NOTES.

AT the annual meeting of the London mathematical society held on November 9, the following officers were elected : A. R. FORSYTH, president; A. E. H. LOVE and J. H. GRACE, secretaries; J. LARMOR, treasurer; two vice-presidents and ten other members of the council. The following papers were read : By Mr. G. H. HARDY, "The continuum and the second number class"; by Professor W. BURNSIDE, "On the arithmetic nature of the coefficients in a group of linear substitutions of finite order (second paper)"; by Mr. J. W. NICHOLSON, "On the asymptotic value of a type of finite series"; by Professor T. J. I'A. BROMWICH, "On the extension of Dirichlet's integral"; by Dr. E. W. HOBSON, "On improper multiple integrals," and "On the arithmetic continuum."

AT the Meran meeting of the German mathematical society Professor A. PRINGSHEIM was elected president, and Professor A. KRAZER was re-elected secretary. Professors E. STUDY, of Bonn, and A. v. BRILL, of Tübingen were elected to the council. The society now numbers 666 members.

THE annual meeting of the association of teachers of mathematics of the Middle States and Maryland was held on Saturday, December 2, at Annapolis, Md., in affiliation with the association of colleges and preparatory schools of the Middle States and Maryland. The following papers were read : "How should the college teach analytic geometry?" by Professor H. S. WHITE; "Suggestions for the first twelve lessons in demonstrative geometry," by Mr. H. R. HIGLY; "Some essentials of the successful mathematics teacher," by Dr. J. S. FRENCH; "The teaching of geometry," by Dr. H. A. CONVERSE.

The officers elected for the coming year were : President, Professor E. S. CRAWLEY, University of Pennsylvania; Vice-president, Dr. J. S. FRENCH, Jacob Tome Institute, Port Deposit, Md.; Secretary and Treasurer, Dr. J. T. RORER, Central High School, Philadelphia, Pa. The association adopted the following resolution :

That this association approve of the organization of a national federation of existing associations of teachers of mathematics in which each association shall preserve its own

organization and individuality and which shall have among its objects the joint support of publication. In the federation should be included only societies representing territory as extensive at least as one state.

THE fifth annual meeting of the central association of science and mathematics teachers was held at Chicago December 1 and 2. The following papers in mathematics were read : " The straight line in geometry," by J. W. WITHERS ; " Interest and progress in the teaching of mathematics," by N. J. LENNES ; " Aims in teaching algebra," by R. J. ALEY ; " Some thoughts on the teaching of geometry," by C. A. PETTERSON.

THE first award of the new Bolyai prize recently founded by the Hungarian academy of sciences (see current volume of BULLETIN, page 43) was made to Professor H. POINCARÉ. The works of Professor D. HILBERT not only received honorable mention, but the report of the commission will contain a detailed account of his memoirs, as well as of those of the winner of the prize.

THE Munich technical school announces the following prize problem : "To develop historically the theory of the singular solutions of total differential equations of the first order from the first appearance of the theory to the present time. For the older theory, the memoir of Houtain, ' Des solutions singulières des équations différentielles ' (*Annales des Universités de Belgique*, années 1851–1854) is to be critically discussed." Competing memoirs should be sent to the Senat der Technischen Hochschule zu München before October 15, 1906.

THE proceedings of the international congress of arts and sciences held at St. Louis in September, 1904, are being published by Houghton, Mifflin and Company in eight volumes, the first of which will contain the papers in philosophy and mathematics. The papers will be published as presented, except that those read in foreign languages will be translated into English.

WITH the appearance of its fifteenth volume, the publication of the *Jornal de Sciencias mathematicas e astronomicas*, edited by Professor F. G. TEIXEIRA, has been discontinued. In its place appears, under the direction of Professor Teixeira, the *Annaes Scientificos da Academia Polytechnica do Porto*, of which the first number has just been issued.

THE firm of Macmillan and Bowes, 1 Trinity St., Cambridge, England, announces that a series of short tracts of from 30 to 70 pages on various topics of pure mathematics and theoretical physics is soon to appear, edited by Mr. J. G. LEATHAM and Mr. E. T. WHITTAKER. The chief purpose is to assist in the maintenance of a high standard in mathematical teaching by the infusion of new methods and by the extension of knowledge of recent research. The following will shortly be published : Surface and volume integrals in physics, by J. G. LEATHAM ; The integration of functions of a single variable, by G. H. HARDY ; Quadratic forms and their classification by means of invariant factors, by J. I'A. BROMWICH ; Definite integral, meaning and properties, by E. W. HOBSON ; Singular points and asymptotes of plane curves, by C. A. SCOTT ; The axioms of geometry, by A. N. WHITEHEAD ; The eikonal and its application to optical instruments, by E. T. WHITTAKER.

THE publishing house of G. J. Göschen in Leipzig announces the following extensions of the Sammlung Schubert : " Theorie der ebenen algebraischen Kurven höherer Ordnung," by Dr. H. WIELEITNER, which appeared in November, and " Gewöhnliche Differentialgleichungen beliebiger Ordnung," by Professor J. HORN, which will be ready soon. A second volume on plane curves, treating special and transcendental curves has been promised by Dr. Wieleitner.

THE following university courses in mathematics are announced :

CAMBRIDGE UNIVERSITY. — *Michaelmas term*, 1905. — By Professor A. R. FORSYTH : Partial differential equations, three hours. — By Professor Sir G. H. DARWIN : Theory of potential and attractions, three hours. — By Professor Sir R. S. BALL : Planetary theory, three hours. — By Professor J. LARMOR : Electricity and magnetism, three hours. — By Professor J. J. THOMSON : Properties of matter, three hours ; Electricity and matter, two hours. — By Professor B. HOPKINSON : Applied mathematics, two hours ; Electricity, two hours. — By Dr. E. W. HOBSON : Vibrations and sound, three hours. — By Dr. H. F. BAKER : Introduction to theory of functions, three hours ; Solid geometry, three hours. — By Mr. H. W. RICHMOND : Analytic geometry, three hours. — By Mr. E. T. WHITTAKER : Theory of optical instruments, three hours. — By Dr. A. N. WHITEHEAD : Principles of mathematics. — By

Mr. A. BERRY : Elliptic functions, Bessel functions and Fourier series, three hours. — By Mr. A. MONRO : Hydrodynamics and sound, three hours. — By Mr. J. G. LEATHEM : Elementary electron theory, three hours. — By Mr. J. H. GRACE : Invariants and geometric applications, three hours. — By Mr. E. W. BARNES : Gamma functions, three hours.

Lent term, 1906. — By Professor A. R. FORSYTH : Partial differential equations, II., three hours. — By Professor Sir G. H. DARWIN : Dynamical astronomy (elementary), three hours. — By Professor Sir R. S. BALL : An elementary course on quaternions, three hours. — By Professor J. LARMOR : Electrodynamics with optical applications, three hours. — By Professor J. J. THOMSON : Electricity and magnetism, three hours ; Discharge of electricity through gases, two hours. — By Professor B. HOPKINSON : Applied mathematics II, two hours ; Electricity II, two hours. — By Dr. E. W. HOBSON : Harmonic analysis, three hours. — By Dr. H. F. BAKER : Theory of functions, three hours ; Analysis, three hours. — By Mr. E. T. WHITTAKER : The differential equations of applied mathematics, three hours. — By Mr. H. W. RICHMOND : Analytical geometry, three hours. — By Mr. R. A. HERMAN : Hydrodynamics, two courses. — By Dr. A. N. WHITEHEAD : Symbolic logic and its applications to mathematics. —By Mr. A. BERRY : Elliptic functions, three hours. — By Mr. C. T. BENNETT : Line geometry, three hours. — By Mr. E. W. BARNES : Linear differential equations, three hours.

Easter term, 1906. — By Professor A. R. FORSYTH : Partial differential equations III, three hours. — By Professor J. LARMOR : Theory of gases and thermodynamics, two hours. — By Professor J. J. THOMSON : Electricity and magnetism, three hours. — By Dr. E. W. HOBSON : Theory of the continuum, three hours. — By Dr. H. F. BAKER : Theory of functions, three hours ; Analysis, three hours. — By Mr. W. L. MOLLISON : Theory of potential and electrostatics, three hours. — By Dr. A. N. WHITEHEAD : Non-euclidean geometry. — By Mr. A. BERRY : Transformation of elliptic functions. — By Mr. G. H. HARDY : Integral functions.

Long vacation, 1906.—By Mr. H. W. RICHMOND : Geometry, three hours. — By Mr. W. M. COATES : Electricity and magnetism. — By Mr. J. G. LEATHEM : Physical optics, three hours. — By Mr. A. YOUNG : Theory of invariants, three hours.

PROFESSOR C. J. DE LA VALLÉE-POUSSIN, of the University of Louvain, has been awarded the Belgian decennial prize in mathematics.

DR. K. CARDA, of the University of Vienna, has been appointed associate professor of mathematics at the technical school in Vienna.

DR. M. DEHN, of the University of Münster, has been promoted to an associate professorship of mathematics.

PROFESSOR E. DOLEZAL, of Leoben, has been appointed professor of practical geometry at the technical school in Vienna.

PROFESSOR F. HAHN, of the school of engineering at Lausanne, has been appointed professor of applied mathematics at the University of Nancy.

DR. G. HAMEL, of the technical school at Karlsruhe, has been appointed professor of mechanics at the German technical school in Brünn, Austria.

PROFESSOR C. KOEHLER, of the University of Heidelberg, has been promoted to a full professorship of mathematics.

PROFESSOR A. SOMMERFELD, of the technical school at Aachen, has been decorated with the order of the red eagle of the fourth class.

DR. J. WEINGARTEN, of the technical school at Berlin, has been appointed honorary professor of mathematics at the University of Freiburg.

PROFESSOR W. V. DYCK, of the technical school at Munich, has been decorated with the Prussian order of the crown of the second class.

MR. F. S. PINKERTON has been appointed professor of applied mathematics at the University of South Wales, Cardiff, Wales.

DR. R. BAIRE has been appointed instructor in pure mathematics at the University of Dijon.

DR. P. BOUTROUX has been appointed master of conferences in mathematics at the University of Montpellier.

MR. TH. FRIESSENDORFF has been appointed docent in applied mathematics at the University of St. Petersburg.

DR. R. FUËTER has been appointed docent in mathematics at the University of Marburg.

DR. E. LANDAU, of the University of Berlin, has been promoted to an associate professorship of mathematics at the same institution.

DR. E. PRINGSHEIM, of the University of Berlin, has been appointed professor of theoretical physics at the University of Breslau.

PROFESSOR J. RUIS CASTIZO, of the University of Zaragoza, has been appointed professor of theoretical mechanics at the University of Madrid.

PROFESSOR K. SCHWARZSCHILD, of the University of Göttingen, has been elected to membership in the royal society of Göttingen.

PROFESSOR K. HELLMER, of the technical school at Brünn (Austria) and PROFESSOR A. SCHELL, of the technical school at Vienna, have retired, each with the honorary title of Hofrat.

AT the Paris Ecole polytechnique, Professor G. KOENIGS has been appointed " répétiteur " in analysis ; Dr. R. BRICARD and Dr. M. FOUCHÉ to the same position in geometry.

AT the University of Kansas, Professor H. B. NEWSON has been promoted to a full professorship of mathematics, and Mr. J. A. G. SHIRK has been appointed instructor in mathematics.

THE following changes have been announced at the University of Wisconsin : Mr. W. M. PERSONS has resigned his instructorship in mathematics to become assistant professor of statistics at Dartmouth College ; Mr. E. R. SMITH, Mr. E. A. MORITZ, Mr. R. S. PEATTER and Dr. D. A. LEHMAN have been appointed instructors in mathematics.

MISS S. E. CRONIN, Mr. J. SUTER, and Mr. G. ANDERSON have been appointed instructors in mathematics at the Iowa State College, Ames, Iowa.

PROFESSOR J. E. BONEBRIGHT, of the Colorado Agricultural College, has been appointed professor of mathematics at Ottawa University, Ottawa, Kansas.

DR. MAX MASON has been promoted to an assistant professorship in mathematics in the Sheffield Scientific School, Yale University.

Mr. G. H. Light and Mr. W. A. Tehring have been appointed instructors in mathematics at Purdue University.

Mr. H. W. Stager and Mr. T. G. Brown have been appointed assistants in mathematics at Stanford University.

Professor Otto Stolz, of the University of Innsbruck, died November 23, at the age of sixty-three years. Professor Victor Schlegel, of the Höhere Maschinenbauschule at Hagen, died November 22 at the age of sixty-three years. Professor Schlegel had been a member of the American Mathematical Society since 1894.

The following catalogues of second-hand books on mathematics and physics have recently appeared : A. Hermann, 6 rue de la Sorbonne, Paris V, catalogue no. 86, containing 4073 titles in mathematics; Macmillan and Bowes, 1 Trinity St., Cambridge, England, special sale list of works on applied mathematics ; Gustav Fock, Schlossgasse 7, Leipzig, hand apparatus of the late Professor Guido Hauck, 1960 dissertations and reprints ; Ernst Carlebach, Heidelberg, catalogue no. 276, 842 entries in science and mathematics; Martinus Nijhoff, the Hague, Nobelstraat 18, catalogue no. 342, containing 1589 titles in exact sciences.

The library of the late Professor Luigi Cremona, of Rome, is offered for sale. It consists of 3657 reprints and monographs in Italian, 1163 in French, 995 in German, 509 in English and 23 in Latin. The list of books is, however, very small. There are 231 books in Italian, 208 in French, 209 in German, 88 in English, and 18 in Latin. There are also a number of other entries in the catalogue relating to miscellaneous memoirs and periodicals.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

Amsler-Laffon (J.). Zur Lebensgeschichte von Franz Neumann (1798–1895). Zürich, 1904. 8vo. 16 pp. M. 1.00

Baillaud (B.). See Hermite.

Ball (W. W. R.). Histoire des mathématiques. Traduction française, sur la 3e édition anglaise, avec de nombreuses notes et d'importantes additions. Vol. I : Depuis les temps les plus reculés jusqu'à Newton. Paris, Hermann, 1905. 8vo. 425 pp. F. 12.00