(the embryo in a narrower sense), appear over the lower, or yolk hemisphere of the egg.

26 (72). **"Rejuvenescence in protozoa": GARY N. CALKINS.**

The process of conjugation in protozoa involves either temporary or permanent union of two individuals. During this union there is a fusion of nuclear material from both organisms resulting in the formation of new cleavage nuclei in each exconjugant. The process is directly comparable with fertilization of an egg by a spermatozoön, and the biological significance of the phenomena involved is probably identical in all living things.

Since 1876 it has been generally assumed that one effect of conjugation is rejuvenescence or renewal of vitality in both of the exconjugants. This assumption has never been submitted to experimental proof. In his *Paramecium* work, begun in 1901, the author almost had the proof, but allowed the opportunity for obtaining it to slip through his fingers without realizing its importance at the time. The author's object in bringing this up at the present time is to announce that on the last day of February (1905) he started a new series of experiments with *Paramecium*, consisting of three different lines at present in about the fortieth generation after conjugation, mainly for the purpose of completing his earlier work.

Another point of general biological importance will also be investigated. In his original experiments the author found strong evidence that the old view that both exconjugants are rejuvenated is erroneous. In twenty pairs which were cultivated after separating from conjugation, one individual of each pair invariably outlived the other, thus indicating an incipient fertilization like that in metazoa. This phenomenon will be given careful study in the experiments now under way.

27 (73). **"Temperature and muscle fatigue": FREDERIC S. LEE.**

It has been pointed out previously by the author and others that the contraction process of the muscles of cold-blooded animals in the course of fatigue becomes greatly slowed, while those of warm-blooded animals show no such phenomenon. Lohmann has recently claimed that a cold-blooded muscle on being heated