NOTES.

A REGULAR meeting of the AMERICAN MATHEMATICAL SOCIETY was held in New York, Saturday afternoon, March 28th, at three o'clock, the President, Dr. HILL, in the chair. There were fifteen members present. Two nominations for membership were received. The following papers were read :

(1) Professor H. B. NEWSON: "On a remarkable covariant of a system of n quantics."

(2) Professor E. W. BROWN: "On the particular integrals of linear differential equations, and their application to the lunar theory."

In the absence of Professor NEWSON, his paper was read by the Secretary.

THE Secretary of the Society has been directed by the Council to prepare a new List of Members for early publication, and has accordingly issued a circular asking for necessary information from the members of the Society. Those members who have not already responded to this circular are requested to do so at once.

A SUMMER meeting of the Society will be held at Buffalo on Monday and Tuesday, August 31st and September 1st, in affiliation with the American Association for the Advancement of Science. Members intending to contribute papers or to be present are requested to notify the Secretary.

FACULTÉ DES SCIENCES. During the second semester of the current academic year, the following mathematical courses are offered at the Sorbonne, in Paris:—Professor Hermite : Theory of Eulerian integrals and the theory of elliptic functions;—Professor Picard: Theory of twisted curves and of algebraic surfaces;—Professor Appell: General laws of the motions of systems, analytical mechanics, hydrodynamics;—Professor Wolf: Astronomical subjects included in the programme of the *Licence*;—Professor Poincaré : Optics;—Professor Boussinesq: Theory of oscillatory waves (rise and fall of the sea; waves produced on the surface of still water by the immersion of a solid, or by superficial impulsion like that of an air current, etc.). The following supplementary course is also given : M. Painlevé : Differential and integral calculus. Mathematical conferences are conducted by Messrs. Painlevé, Puiseux, Raffy, Andoyer and Blutel.

HARVARD UNIVERSITY. During the year 1896–97, Professor Asaph Hall (U. S. Navy) will give a course in Celestial Mechanics. The following advanced mathematical courses are also offered:— By Professor J. M. Peirce: Algebraic Plane Curves; Quaternions (second course); Special Developments of the Calculus of Quaternions †.— By Professor Byerly; Differential and Integral Calculus (second course); Analytic Mechanics (with Mr. Whittemore); Rigid Dynamics †.—By Professors Byerly and B. O. Pierce: Fourier's Series, Spherical Harmonics and Potential Function.—By Professor B. O. Pierce: Theory of Surfaces †.—By Professor Osgood: Infinite Series and Products †; Elliptic Functions.—By Professor Bôcher: Theory of Equations and Invariants †; Modern Geometry; Theory of Numbers †; Theory of Functions (first course); Bessel's Functions †.

The above courses will each consist of three lectures a week throughout the entire academic year except those marked † which consist of at least one-half that number of lectures. The following reading courses are also offered:— By Professor J. M. Peirce: Studies in Mathematical Literature.—By Professor B. O. Peirce: Elasticity.—By Professor Osgood: Klein's Ikosaeder.

In addition to the above the mathematical department also offers instruction in the following elementary subjects: Solid Geometry, Algebra, Logarithms, Plane and Spherical Trigonometry, Analytic Geometry of two and three dimensions, Differential and Integral Calculus, Mechanics.

THE UNIVERSITY OF CHICAGO. The mathematical courses to be offered during the summer quarter of 1896 have already been announced in the BULLETIN (p. 183).

During the three quarters (a, w, s) of the academic year 1896–97 the following advanced mathematical courses (four or five hours weekly) will be offered: By Professor Moore, Seminar devoted to research work and Kronecker's arithmetical theory of algebraical quantities (a, w), Theory of groups (w), Projective geometry (a); by Professor Bolza, Galois theory of algebraic equations (s), Solid analytics (s); by Associate Professor Maschke, Modern analytic geometry (a), Higher plane curves (w), Algebraic surfaces (s), Theory of functions of a complex variable (s), Advanced integral calculus (a, w); by Dr. Young, Theory of numbers (w); by Dr. Boyd, Differential-geometry of surfaces (a); by Dr. Hancock, Calculus of variations (s), Theory of equations (a, w); by Dr. Laves, Analytic me-

chanics (a, w); by Mr. Slaught, Differential equations (s). The Mathematical Club meets fortnightly.

THE Council of The AMERICAN MATHEMATICAL SOCIETY has given its approval to a proposition for holding a colloquium in connection with the summer meeting at Buffalo next August. It is thought by many that the benefits arising from the summer meeting will be greatly increased, if those attending have an opportunity of hearing brief accounts of the progress made in different branches of the higher mathematics. It is intended to have two or three short courses of lectures by eminent mathematicians, every lecture being followed by an informal discussion. Any arrangements that may be made will be announced in a later number of the BULLETIN.

A NEW American mathematical journal is soon to appear. It will be edited by Professor W. E. Story of Clark University, Worcester, Mass., and will be issued bimonthly. Each number, it is said, will contain, in addition to papers devoted to mathematical research, notices of the transactions of learned societies and the titles of recent mathematical books and articles. Each number will consist of about ninety-six large octavo pages. The subscription price will be $5.00 per year.

WE take pleasure in announcing the appearance of the volume of *Mathematical Papers read at the International Mathematical Congress held in connection with the Columbian Exposition, Chicago*, 1893. The publishers are Macmillan and Co. The price of the volume is $4.00.

A Mathematical work of unusual character is announced for July next, by John Wiley and Sons. It is entitled *Higher Mathematics for Engineering Colleges*, and is edited by Professor Mansfield Merriman and Professor R. S. Woodward. The volume is intended for advanced students in engineering colleges and other institutions, and is designed to supplement their elementary mathematics by a knowledge of the elements of such branches of modern higher mathematics as admit of practical application. In addition to chapters by the editors on the *Solution of Equations* and *Probabilities and Theory of Errors*, the work will contain the following chapters: Professor W. E. Byerly, Harvard University, *Harmonic Functions*; Professor Thomas S. Fiske, Columbia University, *Functions of a Complex Variable*; Professor G. B. Halsted, University of Texas, *Projective Geometry*; Professor E. W. Hyde, University of Cincinnati, *Point Analysis and Aus-*

dehnungslehre ; Professor W. W. Johnson, U. S. Naval Academy, *Differential Equations*; Professor A. Macfarlane, Lehigh University, *Vector Analysis and Quaternions*; Professor James McMahon, Cornell University, *Hyperbolic Functions*; Professor F. Morley, Haverford College, *Elliptic Integrals and Functions*; Professor D. E. Smith, Michigan Normal School, *History of Modern Mathematics* ; Professor L. G. Weld, University of Iowa, *Determinants*.

ACCORDING to *Nature* the French Association for the Advancement of Science held a very successful meeting at Tunis beginning April 1st. More than four hundred members were present. The principal streets of Tunis were elaborately decorated in honor of the occasion, and, as hotel accommodation was limited, the Lyceé Carnot was placed at the disposal of visitors. The association met in Algiers fifteen years ago, so that this was the second meeting on African soil. Next year's meeting will take place at St. Etienne.

WE learn from the *Revue générale des Sciences pures et appliquées* that Professor Mittag-Leffler, founder of the *Acta Mathematica*, completed last March his fiftieth year. On that occasion a number of his admirers presented him with a congratulatory address written in four languages, German, English, French and Italian, and his own portrait done in oil by the Finnish painter Edelfelt.

AT the April meeting of the National Academy of Sciencs Professor R. S. Woodward, of the department of mechanics in Columbia University, was elected to membership.