is being made to ascertain in what respects the embryonic development of the turkey differs from that of the chicken. Observations show that the course of development runs slower in the turkey from the onset of incubation. The turkey embryo lags approximately 24-hours behind the chicken at the stage of closure of the amnion.

DEPARTMENT OF ZOOLOGY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

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## SPERMATOGÈNESIS IN THE OVARIOTOMIZED HEN, A CYTOLOGICAL STUDY

RICHARD AVERY MILLER

It is known that after ovariectomy in the pullet the vestigial right gonad hypertrophies. In this study hatching chicks were castrated. At maturity serum of the pregnant mare was injected and the birds killed during the night hours. By this method hypertrophied testis like structures with many cells in active mitosis were secured. Special consideration is given to the chromosome complex in these sex reversed females.

DEPARTMENT OF ZOOLOGY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.