

TWENTY-SEVENTH ANNUAL LIST OF PAPERS.

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

- BARROW, D. F. An application of Fourier's series to probability. Read Feb. 24, 1917. *Annals of Mathematics*, ser. 2, vol. 19, No. 2, pp. 96-105; Dec., 1917.
- BEATTY, S. Derivation of the complementary theorem from the Riemann-Roch theorem. Read April 29, 1916. *American Journal of Mathematics*, vol. 39, No. 3, pp. 257-262; July, 1917.
- BELL, E. T. Fourier series for the squares of Hermite's eighteen doubly periodic theta quotients. Read (San Francisco) April 6, 1918. *Messenger of Mathematics*, vol. 47, No. 4, pp. 49-57; Aug., 1917.
- Numerical functions of $[x]$. Read (San Francisco) April 6, 1918. *Annals of Mathematics*, ser. 2, vol. 19, No. 3, pp. 210-216; March, 1918.
- BIANCHI, L. Concerning singular transformations B_k of surfaces applicable to quadrics. Read April 28, 1917. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 379-401; July, 1917.
- BIRKHOFF, G. D. A theorem on series of orthogonal functions with an application to Sturm-Liouville series. Read Oct. 27, 1917. *Proceedings of the National Academy of Sciences*, vol. 3, No. 11, pp. 656-659; Nov., 1917.
- BLISS, G. A. Integrals of Lebesgue. Read (Chicago) April 6, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 1, pp. 1-47; Oct., 1917.
- BLUMBERG, H. A theorem on semi-continuous functions. Read (Southwestern Section) Dec. 1, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 8, pp. 381-383; May, 1918.
- BRINK, R. W. A new integral test for the convergence and divergence of infinite series. Read April 29, 1916. *Transactions of the American Mathematical Society*, vol. 19, No. 2, pp. 186-204; April, 1918.
- BURGESS, H. T. Solution of the matrix equation $X^{-1}AX = N$. Read (Chicago) Dec. 22, 1916. *Annals of Mathematics*, ser. 2, vol. 19, No. 1, pp. 30-36; Sept., 1917.
- CAJORI, F. Newton's solution of numerical equations by means of slide rules. Read Sept. 5, 1917. *Colorado College Publication*, General Series No. 95, pp. 245-253; Nov., 1917.
- Pierre Laurent Wantzel. Read Sept. 4, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 339-347; April, 1918.
- CAMP, B. H. Multiple integrals over infinite fields, and the Fourier multiple integral. Read Feb. 27, 1915, and April 29, 1916. *American Journal of Mathematics*, vol. 39, No. 3, pp. 311-334; July, 1917.
- CARMICHAEL, R. D. Note on convergence tests applicable to series converging conditionally. Read (Chicago) April 6, 1917. *Tōhoku Mathematical Journal*, vol. 11, No. 4, pp. 191-199; June, 1917.

- On the asymptotic character of functions defined by series of the form $\sum c_n g(x+n)$. Read (Chicago) April 21, 1916. *American Journal of Mathematics*, vol. 39, No. 4, pp. 385-403; Oct., 1917.
- Elementary inequalities for the roots of an algebraic equation. Read Oct. 27, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 6, pp. 286-296; March, 1918.
- Comparison theorems for homogeneous linear differential equations of general order. Read (Chicago) April 6, 1917. *Annals of Mathematics*, ser. 2, vol. 19, No. 3, pp. 159-171; March, 1918.
- On the representation of functions in series of the form $\sum c_n g(x+n)$. Read (Chicago) April 7, 1917. *American Journal of Mathematics*, vol. 40, No. 2, pp. 113-126; April, 1918.
- CARPENTER, A. F. Some fundamental relations in the projective differential geometry of ruled surfaces. Read (Chicago) April 2, 1915, and (San Francisco) Nov. 25, 1916. *Annali di Matematica*, ser. 3, vol. 26, No. 4, pp. 285-300; Oct., 1917.
- CHITTENDEN, E. W. On the equivalence of relations $K_{q_1 q_2^m}$. Read (Chicago) April 3, 1915. *American Journal of Mathematics*, vol. 39, No. 3, pp. 263-271; July, 1917.
- See PITCHER, A. D.
- COBLE, A. B. Point sets and allied Cremona groups (Part III). Read Aug. 4, 1915. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 331-372; July, 1917.
- COHEN, T. A comitant curve of the plane quartic. Read Dec. 28, 1916. *American Journal of Mathematics*, vol. 39, No. 3, pp. 221-232; July, 1917.
- CUMMINGS, L. D. An undervalued Kirkman paper. Read Oct. 27, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 336-339; April, 1918.
- DRESDEN, A. On the second derivatives of the extremal-integral for the integral $\int F(y; y') dt$. Read (Chicago) Dec. 28, 1914, and Sept. 4, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 373-378; July, 1917.
- EIESLAND, J. Flat-sphere geometry. Read Dec. 28, 1915. *American Journal of Mathematics*, vol. 40, No. 1, pp. 1-46; Jan., 1918.
- EISENHART, L. P. Darboux's contribution to geometry. Read Sept. 6, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 5, pp. 227-237; Feb., 1918.
- Transformations of planar nets. Read Sept. 5, 1917. *American Journal of Mathematics*, vol. 40, No. 2, pp. 126-144; April, 1918.
- Transformations of applicable conjugate nets of curves on surfaces. Read Feb. 23, 1918. *Proceedings of the National Academy of Sciences*, vol. 3, No. 11, pp. 637-640; Nov., 1917. *Transactions of the American Mathematical Society*, vol. 19, No. 2, pp. 167-185; April, 1918.
- EMCH, A. On the invariant net of cubics in the Steinerian transformation. Read Sept. 4, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 327-330; April, 1918.

- ETTLINGER, H. J. Existence theorems for the general real self-adjoint linear system of the second order. Read April 26, 1913. *Transactions of the American Mathematical Society*, vol. 19, No. 1, pp. 79-96; Jan., 1918.
- FISCHER, C. A. Linear functionals of n -spreads. Read Dec. 27, 1916. *Annals of Mathematics*, ser. 2, vol. 19, No. 1, pp. 37-43; Sept., 1917.
- On bilinear and n -linear functionals. Read April 28, 1917. *Proceedings of the National Academy of Sciences*, vol. 3, No. 11, pp. 640-644; Nov., 1917.
- FORD, L. R. Rational approximations to irrational complex numbers. Read Sept. 4, 1916. *Transactions of the American Mathematical Society*, vol. 19, No. 1, pp. 1-42; Jan., 1918.
- FORSYTH, C. H. Tangential interpolation of ordinates among areas. Read Dec. 27, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 9, pp. 431-437, June, 1918.
- FORT, T. Some theorems of comparison and oscillation. Read Sept. 4, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 330-334; April, 1918.
- A class of developments in orthogonal functions. Read (Chicago) April 21, 1916. *Annals of Mathematics*, ser. 2, vol. 19, No. 4, pp. 231-241; June, 1918.
- FRÉCHET, M. Relations entre les notions de limite et de distance. Read April 28, 1917. *Transactions of the American Mathematical Society*, vol. 19, No. 1, pp. 53-65; Jan., 1918.
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- Covariant expansion of a modular form. Read Feb. 23, 1918. *Annals of Mathematics*, ser. 2, vol. 19, No. 3, pp. 201-206; March, 1918.
- Invariants which are functions of parameters of the transformation. Read Oct. 27, 1917. *Proceedings of the National Academy of Sciences*, vol. 4, No. 5, pp. 145-148; May, 1918.
- GRAUSTEIN, W. C. On two related transformations of space curves. Read Dec. 28, 1915. *American Journal of Mathematics*, vol. 39, No. 3, pp. 233-240; July, 1917.
- Note on isogenous complex functions of curves. Read Sept. 5, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 10, pp. 473-477; July, 1918.
- GREEN, G. M. On the general theory of curved surfaces and rectilinear congruences. Read Sept. 5, 1916. *Proceedings of the National Academy of Sciences*, vol. 3, No. 10, pp. 587-592; Oct., 1917.
- Some geometric characterizations of isothermal nets on a curved surface. Read Dec. 27, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 4, pp. 480-488; Oct., 1917.
- Note on conjugate nets with equal point invariants. Read Sept. 4, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 5, pp. 221-225; Feb., 1918.

- The intersections of a straight line and hyperquadric. Read April 28, 1917. *Annals of Mathematics*, ser. 2, vol. 19, No. 3, pp. 207–209; March, 1918.
- Plane nets with equal invariants. Read Sept. 5, 1917. *Annals of Mathematics*, ser. 2, vol. 19, No. 4, pp. 246–250; June, 1918.
- GRONWALL, T. H. Sur les zéros des fonctions $P(z)$ et $Q(z)$ associées à la fonction gamma. Read Feb. 26, 1916. *Annales Scientifiques de l'École Normale Supérieure*, ser. 3, vol. 33, No. 12, pp. 383–393; Dec., 1916.
- Elastic stresses in an infinite solid with a spherical cavity. Read Feb. 26, 1916. *Annals of Mathematics*, ser. 2, vol. 19, No. 4, pp. 295–296; June, 1918.
- HART, W. L. Linear differential equations in infinitely many variables. Read Dec. 27, 1916. *American Journal of Mathematics*, vol. 39, No. 4, pp. 407–424; Oct., 1917.
- Note on infinite systems of linear equations. Read April 28, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 334–335; April, 1918.
- HEBBERT, C. M. Some circular curves generated by pencils of stelloids and their polars. Read (Chicago) April 7, 1917. *Tôhoku Mathematical Journal*, vol. 13, Nos. 1–2, pp. 1–14; Feb., 1918.
- HILDEBRANDT, T. H. On integrals related to and extensions of the Lebesgue integrals. Read (Chicago) April 6, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 3, pp. 113–144 and No. 4, pp. 177–202; Dec., 1917 and Jan., 1918.
- On boundary value problems in linear differential equations in general analysis. Read (Chicago) April 6, 1917. *Transactions of the American Mathematical Society*, vol. 19, No. 1, pp. 97–108; Jan., 1918.
- HUNTINGTON, E. V. On setting up a definite integral without the use of Duhamel's theorem. Read April 29, 1916, and Sept. 5, 1916. *American Mathematical Monthly*, vol. 24, No. 6, pp. 271–275; June, 1917.
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- HUNTINGTON, E. V. and KLINE, J. R. Sets of independent postulates for betweenness. Read Dec. 31, 1912, April 26, 1913, and Sept. 5, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 301–325; July, 1917.
- IRWIN, F. and WRIGHT, H. N. Some properties of polynomial curves. Read (San Francisco) Nov. 20, 1915. *Annals of Mathematics*, ser. 2, vol. 19, No. 2, pp. 152–158; Dec., 1917.
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- KEMPNER, A. J. A theorem on lattice-points. Read (Chicago) April 7, 1917. *Annals of Mathematics*, ser. 2, vol. 19, No. 2, pp. 127-136; Dec., 1917.
- KEYSER, C. J. The rôle of the concept of infinity in the work of Lucretius. Read Dec. 27, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 7, pp. 321-327; April, 1918.
- Note concerning the number of possible interpretations of any system of postulates. Read Dec. 27, 1917. *Bulletin of the American Mathematical Society*, vol. 24, No. 8, pp. 391-393; May, 1918.
- Doctrinal functions. Read April 29, 1916. *Journal of Philosophy, Psychology and Scientific Methods*, vol. 15, No. 10, pp. 262-267; May 9, 1918.
- KIRCHER, E. A. T. Some properties of certain finite algebras. Read Dec. 27, 1915. *American Journal of Mathematics*, vol. 39, No. 3, pp. 272-280; July, 1917.
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- See HUNTINGTON, E. V.
- LEFSCHETZ, S. Sur les intégrales multiples des variétés algébriques. Read (Southwestern Section) Dec. 1, 1917. *Comptes Rendus de l'Académie des Sciences*, vol. 164, No. 22, pp. 850-853; May 29, 1917.
- Sur les intégrales doubles des variétés algébriques. Read (Southwestern Section) Nov. 28, 1914. *Annali di Matematica*, ser. 3, vol. 26, No. 4, pp. 227-260; Oct., 1917.
- MACMILLAN, W. D. A reduction of certain differential equations of the first order. Read (Chicago) April 11, 1914. *Annals of Mathematics*, ser. 2, vol. 19, No. 1, pp. 21-25; Sept., 1917.
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- MANNING, W. A. The primitive groups of class 15. Read (San Francisco) Nov. 25, 1916. *American Journal of Mathematics*, vol. 39, No. 3, pp. 281-310; July, 1917.
- The degree and class of multiply transitive groups. Read (San Francisco) Nov. 25, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 4, pp. 463-479; Oct., 1917.
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- MILLER, A. L. Systems of pencils of lines in ordinary space. Read Dec. 27, 1916. *American Journal of Mathematics*, vol. 40, No. 2, pp. 174-186; April, 1918.
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- An intrinsic equation solution of a problem of Euler. Read (Southwestern Section) Dec. 1, 1917. *American Mathematical Monthly*, vol. 24, No. 9, pp. 420–422; Nov., 1917.
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- Surfaces of revolution in the theory of Lamé's products. Read Sept. 4, 1916. *Bulletin of the American Mathematical Society*, vol. 24, No. 8, pp. 384-390; May, 1918.
- SHARPE, F. R. and SNYDER, V. Types of (2,2) point correspondences between two planes. Read Sept. 4, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 402-414; July, 1917.
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- SPERRY, P. Properties of a certain projectively defined two-parameter family of curves on a general surface. Read (Chicago) April 22, 1916. *American Journal of Mathematics*, vol. 40, No. 2, pp. 213-224; April, 1918.
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- VAN VLECK, E. B. Haskins's momental theorem and its connection with Stieltjes's problem of moments. Read (Chicago) Dec. 22, 1916. *Transactions of the American Mathematical Society*, vol. 18, No. 3, pp. 326-330; July, 1917.
- VEBLEN, O. On the deformation of an n -cell. Read Oct. 27, 1917. *Proceedings of the National Academy of Sciences*, vol. 3, No. 11, pp. 654-656; Nov., 1917.
- WEAVER, J. H. Some properties of a straight line and circle and their associated parabolas. Read Oct. 28, 1916. *Annals of Mathematics*, ser. 2, vol. 19, No. 3, pp. 174-175; March, 1918.
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- WILSON, E. B. Note on multiple algebra: The reduction of real dyadics and the classification of real homogeneous strains. Read April 28, 1917. *Journal of the Washington Academy of Sciences*, vol. 7, No. 7, pp. 173-177; April 4, 1917.
- WRIGHT, H. N. See IRWIN, F.