NOTES.

THE American Association for the Advancement of Science will hold its annual meeting in 1899 at Columbus, Ohio. DR. ALEXANDER MACFARLANE is vice-president, and JOHN F. HAYFORD secretary, for the section of mathematics and astronomy. Professor EDWARD ORTON, of Ohio State University, was elected president of the Association.

THE British Association for the Advancement of Science will hold its meeting for 1899 at Dover, on September 13–20. The French Association will meet at about the same time on the opposite side of the channel, at Boulogne, so that active intercourse between the two associations is likely to be an attractive feature of the meetings.

INTERNATIONAL CONGRESS OF MATHÉMATICIANS AT PARIS IN 1900. The Mathematical Society of France has elected a committee of organization and decided to hold the congress from the 6th to the 12th of August, 1900. The committee of organization is made up of two committees, one occupied with the scientific works and the other with the administrative functions. Of the former committee, M. POINCARÉ is president, MM. APPELL and PICARD, vice-presidents, and M. RAFFY, secretary; of the latter committee, M. DARBOUX is president, MM. HATON DE LA GOUPILLIÈRE and VICAIRE, vice-presidents, MM. DUPORCQ and LAISANT, secretaries, and M. DÉSIRÉ ANDRÉ, treasurer. The president of the society, M. LECORNU, is also at the head of the joint-committee. The headquarters of the commission are those of the Mathematical Society, 7, rue des Grands-Augustins, Paris, to which address all communications relative to the international congress of mathematicians should be sent.

THE French translation of PROFESSOR WEBER'S Algebra, undertaken by M. J. GRIESS, has just been published by Gauthier-Villars, of Paris. PROFESSOR E. PASCAL, of the University of Pavia, has issued the first volume of his "Repertorio di matematiche superiori" through the press of U. Hoepli, of Milan ; the work is to be complete in two volumes, occupied with analysis and geometry respectively.

A FACSIMILE of the Rhind mathematical papyrus, is to be issued by the trustees of the British museum.

AT the last meeting of the French Association for the Advancement of Science at Nantes in August of this year about thirty thousand francs were voted as grants in aid of scientific work, thirteen thousand francs being from the funds of the Association, and nineteen thousand from the Girard legacy fund.

AN anonymous donor has placed at the disposal of the Council of the University of Paris a sum of fifteen thousand dollars, to be renewed yearly during the next three or four years, for the founding of five travelling scholarships of three thousand dollars each. These scholarships are to be held by graduates contemplating secondary teaching as a career, and one of the chief conditions attached is that the holders of the scholarships must be able to speak English.

THE Berlin Academy of Sciences, at its meeting this year in celebration of the birthday of Leibnitz, announced the following prize problem for 1902 :

"Let $f_1(z), f_2(z), \cdots, f_n(z)$ be a fundamental system of integrals of a linear homogeneous differential equation with algebraic coefficients. A thorough investigation is demanded of the function of the variables $\frac{u_2}{u_1}, \frac{u_3}{u_1}, \cdots, \frac{u_n}{u_1}$, which is defined by means of the equation

$$u_1 f_1(z) + u_2 f_2(z) + \cdots + u_n f_n(z) = 0.$$

In particular a representation of the function is to be ascertained for the case in which z is a finite-valued function. The discussion is to be included of the question to what extent these particular functions can be made of value in the integration of linear differential equations of the nth order."

Also the following prize problem, on the Eller legacy foundation, was set for 1904 :

"A new method for the determination of the solar constant is to be devised, or one of the known methods so far improved, that the influence of the variable distance between the earth and the sun in observations made at different times of the year be unequivocally recognizable. The method chosen is to be verified by series of observations sufficiently extensive, embracing at least three perihelia and three aphelia."

These problems were previously proposed in different forms, the first at the Leibnitz meeting of 1894, the second at that of 1892. Both remained unsolved. Solutions will be received in German, Latin, French, English, or Italian up to the thirty-first of December, 1901, and 1903, respectively. No manuscript revealing the name of the author will be accepted. Each manuscript is to bear a mark or *nom-de-plume*, and to be accompanied by a sealed envelope containing the name and address of the author and bearing outside the corresponding mark or assumed name. The prize for the solution of the first problem is five thousand marks, that of the second, two thousand marks. Manuscripts should be sent to the Bureau of the Academy, Berlin NW. 7, Universitätsstrasse, 8.

THE royal mathematical prize, given by the King of Italy, has been recently awarded to Professors CORRADE SEGRE and VITO VOLTERRA. The prize was divided equally between them. There were eight competitors, who submitted about ninety written and printed memoirs. The award of the astronomical prize has been deferred for a period of two years, but a sum of three thousand lire has been awarded to Professor FILIPPO ANGELITTE in consideration of his editing and discussing the unpublished writings of Professor Carlo Brioschi.

UNIVERSITY OF BERLIN. The following courses in mathematics are announced for the winter semester of 1898–99 :—By Professor FUCHS : Theory of elliptic functions, four hours ; Theory of linear differential equations, four hours ; Seminar, two hours.—By Professor SCHWARZ : Differential calculus, four hours ; Exercises, two hours ; Calculus of variations, four hours ; Special problems, two hours ; Colloquium, two hours ; Seminar, two hours.—By Professor FROBENIUS : Theory of algebraic equations, four hours ; Seminar, two hours.—By Professor KNOBLAUCH : Theory of curved surfaces, four hours ; Theory and application of determinants, four hours ; Exercises, one hour.– By Professor HENSEL : Theory of numbers, four hours ; Integral calculus, four hours ; Theory of surfaces and curves in space, two hours.—By Professor HOPPE : Analytic geometry, four hours ; Differential calculus, four hours.

UNIVERSITY OF GÖTTINGEN. The announcements for the coming winter semester embrace the following courses in mathematics :—By Professor KLEIN : Theory of functions, four hours ; Seminar, in conjunction with Professor Hilbert, two hours.—By Professor HILBERT : Mechanics, four hours; Theory of determinants, two hours ; Elements of Euclidean geometry, two hours ; Theory of functions of real variables, together with Professor Klein, two hours.—By Professor SCHOENFLIES : Projective geometry, four hours ; Exercises in descriptive geometry, two hours ; Proseminar, one hour. —By Dr. BOHLMANN : Integral calculus, four hours ;

Mathematical principles of insurance, three hours; Exercises and seminar in the latter, two hours.

UNIVERSITY OF VIENNA. The courses in mathematics offered for the winter semester are as follows:—By Professor v. ESCHERICH: Theory of functions, three hours; Differential equations, three hours; Proseminar, one hour; Seminar, one hour.—By Professor GEGENBAUER: Elements of the infinitesimal calculus, with special reference to the needs of chemists, physicists and natural scientists, five hours; Exercises on the latter, one hour; Proseminar, one hour; Seminar, two hours.—By Professor MERTENS: Theory of numbers, five hours; Proseminar, one hour; Seminar, two hours.—By Professor KOHN: Introduction to synthetic geometry, four hours; Algebraic curves, one hour.—By Dr. SERSAWY: Lectures on the mathematics of insurance, three hours.—By Dr. TAUBER: Spherical harmonics and their application to mathematical physics, three hours; Mathematics of insurance, four hours; Exercises on the latter, two hours.—By Dr. ZINDLER: Elements of kinematics, two hours.—By Dr. BLASCHKE: Introduction to mathematical statistics, three hours—By Dr. ZSIGMONDY: Application of the infinitesimal analysis to geometry, two hours; Fourier's series, one hour.—By Dr. DAUBLEBSKY v. STERNECK: Application of the calculus to geometry, two hours.

PARIS FACULTY OF SCIENCES. The mathematical courses offered during the first semester of the current academic year are the following:—Professor G. DARBOUX: Theory of triply orthogonal systems.—Professor E. GOURSAT: Differential and integral calculus and its applications to infinitesimal geometry.—Professor P. APPELL: General laws of equilibrium and motion.—Professor V. J. BOUSSINESQ: Theory of elasticity.—Professor G. KOENIGS: Kinematics of solid or deformable bodies.—Mr. RAFFY: Mathematics introductory to various scientific disciplines.—Mr. ANDOYER: Theory of the determination of the orbits of planets and comets, and theory of special perturbations. In addition, Professor H. POINCARÉ conducts conferences in the new theories of electrodynamics, and particularly in the theory of Lorentz. Other mathematical conferences are conducted by Messrs. HADAMARD, PUISEUX, ANDOYER and BLUTEL.

For the second semester the following courses have been announced:—Professor PICARD: Partial differential equations from the point of view of mathematical physics.—Professor GOURSAT: Differential equations.—Professor POINCARÉ: Figures of the heavenly bodies and their motions about their centers of gravity.—Professor BOUSSINESQ: Equilibrium of elasticity of the sphere; propagation of motion in an elastic and homogeneous medium of infinite dimensions.—Professor KOENIGS: Study of machines. Professor APPELL will also lecture, but the subject of his course has not been announced.

IN resigning the professorship of geometry in the University of Leipzig to accept a professorship of mathematics in the University of Christiania, PROFESSOR SOPHUS LIE returns to his alma mater. At the age of sixteen he entered the University of Christiania in 1859; passed his "Statsexamen" in December, 1865; received his doctor's degree in July, 1871, the subject of his dissertation being "Om en classe geometriske transformationer." In the latter year he became "Universitetsstipendiat i mathematik" (privat docent), which post he resigned in 1886 to take the chair offered by the University of Leipzig.

PROFESSOR BARTHOLOMEW PRICE, Master of Pembroke College, Oxford, has resigned the Sadlerian professorship of natural philosophy, after a tenure of forty-five years.

PROFESSOR J. R. EASTMAN, who has been continuously connected with the United States Naval Observatory since 1862, has retired.

THE deaths of PROFESSOR PAUL SERRET, of Paris, and of DR. CHARLES E. EMERY, non-resident professor of engineering in Cornell University, are announced.

PROFESSOR D. HILBERT, of the University of Göttingen, has declined a call to the University of Leipzig. A similar call has been extended to PROFESSOR O. HÖLDER, of the University of Königsberg.

PROFESSOR K. ZORAWSKI has been promoted to a full professorship of mathematics at the University of Krakau.

AMONG the foreign members recently elected to the Reale Academia dei Lincei are PROFESSORS A. G. GREENHILL and V. VOIGT, in mechanics, and PROFESSOR W. C. RÖNTGEN, in physics.

THE senior wrangler at Cambridge University this last year was MR. R. H. W. T. HUDSON, of St. John's College, son of W. H. H. Hudson, professor of mathematics in King's College, London. MISS CAVE-BROWN-CAVE, of Girton, was bracketed fifth wrangler.

ASSISTANT PROFESSOR BARTLETT has been promoted to an associate professorship of mathematics in the Massachusetts Institute of Technology, and DR. A. COHEN, to the grade of associate in mathematics in Johns Hopkins University.

MR. J. N. FELLOWS has been appointed to the head professorship of mathematics in the Missouri State University to succeed Professor W. C. Tindall who resigned on account of failing health.

DR. J. M. PAGE has been promoted from an adjunct to an associate professorship of mathematics at the University of Virginia.

PROFESSOR ARNOLD EMCH, formerly of the Polytechnic School at Biel, Switzerland, has been appointed professor of graphic mathematics at the Kansas State Agricultural College.

MR. L. C. WALKER has been elected to the professorship of mathematics in the Montana State Normal School.

Among recent academic appointments are the following: MR. F. ATHELING, assistant in mathematics, Leland Stanford University; MR. B. S. EATON, instructor in mathematics, University of Iowa; DR. J. G. HARDY, instructor in mathematics, Williams College; MR. J. B. PROCTOR, assistant in mathematics, Darmouth College; DR. E. W. RETTGER instructor in mathematics, University of Indiana; DR. WILCZNSKI, instructor in mathematics, University of California.

DR. J. S. AMES has been promoted to a full professorship in physics in Johns Hopkins University. MR. ERNEST RUTHERFORD, of Trinity College, Cambridge, has been elected professor of physics in McGill University, Montreal. PROFESSOR E. F. NICHOLS, of Colgate University, has accepted a call to the chair of physics at Dartmouth College. DR. C. E. MENDENHALL (Johns Hopkins, '98) has been made instructor in physics at Williams College.

DR. H. A. SAYRE, of Ursinus College, has been elected professor of physics and astronomy in the State University of Alabama. DR. S. D. TOWNLEY, formerly instructor in astronomy in the University of Michigan, has been made instructor in astronomy at the University of California.

PROFESSOR HAMLIN, after twenty-six years' service as a member of the faculty of the State University of Maine and seventeen years at the head of its department of civil engineering, has resigned. MR. N. C. GROVER is his successor. The chair of electrical engineering in McGill University has been filled by the election of PROFESSOR R. B. OWENS, of Nebraska State University.

THE University of Vienna has established a chair of mathematical statistics and insurance.

AT the seventeenth congress of German naturalists and physicians, which opened at Düsseldorf, September 19, Professor KLEIN gave an address on universities and technical high schools.

THE last number, volume 12, number 2, of Enestrom's *Bibliotheca Mathematica* contains an eight-page contribution, by G. VALENTIN, to the bibliography of the writings of Euler, composed of additions to Hagen's Index operum Leonardi Euleri, Berlin, Dames, 1896.

THE tenth Congress of Russian Naturalists and Physicians opened at Kieff on September 3d, with an attendance of nearly fifteen hundred members, under the presidency of PROFESSOR N. A. BUNGE. A paper on the philosophical purports of mathematics was read by PROFESSOR BUGAEFF at the opening meeting of the section of mathematics. The president of this section is PROFESSOR V. P. ERMAKOFF.