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## Iowa Non-Biting Midges (Diptera; Chironmidae) (Abstract)

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IOWA NON-BITING MIDGES  
(DIPTERA; CHIRONOMIDAE)  
(ABSTRACT)

JAMES C. BEYER

A survey of the Chironomid fauna of Iowa waters is being made, together with a study of life histories and the ecology of the group. Methods of preparing permanent mounts of life-histories are being developed. One of the objectives is to investigate the role played by these insects as fish food. The group has received little attention in this country and is a promising field for the taxonomist, the limnologist and the physiologist. To date the author has recorded some sixty species from Iowa including several life histories hitherto undescribed.

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THE EMBRYOLOGY OF THE ENGLISH SPARROW  
(ABSTRACT)

WARREN N. KECK

The purpose of this investigation is three-fold: (1) to outline the general embryogeny of the English Sparrow, (2) to determine the relative rates of differentiation of the various external features and (3) to compare the developmental rates of the sparrow with those of the chick and turkey.

Two questions arise from the fact that the incubation period of the sparrow is 13 days, while that of the chick is 21 and the turkey 28 days:

(1) Is it possible to establish corresponding stages in the three embryos, or do the different organs develop at different times?

(2) Are the three at the same stage of development at hatching, or for example, is the sparrow at hatching to be compared to a chick one week before hatching?

A series of carefully timed embryos was obtained by incubating fresh sparrow eggs under artificial conditions. Diagnostic features for each day were recorded in chart form so that the age of embryos taken from eggs in nature can be readily determined. An