

NOTES

The opening number of volume 29 of the Transactions of this Society (January, 1927) contains the following papers: *Sets of independent postulates for the arithmetic mean, the geometric mean, the harmonic mean, and the root-mean-square*, by E. V. Huntington; *Irregular differential systems of order two and the related expansion problems*, by M. H. Stone; *Some problems in the theory of interpolation by Sturm-Liouville functions*, by C. M. Jensen; *Singular ruled surfaces in space of five dimensions*, by E. B. Stouffer; *On a type of completeness characterizing the general laws for separation of point-pairs*, by C. H. Langford; *Integers and basis of a number field*, by N. R. Wilson; *Implicit functions and their differentials in general analysis*, by T. H. Hildebrandt and L. M. Graves; *Application of the theory of relative cyclic fields to both cases of Fermat's last theorem (second paper)*, by H. S. Vandiver; *Riemann integration and Taylor's theorem in general analysis*, by L. M. Graves; *Alternatives to Zermelo's assumption*, by A. Church; *On a general theorem concerning the distribution of the residues and non-residues of powers*, by J. M. Vinogradov; *On the bound of the least non-residue of n th powers*, by J. M. Vinogradov; *On convergence factors in multiple series*, by C. N. Moore.

The Executive Committee of the coming International Congress of Mathematicians, of which Professor S. Pincherle is chairman, has selected the dates September 1-10, 1928, for this meeting. American mathematicians will be gratified to know that these particular dates were selected in order to make possible attendance from America. A preliminary announcement will be issued in the near future.

At the Annual Meeting to be held in conjunction with the meetings of the American Association for the Advancement of Science at Nashville, Tennessee, December 27-28, 1927, Professor James Pierpont will represent this Society at the usual joint session in which several organizations participate; he will deliver an address on *mathematical rigor, past and present*.

The office of the Society in New York has been moved to Room 1324 of the newly erected Physics Building of Columbia University. Mail addressed to the old street number will continue to reach the office properly; but telegrams and express packages should be addressed to the new office.

At its annual meeting of 1926, the American Society of Mechanical Engineers considered the question of organizing a professional division of mechanics, physics, and applied mathematics. A committee consisting of S. Timoshenko (chairman), A. L. Kimball, and H. A. S. Howarth was appointed to formulate a definite plan for this division.

The Ackermann-Teubner memorial prize for 1926 has been awarded to Professor Wilhelm Blaschke, of the University of Hamburg, for his book *Kreis und Kugel* (Leipzig, Veit, 1916).

The Ernst Abbe memorial prize for physics has been awarded to Professor Wilhelm Wien, of the University of Munich.

The Italian Society of Sciences (the XL) has awarded its mathematics prize for 1926 to Professor A. Comessatti, of the University of Padua, for his researches in algebraic geometry.

The gold medal of the Royal Astronomical Society has been awarded to Professor Frank Schlesinger, of Yale University, for his work in stellar parallax and astronomical photography.

Dr. Elihu Thomson, of the General Electric Company, has been awarded the Faraday medal of the British Institution of Electrical Engineers for 1927.

The Astronomical Society of the Pacific has awarded its Bruce gold medal for "distinguished services to astronomy" to Professor H. H. Turner, of Oxford University.

The Collingwood prize of the American Society of Civil Engineers has been awarded to C. V. von Abo, of Johannesburg, South Africa, for his paper on *Secondary stresses in bridges*.

Dr. C. E. Guye, professor of physics at the University of Geneva, has been elected a corresponding member of the Paris Academy of Sciences.

Professor Max Planck, of the University of Berlin, has been made an honorary doctor of engineering of the Berlin Technical School.

At the University of Paris, Dr. Eugène Bloch, *maitre de conférences*, has been promoted to the chair of theoretical and celestial physics.

Dr. P. Cousin, professor of the differential and integral calculus at the University of Bordeaux, has been made dean of the University.

Professor F. Cecioni, of the University of Catania, has been transferred to the University of Pisa. He will teach algebraic analysis.

Professor O. Chisini, of the University of Milan, has been promoted to a full professorship of analytic geometry.

Dr. E. Fermi has been appointed to an associate professorship of theoretical physics at the University of Rome.

Dr. E. Persico and Dr. G. Sansone have been appointed to associate professorships at the University of Florence. The former will teach theoretical physics and the latter the calculus.

Dr. R. Serini has been appointed to an associate professorship at the University of Pavia. He will teach theoretical physics.

The following 44 doctorates with mathematics or mathematical physics as major subject were conferred by American universities during 1926; the university, month in which the degree was conferred,

minor subject (other than mathematics), and title of dissertation are given in each case if available.

Evelyn F. Aylesworth, California, May, *The dielectric constant of atomic hydrogen and the Stark effect.*

Wealthy Babcock, Kansas, June, physics, *On the geometry associated with certain determinants with linear elements.*

Mr. H. W. Bailey, Illinois, May, astronomy, *The summability of single and multiple Fourier series.*

R. W. Barnard, Chicago, December, *The Fredholm theory of linear integral equations in general analysis for quaternionic-valued functions.*

Martha H. Barton, Johns Hopkins, June, Physics, *Some applications of the generalized Kronecker symbol.*

Florence Black, Kansas, June, physics, *A reduced system of differential equations for the invariants of ternary forms.*

H. L. Black, Illinois, May, physics, *A Cremona group isomorphic with the group of the twenty-seven lines on a cubic surface.*

E. T. Browne, Chicago, September, *Involutions that belong to a linear class.*

N. B. Conkwright, Illinois, May, astronomy, *The summability of Birkhoff series.*

A. E. Cooper, Chicago, June, *A topical history of the theory of quadratic residues.*

A. H. Copeland, Harvard, *Studies on the gyroscope.*

C. M. Cramlet, Washington, June, physics and astronomy, *Invariant tensors and their application to the study of determinants and allied tensor functions.*

H. T. Davis, Wisconsin, June, physics, *An existence theorem for the characteristic numbers of a certain boundary value problem.*

M. S. Demos, Harvard, *The group characteristics of the general and special quaternary linear homogeneous congruence groups.*

R. D. Doner, Illinois, May, physics, *The determination of the Peirce and Scheffers algebras of order eight.*

Fay Farnum, Cornell, June, physics, *Triadic Cremona nets of plane curves.*

Orrin Frink, Columbia, December, *The operations of boolean algebras.*

R. J. Garver, Chicago, September, I: *On Tschirnhaus transformations*; II: *Division algebras of order sixteen.*

J. S. Georges, Chicago, September, *Associativity conditions for division algebras corresponding to any abelian group.*

R. F. Graesser, Illinois, May, statistics and physics, *A certain general type of Neumann expansions and expansions in confluent hypergeometric functions.*

Marian C. Gray, Bryn Mawr, June, physics, *Theory of singular ordinary differential equations of the second order.*

L. S. Hill, Yale, June, *Aggregate functions and an application in analysis situs.*

H. M. Hosford, Illinois, May, physics, *On the summability of Fourier-Bessel and Dini expansions.*

C. M. Huber, Illinois, May, theoretical physics, *On complete systems of irrational invariants of associated point sets.*

F. E. Johnston, Illinois, May, astronomy, *Transitive substitution groups containing a regular subgroup of lower degree.*

B. F. Kimball, Cornell, June, physics, *Geodesics on a toroid.*

F. W. Kokomoor, Michigan, June, physics, *The teaching of elementary geometry in the seventeenth century.*

B. O. Koopman, Harvard, *On rejection to infinity and exterior motion in the restricted problem of three bodies.*

B. C. Patterson, Johns Hopkins, June, geophysics, *The algebraic and differential invariants of inversive geometry.*

H. R. Phalen, Chicago, June, *Metric properties of the quadric of Moutard.*

I. R. Pounder, Chicago, September, *A method of successive approximations for a partial equation of hyperbolic type.*

H. H. Pryde, New York University, June, *On a certain quintic curve with a triple point.*

D. E. Richmond, Cornell, June, physics, *Geodesics on surfaces of genus zero with knobs.*

C. F. Roos, Rice Institute, June, theoretical economics, *Generalized Lagrange problems in the calculus of variations.*

P. D. Schwartz, Yale, June, *Studies in non-euclidean geometry.*

M. M. Slotnick, Harvard, *Fundamental transformations of surfaces.*

H. L. Smith, Chicago, September, *The Minkowski linear measure for a simple rectifiable curve.*

P. A. Smith, Princeton, *Approximation of curves and surfaces by algebraic curves and surfaces.*

Marion E. Stark, Chicago, September, *A self-adjoint boundary value problem associated with a problem of the calculus of variations.*

Guy Stevenson, Illinois, May, physics, *Expansions of the Neumann type in terms of products of Bessel functions.*

M. H. Stone, Harvard, *Ordinary linear homogeneous differential equations of order n and the related expansion problems.*

Takashi Terami, California, May, physics, *The solution of the differential equation of a vibrating membrane by successive approximations.*

E. T. Virata, Johns Hopkins, June, geophysics, *W -surfaces which have an isometric spherical representation of their lines of curvature.*

P. S. Wagner, Johns Hopkins, June, geophysics, *An extension of Clifford's chain.*

The following graduate courses in mathematics are announced for the summer of 1927:

BROWN UNIVERSITY, June 20 to July 30.—By Professor R. E. Langer: Theory of integral equations.—By Professor M. H. Ingraham: Finite groups and the Galois theory of equations.

UNIVERSITY OF CHICAGO, first term, June 20 to July 27; second term, July 27 to September 2.—By Professor G. A. Bliss: Calculus of variations;

Thesis work in analysis.—By Professor H. E. Slaughter: Differential equations; Theory of definite integrals.—By Professor E. T. Bell: Theory of functions of a complex variable; Theory of modular systems; Reading and research in the theory of numbers.—By Professor H. H. Mitchell: Introduction to higher algebra; Analytic theory of numbers; Reading and research in algebra and the theory of numbers.—By Professor W. C. Graustein: Analytic projective geometry; Metric differential geometry; Reading and research in differential geometry.—By Professor Mayme I. Logsdon: Algebraic geometry of hyper-spaces; Reading and research in algebraic geometry.—By Professor Warren Weaver: Electro-dynamics; Reading and research in electro-dynamics.—By Professor Walter Bartky: Celestial mechanics; descriptive astronomy.

COLUMBIA UNIVERSITY, July 11 to August 19.—By Professor E. R. Hedrick: Theory of functions of a real variable; Fundamental concepts of mathematics.—By Professor W. B. Fite: Higher algebra.—By Professor G. A. Pfeiffer: Projective geometry.—By Professor K. W. Lamson: Differential equations.

UNIVERSITY OF ILLINOIS, June 20 to August 13.—By Professor J. B. Shaw: Synoptic course in higher mathematics.—By Professor R. D. Carmichael: Relativity.—By Professor Arnold Emch: Geometric transformations; Mathematics of statistics.—By Dr. M. G. Carman: Advanced calculus.—By Dr. F. E. Johnston: Theory of equations.

UNIVERSITY OF IOWA, first term, June 13 to July 22; second term, July 25 to August 26.—First term: Dr. M. A. Nordgaard: Subject matter and teaching of mathematics.—By Dr. L. E. Ward: Ordinary differential equations; Differential geometry.—By Professor C. C. Wylie: Astronomy; Mathematics of finance; Celestial mechanics.—By Professor Roscoe Woods: Projective geometry.—Second term: By Dr. M. A. Nordgaard; History of mathematics.—By Dr. N. B. Conkwright: Differential equations.—By Professor E. W. Chittenden: Matrices and determinants; Introduction to the analysis of continua.

JOHNS HOPKINS UNIVERSITY, June 28 to August 5.—By Professor J. R. Musselman: Projective geometry.

UNIVERSITY OF MICHIGAN, June 27 to August 19.—By Professor W. B. Ford: Advanced calculus; Infinite series with special reference to Fourier series.—By Professor L. C. Karpinski: Teaching of geometry; History of mathematics.—By Professor Peter Field: Vector analysis.—By Professor T. R. Running: Empirical formulas.—By Professor T. H. Hildebrandt: Theory of functions of a complex variable.—By Professor H. C. Carver: Theory of probability; Advanced mathematical theory of statistics.—By Professor L. A. Hopkins: Elements of mechanics.—By Professor V. C. Poor: Differential equations.—By Professor C. J. Coe: Analytic mechanics; Integral equations.—By Professor Norman Anning: Solid analytic geometry; Finite differences.—By Professor J. A. Nys-

wander: Higher algebra.—By Professor G. Y. Rainich: Quadratic forms and quadratic numbers.—By Professor R. L. Wilder: Differential equations; Analysis situs.—By Mr. S. E. Field: Projective geometry.

UNIVERSITY OF MINNESOTA, first term, June 17 to July 29; second term, July 30 to September 3.—First term: By Professor Dunham Jackson: History of ancient and modern mathematics.—By Professor W. L. Hart: Differential equations.—By Professors Hart and Jackson: Reading in advanced mathematics.—Second term: Professor R. W. Brink: Selected topics in advanced mathematics.

OHIO STATE UNIVERSITY, first term, June 18 to July 23; second term, July 25 to August 31.—By Professor Henry Blumberg: Introduction to the theory of functions of a complex variable; Problems in analysis; Reading and research in analysis.—By Professor H. W. Kuhn: Analytic projective geometry; Finite groups; Reading and research in group theory.

UNIVERSITY OF PENNSYLVANIA, July 5 to August 13.—By Professor M. J. Babb: Theory of numbers.—By Professor J. R. Kline: Theory of functions of a real variable.

STANFORD UNIVERSITY.—By Professor W. A. Manning: Modern algebra; Groups of finite order.—By Dr. Harold Hotelling: Analysis situs; Probability and statistics.—By Dr. H. W. Brinkmann: Differential equations; Theory of functions of a real variable.—By Miss Weiss: Theory of functions of a complex variable.

UNIVERSITY OF TEXAS, first term, June 8 to July 20; second term, July 20 to August 31.—First term: By Dean H. Y. Benedict: Advanced calculus.—By Professor E. L. Dodd: Functions of real variables; Probability.—By Professor R. L. Moore: Theory of sets; Foundations of geometry.—By Professor H. J. Ettliger: Calculus of variations; Mathematical physics.—By Professor C. D. Rice: Advanced calculus.—By Professor P. M. Batchelder: Theory of equations.—Second term: By Professor A. C. Lunn: Relativity; Crystallography.—Professor H. J. Ettliger: Calculus of variations; Mathematical physics.—By Professor H. S. Vandiver: Finite groups; Definite integrals.—By Professor Goldie Horton: Advanced calculus.

UNIVERSITY OF WISCONSIN, general session, June 25 to August 5.—By Professor L. W. Dowling: Projective geometry; Analytic geometry.—By Professor J. H. Taylor: Differential equations; Theory of equations.—By Professor R. W. Babcock: Analytical mechanics; Vector analysis.—Special nine weeks course for graduates, June 25 to August 26: Professor E. B. Skinner: Linear algebras; Theory of finite groups.

The Massachusetts Institute of Technology has received a grant of \$230,000 from the Guggenheim Fund for the Promotion of Aeronautics; the gift will provide a building and equipment.

The University of Pittsburgh has appointed a number of engineers of the Westinghouse Company as part-time lecturers at the University in electrical and mechanical engineering, physics, and engineering mathematics; among these lecturers is Dr. Joseph Slepian.

Professor S. D. Wiksell, of Lund University, has been invited to lecture at the University of Michigan, during the coming academic year, on mathematical statistics.

Mr. S. F. Bibb, of the University of North Dakota, has been appointed assistant professor of mathematics at the Armour Institute of Technology.

Professor A. B. Coble of the University of Illinois has been appointed to a full professorship of mathematics in The Johns Hopkins University, and will assume his new duties in September, 1927.

Professor Arnold Dresden of the University of Wisconsin has been appointed to a full professorship of mathematics at Swarthmore College, and will assume his new duties in September, 1927.

Associate Professor C. B. Upton, of Teachers College, Columbia University, has been promoted to a full professorship of mathematics.

Haton de la Goupillière, formerly director of the Ecole Supérieure des Mines, and member of the Paris Academy of Sciences, has died, at the age of ninety-four.

Professor Carl Runge, of the University of Göttingen, died January 3, 1927, at the age of seventy-one.

Sir George Greenhill died February 17, 1927. He had been a member of the American Mathematical Society since 1897.

Mr. L. A. Anderson, formerly actuary of the Central Life Assurance Society, Des Moines, died January 20, 1927; he was a member of this Society.

Professor S. R. Cruse, of the University of Arizona, died February 8, 1926; he was a member of this Society.