

## ZOOLOGY

Chairman: JOHN W. BAECHLE, C.P.P.S., St. Joseph's College

Murven R. Garner, Earlham College, was elected chairman for 1949.

### ABSTRACTS

**Impedance—Frequency Measurements on Cattle Semen.** J. C. HENDRICKS, Franklin College.—Small organisms exhibit electrical polarity while alive and the electric moment has been found in some cases to be a function of the health and virility of the specimen. When large numbers of such organisms are suspended in a solution, the impedance of the suspension should vary with frequency much as it does for a polar liquid. This suggests that the number and virility of the spermatozoa suspended in semen should affect the impedance—frequency relation. Such a relation would be of value as a test for the effectiveness of bulls used in artificial insemination programs.

The conductance cell used consisted of graphite electrodes 2mm apart having a cross sectional area of 5 cm<sup>2</sup>. Potential was supplied by an audio or an intermediate frequency oscillator. Potential difference applied to the cell was measured by a vacuum tube voltmeter and the current through the cell by a vacuum thermocouple. The current densities used range from 1 to 20 milliamperes per square centimeter.

It was found that the impedance—frequency curves for semen containing large numbers of active sperm varied markedly in the 20 to 50 kc range from (1) semen containing few live sperm, (2) semen in which the sperm activity was low and (3) semen which had been diluted for insemination purposes. The slope of the curves in this frequency range may prove to be an indicator of the value of the semen for insemination purposes.