characteristic equation of $A$ are all of the same sign, in particular, if $A = I$, in which case $G$ is the group of real orthogonal substitutions, every proper transformation of group $G$ is the second power of a transformation of this group. Therefore, even when $A$ is real, if the roots of the equation $|A - \rho I| = 0$ are not all of the same sign and $n \geqq 4$, $G$ is not isomorphic with the group of real orthogonal substitutions.

## NOTES.

THE Annual Meeting of the AMERICAN MATHEMATICAL SOCIETY was held in New York on Wednesday afternoon, December 30, at three o'clock, the President, Dr. HILL, in the chair. There were twenty-four members present. On the recommendation of the Council, the following persons, nominated at the preceding meeting, were elected to membership: Professor THOMAS WILLIAM EDMONDSON, New York University; Professor JAMES LAWSON PATTERSON, Union College, Schenectady, N. Y. Reports were presented by the Secretary, Librarian and Treasurer. The Secretary announced that the membership of the Society was 279, a net increase of 12 for the year. The number of new members admitted during the year was 22, and the number of withdrawals 10. The average attendance at the ordinary meetings during the year was 15; the attendance at the last annual meeting 25; at the summer meeting 30; at the colloquium 16; and at the Princeton meeting 34. The number of persons who had attended at least one meeting during the year was 82, an increase of 21 over the preceding year. Mr. Pfister and Dr. Schultze were appointed a committee to audit the Treasurer's accounts.

The chair appointed Dr. Ling and Mr. Pfister tellers for the annual election. Upon canvassing the ballots cast in person and by mail, they announced that the following ticket had been elected:

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| *President,* | Professor SIMON NEWCOMB, |
| *Vice-President,* | Professor R. S. WOODWARD, |
| *Secretary,* | Professor F. N. COLE, |
| *Treasurer,* | Professor HAROLD JACOBY, |
| *Librarian,* | Professor POMEROY LADUE. |

*Committee of Publication:*

Professor THOMAS S. FISKE,
Professor ALEXANDER ZIWET,
Professor FRANK MORLEY.

*Members of the Council to serve until December, 1899:*

Professor ALFRED BAKER,
Dr. G. W. HILL,
Dr. EMORY MCCLINTOCK.

The following papers were read :
(1) Professor F. MORLEY : " Geometric construction of a linear covariant of the binary quintic."
(2) Professor A. S. CHESSIN : " On Foucault's pendulum."
(3) Professor E. W. BROWN : " Remarks upon a new lunar theory."

THE National Academy of Sciences held a scientific session at Columbia University, November 17 and 18, pure and applied mathematics being represented by Professor SIMON NEWCOMB, Dr. G. W. HILL, Professor ASAPH HALL, Professor H. A. ROWLAND, Professor R. S. WOODWARD and Mr. CHARLES S. PEIRCE. Mr. PEIRCE read the only strictly mathematical paper. Its title was " Mathematical Infinity."

CORNELL UNIVERSITY. The following advanced courses continue through the current year.—By Professor WAIT : Analytic geometry ; Calculus.—By Professor JONES : Higher algebra and trigonometry.—By Professor MCMAHON : Fourier series, spherical harmonics and Bessel functions ; Mathematical theory of sound.—By Professor TANNER : Binary quantics.—By Dr. MURRAY : Differential equations.—By Dr. HUTCHINSON : Continuous groups.—By Dr. SNYDER : Theory of functions.

In the Mathematical Club the theory of line geometry (*géométrie réglée*) is presented by the members in turn ; and reports are given on current journals.

PROFESSOR OTTO HÖLDER has been called from Tübingen to a professorship of mathematics at the University of Königsberg. This makes the sixth change that has occurred at this university in the department of mathematics within the last three years. In 1893, Professors Lindemann, Hurwitz, Hilbert and Eberhard were all at Königsberg, and, in the short interval since, Professor Lindemann has been called to Munich, Professor Hurwitz to Zürich, Professor Hilbert to Göttingen, and Professor Eberhard to Halle. Professor Hurwitz was succeeded by Professor Minkowski, who was in turn called to Zürich, being now succeeded by Professor Hölder. English and American universities hardly afford examples of such rapid changes.

PROFESSOR H. POINCARÉ, who held the chair of Calculus of Probabilities and Mathematical Physics in the Paris Faculty of Sciences, has been transferred at his own request to the chair of Mathematical Astronomy and Celestial Mechanics rendered vacant by the death of Professor F. F. Tisserand. Professor Poincaré's successor is Professor V. J. BOUSSINESQ, who has hitherto held the chair of Physical and Experimental Mechanics.

THE tercentenary of the birth of DESCARTES was recently celebrated at Tours. A pilgrimage was made to the house at La Haye in which Descartes was born.

ACCORDING to *Science* a graduate scholarship in mathematics of the annual value of three hundred dollars, has been founded at Cornell University in honor of the late Professor JAMES EDWARD OLIVER.

PROFESSOR E. STUDY has been called from Bonn to a professorship of mathematics at the University of Greifswald.

DR. F. BUKA, professor of geometry at the Technical High School in Berlin, died December 4, 1896, aged forty-five years.

DR. J. A. HUGO GYLDEN, professor of astronomy at the University of Stockholm, died November 9, at the age of fifty-five years.

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## NEW PUBLICATIONS.

### I. HIGHER MATHEMATICS.

ATMANSPACHER (O.). Die Grundlagen unserer Herrschaft über die Zahlen. Leipzig, Dürr, 1896. 8vo. 3 and 52 pp. Mk. 1.00

BENDT (F.). Katechismus der Differential- und Integralrechnung. Leipzig, Weber, 1896. 12mo. 16 and 268 pp. Mk. 3.00

BÔCHER (M.). Regular points of linear differential equations of the second order. Cambridge, Harvard University, 1896. 12mo. 24 pp. $0.50

CARNOT (L. N.). Réflexions sur la métaphysique du calcul infinitésimal. 5e édition. Paris, Gauthier-Villars, 1896. 8vo. 202 pp.

FISKE (T. S.). The length of a curved line. (*Science*, new series, Vol. 4, 1896, p. 724).

GENTRY (R.). On the forms of plane quartic curves. Dissertation presented to the faculty of Bryn Mawr College for the degree of doctor of philosophy. New York, 1896. 8vo. 73 pp., 24 plates. [To be obtained from the author, Vassar College, Poughkeepsie, N. Y.] $0.50