

NOTES.

At the Pittsburgh meeting of the American association for the advancement of science, assistant professor G. D. BIRKHOFF, of Harvard University, was elected vice-president of Section A, and Professor F. R. MOULTON, of the University of Chicago, was reelected secretary of the Section.

THE March number (series 2, volume 19, number 3) of the *Annals of Mathematics* contains the following papers: "Comparison theorems for homogeneous linear differential equations of general order," by R. D. CARMICHAEL; "Note on a substitute for Duhamel's theorem," by H. B. FINE; "Some properties of a straight line and circle and their associated parabolas," by J. H. WEAVER; "Motions in hyperspace," by C. L. E. MOORE; "A definition of sense on closed curves in non-metrical plane analysis situs," by J. R. KLINE; "Covariant expansion of a modular form," by O. E. GLENN; "The intersections of a straight line and hyperquadric," by G. M. GREEN; "Numerical functions of $[x]$," by E. T. BELL; "Surfaces which can be generated in more than one way by the motion of an invariable curve," by L. P. EISENHART.

THE following mathematical papers appeared in volume 52 (1916-1917) of the *Proceedings of the American Academy of Arts and Sciences*: "Differential geometry of two-dimensional surfaces in hyperspace," by E. B. WILSON and C. L. E. MOORE, number 6, pages 267-368; "A classification of quadratic vectors," by F. L. HITCHCOCK, number 7, pages 369-454.

At the meeting of the London mathematical society held January 17, 1918, the following papers were read: By P. A. MACMAHON, "A method for studying any convergent series"; by G. H. HARDY, "Additional note on Dirichlet's division problem"; by J. H. GRACE, "Note on a Diophantine approximation"; by K. A. RAU, "A note on a theorem of Mr. Hardy's"; by C. H. FORSYTH, "Supernormal curves"; by H. HILTON and Miss D. S. TUCK, "Plane quartic curves with a tacnode."

THERE are probably many libraries throughout the country which contain the two volumes of "Correspondence of Scientific Men of the Seventeenth Century . . ." edited by Rigaud and published by the Oxford University Press in 1841. In 1862 a 36-page table of contents and index, compiled by Augustus De Morgan, was also issued (see Budget of Paradoxes). It is learned that these extra pages may still be purchased from the Oxford University Press, for forty cents.

THE following university courses in mathematics are announced for the summer session:

CORNELL UNIVERSITY (July 8 to August 16).—By Professor W. B. CARVER: Geometry for teachers, three hours.—By Professor W. A. HURWITZ: Algebra for teachers, three hours.—By Professor F. W. OWENS: Projective geometry, three hours.

UNIVERSITY OF CALIFORNIA (June 24 to August 3, at Los Angeles).—By Professor C. A. NOBLE: Analytic geometry, five hours; Mathematics for teachers, five hours.—By Professor VIRGIL SNYDER (of Cornell University): Calculus, five hours; Higher geometry, five hours.

UNIVERSITY OF CHICAGO (June 17 to August 31).—By Professor E. H. MOORE: Differential equations in general analysis (first half), four hours.—By Professor G. A. BLISS: Calculus of variations, four hours; Higher plane curves, four hours.—By Professor L. E. DICKSON: Solution of numerical equations (first half), four hours; Determinants and symmetric functions (second half), four hours; Algebraic invariants, four hours.—By Professor H. E. SLAUGHT: Definite integrals, four hours.—By Professor A. C. LUNN: Units and dimensions, four hours; Electromagnetic theory, four hours.—By Professor J. W. A. YOUNG; Topics in geometry, four hours.—By Professor R. G. D. RICHARDSON (of Brown University): Theory of functions of a complex variable, four hours.—By Professor W. H. ROEVER (of Washington University): Descriptive geometry, five hours.

UNIVERSITY OF ILLINOIS (June 18 to August 9).—By Dr. A. J. KEMPNER: Advanced algebra.—By Professor J. B.

SHAW: Differential equations; Vector methods.—By Professor C. H. SISAM: Solid analytic geometry; Differential geometry.

UNIVERSITY OF WISCONSIN (June 24 to August 2).—By Mr. R. E. MOORE: Differential equations, introductory course, five hours.—By Professor E. B. SKINNER: Differential geometry, three hours.—By Professor H. W. MARCH: Mechanics of a rigid body, five hours; Theory of probability, three hours.—By Dr. T. M. SIMPSON: Equations of the third and higher degrees, three hours.—By Professor E. B. VAN VLECK: Theory of the linear substitution in n variables, three hours; A survey of geometry, algebra, and trigonometry, treating of their development and history, five hours.

THE Academy of Sciences of Vienna has awarded the Baumgartner prize to Professor A. EINSTEIN.

PROFESSOR PAUL PAINLEVÉ has been elected president of the Paris academy of sciences.

MR. C. HANNEVIG has donated 150,000 crowns as a memorial to N. H. ABEL. The income of the fund is to be used to further mathematical research in Norway.

PROFESSOR L. CRELIER has been promoted to a full professorship at the University of Bern.

THE technical school at Vienna has conferred honorary doctorates on Professor R. MEHMKE, of the technical school at Stuttgart, and on Professor S. FINSTERWALDER, of the technical school at Munich.

PROFESSOR M. DISTELI, of the technical school at Karlsruhe, has retired, on account of ill health. Professor H. MOHRMANN, of the school of mines at Clausthal, has been appointed his successor.

PROFESSOR H. HAHN has been promoted to a full professorship of mathematics at the University of Bonn. DR. A. BECK has been appointed associate professor of mathematics.

PROFESSOR E. SCHMIDT, of the University of Breslau, has been appointed professor of mathematics at the University of Berlin.

THE following university and college teachers of mathematics have recently entered the national military service:

Mr. J. E. DAVIS, of Pennsylvania State College, has joined the national army. Mr. J. J. TANZOLA, of the U. S. Naval Academy, has joined the national army. Mr. H. M. TERRILL, of Columbia University, has been made ensign in the naval reserve. Mr. A. L. WECHSLER, of Columbia University, has joined the national army. Professor V. H. WELLS, of the University of Pittsburgh, has been made lieutenant in the science and research division of the signal reserve corps. Mr. FREDERICK WOOD, of the University of Wisconsin, has been appointed lieutenant in the field artillery.

THE Normal medal of the American Society of Civil Engineers has been awarded to Mr. B. F. GROAT, formerly professor of mathematics and mechanics at the University of Minnesota and now a consulting engineer of Pittsburgh, for his paper "Chemihydrometry and its application to the precise testing of hydro-electric generators." The theoretical considerations involved are largely of a mathematical nature.

PROFESSOR A. G. CARIS, of the department of mathematics, has been appointed acting president of Defiance College, Defiance, Ohio.

PROFESSOR P. F. SMITH has been made acting director of the Sheffield Scientific School, Yale University, during the absence of Director R. H. Chittenden on government service.

MR. M. F. JORDAN and Mr. Q. STAUFFER have been appointed instructors in mathematics at the University of Maine.

PROFESSOR LÉON AUTONNE, of the University of Lyons, died January 12, 1916, at the age of fifty-seven years.

PROFESSOR G. FROBENIUS, of the University of Berlin, died August 3, 1917, at the age of sixty-seven years.

PROFESSOR FRANZ LONDON, of the University of Bonn, died February 17, 1917, at the age of fifty-four years. Mr. ALFRED HAMBURGER has presented the University with an endowment of 30,000 marks for a foundation for mathematical research, in memory of Professor London.

PROFESSOR CHRISTIAN HORNUNG, of Heidelberg University, Tiffin, Ohio, died January 31, 1918, at the age of seventy-three years.

PROFESSOR A. T. G. APPLE, of the department of mathematics and astronomy of Franklin and Marshall College, died February 5, 1918, at the age of fifty-eight years.

DR. E. W. PONZER, assistant professor of applied mathematics at Stanford University, died December 20, 1917.

DR. E. A. ENGLER, formerly professor of mathematics and descriptive geometry at Washington University, St. Louis, and for ten years president of Worcester Polytechnic Institute, died January 16, 1918, at the age of sixty-one years. Professor Engler had been a member of the Society since 1892.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

ADAM (C.). See DESCARTES (R.).

BOREL (E.). *Leçons sur les fonctions monogènes uniformes d'une variable complexe.* Rédigées par G. Julia. (Collection de monographies sur la théorie des fonctions publiée sous la direction de M. Emile Borel.) Paris, Gauthier-Villars, 1917. 8vo. 12+166 pp. Fr. 7.50

BOWSER (E. A.). *College algebra for the use of academies, colleges and scientific schools.* 12th edition. Boston, Heath, 1917. 8vo. 14+540 pp. \$1.60

DESCARTES (R.). *Œuvres de Descartes publiées par C. Adam et P. Tannery sous les auspices du Ministère de l'Instruction publique.* Paris, Cerf. Tomes 1-11: *Œuvres, 1893-1909.* Tome 12: *Vie et œuvres de Descartes, étude historique par C. Adam, 1910.* 20+646 pp. [Tome 13]: *Supplément, index générale, 1913.* 108 pp. 4to. Fr. 310.00

JULIA (G.). See BOREL (E.).

TANNERY (P.). See DESCARTES (R.).