

NOTES.

THE tenth regular meeting of the San Francisco Section of the AMERICAN MATHEMATICAL SOCIETY will be held at the University of California on Saturday, September 29.

THE July number (volume 7, number 3) of the *Transactions* of the AMERICAN MATHEMATICAL SOCIETY contains the following papers: "On the boundary value problems of linear ordinary differential equations of second order," by M. MASON; "The resolution of any collineation into perspective reflections," by M. W. HASKELL; "Linear algebras in which division is always uniquely possible," by L. E. DICKSON; "Correspondences and the theory of groups," by J. E. WRIGHT; "The trajectories of dynamics," by E. KASNER; "On the automorphic functions of the group $(0, 3; l_1, l_2, l_3)$," by R. MORRIS; "Improper multiple integrals," by R. G. D. RICHARDSON.

THE April number (volume 28, number 2) of the *American Journal of Mathematics* contains: "The motion of a solid in an infinite liquid," by A. G. GREENHILL; "The theory of implication," by BERTRAND RUSSELL.

The July number (volume 28, number 3) contains: "The geometry of differential elements of the second order with respect to the group of all point transformations," by EDWARD KASNER; "Gyroscopes and cyclones," by F. J. B. CORDEIRO; "On the primitive groups of class ten," by W. A. MANNING; "On certain unicursal twisted curves," by VIRGIL SNYDER; "Functions of three real independent variables," by H. L. COAR.

THE concluding (July) number of volume 7 of the *Annals of Mathematics* contains: "A proof of the theorem concerning artificial singularities," by D. R. CURTISS; "Another proof of the theorem concerning artificial singularities," by M. BÖCHER; "Curves of minimum moment of inertia with respect to a point," by M. MASON; "Triangles and quadrilaterals inscribed to a cubic and circumscribed to a conic," by H. S. WHITE; "On a function which occurs in the law of the mean," by E. R. HEDRICK.

THE annual list of American doctorates published in *Science* presents for the academic year 1905–1906 325 names, of which 139 are credited to the sciences. The following 9 successful candidates offered mathematics as major subject (the titles of the theses are appended): E. C. COLPITTS, Cornell, “On the twisted quintic curves”; B. F. FINKEL, Pennsylvania, “Determination of all groups of order 2 which contain cyclic self-conjugate subgroups of order 2 and whose generating operators correspond to the partitions”; C. C. GROVE, Johns Hopkins, “I. The syzygetic pencil of cubics and a new geometrical development of its Hesse group G_{216} . II. On the complete Pappus hexagon”; H. B. LEONARD, Colorado, “On the factoring of composite algebras”; J. F. MESSICK, Johns Hopkins, “Cubic curves in reciprocal triangular situation”; R. G. D. RICHARDSON, Yale, “Improper multiple integrals”; W. H. ROEVER, Harvard, “Brilliant points”; C. H. SISAM, Cornell, “Ruled surfaces of order seven having a rectilinear directrix”; G. E. WAHLIN, Yale, “The relation between the binary quadratic forms and the quadratic numerical bodies.”

The number of American doctorates in mathematics for each year from 1898 to 1906 is 11, 13, 11, 18, 8, 7, 14, 21, 9.

THE first supplementary volume of the *Jahresberichte der deutschen Mathematiker-Vereinigung*, containing “Ueber die Entwicklung der Elementar-Geometrie im XIX Jahrhundert,” by M. SIMON, has just been published by Teubner in Leipzig.

IN connection with the recent division of the *Proceedings of the Royal Society of London* into Series A, papers of a mathematical and physical character, and Series B, papers of a biological character, attention is called to the arrangement by which, on the advance payment of the subscription price of 15 shillings per volume, subscribers may receive the separate papers as soon as published.

SYRACUSE UNIVERSITY — The following advanced courses in mathematics are offered during the first semester of the current academic year:— By Professor W. H. METZLER: Analytic geometry, plane and solid, three hours; Newtonian potential function, three hours; Elliptic functions, three hours; Weierstrass’s theory of functions, three hours. — By Professor E. D. ROE: Determinants, one hour; Theory of equations, two hours; Advanced calculus, three hours; Analytic mechanics, three

hours ; Symmetric functions ; three hours ; Invariants, three hours ; Substitutions, three hours. — By Professor W. G. BULLARD : Projective geometry, three hours ; Curves and surfaces, three hours ; Differential geometry, three hours.

THE various foreign universities offer courses in mathematics during the winter semester of 1906–1907 as follows :

UNIVERSITY OF GÖTTINGEN. — By Professor F. KLEIN : Elliptic functions, four hours ; Seminar (with Professors Hilbert and Minkowski and Dr. Herglotz), two hours. — By Professor D. HILBERT : Mechanics of continua, four hours ; Differential and integral calculus, four hours. — By Professor H. MINKOWSKI : Encyclopedia of elementary mathematics, four hours ; Invariants, four hours. — By Professor C. RUNGE : Descriptive geometry, four hours ; with exercises, two hours. — By Professor M. BRENDL : Mathematics of insurance, two hours. — By Professor E. ZERMELO : Elements of analytic mechanics, four hours ; Mathematical treatment of logic, one hour. — By Dr. M. ABRAHAM : Partial differential equations of mathematical physics, four hours ; Seminar, two hours. — By Dr. C. CARATHÉODORY : Minimum principles of mechanics and physics, one hour. — By Dr. G. HERGLOTZ : Introduction to analytic geometry of space, four hours.

UNIVERSITY OF JENA. — By Professor J. THOMAE : Definite integrals, four hours ; Differential equations, four hours ; Seminar, two hours. — By Professor F. HAUSSNER : Mathematical approximations, two hours ; Integral calculus with exercises, five hours ; Analytic geometry of space, four hours ; Seminar, one hour. — By Professor G. FREGE : Theory of functions according to Riemann, four hours. — By Professor R. RAU : Mechanics, four hours ; Descriptive geometry with exercises, seven hours.

UNIVERSITY OF LEIPZIG. — By Professor C. NEUMANN : Analytic mechanics, four hours ; Seminar, one hour. — By Professor A. MAYER : Calculus of variations, four hours. — By Professor O. HÖLDER : Differential and integral calculus, five hours ; Foundations of arithmetic and numbers, two hours ; Seminar, one hour. — By Professor K. ROHN : Applications of the calculus to surfaces and twisted curves, four hours ; Invariants, two hours. — By Professor F. HAUSDORFF : Theory of numbers, four hours. — By Professor H. LIEBMANN : Analytic geometry of space, two hours ; with exercises, one hour.

UNIVERSITY OF MUNICH. — By Professor F. LINDEMANN : Theory of functions of a complex variable, four hours ; Applications of the calculus to curves and surfaces, four hours ; Groups of transformations, two hours ; Seminar, one and a half hours. — By Professor A. VOSS : Algebra, four hours ; Theory of algebraic curves, four hours ; Seminar, two hours. — By Professor A. PRINGSHEIM : Differential calculus, five hours ; Theory of numbers, four hours. — By Professor K. DOEHLEMANN : Descriptive geometry, I, five hours ; with exercises, three hours ; Line geometry, four hours. — By Professor E. v. WEBER : Plane analytic geometry, four hours ; with exercises, two hours ; Integral calculus, with exercises, four hours. — By Dr. H. BRUNN : Theory of aggregates, four hours. — By Dr. F. HARTOGS : Selected chapters of the theory of functions, two hours. — By Dr. O. PERRON : — not yet announced.

OXFORD UNIVERSITY (Michaelmas Term). — By Professor W. ESSON : Analytic geometry of plane curves, two hours ; Synthetic geometry of plane curves, one hour. — By Professor E. B. ELLIOTT : Sequences and series, two hours ; Elementary theory of numbers, one hour. — By Professor A. E. H. LOVE : Hydrodynamics, two hours ; Problems in applied mathematics, one hour. — By Professor H. H. TURNER : Elementary mathematical astronomy, two hours. — By Mr. C. E. HASELFOOT : Theory of equations, one hour. — By Mr. C. LEUDESORF : Projective geometry, three hours. — By Mr. A. E. JOLLIFFE : Analytic geometry, two hours. — By Mr. J. W. RUSSELL : Differential calculus, two hours. — By Mr. R. F. MCNEILE : Curve tracing, one hour. — By Mr. A. L. PEDDER : Problems in pure mathematics, one hour. — By Mr. C. H. CAMPBELL : Higher solid geometry, two hours. — By Mr. J. E. CAMPBELL : Differential equations, two hours. — By Mr. C. H. THOMPSON : Integral calculus, two hours. — By Mr. E. H. HAYES : Analytical statics, three hours. — By Mr. A. L. DIXON : Hydrostatics, one hour. — By Mr. H. T. GERRANS : Tridimensional rigid dynamics, two hours. — By Mr. P. J. KIRKBY : Attractions and electrostatics, two hours.

THE royal academy of sciences at Berlin has awarded Professor F. MERTENS, of the University of Vienna, a prize of 5000 marks for his researches in the theory of cyclic equations.

PROFESSOR E. MÜLLER, of the technical school at Vienna, has been elected a corresponding member of the royal academy of sciences at Vienna.

DR. F. JUNG, docent of mathematics at the German technical school at Prague, has been transferred to a similar position at the technical school at Vienna.

PROFESSOR G. SCHEFFERS, of Darmstadt, has been appointed professor of mathematics at the technical school of Charlottenburg.

DR. L. HANNI has been appointed docent in mathematics at the University of Vienna and DR. O. PERRON at the University of Munich.

MR. B. A. HERMAN and Mr. H. W. RICHMOND have been appointed university lecturers in mathematics at Cambridge University.

AT the University of California Professor M. W. HASKELL has been promoted to a full professorship of mathematics, and Professor E. J. WILCZYNSKI to an associate professorship of mathematics.

AT Stanford University Professor H. F. BLICHFELDT has been promoted to an associate professorship of mathematics, and Dr. W. O. MENDENHALL has been appointed instructor in applied mathematics.

PROFESSOR H. P. MANNING, of Brown University, has been promoted to an associate professorship of mathematics.

AT Lehigh University Professors P. A. LAMBERT and A. E. MEAKE have been promoted to full professorships of mathematics.

AT the University of Rochester, Dr. A. S. Gale has been promoted to the newly designated Fayerweather professorship of mathematics.

PROFESSOR T. E. MCKINNEY, of Marietta College, has been appointed acting professor of mathematics at Wesleyan University.

MR. P. P. BOYD has been appointed professor of mathematics at Hanover College, Indiana.

MR. W. J. NEWLIN has been appointed associate professor of mathematics and philosophy at Amherst College.

REV. R. D. CARMICHAEL has been appointed professor of mathematics at the Presbyterian College for Men at Anniston, Alabama.

DR. J. T. ROOD has been appointed professor of mathematics at Ursinus College, Collegeville, Pennsylvania.

DR. C. C. GROVE has been appointed assistant professor of mathematics at Hamilton College, Clinton, New York.

DR. H. L. COAR, of the University of Illinois, has been appointed associate professor of mathematics at Marietta College, Marietta, Ohio.

DR. D. C. GILLESPIE has been appointed instructor in mathematics at Cornell University.

DR. G. E. WAHLIN has been appointed instructor in mathematics at the University of Iowa.

MR. J. M. THORNTON has been appointed professor of mathematics at the University of West Virginia.

DR. E. L. DODD has been appointed instructor in mathematics at the University of Illinois.

MR. E. R. SLEIGHT has been appointed professor of mathematics at Carthage College, Carthage, Illinois.

DR. W. R. LONGLEY has been appointed instructor in mathematics and astronomy at Yale University.