

## NOTES.

THE opening (January) number of volume 9 of the *Transactions of the AMERICAN MATHEMATICAL SOCIETY* contains the following papers: "Certain periodic orbits of  $k$  finite bodies revolving about a relatively large central mass," by F. L. GRIFFIN; "Further note on Maclaurin's spheroid," by G. H. DARWIN; "Potential functions on the boundary of their regions of definition" and "Double distributions and the Dirichlet problem," by O. D. KELLOGG; "Groups defined by the orders of two generators and the order of their commutator," by G. A. MILLER; "Projective differential geometry of curved surfaces" (second memoir), by E. J. WILCZYNSKI.

THE opening (January) number of volume 30 of the *American Journal of Mathematics* contains the following papers: "Plane quintic curves which possess a group of linear transformations" and "On birational transformations of curves of high genus," by V. SNYDER; "Surfaces with the same spherical representation of their lines of curvature as spherical surfaces," by L. P. EISENHART; "On the factoring of composite hypercomplex number systems," by H. B. LEONARD; "A new method in geometry," by E. LASKER; "Groups generated by  $n$  operators each of which is the product of  $n-1$  remaining ones," by G. A. MILLER.

AT the meeting of the London mathematical society held on December 12 the following papers were read: By S. T. SHOVELTON, "A formula in finite differences and its application to mechanical quadrature"; by A. E. H. LOVE, "Weierstrass's excess-function in the calculus of variations."

AT the Dresden meeting of the Deutsche Mathematiker Vereinigung Professor FELIX KLEIN was elected president for the current year, and also named official representative of the society at the fourth international congress of mathematicians, to be held in Rome in April. The present volume (17) of the *Jahresbericht* will have different pagination for the memoirs, from the part devoted to communications, notes, etc. A committee consisting of Mr. ACKERMANN-TEUBNER and Professor GUTZMER was appointed to consider ways and means of making

new mathematical books published outside of Germany more accessible. A committee was appointed to cooperate with the Swiss committee to consider the publication of the works of Euler. The committee on methods of instruction will be augmented by inviting two representatives from the various academies and societies that wish to cooperate in the movement of reorganizing mathematical instruction in the secondary schools. The next meeting of the Vereinigung will be held in Cologne in September 1908. It now numbers 703 members.

AT the annual public meeting of the Paris academy of sciences, held on December 16, 1907, the following prizes were awarded for memoirs in pure and applied mathematics: Francoeur prize (fr. 1000) to E. LEMOINE, for his contributions to geometry; Bordin prize (fr. 3000) divided between F. ENRIQUES and F. SEVERI, for the solution of the problem announced in the BULLETIN, volume 11, page 338; Vaillant prize (fr. 4000) divided among J. HADAMARD, A. KORN, G. LAURACELLA and T. BOGGIO, for contributions to the theory of the equilibrium of supported elastic plates; Montyon prize (fr. 700) to M. CUENOT, for his analysis of the flexibility of railroad rails; Poncelet prize (fr. 2000) to Col. RENARD for his researches in mechanics; Lalande prize (fr. 540) to T. LEWIS, for his contributions to astronomy; Valz prize (fr. 460) to M. GIACOBINI for his work in astronomy; Pontécoulant prize (fr. 700) to M. GAILLOT for celestial mechanics; Petit d'Ormay prize (fr. 1000) to P. DUHEM for his work in physical chemistry; Laplace prize (complete works of Laplace) to L. DAUM for his work in mechanics.

The following university courses in mathematics are announced:

OXFORD UNIVERSITY (*Hilary Term*). — By Professor W. ESSON: Comparison of analytic and synthetic methods in the theory of conics, two hours; Synthetic geometry of cubics, one hour. — By Professor E. B. ELLIOT: Elements of elliptic functions, two hours; Theory of numbers, II, one hour. — By Professor H. H. TURNER: Elementary mathematical astronomy, two hours. — By Professor A. E. H. LOVE: Theory of the potential, two hours; Elements of the calculus, two hours. — By Mr. P. J. KIRKBY: Higher plane curves, two hours. — By Mr. A. L. DIXON: Calculus of finite differences, one hour.

— By Mr. J. E. CAMPBELL : Differential equations, II., two hours. — By Mr. C. H. THOMPSON : Dynamics of a particle, two hours. — By Mr. H. T. GERRANS : Hydrodynamics, two hours. — By Mr. C. E. HASELFOOT : Geometric optics, two hours. — By Mr. J. W. RUSSELL : Determinants, two hours. — By Mr. A. L. PEDDER : Trigonometry, one hour. — By Mr. A. E. JOLLIFFE : Analytic geometry, II, two hours. — By Mr. R. F. MCNEILE : Integral calculus, two hours. — By Mr. E. H. HAYES : Mechanics, three hours. — By Mr. C. H. SAMPSON : Solid geometry, two hours.

THE Royal Belgian academy of sciences has awarded a prize of 800 francs (prize in geometry for 1907) to Professor G. BORDIGA, of the University of Padua ; it also awarded a prize of 600 francs to Professor U. PERAZZO, of the military academy of Turin.

PROFESSOR FELIX KLEIN, of the University of Göttingen, has been appointed representative of the Universities in the upper house of the German parliament.

PROFESSOR D. HILBERT, of the University of Göttingen, has been decorated with the Maximilian order of Bavaria.

DR. A. H. BUCHERER, of the University of Bonn, has been promoted to an associate professorship of mathematics.

DR. P. MUTH, although not connected with any institution of learning, has received the title of professor, in recognition of his mathematical writings.

DR. P. BURGATTI, of the University of Rome, has been appointed associate professor of theoretical mechanics at the University of Messina.

PROFESSOR E. ALMANSI, of the University of Pavia, has been promoted to a full professorship.

PROFESSOR R. MARCOLONGO, of the University of Messina, has been appointed professor of theoretic mechanics at the University of Naples.

DR. G. PICCIATI, of the University of Padua, has been appointed associate professor of mathematical physics at the University of Bologna.

PROFESSOR O. TEDONE, of the University of Genoa, has been promoted to a full professorship of mechanics.

PROFESSOR G. VIVANTI, of the University of Messina, has been appointed professor of the calculus at the University of Pavia.

DR. E. BIANCHI has been appointed docent in mathematical astronomy at the University of Rome.

DR. L. SINIGALLIA has been appointed docent in the calculus at the University of Pavia.

DR. A. DENIZOT has been appointed docent in mathematics at the technical school of Lemberg.

DR. F. BERNSTEIN, of the University of Halle, has been appointed associate professor of mathematics, with particular reference to insurance, at the University of Göttingen.

DR. F. GRAEFE, associate professor of mathematics at the technical school of Darmstadt, has been given the title of honorary professor of mathematics.

PROFESSOR G. KOWALEWSKI, of the University of Bonn, has declined the call to the mining academy at Clausthal.

DR. PFLÜGER, of the University of Bonn, has been appointed associate professor of mathematical physics.

DR. M. WINKELMANN has been appointed docent in mathematics at the technical school of Karlsruhe.

PROFESSOR G. BLAZEK, of the technical school at Prague, has retired.

DR. H. F. BAKER has been appointed chairman of the examiners of the mathematical tripos, part II, for 1908.

PROFESSOR SIMON NEWCOMB has been elected foreign member of the academy of sciences at Göttingen.

DR. G. W. HILL has been elected honorary member of the Royal society of Edinburgh.

PROFESSOR E. O. LOVETT, of Princeton University, has resigned his professorship to accept the presidency of the Rice Institute, Houston, Texas.

MR. G. E. RAMSDALL has been appointed professor of mathematics at Bates College, Lewiston, Maine, successor to the late Professor J. H. RAND, who died November 7, 1907.

DR. L. COHEN has been appointed assistant professor of mathematics at the George Washington University.

SIR WILLIAM THOMSON (Lord Kelvin) died at Glasgow, December 17, 1907. He was born at Belfast, June 25, 1824, and graduated from St. Peter's, Cambridge, in 1845, being first Smith's prizeman and second wrangler as well as oarsman in the victorious Cambridge crew. The next year he was appointed professor of natural philosophy at the University of Glasgow, which post he held for over 50 years. His scientific assistance made the Atlantic cable a success; for this achievement he was knighted in 1866. His improvement of the compass, of the method of measuring electricity and of predicting the level of the tides, were all epoch-making advances. He was elected to membership in nearly all the learned societies of Europe, and elevated to the peerage in 1892. His principal writings are "A treatise on natural philosophy" (with Professor Tait), "On heat and electricity," "Paper on electrostatics and magnetism," "Mathematical and physical papers" (three volumes), "Popular lectures and addresses" (three volumes), and the "Baltimore lectures." He was buried in Westminster Abbey.

DR. ASAPH HALL died November 22, 1907. Born at Goshen, Connecticut, October 15, 1829, he was appointed assistant at the Harvard observatory in 1857, Naval observer in 1862 and professor of mathematics in the Navy from 1863 to 1891, when he retired under the age limit. He was then appointed professor of mathematical astronomy at Harvard University, which position he held until 1901. Dr. Hall was a prolific writer, and his investigations won for him numerous medals and membership in most of the learned societies of America and of Europe. Among his most important discoveries may be mentioned the period of Saturn, two new satellites of Mars, the motion of the line of apsides of Hyperion, and important contributions to the theory and data of stellar parallax.

PROFESSOR C. A. YOUNG, emeritus professor of astronomy at Princeton University, died January 4, at the age of 73 years.

DR. A. LÉVY, professor of mathematics at the municipal industrial school of Paris, died December 28, at the age of 64 years.

PROFESSOR T. BARKER, formerly professor of mathematics at Owens College, Manchester, England, died November 20. He bequeathed about £40,000 to Victoria University, to establish professorships and scholarships in mathematics and in botany.