purpose of the committee as soon as it has adequate data at its disposal to formulate and publish the proposed program under these several heads.

A proposal to change the name of the society to the American Astronomical Society was discussed at considerable length. It was the feeling of most of the members present that such a change would be desirable from some points of view; as, however, fears were expressed that this change might tend to deprive the society of the great benefits that it now derives from the attendance and contributions of some who engaged altogether in laboratory research, it was voted not to omit the word " Astrophysical " from the name of the society.

A proposal that the society should go on record as deeming any attempt to communicate with Mars as being unpracticable at the present time and as deprecating the use of any funds for such a purpose was also voted down. The members present were unanimous in believing that such attempts are useless, but were of the opinion that it would be wise not to dignify with any formal action the absurd accounts that have recently appeared in the newspapers.

Upon recommendation by the council the society decided to issue a volume giving an account of its activities during the first ten years of its existence. The council announced that thirty-four persons, an unusually large number, had been elected to membership at this meeting; and that the next meeting would be held during August, 1910, at the Harvard College Observatory, the exact date to be determined later.

The last formal action to be taken by the society before its adjournment was the unanimous adoption of the following:

" The Astronomical and Astrophysical Society of America, assembled at its tenth annual session, records its great regret at the death of its first president, Professor Simon Newcomb. Deeply interested in the cooperation and mutual influence of scientific men, Professor Newcomb was conspicuous in the organization and early progress of the society, and was a dominant factor in determining its relation to contemporary astronomy. His enthusiasm for the science and his wide knowledge of its many branches made his presence and participation in the meetings of the society a perennial inspiration to its members.

" Professor Newcomb's own achievements in exact and theoretical astronomy have already become classics in the history of the subject, and will constitute his permanent memorial. The record of a long and active scientific career is closed with the fulfilment of many of his most cherished ideas, and we deeply regret that he was not longer spared for the further development of those subjects to which he had largely contributed.

" The society records its profound respect for the departed member and directs its secretary to transmit a copy of these resolutions to his bereaved family."

FRANK SCHLESINGER,
Editor for the Tenth Annual Meeting

SOCIETIES AND ACADEMIES

THE AMERICAN MATHEMATICAL SOCIETY

THE one hundred and forty-fifth regular meeting of the society was held at Columbia University on Saturday, October 30, 1909, extending through a morning and an afternoon session. About forty persons were in attendance, including twenty-seven members of the society.

Vice-president Edward Kasner occupied the chair, being relieved at the afternoon session by ex-presidents W. F. Osgood and H. S. White. The following persons were elected to membership: Dr. H. T. Burgess, University of Wisconsin; Professor H. H. Dalaker, University of Minnesota; Mr. G. C. Evans, Harvard University; Mr. Louis Gottschall, New York City; Dr. J. V. McKelvey, Cornell University; Miss H. H. MacGregor, Yankton College; Mr. H. H. Mitchell, Princeton University; Mr. U. G. Mitchell, Princeton University; Mr. R. R. Shumway, University of Minnesota; Dr. H. L. Slobin, University of Minnesota; Mr. I. W. Smith, University of North Dakota. Four applications for membership in the society were received. Mr. C. B. Upton, of Teachers College, was appointed assistant librarian of the society.

Resolutions were adopted expressing the sense of loss to the society and to science occasioned by the death of Ex-president Simon Newcomb.

The following papers were read at this meeting:

C. N. Haskins: " On the extremes of functions."

P. A. Lambert: " On the solution of linear differential equations."

Florian Cajori: " Note on the history of the slide rule."

Carl Runge: " A hydrodynamic problem treated graphically."

Edward Kasner: " The motion of particles starting from rest."

G. A. Miller: " Note on the groups generated by two operators whose squares are invariant."

C. N. Moore: " On the uniform convergence of

the developments in Bessel functions of order zero."

The Southwestern Section of the society will meet at the University of Missouri on Saturday, November 27. The winter meeting of the Chicago Section will be held at the University of Chicago on Friday and Saturday, December 31 and January 1. The annual meeting of the society will be held at Boston, in affiliation with the American Association, Tuesday to Thursday, December 28–30.

F. N. COLE,
Secretary

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 669th meeting was held in the West Hall of George Washington University, on October 23, 1909, President Wead in the chair. The following papers were read:

A Mechanical Means for Effecting Certain Conformal Transformations: Dr. R. A. HARRIS, of the Coast and Geodetic Survey.

Attention was called to the fact that a mechanism which sums continuously and simultaneously two trigonometrical series, the one consisting of sine terms, the other of cosine terms, may be readily adapted to conformal transformations. The independent variable z is assumed to describe circular paths concentric about the origin in the z-plane, and through interruptions at regular intervals, to indicate the orthogonal paths which are radiating straight lines through the origin. Z will describe a system of curves in the Z-plane corresponding to the circles, while the interruptions in the Z-motion will define a system of orthogonal curves corresponding to the radial lines in the z-plane.

We have in general:

$$Z = Az^a + Bz^b + \cdots = X + iY$$
$$= \text{mod } Ar^a \left[\cos (a\theta + \alpha) + i \sin (a\theta + \alpha)\right]$$
$$+ \text{mod } Br^b \left[\cos (b\theta + \beta) + i \sin (b\theta + \beta)\right]$$
$$+ \cdots \cdots \cdots$$

where r denotes the modulus, and θ the argument, of z. The arguments of A, B, $\cdots$ are α, β, $\cdots$. The exponents a, b, $\cdots$ are real numbers and may be positive or negative, integral or fractional. The motion of Z is the resultant of the motions along X and Y. These two rectilinear motions can be produced simultaneously by a mechanism similar to that described by W. H. L. Russell in the *Proceedings of the Royal Society of London*, Vol. 18, 1869.

When only two powers of z are involved in the expression for Z, a very simple instrument can be used in effecting the required transformation; viz., an instrument which continuously combines two circular motions. Such an instrument consists essentially of two graduated arms or cranks, made to revolve with the required angular velocities by means of suitable gears, and a parallelogrammic arrangement so connecting the revolving arms that at each instant the half sum of the two circular motions is indicated by a tracing point.

Attention was called to numerous examples, such as $Z = z + Bz^{-b}$, $Z = z - Bz^b$, where B and b are real positive quantities; $Z = z + 1/z$, $Z = z + z^3$, $Z = z + z/\nu$, etc.

A mechanism capable of performing a considerable variety of transformations like these was exhibited before the society; also a small copper plate upon which several curves had been etched mechanically by means of the instrument.

The International Unit of Light; Photometric Units and Nomenclature: Dr. E. B. ROSA, of the Bureau of Standards.

The speaker gave the definitions of seven photometric magnitudes and derived the equations showing the relations between them. These quantities are: (1) the *intensity*, (2) *luminous flux*, (3) *illumination*, (4) *radiation*, (5) *brightness*, or *specific intensity*, (6) *the surface integral of the latter over the source*, (7) *quantity of light*, or *the time integral of the flux*. The first three of these quantities are most used in practical photometry and illuminating engineering, but the others are required in a complete system, and it contributes to clear thinking and concise expression to have a separate name for each different quantity. The corresponding names in French and German were given, and some changes in these names suggested that would make the nomenclature in the three languages more nearly uniform.

R. L. FARIS,
Secretary

NEW YORK ACADEMY OF SCIENCES—SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY

A MEETING of this section was held on Monday, October 18, at the American Museum of Natural History. Mr. Edward Thatcher read a paper on "Some Principles in Art Metal Work"; W. Campbell, "On the Structure and Constitution of some Alloys and Metals used in the Arts," and Professor D. W. Hering, on "Wave-length of Light by Newton's Rings."

WM. CAMPBELL,
Secretary