ENTOMOLOGY

Chairman: GERTRUDE L. WARD, Earlham College
RAY T. EVERLY, Purdue University, was elected chairman for 1966

ABSTRACTS

Reproductive Behavior of the Damselfly, *Hetaerina americana* (Fabricius) (Odonata: Calopterygidae). GEORGE H. BICK and DIANE SULZBACH, Saint Mary's College.—Field observations in southern Oklahoma during June and July showed scarcely any daily or hourly fluctuation in numbers at water. Males probably spent the night at water and unpaired females were routinely present. Territorial activity among females was indicated. There was no courtship or display of any kind by either sex. Males, inattentive to motionless females approached them when they flew. Sperm transfer followed each seizure, was always in tandem, and averaged 7 seconds. Copulation, lasting 3 minutes, quickly followed at water. Pairs then flew briefly in tandem, separated without distinctive behavior, and the female descended to oviposit alone in willow roots for an average of 27 minutes. During this obligatory submerged oviposition, each female remained near the site of descent and her mate perched nearby exhibiting guarding behavior by flying toward and displacing conspecific male intruders.

Occurrence of *Culiseta minnesotae* Barr in Indiana. R. E. SIVERLY, Ball State University.—One larva of *Culiseta minnesotae* Barr was collected in a small bog in LaGrange County, Indiana, in early May, 1965. No adults were collected. The larva was reared in the laboratory and emergence occurred approximately one week after the larva was collected in the field. Identification of the emerged adult specimen was confirmed by Dr. Alan Stone of the U. S. National Museum.

Little is known concerning the biology of *C. minnesotae*, and its occurrence in Indiana is believed to be infrequent or rare. So far as it is known, there is no previously published account of the occurrence of this mosquito in Indiana.

Population buildup of corn leaf aphid, *Rhopalosiphum maidis* (Fitch), on corn in Floyd County, Indiana. E. S. SAUGSTAD, Purdue University.—The corn leaf aphid, *Rhopalosiphum maidis* (Fitch), has been proven a vector of Maize Dwarf Mosaic (MDM) in the laboratory. As it has a wide host range including some species of grasses that may serve as overwintering hosts of the MDM virus, this aphid is strongly suspected to be a field vector. MDM has recently invaded southern Indiana along the Ohio River, where Johnson Grass, *Sorghum halepense* (L.), is prevalent. One of the purposes of this study was to observe population trends of the corn leaf aphid on corn and grasses in Floyd County, Indiana. Preliminary results indicate that these aphids arrive in the area before corn is out of the ground and infest Johnson Grass. Aphids are found on corn shortly after plant emergence, increasing in number slowly until the corn is about four to five weeks old. From this time up until tassel-

ling, the percentage of infested plants increases rapidly. The number of aphids per infested plant remained relatively low until shortly before the corn tasselled. Alate aphids on corn other than those originally infesting the plants were not observed until densities of up to 1000 aphids per plant occurred.

Corn Leaf Aphid Resistance in Dent Corn. RAY T. EVERLY, Purdue University.—For the past six years, corn leaf aphid infestation has reduced corn yields in Indiana an average of 18,000,000 bushels annually. Insecticides give excellent control but it is extremely difficult to determine their need and timing. Corn resistance and tolerance to aphid establishment has been observed and offers the best means of limiting losses from the insect.

Plants of inbreds and single crosses in replicated tests at Evansville, Indiana were observed at tassel emergence for the degree of aphid infestation. Among the inbreds, W22 had the fewest plants infested with none moderately or severely attacked. Ky 27 had 100% infestation and 81.9% of these were moderately and severely infested. Oh 51A had 62% infested and 3.8% were in the moderate-severe class, whereas 38-11 had only 47.6% infestation but 6.9% were moderately-severely infested. Similar results were observed among the single crosses. In general, total infestation is not the best criterion for judging the resistance and tolerance of dent corn to aphid attack.

Although low-infested inbreds tended to produce low-infested single crosses and high-infested inbreds single crosses with high infestation, there were numerous exceptions indicating a possible highly complex genetic pattern. Maturity was found to be an important factor in degree of infestation.

Radiosensitivity of the Yellow-Fever Mosquito, *Aedes aegypti*. SISTER MONICA ASMAN and K. S. RAI, University of Notre Dame.—The effects of different doses (500-64,000r.) of gamma rays on egg hatchability, rate of growth and development, viability to adulthood, longevity, and reproductive capacity were studied on the Rock strain of *Aedes aegypti*. Different stages of development in the mosquito life cycle were irradiated for this purpose. Hatching percentages following egg irradiation were not affected by 500 r. However, beyond this dose, percent hatch decreased directly as the dosage was increased. Even at 64,000 r., 5% of the treated eggs hatched, although none of them lived beyond the fourth day. Larvae irradiated at 1000r. and up, and in the first, second, or third instar were inhibited from reaching the adult stage; only eggs and the fourth instar were able to complete development when exposed up to 2000 r. The rates of development, measured by metamorphosis and the count of dividing cells in the brain, decreased as dosage was increased. An increase of dosage also resulted in reduced longevity. Measured in terms of any of the above-measured criteria, the second-instar larvae were most sensitive to irradiation. On the cytological level, chromosomal aberrations in the form of reciprocal translocations, inversions, and polyploidy were found in the irradiated material. Heterosis proved to be a protective factor against radiation damage.