

## NOTES.

THE opening (January) number of Volume III. of the *Transactions* of the AMERICAN MATHEMATICAL SOCIETY contains the following papers: "On a class of automorphic functions," by J. I. HUTCHINSON; "Concerning the existence of surfaces capable of conformal representation upon the plane in such a manner that geodesic lines are represented by a prescribed system of curves," by H. F. STECKER; "Zur Erklärung der Bogenlänge und des Inhaltes einer krummen Fläche," by O. STOLZ; "The groups of Steiner in problems of contact," by L. E. DICKSON; "Quaternion space," by A. S. HATHAWAY; "Reciprocal systems of linear differential equations," by E. J. WILCZYNSKI; "On the invariants of quadratic differential forms," by C. N. HASKINS; "The second variation of a definite integral when one end-point is variable," by G. A. BLISS; "On the nature and use of the functions employed in the recognition of quadratic residues," by E. McCLINTOCK; "A determination of the number of real and imaginary roots of the hypergeometric series," by E. B. VAN VLECK; "On the projective axioms of geometry," by E. H. MOORE.

THE first meeting of the Berlin mathematical society was held on October 31, 1901. Papers were presented by Weingarten, Kneser, Jahnke, Lampe, Landau, Kötter, Heun, and Hermes. Professor J. Weingarten is president, and Professor A. Kneser and Dr. E. Jahnke the secretaries of the society, which has at present about sixty members. Meetings of the society are held monthly. At the meeting of November 27 the following papers were read: Professor E. LAMPE: "Ueber eine Frage des geometrischen Mittelwertes;" Dr. E. JAHNKE: "Ueber Lemoine's Bestimmung der Axenrichtungen eines Kegelschnitts;" Dr. E. LANDAU: "Ueber den casus irreductibilis bei kubischen Gleichungen."

THE preliminary programme of the December meeting of the London mathematical society announced papers by Dr. E. W. HOBSON, on "Non-uniform convergence and the integration of series," and by Mr. J. H. MICHELL, on the "Flexure of a circular plate."

AMONG the papers announced for the December meeting of the Royal astronomical society of London was one descriptive of the manuscripts of Adams on the perturbations of Uranus, by Mr. R. A. SAMPSON.

At the meeting of the American physical society on December 27, 1901, the following officers were elected: President, Professor A. A. Michelson; vice-president, Professor A. G. Webster; secretary, Professor Ernest Merritt; treasurer, Professor William Hallock; members of the Council, Messrs. Carl Barus, D. B. Brace, and A. L. Kimball.

THE Société Mathématique de France elected the following officers at its annual meeting in January: President, L. Raffy; vice-presidents, E. Blutel, E. Borel, E. Carvallo, and P. Painlevé; secretaries, R. Bricard and E. Duporcq; vice secretaries, A. Grévy and M. Servant; treasurer, M. Claude-Lafontaine; archivist, Ch. Bioche; members of the council, E. Goursat, C. A. Laisant, Lucien Lévy and M. d'Ocagne; honorary members of the bureau, P. Appell, L. Cremona, G. Darboux, J. N. Hâton de la Goupillière, G. Humbert, C. Jordan, E. Picard and H. Poincaré.

A NEW Italian mathematical periodical, *Il Bolletino di Matematica*, is announced to appear under the editorial direction of Professor ALBERTO CONTI, of the Royal normal school at Bologna. The *Bolletino*, which will be issued bimonthly, will represent the mathematical interests of the secondary schools.

PRINTED sheets, designed by Dr. W. A. GRANVILLE, for plotting polar coördinates have recently been placed in the market.

UNIVERSITY OF OXFORD.—The following courses of lectures in mathematical subjects have been announced for Hilary term 1902, each course consisting of two lectures per week, unless otherwise indicated:—By Professor W. ESSON: Synthetic geometry of conics; Synthetic geometry of cubics, one hour.—By Professor E. B. ELLIOTT: Elements of elliptic functions; Supplementary lectures on quantics, one hour.—By Professor A. E. H. LOVE: Theory of potential and electrostatics, three hours.—By Mr. A. L. DIXON: Calculus of finite differences, one hour.—By Mr. J. E. CAMPBELL: Algebra of quantics, one hour.—By Mr. P. J. KIRBY: Solid geometry.—By Mr. E. H. HAYES: Statics (continued), one hour; Elementary mechanics.—By Mr. C. H. THOMPSON: Dynamics of a particle.—By Mr. C. E. HASELFOOT: Physical optics.—By Mr. H. T. GERRANS: Hydrodynamics.—By Mr. J. W. RUSSELL: Pure geometry.—By Mr. C. LEUDES DORF: Geometry (maxima and minima, inversion, etc.).—By Mr. C. H. SAMPSON: Analytical geometry (continued).

UNIVERSITY OF PARIS —The following courses in mathematical subjects are announced by the faculty of sciences for the current semester, each course consisting of two lectures per week :—By Professor G. DARBOUX : The general principles of infinitesimal geometry.—By Professor E. GOURSAT : The operations of the differential and integral calculus and their geometric applications.—By Professor P. APPELL : The general laws of equilibrium and motion.—By Professor H. POINCARÉ : The calculation of the perturbations of the small planets and in particular the methods of Gylden and Hansen.—By Professor J. BOUSSINESQ : The mechanical theory of light.—By Professor G. KOENIGS : Kinematics of solid and deformable bodies, with application to the study of machines.—By Professor E. BOUTY : Optics —By Professor H. PELLAT : Acoustics and thermodynamics.—By Professor L. RAFFY : Mathematical theories introductory to courses in science (notions of analytical geometry, derivatives and integrals, differential equations, general laws of equilibrium, motion of points and systems).—By Dr. M. ANDOYER : Elementary theory of planetary motion.

Conférences are conducted by Professors RAFFY, J. HADAMARD, and P. PUISEUX on higher geometry, infinitesimal calculus, and mechanics, respectively, and by Dr. ANDOYER, Professor HADAMARD and Dr. E. BLUTEL preparatory to the agrégation.

The preliminary announcements for the second semester of the current academic year include the following courses :—By Professor E. PICARD : Theory of functions of two complex variables, and in particular, algebraic, hyperfuchsian, and hyperabelian functions.—By Professor E. GOURSAT : Differential equations.—By Professor P. APPELL : General laws of motion of systems, analytical mechanics, hydrostatics and hydrodynamics.—By Professor G. KOENIGS : Theory of machines.—By Professor L. RAFFY : Differential equations and their applications to mechanics and physics.

COLLEGE OF FRANCE. —The following mathematical courses are given during the first semester of the present academic year, opening December 2, 1901 :—By Professor CAMILLE JORDAN : Analysis of the works of Hermite, two hours.—By Professor J. HADAMARD : The calculus of variations, two hours.

The prize offered by the Göttingen academy of sciences for a memoir developing the law of reciprocity of the  $l$ th power residue for an arbitrary numerical body where  $l$  is an

odd prime number, has been awarded to Dr. P. FURTWÄNGLER, of Potsdam; and that offered by the philosophical faculty of the University of Göttingen for a study of surfaces possessing a family of closed geodesic lines has been awarded to Dr. OTTO ZOLL, of Düren.

At its anniversary meeting, November 30, 1901, the Royal society of London made the first award of its Sylvester medal, conferring it upon Professor HENRI POINCARÉ for his many and important contributions to mathematical science.

Of the four Nobel prizes distributed at Stockholm in December, 1901, that for physics was awarded to Professor W. C. RÖNTGEN. Each prize was of the value of two hundred thousand francs.

AMONG the foreign members elected by the Göttingen academy of sciences in celebration of the one hundred and fifteenth anniversary of its foundation are Professor G. DARBOUX, of the University of Paris, as foreign member and Professors H. MINKOWSKI, of Zurich, and MICHEL LEVY, of Paris, as corresponding members.

DR. E. JAHNKE, of Berlin, has been made docent in the Technical school at Charlottenburg, presenting an inaugural lecture on "Solutions of rotational problems." He will offer a course of lectures on "Applications of Grassmann's methods."

DR. C. MOSER has been promoted to an assistant professorship of mathematics at the University of Berne.

DR. RAU, engineer with the firm of Schukert and Company, Nürnberg, has been appointed assistant professor of applied mathematics at the University of Jena.

MR. F. B. LITTELL has been appointed to a professorship of mathematics in the United States Navy.

MR. A. M. KENYON has been promoted to an associate professorship of mathematics at Purdue University.