

# SCIENTIFIC PROCEEDINGS.

## ABSTRACTS OF COMMUNICATIONS.

### Fifty-seventh meeting.

*Rockefeller Institute for Medical Research, February 18, 1914.  
President Ewing in the chair.*

43 (860)

### Complete periodic nuclear reorganization without cell fusion in a pedigreed race of *Paramecium*.

By LORANDE LOSS WOODRUFF and RH. ERDMANN.

[*From the Osborn Zoölogical Laboratory, Yale University.*]

This preliminary communication presents the main results derived from the cytological study of specimens preserved throughout the life of a pedigreed race of *Paramecium aurelia*, as well as of a series of specimens preserved daily, during the past four months, from subcultures of this race carried under constant environmental conditions.

During the past six and three quarter years this pedigreed race has been carried with the following chief results:

1. More than 4,250 generations have been attained to date (February 18, 1914) without the fusion of individuals or the advent of periods of marked physiological depression, though periodically well-defined normal morphological changes have occurred.<sup>1</sup> This demonstrates that the so-called "life cycle" of *Paramecium* is non-existent when proper environmental conditions are supplied.<sup>2</sup>

2. Minor periodic fluctuations in the division rate, termed rhythms, have been demonstrated, recovery from which is autonomous.<sup>3</sup>

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<sup>1</sup> Woodruff, *Amer. Naturalist*, XLII, 1908, p. 526.

<sup>2</sup> Woodruff, *Biol. Bull.*, XVII, 1909, p. 287; PROC. SOC. EXP. BIOL. AND MED. IX, 1912, p. 121.

<sup>3</sup> Woodruff, *Archiv für Protistenkunde*, XXI, 1911, p. 263.

3. The rhythms have been shown to be independent of environmental changes and due to inherent phenomena in the cell.<sup>1</sup>

The present cytological study demonstrates that:

1. The rhythms in the division rate of *Paramaecium* are the physiological expression of profound nuclear changes.

2. These periodic nuclear phenomena involve the formation of a complete new nuclear apparatus by a definite sequence of morphological changes disintegration of old macronucleus; multiple division of micronuclei, formation of new macronuclear Anlagen which simulate typical conjugation. This results in the reorganization of the cell without the fusion of two animals.

This nuclear reorganization is evidently a normal substitute for typical conjugation in this race, but does not preclude its occurrence for the latter process has occurred in subcultures from this race subjected to environmental conditions suitable for its consummation.<sup>2</sup>

Details of this remarkable process, together with a discussion of its theoretical importance from the standpoint of the sexual potentiality of unicellular organisms and the physiological behavior of long pedigreed races of Infusoria, will be presented in another paper.

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### The aggressin-like action of anaphylatoxin.

By HANS ZINSSER and J. G. DWYER.

[From the Department of Bacteriology, College of Physicians and Surgeons, Columbia University.]

In the course of experiments upon the repeated injection of anaphylatoxin into guinea-pigs the writers noticed a phenomenon which suggested to them that the anaphylatoxic substances may possibly possess properties similar to those described by Bail for his "aggressins." In the earlier experiments the anaphylatoxins were prepared with typhoid bacilli by emulsifying one slant of the bacteria in 8 c.c. of fresh guinea pig complement and allowing

<sup>1</sup> Woodruff and Baitsell, *Jour. Exper. Zool.*, XI, 1911, p. 339. Erdmann, *Archiv. für Protistent.*, XXIX, 1913, p. 118.

<sup>2</sup> Woodruff, *Jour. Exper. Zool.*, XVI, 1914, p. 237.