

tion within a few days. In March, however, it reappeared and grew well. Desmids, such as *Cosmarium*, *Closterium* and *Micrasterias*, as well as *Mougeotia*, *Ulothrix* and *Stigeolonium*, which were collected in the spore stage, germinated and grew readily at a temperature of 20° C. *Spirogyra*, *Vaucheria* and *Cladophora* were most successfully grown at a temperature of 5° C. or less. The majority of the Chlorophyceæ collected grew vigorously in city water, provided that the temperature was between 5° C. and 20° C. *Vaucheria*, *Scenodesmus* and other Protococcaceæ flourished throughout the year. *Edogonium* and *Chaetophora* developed freely towards spring. Diatoms, such as *Navicula*, were plentiful at low temperatures. By periodically renewing the water to prevent the concentration of the mineral contents and by guarding against excessive exposure to strong light, many aquaria were kept in good condition during the following summer and supplied much material used for class-work throughout the winter of 1912-13. Towards spring, in 1913, *Scenodesmus* and a few other types crowded out less resistive groups, and the cultures were allowed to die during the summer of 1913.

Algæ similarly treated in the autumn of 1913 have not developed well. The summer was unfavorable to the majority and they were not in good condition when collected. *Spirogyra* and other Conjugatæ, several of the Protococcaceæ and *Edogonium* began to grow after a few weeks. But in December, practically all of the aquaria contained species of *Bacillus*, *Spirillum* and *Vibrio*, as well as one or two water molds. Several factors probably contributed to this result. A less rigorous use of hypochlorite of lime in the treatment of the city water was suggested as a partial explanation by Dr. Adami during the discussion which followed the reading of the paper. It is obvious that when water-supplies are freed from bacteria by means of hypochlorite of lime, such a free development of algæ is permitted as to require treatment by copper sulphate or other measures to prevent pollution.

Toxic Products in Food and Their Detection:

CHAS. H. HIGGINS.

Outline of necessity for the formulation of a method which could be used as a standard in routine examinations connected with the administration of the Meat and Canned Foods Act.

Three forms of poisoning in meat food products recorded by Edelmann. These are: (1) poisoning resulting from an infection by the *Bacillus enteritidis* (Gärtner); (2) poisoning resulting

from the toxic products of the *Bacterium coli*, *proteus* species, etc., (3) poisoning resulting from the *Bacillus botulinus*. These food poisonings are the result of a direct bacterial infection or the poisoning from toxic products formed during their growth. Methods of detection are bacterial, such as Rosenau's, the *boiling test*, judgment depending upon the odor and the various feeding tests, principally with mice. None of these meet the requirements of routine examinations, as the individual element is an important factor and one that can not be standardized. The method employed is through the preparation of a solution of the material under consideration; in the case of commercial gelatines a ten per cent. solution, and following the method of Rosenau injecting this subcutaneously in amounts of 1 c.c. to 10 c.c., which contain from 0.1 to 1.0 of the original gelatine. For other meat food products the method is similar save that the food is leached with normal saline or distilled water, either proving equally satisfactory. In every case ten guinea-pigs are used, preferably of 250 grams weight, these having been shown to be most suitable for this purpose.

This method was used on upwards of two hundred samples. In one instance untoward effect occurring in sixteen persons, was directly traced to gelatine entering food product. In other cases untoward effect was found to be due to faulty methods of handling.

Proteid products have not interfered with the results and have not led to uncontrollable factors. Judgment depends upon the presence of illness or death among the inoculated animals. Period of observation, five days.

A. PARKER HITCHENS,

Secretary

(To be continued)

SOCIETIES AND ACADEMIES

THE AMERICAN MATHEMATICAL SOCIETY

THE one hundred and seventieth regular meeting of the society was held at Columbia University on Saturday, April 25. The attendance at the morning and afternoon sessions included forty-four members. Ex-president Böcher occupied the chair, being relieved by Vice-president Eisenhart, Ex-president Fiske and Professor Tyler. The council announced the election of the following persons to membership in the society: Dr. T. H. Brown, Yale University; Dr. Josephine E. Burns, University of Illinois; Professor C. F. Gummer, Queen's University, Kingston, Ontario; Mr. G.

M. Hayes, College of the City of New York; Dr. W. L. Miser, University of Minnesota; Professor Maximilian Philip, College of the City of New York; Mr. S. A. Schwarz, College of the City of New York; Professor A. G. Smith, State University of Iowa; Mr. W. A. Wetzel, College of the City of New York. Ten applications for membership in the society were received.

Professor L. E. Dickson was reelected a member of the editorial committee of the *Transactions* for a term of three years. It was decided to hold the annual meeting this year in New York.

The society has recently published the Madison Colloquium Lectures, by Professors L. E. Dickson and W. F. Osgood, being volume 4 in the Colloquium Lecture Series.

The following papers were read at this meeting:

A. R. Schweitzer: "An extension of functional equations."

L. P. Eisenhart: "Transformations of conjugate systems with equal point invariants."

H. H. Mitchell: "The subgroups of the quaternary abelian linear group."

R. D. Beetle: "On the complete independence of Schimmack's postulates for the arithmetic mean."

H. S. Vandiver: "Extension of the criteria of Wieferich and Mirimanoff in connection with Fermat's last theorem."

E. G. Bill: "Note on the curvature of a regular curve in non-euclidean space."

S. A. Joffe: "Triangles whose sides are three consecutive integers and whose area is an integer."

G. D. Birkhoff: "The restricted problem of three bodies. Second paper."

A. B. Coble: "Cremona groups determined by point sets."

Anna J. Pell: "Non-homogeneous linear equations in infinitely many unknowns."

Louise D. Cummings: "On a method of comparison for triple systems."

C. L. E. Moore: "A geometry whose element of arc is a linear differential form."

C. L. E. Moore: "On the centers and radii of curvature of curves traced on a surface in an n -space."

J. E. Rowe: "Invariants of the rational plane quintic and of rational curves of odd order."

J. K. Lamond: "Some applications of a theorem of W. H. Young."

Maxime Bôcher: "On a small variation which renders a linear differential system incompatible."

R. C. Archibald: "Euclid's book on division of figures."

C. E. Wilder: "On the degree of approximation to discontinuous functions by trigonometric sums."

E. J. Miles: "Transversality and orthogonality of space extremals."

P. R. Rider: "Broken extremals in space."

R. L. Moore: "Linear order in terms of point and limit."

T. H. Gronwall: "Triply orthogonal systems containing one family of minimal surfaces."

The summer meeting of the society will be held at Brown University, on September 8-9.

F. N. COLE,
Secretary

THE PHILOSOPHICAL SOCIETY OF THE UNIVERSITY OF VIRGINIA

At the regular monthly meeting of the Scientific Section of the society on February 16 Dr. W. J. Humphreys, Professor of Meteorological Physics, U. S. Weather Bureau, delivered an address entitled "Volcanic Dust and other Factors of Climatic Control."

On March 23 Professor Graham Edgar presented a joint paper by himself and Mr. S. H. Diggs entitled "The Influence of the Concentration of Potassium Iodide on the Rate of Diffusion of Iodine in Potassium Iodide Solution."

On April 20, 1914, Professor J. S. Grasty presented a paper on "The Shore Lines of the Ore Beds of the Clinton Formation in Alabama."

L. G. HOXTON,
Secretary

THE AMERICAN PHILOSOPHICAL SOCIETY

A PAPER read before the American Philosophical Society on April 3, by Ambrose E. Lehman, "Explorations in the Hudson Bay Region, with Reference to Unusual Topographic and Hydrographic Features and Mineral Deposits," announces the discovery of rich molybdenite ores, at a point immediately south of the new National Transcontinental Railway, in the northern section of the Province of Quebec, 440 miles northwest of Quebec, Indian Peninsula, Keewagama Lake.

Molybdenite crystals and flakes occur in persistent quartz veins traversing the granite and pegmatite rocks of the Laurentian formation.

Exploration and development of the deposits thus far exposes the ore near the surface, in such quantity as to warrant the belief in the magnitude of the find being greater than any heretofore discovered and developed of this rare metal.