process may be different in different organisms, but I consider it rather improbable in view of the fact that both para- and telosynapes have been described for different groups of plants and animals, and especially since certain "evidences" involved in the argument are not easily observable.

Summing up: contrary to the general belief, so-called end-to-end conjugation does offer an opportunity for interchange between chromosomes at the late thick thread stage in the prophase of maturation division, but at this stage only. If telosynapsis is a universal phenomenon, it would seem that crossing over must take place at the stage here specified. Of course, no morphological evidence has yet been produced for crossing over, and the most that can be said from the present cytological data is that such an interchange is not impossible at a certain stage in the muturation division.

Waro Nakahara

DESTRUCTION OF ZOOSPORES OF PLANT DISEASE ORGANISMS BY NATURAL ENEMIES

In making some motion-picture photomicrographs of the liberation of zoospores from the sporangia of *Physoderma zeæ maydis* (see Tisdale, *Jr. Agr. Res.*, Vol. 16, p. 137, 1919) the author observed destruction of the zoospores by certain animalcules which are commonly found in decaying vegetable material. No reference has been found regarding the importance of these natural enemies of the plant diseases which are disseminated by zoospores.

The number of zoospores swallowed by one rotifer (*Proales* sp.) is remarkable. When the animalcules are abundant there is a speedy disappearance of the zoospores. One infusorian (*Keronia* sp.) was observed to devour a perfect stream of the zoospores of *Physoderma,* at the same time increasing in size until it became gorged almost beyond recognition.

In active cultures one may see a field in the microscope filled with millions of zoospores swimming about. In a few hours large numbers of these have been devoured by the animalcules, which rapidly increase in numbers. A few hours after this one then sees these same protoplasm constituents swimming about not as zoospores but as animalcules. The process of change is so rapid it makes one wonder if there is always cleavage of the proteins and resynthesis or whether there may not be some shorter method of assimilation especially in the unicellar organisms in which the cytoplasms of the infusorian and the zoospore ingested are in such intimate contact.

In starting from dry material collected from cornstalks infested with *Physoderma,* the animalcules appear first and are on hand for each crop of zoospores.

It would be desirable to determine just how important such animalcules are as natural enemies of those plant diseases which are disseminated by zoospores. Also we should collect data to determine if the destruction of the soil animalcules by excessive liming may not be correlated with epidemics of these diseases.

R. B. Harvey

U. S. Department of Agriculture

THE JOURNAL OF MORPHOLOGY

At its annual meeting in St. Louis, the American Society of Zoologists voted to accept the proposition made by Dr. M. J. Greenman, of the Wistar Institute, that in the future the society should assume control of the scientific policy of the *Journal of Morphology* and elect the editorial board, while the Wistar Institute retained control of the financial management of the journal.

A committee composed of M. M. Metcalf, Caswell Grave and W. E. Castle was appointed to initiate a scientific policy; to nominate an editorial board; to consult with the advisory board of the Wistar Institute and to refer its recommendations for final decision to the executive committee of the society.

This committee on publication and the executive committee and the Wistar Institute have agreed to the following action which accord-

ingly forms the basis for the cooperation between the American Society of Zoologists and the Wistar Institute regarding the *Journal of Morphology*. The full report of the committee will be published in the proceedings of the 1920 meeting of the society, but on account of the general interest the following summary is presented at this time:

I. That there be elected a managing editor of *The Journal of Morphology* to serve for a period of five years and that he be eligible for reelection at the expiration of his period of service.

II. That there be elected nine associate editors of *The Journal of Morphology;* three to serve until January 1, 1922; three to serve until January 1, 1923; and three to serve until January 1, 1924.

That beginning with the annual meeting of the society at the end of the year 1921, and annually thereafter, there be elected by the society upon nomination, by the same method as is provided for the nomination of other officers, three associate editors to serve for three years to take the places of the three retiring associate editors. That before making nomination of such associate editors, the nominating committee shall consult the board of editors of *The Journal of Morphology* and also the director of the Wistar Institute and through him the Board of Advisers of this institute.

This is suggested as a matter of courtesy to the institute, not as a matter of necessity, for the election of the editors of this journal shall lie with the society.

That a retiring associate editor shall not be eligible for reelection until after the expiration of one year subsequent to his retirement.

III. That the three incoming associate editors be constituted a consulting committee to visit the Wistar Institute at its invitation and expense, to serve as a means of cooperation between the two organizations.

IV. That the board of editors make annual report to the society upon *The Journal of Morphology* and any matters of publication that they may wish to include.

V. That the consulting committee, or any of its members, if they desire to do so, may report any year to the society any suggestions or recommendations growing out of their visit to and consultations with the Wistar Institute.

VI. That Professor C. E. McClung be elected managing editor of *The Journal of Morphology.*

VII. That associate editors be elected as follows:

1. To serve until January 1, 1922:
   Professor Gary N. Calkins.
   Professor J. S. Kingsley.
   Professor William Patton.
2. To serve until January 1, 1923:
   Professor E. G. Conklin.
   Professor M. F. Guyer.
   Professor W. M. Wheeler.
3. To serve until January 1, 1924:
   Professor C. A. Kofoid.
   Professor F. R. Lillie.
   Professor J. T. Patterson.

VIII. That matters of editorial policy and method, not covered by the present report, be left to the board of editors, subject of course to any action of the society.

It may be well to state that no fundamental changes in the character or conduct of *The Journal of Morphology* are contemplated.

W. C. ALLEE,
Secretary-Treasurer

SPECIAL ARTICLES

A SIMPLIFIED NON-ABSORBING MOUNTING FOR POROUS PORCELAIN ATMOMETERS

SINCE the introduction of porous-porcelain atmometers[1] into general use among physiologists, ecologists and agricultural experimenters, it has been realized that one of the most important details of the operation of these instruments in the open depends upon the fact that the porous, water-imbibed surface absorbs water during rains unless special precautions are adopted to prevent this. Mounted on a simple tube, as for laboratory use, these instruments always give negative readings for periods of rapid precipitation. At the end of a rainy day the reading may be considerably smaller than it should be to represent merely the summation of all incre-

[1] Livingston, B. E., "The Relation of Desert Plants to Soil Moisture and to Evaporation," Carnegie Inst. Washington Publ. 50, 1906. *Idem*, "A Simple Atmometer," SCIENCE, 28: 319–320, 1908. *Idem*, "Atmometry and the Porous-cup Atmometer," *Plant World*, 18: 21–30, 51–74, 95–111, 143–149, 1915. Other references are given in these papers.