Geometry,' by E. J. Wilczynski; 'On Loci the Coordinates of whose Points are Abelian Functions of Three Parameters,' by J. I. Hutchinson; 'Associated Configurations of the Cayley-Veronese Class,' by W. B. Carver; 'Von Helmholtz,' by E. B. Wilson; 'Pierpont's Theory of Functions' (Review of Pierpont's Theory of Functions of Real Variables, Volume I.), by G. A. Bliss; 'The Mathematical Tripos for 1906,' by Virgil Snyder; Shorter Notices: Simon's Ueber die Entwicklung der Elementar-Geometrie im XIX. Jahrhundert and Simon's Methodik der Elementaren Arithmetik in Verbindung mit Algebraischer Analysis, by D. E. Smith; Randall's Elements of Descriptive Geometry and Ferris's Elements of Descriptive Geometry, by L. I. Hewes; 'Notes'; 'New Publications.'

The January number contains: Report of the October Meeting of the American Mathematical Society, by F. N. Cole; Report of the Stuttgart Meeting of the Deutsche Mathematiker-Vereinigung, by A. B. Frizell; 'A New Approximate Construction for π,' by George Peirce; 'Note on Conjugate Potentials,' by O. D. Kellogg; 'Groups of Order p^m Containing Exactly $p+1$ Abelian Subgroups of Order p^{m-1},' by G. A. Miller; 'Note on Systems of In- and Circumscribed Polygons,' by Miss S. F. Richardson; 'Hermite's Works' (Review of Picard's Oeuvres de Charles Hermite, Volume I.) by James Pierpont; 'Projective Differential Geometry' (Review of Wilczynski's Projective Differential Geometry of Curves and Ruled Surfaces), by Virgil Snyder; Shorter Notices: Nielsen's Handbuch der Theorie der Cylinderfunktionen, by F. H. Safford; Mach's Space and Geometry in the Light of Physiological, Psychological and Physical Inquiry, by C. J. Keyser; 'Notes'; 'New Publications.'

The February number contains: Report of the Preliminary Meeting of the Southwestern Section, by A. S. Chessin; 'Selected Topics in the Theory of Boundary Value Problems of Differential Equations,' by Max Mason; 'Note on Fourier's Constants,' by E. H. Moore; 'On the Minimum Number of Operators Whose Orders Exceed Two in any Finite Group,' by G. A. Miller; 'Note on the Orientation of a Secant,' by L. D. Ames; 'On Euler's ϕ-Function,' by R. D. Carmichael; Shorter Notices: Muir's Theory of Determinants, Revised Edition, by G. A. Miller; Schmall's First Course in Analytical Geometry, by Miss E. B. Cowley; Hefter and Koehler's Lehrbuch der analytischen Geometrie, by Miss E. B. Cowley; Teixeira's Tratado de las Curvas Especiales Notables, by C. H. Sisam; The Scientific Papers of J. Willard Gibbs, by E. B. Wilson; Gerland's Leibnizens Nachgelassene Schriften physikalischen, mechanischen und technischen Inhalts, by Florian Cajori; 'Notes'; 'New Publications.'

SOCIETIES AND ACADEMIES

THE AMERICAN CHEMICAL SOCIETY. NEW YORK SECTION

THE fourth regular meeting of the session of 1906–7 was held at the Chemists' Club, 108 West 55th Street, on February 8.

The following papers were presented:

The Alkylation of 4-Quinazolones: M. T. BOGERT and H. A. SEIL.

The Synthesis of Naphthotetrazines from p. Diamino Terephthalic Compounds: J. M. NELSON and M. T. BOGERT.

Note on the Use of Ultra-violet Light in Concentrating Willemite: G. C. STONE.

Ultra-violet light is used during the concentration of Willemite to determine when the tailings are free from the ore, the degree of fluorescence giving a good indication of the amount of ore present in the sample under examination. This method of analysis was illustrated on the lecture table by subjecting samples of Willemite which had been more or less completely extracted to the action of light rich in ultra-violet rays. Of the several samples of tailings examined, some showed no signs of fluorescence, while others showed the presence of sufficient ore to make it worth while to rework them.

The Determination of Sulphurous Acid in Gelatin: A Manufacturer's Position with Regard to the Pure Food Act: JEROME ALEXANDER.

In the determination of sulphurous acid by the official method, the sample is distilled with dilute phosphoric acid in a current of carbon dioxide, the distillate collected in standard iodine solution, the excess of which is titrated with sodium thiosulphate.

The method more generally used consists in collecting the sulphurous acid in iodine solution, boiling off the iodine and precipitating the resulting sulphuric acid as barium sulphate. This method gives lower results than the official method, indicating that substances other than sulphurous acid distil over and reduce the iodine.

Samples of gelatin were analyzed by both the above methods and by different chemists. The results obtained varied considerably between the methods and between the chemists. Furthermore, sulphurous acid was reported where no sulphur in any form had been added to the gelatin. This last is explained by a consideration of some recent work on the determination of sulphurous acid in meat where a certain amount of sulphur is found to be normally present.

This work on gelatin makes it evident that since most of the food standards are based on the presence or absence of definite percentages of certain elements or compounds, it is of vital importance that chemists compare notes and see what degree of concordance is practicable with our present tentatively official methods and agree upon some reasonable limit of tolerance to cover the differences due to personal equation and imperfect analytical methods.

The technical portion of the paper was supplemented by remarks from Dr. Leo Baekeland.

A Preliminary Communication on the Toxicity of some Aniline Dyestuffs: GUSTAVE M. MEYER.

Seven dyestuffs commonly used as food colorants were obtained from a dealer and investigated. The experiments were made on dogs and included, besides observations of the general influence of these substances, also studies of their elimination. The amount of dye used was increased daily until toxic symptoms were shown. The animals were finally chloroformed and subjected to a post-mortem examination. With one exception, the only outward symptoms induced by the feeding of these dyestuffs were such as would be brought about by the administrations of equally large amounts of any of the ordinary saline purgatives.

In a general way it may be said that, judging from the amounts given and the comparatively slight effects produced, these dyestuffs can hardly be classed among virulent poisons. What symptoms they would produce if administered daily in small doses during a very long period to unhealthy animals is still undetermined.

Studies of the influence of coal-tar colors on peptic digestion in vitro indicated that all dyestuffs almost completely inhibited peptolysis when present in a concentration of 0.62 per cent. or more. Gudeman's statement that synthetic dyes have a certain food value was investigated by this method without obtaining confirmatory results. Direct conclusions as to the effect of these substances on the human body can not, however, be drawn from experiments on digestion in vitro since certain substances have opposite effects in the two cases.

Dr. Meyer's paper was ably discussed by several experts on the subject who were present. These included Messrs. Coblentz, Lieber and Schweitzer.

C. M. JOYCE,
Secretary

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 627th meeting was held on January 19, 1907, President Hayford in the chair. The evening was devoted to a paper by Dr. R. S. Woodward upon 'The Theory and Application of the Double Suspension Pendulum.'

THE 628th meeting was held on February 2, 1907.

Professor Newcomb read a paper on the 'Optical and Psychological Principles Involved in the Interpretation of the Markings on the Discs of the Planets.'

Two sets of principles were discussed: one optical—including all the causes which affect the formation of an image on the retina of the eye, the other psychological—including all

the causes that affect the observer's perception of the image. The first portion of the paper was concerned almost exclusively with the secondary aberration of the refracting telescope. He found that it was impossible to bring more than a small fraction, perhaps one fourth of the light emanating from a star within a radius of one tenth of a second. For this reason a black line on the planet would not be imaged as black in the telescope, but only as a gray diffused line. This effect was one that could not be cured by any arrangement or figuring of the lenses, but could be diminished by increasing the ratio of focal length to the aperture of the telescope.

The second part of the paper was devoted to what the author proposes to call 'visual inference.' This includes the process by which the eye, from the image on the retina, infers the nature of the object which produces the image. He showed at some length the extent to which this form of inference might be carried. It is based largely on experience, but in cases where this is wanting habit may take its place. One result of this process is that different people may see the same image very differently when it approaches the limit of visibility. It was shown by diagrams that broken lines under certain conditions appeared continuous, that double lines may be seen as single, or as a group of which the observer could not give the number without closer inspection. A peculiarity near the two ends of a line affected the judgment throughout the whole length of the line.

Lowell's observations of Mars were very highly spoken of as superior to all others, both in the favorable conditions under which they were made and their careful and critical character; but the general conclusion reached was that his drawings of the canals could not be accepted as certainly correct without a more complete investigation of the possible effects of visual inference in influencing the perception of the observer.

R. L. Faris,
Secretary

THE TORREY BOTANICAL CLUB

The annual meeting was called to order at the American Museum of Natural History, at 8:30 P.M., with Vice-President Burgess in the chair.

Following the presentation and acceptance of annual reports from officers and committees, the annual election resulted as follows:

President—H. H. Rusby.

Vice-Presidents—E. S. Burgess and L. M. Underwood.

Corresponding Secretary—J. K. Small.

Recording Secretary—C. Stuart Gager.

Treasurer—C. C. Curtis.

Editor—J. H. Barnhart.

Associate Editors—Philip Dowell, A. W. Evans, T. E. Hazen, M. A. Howe, W. A. Murrill, H. M. Richards, Miss A. M. Vail.

John Hendley Barnhart,
Secretary pro tem.

DISCUSSION AND CORRESPONDENCE

A SCIENCE TRUST

With the liberal appropriations by Congress for the study of the problems relating to scientific agriculture, there seems to be a growing tendency to form classes, and 'rings,' even as in the commercial and political activities of the nation. In too many cases the executive heads of the experiment stations take to themselves the credit of all that is done in their respective stations and, from the vantage ground of publicity, hamper and cripple, in many ways, the real workers in the respective fields. In many cases, of course, this injustice is unintentional; but it is none the less real. Often the true state of affairs is not realized by the offending directors; in other instances, naturally, it is not conceded.

Directors frequently assume the attitude of the political 'boss,' and attempt to 'pull the wires' in such a way that there can be no recourse for the workers except to humble themselves and 'pay court,' or to resign. They even go farther and deliberately plan to make it difficult for a worker to go from one field to a more congenial field, by throwing out insinuations as to obscure 'outs' that make a change very desirable. In other words, the 'political boss' director claims everything in sight, attempts to bully the workers into what he pleases to call 'respect for authority,' and aims to cut off any possible redress either from