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.

ments of water-loss by evaporation. The reading may be nil or even negative (entrance of water into the reservoir), in spite of the actual evaporation of significant amounts of water from the instrument during the periods between showers.

It is not feasible to correct for these errors of water absorption, but the difficulty has long been practically overcome by the employment of a rain-correcting, or non-absorbing, mounting for this kind of atmometer when operated in the open during rainy weather.[2] All the non-absorbing mountings thus far suggested depend upon a mercury valve that allows water to pass through the tube freely in the upward direction, but practically prevents movement downward. As soon as liquid water is deposited on the exposed porous surface the surface automatically becomes virtually impervious to water from without, and the precipitation water runs off from the instrument as though it were glazed. When the rain ceases the valve reverses and evaporation soon begins to be registered as water-loss from the reservoir. Various types of mercury-valve mounting have been described, but the Shive form has been most generally used. All these non-absorbing mountings are relatively expensive, and the least expensive one (Johnston's) involves the use of rubber and requires special care in the installing of the instrument.

A much simpler form of mounting than any hitherto sugested has recently been tested in the Laboratory of Plant Physiology of the Johns Hopkins University. The purpose of this paper is to place the new modification in the hands of those who are interested in atmometry, so as to save them the expense and troubles of the more complicated mountings.

[2] Livingston, B. E., "A Rain-correcting Atmometer for Ecological Instrumentation," *Plant World*, 13: 79–82, 1910. Harvey, E. M., "The Action of the Rain-correcting Atmometer," *Plant World*, 16: 89–93, 1913. Shive, J. W., "An Improved Non-absorbing Porous-cup Atmometer," *Plant World*, 18: 7–10, 1915. Johnston, E. S., "A Simple Non-absorbing Atmometer Mounting," *Plant World*, 21: 257–260, 1918.

The new mounting is very simple. The porous-porcelain piece is mounted in the usual way, by means of a rubber stopper, on the upper end of a glass tube of suitable length and having a bore of about 6 or 7 mm. This tube bears a second rubber (or cork) stopper somewhat below the first, which fits the mouth of the reservoir bottle and closes it completely as far as entrance of rain-water is concerned. The reservoir stopper is not slotted to allow air entrance to the reservoir, but access of air to the interior is allowed through a short, inverted-U-shaped glass tube, one arm of which is longer and penetrates just through the reservoir stopper from without, while the other arm is shorter, is directed downward and terminates a few millimeters above the upper surface of the stopper. This U-tube may be very small and its end may be loosely plugged with glass wool to exclude insects, etc. A water-proof apron over the top of the reservoir may be employed (Livingston, 1908), or other devices to allow air entrance and to exclude rain water may be used.

Thus far we have an *absorbing* mounting, suitable only for indoor operation or for periods without precipitation. But a very simple and efficient mercury valve is inserted in the upper end of the straight tube, as follows. A tightly rolled plug of glass wool (about 1 cm. long) is inserted in the upper end of the tube, the outer end of the plug is cut off so as to have a flat surface, and it is pushed into the tube until its upper end is about 2 cm. from the top of the tube. Next, a small amount of mercury is placed in the tube above the plug (the mercury column being 5–8 mm. high) and another plug of like nature is inserted above the mercury. The mercury is imprisoned between the two plugs and can not escape, in whatever position the tube is placed.

To install the instrument, the tube is inverted and the end bearing the valve is inserted in distilled water while suction is applied at the other end. Water enters freely through the valve and the tube is nearly filled in this way. Then the porous-porcelain

piece (cylinder, sphere or Bellani plate) is filled with distilled water and the tube is set into the porcelain piece, with the rubber stopper pressed firmly into the neck. The tube is next completely filled with distilled water, by pouring from the reservoir bottle (previously filled), and then it and the porcelain piece together are quickly inverted and the free end of the tube is inserted into the reservoir in the usual manner, the second stopper closing the reservoir.

With the arrangement here described water does not pass downward through the valve, but it readily passes upward, keeping the evaporating surface supplied. This mounting appears to operate perfectly, just as well as do the more complicated forms, it is more easily installed than they, it is easily constructed and the materials are inexpensive and readily obtainable.

BURTON E. LIVINGSTON,
FRANK THONE
THE JOHNS HOPKINS UNIVERSITY

THE IOWA ACADEMY OF SCIENCE

THE thirty-fourth annual session of the Iowa Academy of Science was held in Physics Hall of the State University at Iowa City on April 23 and 24. At the opening session on Friday afternoon, the twenty-third, the memorial portrait of the late Dr. Samuel Calvin, formerly head of the department of geology at the state university and state geologist, was unveiled and presented by the Academy to the State Historical Department at Des Moines. President Stephens then delivered his address on "The Taxonomic Unit."

After the reading of papers the academy adjourned to see the moving pictures showing the University Barbados-Antigua Expedition of 1918 and also those showing the development of the potato disease known as "Leak" by the fungus *Pythium DeBaryanum*. Owing to the fulness of the program it was necessary to hold a short session after the group dinners, following which President Jessup, of the university, and Mrs. Jessup received the visiting members at their home.

Section meetings were held on Saturday forenoon and at the succeeding business session the following officers were chosen for the coming year: *President*, Nicholas Knight, Cornell College, Mount Vernon; *First Vice-president*, D. W. Morehouse, Drake University, Des Moines; *Second Vice-president*, R. B. Wylie, State University, Iowa City; *Secretary*, James H. Lees, Iowa Geological Survey, Des Moines; *Treasurer*, A. O. Thomas, State University, Iowa City.

The academy ratified the action of its executive committee in accepting affiliation with the American Association for the Advancement of Science, which action had been taken soon after the meeting of the association in St. Louis. The constitution was amended to provide for the collection of dues of the association by the treasurer of the academy at the same time as the academy dues, and also to provide for the beginning of the fiscal year on October 1. Also an amendment was passed providing for the selection by the academy of a representative on the council of the American Association for the Advancement of Science.

The Iowa sections of the American Chemical Society and the Mathematical Association of America held their meetings in conjunction with the academy.

TITLES OF PAPERS

Botany

The treatment of certain seed-carried diseases: GUY WEST WILSON.

This paper deals with work on cotton diseases conducted by the author and associates at the South Carolina Experiment Station. Cotton anthracnose is the most important disease of field crops in the southeastern states, comparing favorably with the wheat rust in the Mississippi valley. The author and his associates have perfected a method of treating the seed which is practicable on a commercial scale and which bids fair to be of considerable value in the treatment of seed carried diseases of other crops.

Some noteworthy uredinales and ustilaginales: GUY WEST WILSON.

Notes on apogamous Liguliflorœ: RAYMOND A. FRENCH.

Some aspects of the plant ecology of certain Kansas sand hills: FRED W. EMERSON.

The sand hills studied lie in south-central Kansas along Arkansas river between Wichita and Hutchinson. Dense vegetation holds the sand stable wherever man permits; burning, close grazing and attempts to plant farm crops have removed natural vegetation from considerable areas not only making them useless but threatening neighboring farm lands with being covered with