

FOURTEENTH ANNUAL LIST OF PAPERS

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

- ALLARDICE, R. E. On a Linear Transformation, and some Systems of Hypocycloids. Read May 3, 1902. *Annals of Mathematics*, ser. 2, vol. 5, No. 4, pp. 169-172; July, 1904.
- BIRKHOFF, G. D. and VANDIVER, H. S. On the Integral Divisors of $a^n - b^n$. Read Dec. 29, 1902, *Annals of Mathematics*, ser. 2, vol. 5, No. 4, pp. 173-180; July, 1904.
- BLICHFELDT, H. F. On the Order of Linear Homogeneous Groups (Second Paper). Read (San Francisco) Dec. 25, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 310-325; July, 1904.
- A Theorem Concerning the Invariants of Linear Homogeneous Groups, with some Applications to Substitution Groups. Read (San Francisco) Apr. 30, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 461-466; Oct., 1904.
- The Finite Discontinuous Primitive Groups of Collineations in Four Variables. Read (San Francisco) Apr. 30, 1904. *Mathematische Annalen*, vol. 60, No. 2, pp. 204-231; Mar., 1905.
- On Imprimitve Linear Homogeneous Groups. Read (San Francisco) Feb. 25, 1905. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 230-236; April, 1905.
- BLISS, G. A. The Exterior and Interior of a Plane Curve. Read (Chicago) Apr. 2, 1904. *Bulletin of the American Mathematical Society*, ser. 2, vol. 10, No. 8, pp. 398-404; May, 1904.
- Sufficient Condition for a Minimum with respect to One-Sided Variations. Read (Chicago) Apr. 2, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 477-492; Oct., 1904.
- BÔCHER, MAXIME. A Problem in Statics and its Relation to Certain Algebraic Invariants. Read Apr. 30, 1904. *Proceedings of the American Academy of Arts and Sciences*, vol. 40, No. 11, pp. 469-484; Dec., 1904.
- BOLZA, OSKAR. Lectures on the Calculus of Variations. Read Aug. 21-24, 1901. *Decennial Publications of the University of Chicago*, ser. 2, vol. 14; 1904.
- BOUTON, C. L. Note on Isothermal Curves and One-Parameter Groups of Conformal Transformations in the Plane. Read Feb. 25, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 7, pp. 369-371; April, 1905.
- BROWN, E. W. On the Completion of the Solution of the Main Problem in the New Lunar Theory. Read Oct. 29, 1904. *Monthly Notices of the Royal Astronomical Society*, vol. 65, No. 2, pp. 104-108; Dec., 1904.
- On the Smaller Perturbations of the Lunar Arguments. Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 279-287; July, 1904.

- CAMPBELL, D. F. On Homogenous Quadratic Relations in the Solutions of a Linear Differential Equation of the Fourth Order. Read (Chicago) Jan. 2, 1903. *Quarterly Journal of Pure and Applied Mathematics*, vol. 36, No. 4, pp. 296-304; May, 1905.
- CHESSIN, A. S. On a Class of Differential Equations. Read Sept. 1, 1903. *American Journal of Mathematics*, vol. 27, No. 2, pp. 103-112; Apr., 1905.
- On the Strains in a Rapidly Rotating Disc. Read (Chicago) Apr. 11, 1903. *Transactions of Academy of Science of St. Louis*, vol. 13, No. 1, pp. xxxii-xxxvi; Nov., 1903.
- COLLINS, J. V. Some Developments in Vector Analysis. Read (Chicago) Dec. 31, 1903. *Jahresbericht der Deutschen Mathematiker-Vereinigung*, vol. 14, Nos. 3-4, pp. 164-167; Mar.-Apr., 1905; and *American Mathematical Monthly*, vol. 12, No. 2, pp. 38-41; Feb., 1905.
- DICKSON, L. E. A New System of Simple Groups. Read Sept. 2, 1902, *Mathematische Annalen*, vol. 60, No. 1, pp. 137-150; Jan., 1905.
- Memoir on Abelian Transformations. Read (Chicago) Jan. 1, 1904. *American Journal of Mathematics*, vol. 26, No. 3, pp. 243-317; July, 1904.
- Application of Groups to a Complex Problem in Arrangements. Read (Chicago) Apr. 2, 1904. *Annals of Mathematics*, ser. 2, vol. 6, No. 1, pp. 31-44; Oct., 1904.
- The Group of a Tactical Configuration. Read Dec. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 4, pp. 177-179; Jan., 1905.
- A General Theorem on Algebraic Numbers. Read Dec. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 9, pp. 482-486; June, 1905.
- Definitions of a Group and a Field by Independent Postulates. Read (Chicago) Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 198-204; Apr., 1905.
- On Semi-Groups and the General Isomorphism between Infinite Groups. Read (Chicago) Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 205-208; Apr., 1905.
- Determination of the Ternary Modular Groups. Read (Chicago) Dec. 30, 1904. *American Journal of Mathematics*, vol. 27, No. 2, pp. 189-202; Apr., 1905.
- The Minimum Degree τ of Resolvents for the p -Section of the Periods of Hyperelliptic Functions of Four Periods. Read (Chicago) Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 48-57; Jan., 1905.
- On the Cyclotomic Function. Read (Chicago) Apr. 22, 1905. *American Mathematical Monthly*, vol. 12, No. 4, pp. 86-89; Apr. 1905.
- Determination of all the Subgroups of Orders the Three Highest Powers of p in the Group G of all m -ary Linear Homogeneous Transformations Modulo p . Read Sept. 17, 1904. *Quarterly Journal of Pure and Applied Mathematics*, vol. 36, No. 4, pp. 373-384; May, 1905.
- On the Class of the Substitutions of Various Linear Groups. Read Apr. 29, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 8, pp. 426-432; May, 1905.

- DOWLING, L. W. On the Conformal Representation of Certain Isosceles Triangles upon the Upper Half Plane. Read (Chicago) Jan. 2, 1902. *Annals of Mathematics*, ser. 2, vol. 6, No. 2, pp. 69-85; Jan., 1905.
- EDDY, H. T. On the Complex Product of Electromotive Force, Current and Other Vectors. Read Aug. 31, 1903. *Electrical World and Engineer*, vol. 44, No. 4, pp. 133-135; July 23, 1904.
- EISENHART, L. P. Surfaces with the same Spherical Representation of their Lines of Curvature as Pseudospherical Surfaces. Read Oct. 31, 1903. *American Journal of Mathematics*, vol. 27, No. 2, pp. 113-172, Apr., 1905.
- Three Particular Systems of Lines on a Surface. Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 421-437; Oct., 1904.
- On the Deformation of Surfaces of Translation. Read Feb. 25, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 9, pp. 486-494; June, 1905.
- EMCH, A. On the Involution of Stresses in a Plane. Read (Chicago) Jan. 3, 1903. Author's introduction to Projective Geometry, pp. 223-239; Jan., 1905.
- EPSTEEN, SAUL, and MACLAGAN-WEDDERBURN, J. On the Structure of Hypercomplex Number Systems. Read (Chicago) Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 172-178; Apr., 1905.
- FINDLAY, WILLIAM. The Sylow Subgroups of the Symmetric Group. Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 263-278; July, 1904.
- FISKE, T. S. Presidential Address: Mathematical Progress in America. Read Dec. 29, 1904. *Science*, New Series, vol. 21, No. 528, pp. 209-215; Feb. 10, 1905; and *Bulletin of the American Mathematical Society*, vol. 11, No. 5, pp. 238-246; Feb., 1905.
- FORD, W. B. Sur la Fonction définie par une Série de Maclaurin. Read Dec. 29, 1903. *Journal de Mathématiques*, ser. 5, vol. 9, No. 2, pp. 223-232; June, 1903.
- FRÉCHET, MAURICE. Sur les Opérations linéaires. Read Sept. 17, 1904. *Transactions of American Mathematical Society*, vol. 5, No. 4, pp. 493-499; Oct., 1904.
- Sur les Opérations linéaires (deuxième Note). Read Dec. 29, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 134-140; Apr., 1905.
- HANCOCK, H. Remarks on the Sufficient Conditions in the Calculus of Variations. Read Dec. 29, 1902. *University of Cincinnati Bulletin of Mathematics*, No. 1, pp. 203-204; 1904.
- HASKELL, M. W. The Construction of Conics under Given Conditions. Read (San Francisco) Apr. 30, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 5, pp. 268-273; Feb., 1905.
- HAWKES, H. E. On Hypercomplex Number Systems in Seven Units. Read Apr. 25, 1903. *American Journal of Mathematics*, vol. 26, No. 3, pp. 223-242; July, 1904.
- On Quaternion Number Systems. Read Feb. 27, 1904. *Mathematische Annalen*, vol. 60, No. 3, pp. 437-447; May, 1905.

- HILTEBEITEL, A. M. Note on a Problem in Mechanics. Read Feb. 25, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 8, pp. 432-436; May, 1905.
- HUNTINGTON, E. V. Sets of Independent Postulates for the Algebra of Logic. Read Sept. 1, 1903, Dec. 28, 1903, and Apr. 30, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 288-309; July, 1904.
- A Set of Postulates for Real Algebra, comprising Postulates for a One-Dimensional Continuum and for the Theory of Groups. Read Sept. 17, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 17-41; Jan., 1905.
- Note on the Definitions of Abstract Groups and Fields by Sets of Independent Postulates. Read Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 181-197; Apr., 1905.
- A Set of Postulates for Ordinary Complex Algebra. Read Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 209-229; Apr., 1905.
- HUTCHINSON, J. I. On the Automorphic Functions of the Group (0, 3; 2, 6, 6). Read Aug. 31, 1903, and Dec. 28, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 447-460; Oct., 1904.
- KASNER, E. Surfaces whose Geodesics may be Represented in the Plane by Parabolas. Read Dec. 30, 1902. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 141-158; Apr., 1905.
- A Characteristic Property of Isothermal Systems of Curves. Read Dec. 29, 1903. *Mathematische Annalen*, vol. 59, No. 3, pp. 352-354; Oct., 1904.
- Galileo and the Modern Concept of Infinity. Read Feb. 27, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 9, pp. 499-501; June, 1905.
- LEHMER, D. N. On a Cylinder the Intersection of which with a Sphere will Develop into an Ellipse. Read (San Francisco) Apr. 30, 1904. *American Mathematical Monthly*, vol. 11, No. 10, pp. 186-187; Oct., 1904.
- LOVETT, E. O. Singular Trajectories in the Restricted Problem of Four Bodies. Read Apr. 30, 1904. *Annali di Matematica pura ed applicata*, ser. 3, vol. 11, No. 1, pp. 1-8; Nov., 1904.
- MACAULAY, F. S. On a Method of Dealing with the Intersections of Plane Curves. Read Sept. 17, 1905. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 385-410; Oct., 1904.
- MACLAGAN-WEDDERBURN, J. See EPSTEEN, S.
- MANNING, W. A. On the Primitive Groups of Class 3p. Read (San Francisco) Apr. 25, 1903. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 42-47; Jan., 1905.
- MASON, MAX. Sur les Solutions satisfaisant à des Conditions aux Limites données de l'Équation différentielle $\Delta u + \lambda A(x, y)u = f(x, y)$. Read Feb. 27, 1904, and Oct. 29, 1904. *Journal de Mathématiques*, ser. 5, vol. 10, No. 4, pp. 445-476; Dec., 1904.
- The Doubly Periodic Solutions of Poisson's Equation in two Independent Variables. Read Dec. 29, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 159-164; Apr., 1905.

- MILLER, G. A. On the Number of Sets of Conjugate Subgroups. Read Oct. 31, 1903. *Prace Matematyczno-Fizyczne*, vol. 15, pp. 87-90; 1904.
- On the Roots of the Operators of a Group. Read (San Francisco) Dec. 19, 1903. *Quarterly Journal of Pure and Applied Mathematics*, vol. 36, No. 1, pp. 51-55; Sept., 1904.
- Addition to a Theorem due to Frobenius. Read (San Francisco) Apr. 30, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 1, pp. 6-7; Oct., 1904.
- Note on Burnside's Theory of Groups. Read Sept. 17, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 2, p. 64, § 14; Nov., 1904.
- Groups of the Fundamental Operations of Arithmetic. Read Oct. 29, 1904. *Annals of Mathematics*, ser. 2, vol. 6, No. 3, pp. 41*-48*; Apr., 1905.
- Determination of all the Groups of Order 2^n which Contain an odd Number of Cyclic Subgroups of Composite Order. Read (San Francisco) Oct. 1, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 58-62; Jan., 1905.
- MOORE, E. H. On a Definition of Abstract Groups. Read Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 179-180; Apr., 1905.
- MOREHEAD, J. C. Note on a Theorem of Lucas on Fermat's Numbers. Read Oct. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 3, p. 114, § 5; Dec., 1904.
- Note on Fermat's Numbers. Read Apr. 29, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 10, pp. 543-545; July, 1905.
- MORLEY, F. On the Geometry whose Element is the 3-Point of a Plane. Read Aug. 31, 1903 and Dec. 29, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 467-476; Oct., 1904.
- MORRISON, MRS. [GROW, B. E.] Removal of Any Two Terms from a Binary Quantic by Linear Transformations. Read June 27, 1900. *American Journal of Mathematics*, vol. 23, No. 3, pp. 287-296; July, 1901.
- MORITZ, R. E. A General Theorem on Local Probability. Read (San Francisco) Feb. 25, 1905. *American Mathematical Monthly*, vol. 12, No. 3, pp. 59-64; Mar., 1905.
- PEIRCE, J. M. On Certain Complete Systems of Quaternion Expressions, and on the Removal of Metric Limitations from the Calculus of Quaternions. Read Apr. 30, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 411-420; Oct., 1904.
- RIETZ, H. L. On Groups in which certain Commutative Operations are Conjugate. Read (Chicago) Dec. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 500-508; Oct., 1904.
- Simply Transitive Primitive Groups which are Simple Groups. Read (Chicago) Apr. 22, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 10, pp. 545-546; July, 1905.
- ROE, E. D. JR. On the Coefficients in the Quotient of two Alternants. Read Dec. 29, 1902. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 63-74; Jan., 1905.

- RUSK, W. J. Note on the n th Derivative of a Determinant whose Constituents are Functions of a given Variable. Read (Chicago) Apr. 2, 1904. *American Mathematical Monthly*, vol. 12, No. 4, p. 85; Apr. 1905.
- SHAW, J. B. Algebras Defined by Finite Groups. Read (Chicago) Dec. 31, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 326-342; July, 1904.
- SLOCUM, S. E. The Strength of Flat Plates, with an Application to Concrete Steel Floor Panels. Read (Chicago) Apr. 2, 1904. *Engineering News*, vol. 52, No. 1, pp. 22-24; July 7, 1904.
- Relation between Real and Complex Groups with Respect to their Structure and Continuity. Read (Chicago) Jan. 3, 1903. *American Journal of Mathematics*, vol. 27, No. 1, pp. 7-14; Jan., 1905.
- SMITH, BURKE. On the Deformation of Surfaces of Translation. Read Dec. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 4, pp. 187-191; Jan., 1905.
- SMITH, P. F. On the Linear Transformations of a Quadratic Form into Itself. Read Dec. 28, 1901, and Dec. 29, 1903. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 1-16; Jan., 1905.
- SNYDER, VIRGIL. On the Forms of Sextic Scrolls having a Rectilinear Directrix. Read Dec. 28, 1903. *American Journal of Mathematics*, vol. 27, No. 1, pp. 77-102; Jan., 1905.
- On Developable and Tubular Surfaces having Spherical Lines of Curvature. Read Apr. 30, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 1, pp. 1-6; Oct., 1904.
- On the Quintic Scroll having a Tacnodal or Oscnodal Conic. Read Oct. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 4, pp. 182-186; Jan., 1905.
- On the Forms of Sextic Scrolls having no Rectilinear Directrix. Read Dec. 29, 1904. *American Journal of Mathematics*, vol. 27, No. 2, pp. 173-188; Apr., 1905.
- STRINGHAM, IRVING. A Geometric Construction for Quaternion Products. Read (San Francisco) Feb. 25, 1905. *Bulletin of the American Mathematical Society*, vol. 11, No. 8, pp. 437-439; May, 1905.
- TABER, HENRY. On Hypercomplex Number Systems. Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 509-548; Oct., 1904.
- VANDIVER, H. S. See BIRKHOFF, G. D.
- VAN VLECK, E. B. On the Convergence of Algebraic Continued Fractions whose Coefficients have Limiting Values. Read Feb. 27, 1904. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 253-262; July, 1904.
- Selected Topics in the Theory of Divergent Series and of Continued Fractions. Read Sept. 2-5, 1903. The Boston Colloquium Lectures on Mathematics, pp. 75-187; 1905.
- VEBLEN, OSWALD. A Set of Axioms for Geometry. Read (Chicago) Apr. 11, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 3, pp. 343-384; July, 1904.

- Theory of Plane Curves in Non-Metrical Analysis Situs. Read Sept. 17, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 83-98; Jan., 1905.
- Definition in Terms of Order Alone in the Linear Continuum and in Well-Ordered Sets. Read (Chicago) Dec. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 165-171; Apr., 1905.
- WHITE, H. S. Linear Systems of Curves on Algebraic Surfaces. Read Sept. 2-5, 1903. The Boston Colloquium Lectures on Mathematics, pp. 1-30; 1905.
- WILCZYNSKI, E. J. Invariants of a System of Linear Partial Differential Equations and the Theory of Congruences of Rays. Read (San Francisco) Apr. 25, 1903. *American Journal of Mathematics*, vol. 26, No. 4, pp. 319-360; Oct., 1904.
- On Ruled Surfaces whose Flecnod Curve Intersects every Generator in two Coincident Points. Read Dec. 29, 1903. *Transactions of the American Mathematical Society*, vol. 5, No. 4, pp. 438-446; Oct., 1904.
- General Theory of Curves on Ruled Surfaces. Read Apr. 30, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 1, pp. 75-82; Jan., 1905.
- General Projective Theory of Space Curves. Read (San Francisco) Oct. 1, 1904. *Transactions of the American Mathematical Society*, vol. 6, No. 2, pp. 99-133; Apr., 1905.
- WOODS, F. S. Forms of Non-Euclidean Space. Read Sept. 2-5, 1903. The Boston Colloquium Lectures on Mathematics, pp. 31-74; 1905.
- WRIGHT, J. E. Application of the Theory of Continuous Groups to a Certain Differential Equation. Read Dec. 29, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 4, pp. 180-182; Jan., 1905.
- YOUNG, J. W. On the Use of Hypercomplex Numbers in Certain Problems of the Modular Group. Read Sept. 17, 1904. *Bulletin of the American Mathematical Society*, vol. 11, No. 7, pp. 363-367; Apr., 1905.