

possible for an assistant within five or ten minutes to prepare the material, freeze it, and cut enough sections for several hundred students. With very little expenditure of time and energy fresh sections can be provided for all laboratory classes.

The material is frozen in a small quantity of relatively thick gum arabic solution. The temperature which must be used to convert this mucilage into a firm supporting mass is apparently not sufficiently low to cause visible injury to living plant tissues by freezing.

A feature which adds much to the convenience of the method is the use of a small wooden block, described in Professor Gardner's article. This block is so cut away on one side as to form with the microtome knife to which it is fastened by means of a wire clamp, a chamber into which the sections fall as they are cut from the frozen mucilage mass. The chamber is partly filled with water, the contact of the block with the knife is made water tight by means of a thin layer of vaseline. When cutting is completed the sections may be easily poured from the chamber with the water.

It is perhaps not superfluous to add that sections thus cut are given to the student for study only after he has cut and examined free hand sections of the same material.

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## THE AMERICAN MATHEMATICAL SOCIETY

THE two hundred and twenty-seventh regular meeting of the American Mathematical Society was held at Columbia University, New York City, on Saturday, February 24, extending through the usual morning and afternoon sessions. The attendance included thirty-five members of the society.

The secretary announced the election of twenty-six persons to membership, and the entrance into the society since the annual meeting of seven additional members of the London Mathematical Society under the reciprocity agreement.

At the meeting of the council, the secretary announced the appointment by President Veblen of a committee on endowment, with Professor J. L. Coolidge as chairman. A com-

mittee on arrangements for the summer meeting at Vassar College was appointed consisting of Professors H. S. White (*chairman*), G. M. Conwell, E. B. Cowley and L. D. Cummings and the secretary. Professor E. V. Huntington was appointed representative of the society in the Division of Physical Sciences of the National Research Council for the period of three years beginning July 1, 1923.

The following papers were read before the society at this meeting:

*Circular plates of constant or variable thickness:* C. A. GARABEDIAN.

*Permutable rational functions:* J. F. RITT.

*The maximum number of cusps of a space curve:* T. R. HOLLCROFT.

*Theory of the octavic:* A. M. WHELAN.

*Analogy between electromagnetic field and analytic function:* G. Y. RAINICH.

*The existence of closed geodesics on surfaces.*

*Preliminary communication:* J. W. ALEXANDER.

*The asymptotic expansion of the functions  $W^{k,m}(z)$  of Whittaker:* F. H. MURRAY.

*Some geometric applications of symmetric substitution groups:* A. EMCH.

*A property of Haar's system of orthogonal functions:* J. L. WALSH.

*The Riemann adjoints of certain completely integrable systems:* C. A. NELSON.

*Intermediate curvatures in Riemann space:* E. KASNER.

*Concerning the common boundary of two or more regions:* G. A. PFEIFFER.

*Some theorems on insolvable groups:* L. WEISNER.

*Values in terms of Bernoulli and Eulerian numbers:* I. J. SCHWATT.

*On the reduction of differential parameters in terms of finite sets. Preliminary report:* O. E. GLENN.

*A new form of Stirling's interpolation formula:* G. RUTLEDGE.

*On the angle between two curves in  $V_n$ :* J. LIPKA.

*On the accessibility of the boundary of a domain:* R. L. WILDER.

*Determinantal relations based on a matrix whose elements fall into two classes:* L. H. RICE.

*Maximum modulus of some expressions of limited analytic functions:* S. KAKEYA.

The society will meet at the University of Chicago April 13-14 and at Columbia University April 28.

R. G. D. RICHARDSON,  
Secretary