The bottle and pipette were then filled with the nutrient solution, care being taken that no bubbles were inclosed beneath the stopper. Loss in weight of the plant and container gave the amount of transpiration, while the loss of solution from the pipette gave the amount of root absorption after temperature corrections were made. These temperature corrections were made by comparing these pipette readings with those of a pipette in a similar bottle containing no plant, but exposed to the same set of conditions. Transpiration was measured in grams while absorption was measured in cubic centimeters, but as the variations in density of the solutions for these temperature ranges were small in comparison to the actual values dealt with this correction was not made. The experiment was performed on November 6, 1919, in the diffused light of the laboratory during a period when variations in temperature and the index of evaporation were slight.

TABLE I

Data Showing Rates of Transpiration and Absorption of a Tomato Plant with Roots Immersed Successively in a Three-salt Nutrient Solution of 1.75 Atmospheres Osmotic Pressure, Cane Sugar Solution of 5.06 Atmospheres Osmotic Pressure and Distilled Water

Period	Hourly Rate of		Ratio A/T	Solution and Osmotic Pressure
	Transpiration	Absorption		
	gram	*cc.*		
1	.41	.44	1.07	3-salt, 1.75 atm.
2	.31	.37	1.19	3-salt, 1.75 atm.
3	.42	.28	.67	Sugar, 5.06 atm.
4	.29	.18	.62	Sugar, 5.06 atm.
5	.41	.46	1.12	Distilled water
6	.32	.39	1.22	Distilled water

When the hourly rate of absorption is in excess of transpiration the ratio, A/T, is greater than unity and the plant cells increase in turgor. When this rate is less than unity turgor is decreased and if the process is continued long enough the cells become flaccid and the plant is seen to wilt. The plant gained in turgor during the first two periods given in Table I., but during the third and fourth periods the ratio values decreased very much. This decrease was mainly due to lower absorption rates since the roots were surrounded by a solution much stronger osmotically during these two periods than during the first two. The rates of absorption for the last two periods were greatly increased by placing the roots in distilled water.

EARL S. JOHNSTON
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THE AMERICAN MATHEMATICAL SOCIETY

THE two hundred and twelfth regular meeting of the society was held at Columbia University on Saturday, October 30, 1920, extending through the usual morning and afternoon sessions. The attendance included thirty-five members. President Morley occupied the chair. The council announced the election of the following persons to membership in the society: Dr. P. M. Batchelder, University of Texas; Miss Vevia Blair, Horace Mann School; Mr. E. H. Carus, La Salle, Ill.; Mr. W. E. Cederberg, University of Wisconsin; Mr. R. P. Conkling, Newark Technical School; Mr. P. H. Evans, Northwestern Mutual Life Insurance Company, Milwaukee, Wis.; Mr. B. L. Falconer, U. S. Civil Service Commission, Boston, Mass.; Mr. J. A. Foberg, Crane Junior College, Chicago, Ill.; Dr. Gladys E. C. Gibbens, University of Minnesota; Professor L. E. Gurney, University of the Philippines; Professor Archibald Henderson, University of North Carolina; Miss Jewell C. Hughes, University of Arkansas; Miss Claribel Kendall, University of Colorado; Mrs. M. I. Logsdon, University of Chicago; Mr. R. L. McNeal, General Motors Laboratories, Detroit, Mich.; Mr. H. L. Olson, University of Michigan; Professor Leigh Page, Yale University; Captain H. W. Rehm, Aberdeen Proving Ground, Md.; Mr. Irwin Roman, Northwestern University; Mr. Raleigh Schorling, Lincoln School, New York City; Mr. E. L. Thompson, Junior College, Joliet, Ill.; Dr. Bird M.

Turner, University of Illinois. Four applications for membership in the society were received.

A committee was appointed to audit the accounts of the Treasurer for the current year. A list of nominations of officers and other members of the council was adopted and ordered printed on the official ballot for the annual meeting in December. The treasurer of the society to be elected at the annual meeting was made curator of all property belonging to the society.

It was announced that the next summer meeting of the society will be held, in conjunction with that of the Mathematical Association of America, at Wellesley College.

The following papers were read at the October meeting:

H. S. Vandiver: "On Kummer's memoir of 1857 concerning Fermat's last theorem."

R. L. Borger: "On total differentiability."

Elizabeth LeStourgeon: "Minima of functions of lines."

Joseph Lipka: "Complete geometric characterization of the dynamical trajectories on a surface for any positional field of force."

Joseph Lipka: "Complete geometric characterization of the brachistrochrones, catenaries, and velocity curves on a surface."

Dunham Jackson: "On the convergence of certain polynomial approximations."

J. F. Ritt: "On algebraic functions which can be expressed in terms of radicals."

A. A. Bennett: "The Schwarz inequality for a given symmetrical convex region and given bilinear form."

Edward Kasner: "Determination of an Einstein gravitational field by means of the paths of free particles."

O. E. Glenn: "An algorism for differential invariant theory."

T. H. Gronwall: "Some inequalities in the theory of functions of a complex variable."

W. L. G. Williams: "Fundamental systems of formal modular semi-variants of the binary cubic."

The Southwestern Section will meet at the University of Nebraska on November 27. The annual meeting of the society will be held in New York, December 28–29. Its western meeting will be held at Chicago, December 29–30.

F. N. COLE,
Secretary

THE NATIONAL ACADEMY OF SCIENCES

THE program of the autumn meeting, held at Princeton University, was as follows:

TUESDAY, NOVEMBER 16

Morning Session

"Some approximate computations of x-ray wave-lengths," by W. Duane.

"The Peltier effect," by E. H. Hall.

"New facts bearing on the structure of the helium atom," by R. A. Millikan.

"The measurement of the ionizing potential of metallic surfaces," by R. A. Millikan.

"Further progress in the extreme ultra-violet," by R. A. Millikan.

"Fluorescence and chemical change in very intense light fields," R. W. Wood.

"A high speed photographic recording galvanometer for laboratory or technical use," by A. Trowbridge.

"Explosions of mixtures of coal gas and air under constant volume conditions," by A. Trowbridge.

Excursion to the Rockefeller Institute (department of animal pathology). Inspection of grounds and buildings, followed by luncheon as guests of the institute.

Afternoon Session

"A post-war use of war material," by L. O. Howard.

"The investigation of the flora of northern South America by the United States National Museum, the Gray Herbarium of Harvard University and the New York Botanical Garden," by N. L. Britton.

"The segregation and control of the light producing substances in organisms," by U. Dahlgren (introduced by E. G. Conklin).

"Rose Atoll, Samoa," by A. G. Mayor. (By title.)

"The tectonic conditions accompanying the intrusion of basic and ultrabasic igneous rocks," by W. N. Benson (introduced by Arthur L. Day.) (Read by title.)

"The oldest forest," by John M. Clarke.

"The evolution of the Proboscidea," by H. F. Osborn.