

THIRTEENTH ANNUAL LIST OF PAPERS

READ BEFORE THE AMERICAN MATHEMATICAL SOCIETY AND
SUBSEQUENTLY PUBLISHED, INCLUDING REFERENCES
TO THE PLACES OF THEIR PUBLICATION.

- AMES, L. D. On the Theorem of Analysis Situs relating to the Division of the Plane or of Space by a Closed Curve or Surface. Read Dec. 29, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 6, pp. 301-305; Mar., 1904.
- BLICHFELDT, H. F. On the Order of Linear Homogeneous Groups. Read (San Francisco) April 25, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 387-397; Oct., 1903.
- BLISS, G. A. Jacobi's Criterion when both End-Points are Variable. Read Aug. 31, 1903. *Mathematische Annalen*, vol. 58, Nos. 1-2, pp. 70-80; Dec., 1903.
- An Existence Theorem for a Differential Equation of the Second Order, with an Application to the Calculus of Variations. Read (Chicago) Dec. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 113-125; Apr., 1904.
- BREWSTER, Miss H. B. Collineations of Space which leave Invariant a Quadric Surface. Read Sept. 3, 1903. *Kansas University Science Bulletin*, vol. 1, No. 11, pp. 281-302; Nov., 1902.
- BROMWICH, T. J. F.A. Similar Conics through Three Points. Read Sept. 1, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 489-492; Oct., 1903.
- COLE, F. N. On the Factoring of Large Numbers. Read Oct. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 3, pp. 134-137; Dec., 1903.
- The Groups of Order p^3q^2 . Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 214-219; Apr., 1904.
- COLLINS, J. V. A General Notation for Vector Analysis. Read Sept. 2, 1902. *American Mathematical Monthly*, vol. 10, Nos. 6-7, pp. 161-163; June-July, 1903.
- JURIESS, D. R. On the Invariants of a Homogeneous Quadratic Differential Equation of the Second Order. Read Dec. 27, 1901. *American Journal of Mathematics*, vol. 25, No. 4, pp. 365-382; Oct., 1903.
- Binary Families in a Triply Connected Region, with Especial Reference to Hypergeometric Families. Read Aug. 31, 1903. *Memoirs of the American Academy of Arts and Sciences*, vol. 13, No. 1, pp. 1-59; Jan., 1904.
- DICKSON, L. E. On the Subgroups of Order a Power of p in the Quaternary Abelian Group in the Galois Field of order p^n . Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 371-386; Oct., 1903.

- On the Reducibility of Linear Groups. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 434-436; Oct., 1903.
- Two Systems of Subgroups of the Quaternary Abelian Group in a General Galois Field. Read Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 4, pp. 178-184; Jan., 1904.
- Determination of all Groups of Binary Linear Substitutions with Integral Coefficients taken Modulo 3 and of Determinant Unity. Read Aug. 31, 1903. *Annals of Mathematics*, 2d ser., vol. 5, No. 3, pp. 140-144; Apr., 1904.
- Determination of all the Subgroups of the Known Simple Group of Order 25920. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 126-166; Apr., 1904.
- The Subgroups of Order a Power of 2 of the Simple Quinary Orthogonal Group in the Galois Field of Order $p^n = 8l \pm 3$. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 1-38; Jan., 1904.
- Fields whose Elements are Linear Differential Expressions. Read Apr. 25, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 1, pp. 30-31; Oct., 1903.
- A Generalization of Symmetric and Skew-Symmetric Determinants. Read (Chicago) Jan. 1, 1904. *American Mathematical Monthly*, vol. 10, No. 12, pp. 253-256; Dec., 1903.
- On the Subgroups of the Order a power of p in the Linear Homogeneous and Fractional Group in the $GF[p]$. Read Feb. 27, 1904. *Bulletin of the American Mathematical Society*, vol. 10, No. 8, pp. 385-397; May, 1904.
- The Abstract Group Simply Isomorphic with the Group of Linear Fractional Transformations in a Galois Field. Read (San Francisco) Dec. 20, 1902. *Proceedings of the London Mathematical Society*, vol. 35, Nos. 809-813, pp. 292-305; July, 1903.
- EIESLAND, J. On Nullsystems in Space of Five Dimensions and their Relation to Ordinary Space. Read Sept. 2, 1902. *American Journal of Mathematics*, vol. 26, No. 2, pp. 193-148; Apr., 1904.
- EISENHART, L. P. Surfaces whose Lines of Curvature in One System are Represented on the Sphere by Great Circles. Read Apr. 26, 1902. *American Journal of Mathematics*, vol. 25, No. 4, pp. 349-364; Oct., 1903.
- Congruences of Curves. Read Feb. 28, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 470-488; Oct., 1903.
- Congruences of Tangents to a Surface and Derived Congruences. Read Apr. 25, 1903. *American Journal of Mathematics*, vol. 26, No. 2, pp. 180-208; Apr., 1904.
- EMCH, A. Note on the p -Discriminant of Ordinary Linear Differential Equations. Read Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 3, pp. 137-138; Dec., 1903. *University of Colorado Studies*, vol. 1, No. 4, pp. 269-274; Feb., 1904.

- EPSTEEN, S. On Linear Differential Congruences. Read Apr. 25, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 1, pp. 23-30; Oct., 1903.
- On the Definition of Reducible Hypercomplex Number Systems. Read (Chicago) Jan. 1, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 105-109; Jan., 1904.
- Semireducible Hypercomplex Number Systems. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 437-444; Oct., 1903.
- On Linear Homogeneous Difference Equations and Continuous Groups. Read (Chicago) Apr. 2, 1904. *Bulletin of the American Mathematical Society*, vol. 10, No. 10, pp. 499-504; July, 1904.
- FIELD, P. On the Forms of Unicursal Quintic Curves. Read Apr. 26, 1902. *American Journal of Mathematics*, vol. 26, No. 2, pp. 149-163; Apr., 1904.
- FITE, W. B. On some Properties of Groups whose Orders are Powers of a Prime. Read Feb. 22, 1902 and Dec. 28, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 7, pp. 346-350; Apr., 1904.
- GALE, A. S. On Three Types of Surfaces of the Third Order Regarded as Double Surfaces of Translation. Read Oct. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 4, pp. 188-191; Jan., 1904.
- GOUSAT, E. A Simple Proof of a Theorem in the Calculus of Variations (Extract from a Letter to Mr. W. F. Osgood). Read Oct. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 110-112; Jan., 1904.
- GUNDERSEN, C. On the Content or Measure of Assemblages of Points. Read Dec. 28, 1901. Doctor Dissertation, published by the Author, New York, 1901.
- HASKELL, M. W. Generalization of a Fundamental Theorem in the Geometry of the Triangle. Read (Chicago) Jan. 2, 1902. *Archiv der Mathematik und Physik*, ser. 3, vol. 5, Nos. 3-4, pp. 278-281; June, 1903.
- HASKINS, C. N. On the Invariants of Quadratic Differential Forms, II. Read Sept. 1, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 167-192; Apr., 1904.
- HAWKES, H. E. Enumeration of Non-Quaternion Number Systems. Read Dec. 30, 1902. *Mathematische Annalen*, vol. 58, No. 3, pp. 361-379; Mar., 1904.
- HUN, J. G. On Certain Invariants of two Triangles. Read Dec. 28, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 39-55; Jan., 1904.
- KASNER, E. A Relation between the Circular and the Projective Transformations of the Plane. Read Feb. 28, 1903. *Annals of Mathematics*, ser. 2, vol. 5, No. 2, pp. 99-104; Jan., 1904.

- Isothermal Systems of Geodesics. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 56-60; Jan., 1904.
- The Riccati Differential Equations which Represent Isothermal Systems. Read Dec. 29, 1903. *Bulletin of the American Mathematical Society*, vol. 10, Nos. 7, 8, pp. 341-346, 405; Apr., May, 1904.
- Determination of the Algebraic Curves whose Polar Conics are Parabolas. Read Dec. 28, 1901. *American Journal of Mathematics*, vol. 26, No. 2, pp. 164-168; Apr., 1904.
- KELLOGG, O. D. Note on Cauchy's Integral. Read Dec. 28, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 5, pp. 255-257; Feb., 1904.
- KUHN, H. W. On Imprimitve Substitution Groups. Read Feb. 24, June 27 and Oct. 27, 1900. *American Journal of Mathematics*, vol. 26, No. 1, pp. 45-102; Jan., 1904.
- LAVES, K. The Orbit of the Minor Planet (334). Read in part (Chicago) Mar. 29, 1902. *Decennial Publications of the University of Chicago*, vol. 8, pp. 401-413.
- LOEWY, A. Zur Gruppentheorie mit Anwendungen auf die Theorie der linearen homogenen Differentialgleichungen. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 61-80; Jan., 1904.
- LOVETT, E. O. Periodic Solutions of the Problem of Four Bodies. Read Sept. 1, 1903. *Quarterly Journal of Mathematics*, vol. 35, No. 2, pp. 116-155; Oct., 1903.
- Systems of Periplegmatic Orbits. Read Apr. 30, 1904. *Astronomical Journal*, vol. 24, No. 561, pp. 75-81; May, 1904.
- MASCHKE, H. A Symbolic Treatment of the Theory of Invariants of Quadratic Differential Quantics of n variables. Read (Chicago) Apr. 11, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 445-469; Oct., 1903.
- MASON, C. M. Green's Theorem and Green's Functions for Certain Systems of Differential Equations. Read Sept. 1, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 220-225; Apr., 1904.
- MERRILL, HELEN A. On Solutions of Differential Equations which Possess an Oscillation Theorem. Read Aug. 31, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 423-433; Oct., 1903.
- MILLER, G. A. On the Generalization and Extension of Sylow's Theorem. Read (Chicago) Dec. 31, 1903. *American Mathematical Monthly*, vol. 11, No. 2, pp. 29-32; Feb., 1904.
- AND MORENO, H. C. Non-Abelian Groups in which every Subgroup is Abelian. Read (San Francisco) May 3, 1902 and April 25, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 398-404; Oct., 1903.
- MORENO, H. C. See MILLER, G. A.

- MORITZ, R. E. Generalization of the Differentiation Process. Read (Chicago) April 6, 1901. *American Journal of Mathematics*, vol. 24, No. 3, pp. 257-302; July, 1902.
- MOULTON, F. R. On Certain Rigorous Methods of treating Problems in Celestial Mechanics. Read (Chicago) April 6, 1901 and Sept. 2, 1902. *Decennial Publications of the University of Chicago*, vol. 8, pp. 119-142; 1902.
- The True Radii of Convergence of the Expressions for the Ratios of the Triangles when Developed as Power Series in the Time Intervals. Read (Chicago) Apr. 11, 1903. *Astronomical Journal*, vol. 23, Nos. 537, 538, pp. 93-102; May, 1903.
- NEWSON, H. B. On the Generation of Finite from Infinitesimal Transformations—a Correction. Read (Chicago) Jan. 2, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 4, pp. 191-193; Jan., 1904.
- A New Theory of Collineations and their Lie Groups. Read Aug. 25, 1899 and June 27, 1900. *American Journal of Mathematics*, vol. 24, No. 2, pp. 109-172; Apr., 1902.
- OSGOOD, W. F. The Integral as the Limit of a Sum, and a Theorem of Duhamel's. Read Feb. 28, 1903. *Annals of Mathematics*, ser. 2, vol. 4, No. 4, pp. 161-178; July, 1903.
- On a Gap in the Ordinary Presentation of Weierstrass's Theory of Functions. Read Dec. 28, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 6, pp. 294-301; Mar., 1904.
- PEIRCE, B. O. On Families of Curves which are the Lines of certain Plane Vectors, either Solenoidal or Lamellar. Read Apr. 25, 1903. *Proceedings of the American Academy of Arts and Sciences*, vol. 38, No. 24, pp. 661-678; May, 1903.
- On the Lines of Certain Classes of Solenoidal or Lamellar Vectors Symmetrical with Respect to an Axis. Read Aug. 31, 1903. *Proceedings of the American Academy of Arts and Sciences*, vol. 39, No. 12, pp. 295-304; Dec., 1903.
- PENFIELD, S. L. The Stereographic Projection and its Possibilities from a Graphical Standpoint. Read Oct. 27, 1900. *American Journal of Sciences and Arts*, ser. 4, vol. 11, No. 1 (61), pp. 1-24; Jan., 1901; No. 2 (62), pp. 115-144; Feb., 1901.
- QUINN, J. J. A Linkage for Describing the Conic Sections by Continuous Motion. Read (Chicago) Jan. 1, 1904. *American Mathematical Monthly*, vol. 11, No. 1, pp. 12-13; Jan., 1904.
- RIETZ, H. L. On Primitive Groups of Odd Order. Read Aug. 20, 1901 and Feb. 22, 1902. *American Journal of Mathematics*, vol. 26, No. 1, pp. 1-30; Jan., 1904.
- ROE, E. D., JR. Note on a Partial Differential Equation of the First Order. Read Sept. 2, 1902. *Annals of Mathematics*, ser. 2, vol. 4, No. 3, pp. 104-106; Apr., 1903.
- On the Coefficients in the Product of an Alternant and a Symmetric Function. Read Dec. 29, 1902. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 193-213; Apr., 1904.

- SCHOTTENFELS, IDA M. Note on the Necessary Condition that two Linear Homogeneous Differential Equations shall have Common Integrals. Read Oct. 31, 1903. *American Mathematical Monthly*, vol. 10, No. 12, pp. 257-259; Dec., 1903.
- SHAW, J. B. On Nilpotent Algebras. Read (Chicago) Jan. 2, 1903. *Transactions of the American Mathematical Society*, vol. 4, No. 4, pp. 405-422; Oct., 1903.
- SISAM, C. H. On Directrix Curves of Quintic Scrolls. Read Apr. 25, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 1, pp. 32-34; Oct., 1903.
- On Self-Dual Scrolls. Read Apr. 30, 1904. *Bulletin of the American Mathematical Society*, vol. 10, No. 9, pp. 440-441; June, 1904.
- SLOCUM, S. E. Rational Formulas for the Strength of a Concrete-Steel Beam. Read Sept. 1, 1903. *Engineering News*, vol. 50, No. 5, pp. 107-109; July, 1903.
- SWIFT, E. On the Condition that a Point Transformation of the Plane be a Projective Transformation. Read Oct. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, Nos. 5, 7, pp. 247-254. 361; Feb., Apr., 1904.
- WESTLUND, J. On the Congruence $x\phi(P) \equiv 1, \text{ mod. } P^n$. Read Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 2, pp. 78-80; Nov., 1903.
- WHITE, H. S. Linear Systems of Curves upon Algebraic Surfaces (Abstract of Boston Colloquium Lectures). Delivered Sept. 2-5, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 3, pp. 120-124; Dec., 1903.
- WHITTAKER, E. T. An Expression of Certain Known Functions as Generalized Hypergeometric Functions. Read Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 3, pp. 125-134; Dec., 1903.
- WILCZYNSKI, E. J. A Fundamental Theorem in the Theory of Ruled Surfaces. Read (San Francisco) Dec. 19, 1903. *Mathematische Annalen*, vol. 58, Nos. 1-2, pp. 249-256, Dec., 1903.
- Studies in the General Theory of Ruled Surfaces. Read (San Francisco) Dec. 19, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 2, pp. 226-252; Apr., 1904.
- WILSON, E. B. The So-Called Foundations of Geometry. Read Apr. 25, 1903. *Archiv der Mathematik und Physik*, ser. 3, vol. 6, No. 1-2, pp. 104-122, Aug., 1903.
- A Generalized Conception of Area: Applications to Collineations in the Plane. Read Aug. 31, 1903. *Annals of Mathematics*, ser. 2, vol. 5, No. 1, pp. 29-45; Oct., 1903.
- Projective and Metric Geometry. Read Dec. 29, 1903. *Annals of Mathematics*, ser. 2, vol. 5, No. 3, pp. 145-150; Apr., 1904.
- YOUNG, J. W. On the Group of Sign $(0, 3; 2, 4, \infty)$ and the Functions Belonging to it. Read Sept. 2 and Dec. 29, 1902. *Transactions of the American Mathematical Society*, vol. 5, No. 1, pp. 81-104; Jan., 1904.

YOUNG, W. H. On a Test for Non-Uniform Convergence. Read Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 5, pp. 239-246; Feb., 1904.

Report of the Committee of the American Mathematical Society on Definitions of College Entrance Requirements in Mathematics. Presented Aug. 31, 1903. *Bulletin of the American Mathematical Society*, vol. 10, No. 2, pp. 74-77; Nov., 1903.

Report on the Requirements for the Master's Degree, by the Committee of the Chicago Section. Presented (Chicago) Jan. 1, 1904. *Bulletin of the American Mathematical Society*, vol. 10, No. 8, pp. 380-385; May, 1904.