

NOTES.

THE thirteenth regular meeting of the Chicago section of the AMERICAN MATHEMATICAL SOCIETY will be held at Northwestern University, Evanston, Ill., on Saturday, April 11, 1903. Titles, abstracts and time requirements of papers should be in the hands of the Secretary of the Section, Professor T. F. HOLGATE, 617 Hamline St., Evanston, Ill., at least two weeks before the meeting.

THE tenth summer meeting of the AMERICAN MATHEMATICAL SOCIETY will be held at the Massachusetts Institute of Technology, Boston, Mass., during the week beginning August 31. The last four days of the week will be devoted to a colloquium at which courses of lectures will be given as follows:

By Professor E. B. VAN VLECK, six lectures on "Selected topics in the theory of divergent series and continued fractions"; by Professor H. S. WHITE, three lectures, subject to be announced; by Professor F. S. WOODS, three lectures on "The connectivity of non-euclidean space."

A preliminary announcement giving further details concerning the summer meeting and colloquium will be issued in May.

THE Annual Register of the Society, containing a catalogue of the library, has recently been issued. Copies have been mailed to the members of the Society, and extra copies can be obtained from the Secretary.

AT the meeting of the London mathematical society held on February 12, 1903, the following papers were read: By Lieut.-Col. A. J. CUNNINGHAM: "On 4-ic residuality and reciprocity;" by Mr. E. T. DIXON: "Note on a point in the recent paper by Professor D. Hilbert;" by Mr. H. HILTON: "Some properties of binodal quartics;" by Professor A. W. CONWAY: "The field of force due to a moving electron;" by Professor W. BURNSIDE: "An arithmetical theorem connected with the roots of unity and its application to group characteristics."

THE Paris academy of sciences announces the following prizes: The Franceour prize, 1,000 francs, for a discovery or treatise advancing pure or applied mathematics.—The Poncelet prize, 1,000 francs, for that work which in the last ten years

has contributed most to the advance of pure or applied mathematics.—The Grand prize of the mathematical sciences for 1904, 3,000 francs, for perfecting in some important point the study of the convergence of continued algebraic fractions.—The Bordin prize for 1904, 3,000 francs, for developing and perfecting the theory of surfaces applicable to the paraboloid of revolution.—The Vaillant prize for 1904, 4,000 francs, for determining and studying all the displacements of an invariable figure of which the different points describe spherical curves.—The Fourneyron prize for 1903, 1,000 francs, for a theoretical or experimental study of steam turbines.—The Damoiseau prize for 1905, 2,000 francs, for the treatment of the problem: There are some ten comets whose orbits, during their visible periods, are found to be hyperbolic. To investigate, retracing the past and taking account of the perturbations of the planets, whether this was the case before the arrival of these planets in the solar system.—The Binoux prize for 1903, 2,000 francs, for works on the history of the exact sciences.—The d'Ormoy prize, 10,000 francs, for pure and applied mathematics.

THE Royal academy of physical and mathematical sciences, of Naples, announces a prize of 1,000 lire for the best memoir containing a noteworthy contribution to the invariant theory of ternary biquadratic forms, preferably with reference to the various conditions for breaking up into forms of lower order. Memoirs must be submitted by June 30, 1904.

THE Hungarian academy of sciences has issued, under date of February 16, 1903, an official notice of the founding of the Bolyai prize of a medal and 10,000 crowns, to be awarded first in 1905, and every fifth year thereafter, to the author of the best work in mathematics appearing in the preceding five years.

THE annual list of prize questions of the Amsterdam scientific society has recently been issued. Copies of the announcement may be obtained from the secretary of the society, Professor D. J. KORTEWEG, Vondelstraat 104, Amsterdam.

THE several universities below offer during the summer semester of the current academic year courses in mathematics as follows:

UNIVERSITY OF GREIFSWALD. By Professor W. THOMÉ: Potential function, four hours; Theory of algebraic surfaces and space curves, two hours; Mathematical seminar, two hours.

—By Professor E. STUDY: Infinitesimal calculus, four hours; exercises in infinitesimal calculus, one hour; Line geometry, three hours; Mathematical seminar.—By Professor G. KOWALEWSKI: General function theory, four hours; Geometry of numbers, one hour; Exercises in function theory, one hour.

UNIVERSITY OF JENA. By Professor A. GUTZMER: Differential calculus, with exercises, five hours; Introduction to the theory of differential equations, five hours.—By Professor J. THOMAE: Analytic geometry of the plane, four hours; Mathematical geography, four hours.—By Professor G. FREGÉ: Riemann's theory of functions, four hours; Mathematical exercises, two hours.

AT the University of Nebraska, the following advanced courses in mathematics are offered during the summer session, 1903:—By Professor E. W. DAVIS: Theory of functions.—By Professor R. E. MORITZ: History of mathematics; Mathematical pedagogy.

ON the occasion of the Bolyai celebration at the University of Klausenburg, on January 15, the faculty conferred upon Professor H. POINCARÉ the honorary degree of doctor of philosophy.

DR. H. GRASSMANN has been promoted to a professorship of mathematics at the University of Halle.

PROFESSOR E. VOSS has been called from Würzburg to the University of Munich, as professor of mathematics.

PROFESSOR FRIEDRICH SCHOTTKY, of the University of Berlin, has been elected a member of the Berlin academy of sciences.

PROFESSOR K. HENSEL has succeeded the late Professor L. FUCHS as editor of *Crelle's Journal*.

PROFESSOR G. B. HALSTED, of the University of Texas, has been elected to the chair of mathematics at St. John's College, Annapolis, Md.

DR. M. B. PORTER, of Yale University, has been called to the professorship of mathematics in the University of Texas.

AT Columbia University, Dr. C. J. KEYSER has been promoted to an adjunct professorship of mathematics.

PROFESSOR ALEXANDER JOHNSON has resigned his position

as professor of pure mathematics in McGill University, to take effect at the close of the present academic year.

AT the University of Minnesota, Dr. G. N. BAUER has been promoted to an assistant professorship of mathematics. Dr. G. A. BLISS, instructor in mathematics in the University, is absent on leave, and is spending the year at Göttingen.

PROFESSOR E. J. WILCZYNSKI, of the University of California, has received from the Carnegie Institution an appointment as research assistant and will spend a year in Europe in work on the theory of differential equations and line geometry.

MR. P. A. SMITH has resigned as instructor in mathematics at the University of Illinois to accept a position in the Hiroshina higher normal school, of Japan.

MESSRS. P. H. LINEHAN, C. W. SAXTON, and H. R. FASSETT have been appointed instructors in mathematics in the College of the City of New York.

THE Carnegie Institution has decided to provide for the publication of the works of Dr. G. W. HILL.

PROFESSOR E. L. M. CURTZE died on January 3, 1903, at Thorn, West Prussia, aged 65 years.

REAR Admiral WILLIAM HARKNESS died at New York on February 28, 1903, in his sixty-sixth year. He was for some time astronomical director of the naval observatory, and in 1897 was appointed director of the nautical almanac. In 1893 he was president of the American association for the advancement of science.

MR. W. J. C. MILLER, for many years mathematical editor of *The Educational Times* of London, died on February 11, 1903, at Bristol, England, at the age of seventy-one and a half years. During his connection with the journal mentioned, which covered a period of over thirty years, Mr. Miller published sixty-six volumes of the *Mathematical Reprint*, a series devoted chiefly to problems in modern geometry and higher algebra.

RECENT catalogues of second-hand books on mathematics: K. F. KOEHLER, 6 Kurprinzstrasse, Leipzig, Antiquariats-Katalog no. 557, 2560 titles; no. 559, 27 pages, scientific journals.