

## NOTES.

THE eleventh summer meeting of the AMERICAN MATHEMATICAL SOCIETY will be held in the hall of congresses, on the exposition grounds in St. Louis, Missouri, on Friday and Saturday, September 16 and 17. The date is so fixed as to enable members conveniently to attend the international congress of arts and science, instituted in connection with the Louisiana Purchase Exposition. This congress will take place during the week following the meeting of the Society, mathematics (department 2) being assigned to Tuesday, Thursday and Saturday, September 20, 22, 24. (For list of speakers see previous announcement in June BULLETIN, page 471).

Titles and abstracts of papers intended for presentation at the summer meeting of the Society should be sent to the Secretary at an early date for submission to the programme committee. A supplementary account of each paper would be helpful to the committee of arrangements for the meeting, and should be enclosed with the abstract to the Secretary. Such accounts should state briefly the history of the topic discussed, its connection with other papers, particularly those of the same author, and should indicate one or two references that will aid a reader to understand the paper itself more easily. The committee will use this information in an attempt to insure more thorough and interesting discussion of papers read at the meeting. For the same reason, those members who expect to attend are requested to report that intention to the Secretary by August 25. A list of titles of papers received before August 25 will be printed and mailed to all members of the Society.

The headquarters of the Society will be at the Inside Inn, on the exposition grounds. The members of the committee in charge of the summer meeting are Professors H. S. WHITE, A. S. CHESSIN, and E. R. HEDRICK.

THE April number (volume 26, number 2) of the *American Journal of Mathematics* contains: "On null-systems in space of five dimensions and their relations to ordinary space," by J. EIESLAND; "On the forms of unicursal quintic curves," by P. FIELD; "Determination of the algebraic curves whose polar conics are parabolas," by E. KASNER; "On certain conics con-

nected with trinodal quartics," by A. B. BASSET; "A geometric proposition," by E. LASKER; "Congruences of tangents to a surface and derived congruences," by L. P. EISENHART.

AT the meeting of the London mathematical society held on May 12, the following papers were read: By Mr. C. COOKE, "Some mathematical instruments"; by Mr. A. L. DIXON, "Evaluation of certain definite integrals by means of gamma functions"; by Mr. A. L. DIXON, "Generalization of Legendre's formula  $KE' - (K - E)K' = \pi/2$ "; by Dr. H. F. BAKER, "Note on the integration of linear differential equations"; by Mr. A. YOUNG and Mr. P. W. WOOD, "Perpetuant syzygies"; by the Rev. F. H. JACKSON, "Some properties of the gamma function"; by Mr. G. B. MATTHEWS, "On the geometric representation of imaginaries."

At the meeting held on June 9, the following papers were read: By LORD RAYLEIGH, "The application of Poisson's formula to discontinuous disturbances"; by Mr. H. BATEMAN, "Some expansions for the periods of the Jacobian elliptic functions"; by Mr. P. W. WOOD, "Type of covariants of any degree in the coefficients of each of any number of binary quantics."

THE programme of the St. Louis meeting of the National educational association included a mathematical conference, held on June 28. In connection with this conference arrangements were made for a meeting of teachers of mathematics in Missouri schools and colleges, for the purpose of promoting improved professional relations.

THE house of B. G. Teubner in Leipzig announces the early publication of: Felix Müller, Einführung in die mathematische Literatur. The book, which contains about 200 pages, is not intended to give a complete mathematical bibliography, but rather to guide students into the literature of the subject in the spirit of the recent plans of study issued by various German universities.

THE universities below announce the following mathematical courses during the winter semester of 1904-1905:

UNIVERSITY OF GÖTTINGEN. — By Professor F. Klein: Pedagogy of mathematics I, four hours; Seminar, with Professor Schwarzschild, two hours. — By Professor D. HILBERT:

Calculus of variations, four hours; Seminar on mechanics, with Professor MINKOWSKI, two hours. — By Professor H. MINKOWSKI: Differential and integral calculus II, four hours; with exercises, two hours; Analysis situs, two hours. — By Professor M. BRENDÉL: Calculus of probabilities, two hours; Seminar on insurance, two hours. — By Professor W. VOIGT: Elements of vector analysis and mechanics, four hours; Theory of potential, two hours; Seminar in vector analysis, two hours. — By Professor F. SCHILLING: Graphical statics and kinematics, four hours; with exercises, two hours. — By Dr. E. ZERMELO: Theory of algebraic equations, four hours. By Dr. O. BLUMENTHAL: Developments of series in physics, four hours. — By Dr. BOSE: Higher mathematics for students of science, four hours.

UNIVERSITY OF PARIS (beginning November 7, 1904). — By Professor G. DARBOUX: General principles of infinitesimal geometry, two hours. — By Professor E. GOURSAT: Applications of differential and integral calculus, two hours. — By Professor P. PAINLEVÉ: General laws of motion and of equilibrium, two hours. — By Professor P. APPELL: Elements of mathematics preparatory to the study of mechanics, three hours. — By Professor H. POINCARÉ: Determination of planetary orbits, two hours. — By Professor J. BOUSSINESQ: Theory of elasticity, two hours. — By Professor G. KOENIGS: General kinematics, two hours. Mathematical conferences will be held as follows: By Professors F. RAFFY and J. HADAMARD: Calculus. — By Professor P. PUISEUX: Theory of newtonian potential. — By Professor J. HADAMARD and Mr. E. M. BLUTEL: General conferences for students of mathematics.

THE various American universities below announce the following advanced mathematical courses during the year 1904–1905:

UNIVERSITY OF COLORADO. — By Professor I. M. DE-LONG: Any two of the following courses: Theory of equations, five hours; Advanced calculus, five hours; Theory of plane curves, five hours; Theory of investments, three hours. — By Professor A. EMCH: Any two of the following courses: Chapters in higher applied mathematics, three hours; Elliptic functions, three hours; Functions of a complex variable, five hours; Projective geometry, five hours.

UNIVERSITY OF ILLINOIS.—By Professor S. W. SHATTUCK: Differential equations and calculus of variations, three hours.—By Professor A. N. TALBOT: Analytic mechanics, four hours.—By Professor E. J. TOWNSEND: Theory of functions, three hours; Seminar, three hours; Partial differential equations, first semester, three hours; Analytic geometry of space, second semester, three hours.—By Professor A. G. HALL: Potential function and spherical harmonics, three hours; Determinants, two hours.—By Dr. H. L. COAR: Modern geometry, first semester, three hours; Algebraic surfaces, second semester, three hours.—By Professor H. L. RIETZ: Theory of invariants and higher plane curves, three hours.—By Dr. J. STEBBINS: Least squares, first semester, two hours.—By Mr. E. L. MILNE; Mathematical theory of statistics, first semester, four hours.

INDIANA UNIVERSITY.—By Professor R. J. ALEY: Differential equations, two hours; Modern geometry, three hours, fall term; Algebra of quantics, two hours, fall and winter terms; Theory of numbers, three hours, spring term.—By Professor S. C. DAVISSON: Modern analytic geometry and higher plane curves, two hours, winter and spring terms; Fourier series, two hours, fall and winter terms; Theory of surfaces, two hours, winter and spring terms.—By Professor D. A. ROTHROCK: Advanced calculus, three hours; Projective geometry, two hours, fall and winter terms; Theory of continuous groups, two hours, winter and spring terms.—By Professor U. S. HANNA: Advanced conics, two hours, winter and spring terms; Groups of substitutions and Galois theory, three hours, winter and spring terms.

STATE UNIVERSITY OF IOWA.—By Professor L. G. WELD: Determinants and modern geometry, two hours; Definite integrals, first semester, two hours; Elliptic functions, second semester, two hours; Theory of potential, trigonometric series and spherical harmonics, three hours.—By Professor A. G. SMITH: Method of least squares, two hours; Theoretical mechanics, two hours.—By Dr. J. V. WESTFALL: Advanced calculus, introducing to higher analysis, three hours; Theory of surfaces, second semester, two hours; Differential equations, advanced course, three hours. The mathematical seminary meets one evening each week.

JOHNS HOPKINS UNIVERSITY. — By Professor F. MORLEY : Higher geometry, two hours ; Theory of groups, first semester, two hours ; Vector analysis, second semester, two hours ; Classic authors, one hour. — By Dr. A. COHEN : Elementary theory of functions, two hours ; Ordinary differential equations, two hours ; Rational mechanics, first semester, two hours ; Calculus of variations, second semester, two hours. — By Dr. A. B. COBLE : Theory of invariants, two hours. — By Dr. F. FRANKLIN : Theory of probability, second semester, two hours.

UNIVERSITY OF MISSOURI. — By Professor E. R. HEDRICK : Theory of functions, three hours ; Differential equations, three hours ; Advanced calculus, three hours. — By Professor L. M. DEVOE : Fourier series and potential function, three hours ; Analytic mechanics, three hours. — By Professor G. A. BLISS : Advanced analytic geometry, three hours ; Theory of groups, three hours. — By Mr. L. D. AMES : Galois theory of substitutions, three hours ; Infinite series and products, three hours. — By Mr. INGOLD : Projective geometry, three hours ; Theory of equations, three hours.

PROFESSOR P. GORDAN has been elected corresponding member of the academy of sciences of Paris, section of geometry, as successor of the late Professor G. Salmon, and also corresponding member of the academy of sciences of Vienna.

PROFESSOR G. DARBOUX has been elected member of the Bureau des longitudes of France.

PROFESSOR SIMON NEWCOMB has been elected corresponding member of the Berlin academy of sciences.

PROFESSOR A. KNESER has declined a call to a professorship of mathematics at the University of Marburg. Dr. O. BLUMENTHAL of Göttingen is giving a course of lectures at Marburg during the present semester.

Dr. G. HESSENBERG has been promoted to an assistant professorship of mathematics at the technical high school at Charlottenburg.

PROFESSOR G. LANDSBERG, of the University of Heidelberg, has been appointed professor of mathematics at the University of Strassburg.

PROFESSOR M. COLLET has been appointed dean of the faculty of sciences at the University of Grenoble.

PROFESSOR N. HATZIDAKIS, of the Higher military school of Greece, has been appointed to a full professorship of analysis at the University at Athens.

PROFESSOR J. M. VAN VLECK, of Wesleyan University, has been made professor emeritus.

AT Cornell University, assistant professors JAMES McMAHON and J. H. TANNER have been promoted to full professorships of mathematics.

MR. A. S. EVE has been appointed lecturer in mathematics at McGill University.

DR. C. L. E. MOORE has been appointed instructor in mathematics at the Massachusetts Institute of Technology.

AT the University of Illinois, DR. H. L. RIETZ has been promoted to an assistant professorship of mathematics; Mr. E. B. LYTLE and Mr. F. C. TOUTON have been appointed instructors in mathematics.

AT the State University of Iowa, the department of physics has been divided and materially enlarged. Professor A. A. VEBLEN will continue to act as professor of experimental physics; while Professor A. G. SMITH, formerly of the chair of mechanics in the department of mathematics, assumes the title of professor of physics and mechanics. Dr. R. T. WELLS will retain the rank of professor in charge of electrical and mechanical engineering. An instructorship in mathematics remains to be filled; as also a professorship in civil engineering.

MISS MARY ANDERSON has been appointed professor of mathematics in the Illinois Women's College, Jacksonville, Illinois.

DR. A. B. COBLE, of the University of Missouri, has been appointed instructor in mathematics at Johns Hopkins University.