

## TWENTY-SECOND ANNUAL LIST OF PAPERS

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

- ALEXANDER, J. W., II. See VEULEN, O.
- BAKER, R. P. The Method of Monodromie with Applications to Three-Parameter Quartic Equations. Read (Chicago) April 5, 1912. *Annals of Mathematics*, vol. 14, No. 3, pp. 119-136; March, 1913.
- BEAL, F. W. Normal Congruences Determined by Centers of Geodesic Curvature. Read Sept. 12, 1911. *American Journal of Mathematics*, vol. 35, No. 1, pp. 10-36; Jan., 1913.
- BIRKHOFF, G. D. A Determinant Formula for the Number of Ways of Coloring a Map. Read April 27, 1912. *Annals of Mathematics*, vol. 14, No. 1, pp. 42-46; Sept., 1912.
- Proof of Poincaré's Geometric Theorem. Read Oct. 26, 1912. *Transactions of the American Mathematical Society*, vol. 14, No. 1, pp. 14-22; Jan., 1913.
- The Reducibility of Maps. Read April 27, 1912. *American Journal of Mathematics*, vol. 35, No. 2, pp. 115-128; April, 1913.
- BLISS, G. A. Fundamental Existence Theorems. Read Dec. 28, 1907, (Chicago) Jan. 1, 1909, Sept. 15-17, 1909, Jan. 1, 1913. The Princeton Colloquium Lectures on Mathematics, pp. 1-107; New York, 1913.
- BLUMBERG, H. Ueber algebraische Eigenschaften von linearen homogenen Differentialausdrücken. Read Sept. 10, 1912. Author's Dissertation, 53 pp.; Göttingen, 1912.
- A Set of Postulates for Arithmetic and Algebra. Read Sept. 10, 1912. Proceedings of the Fifth International Congress of Mathematicians, vol. 2, pp. 461-465; 1913.
- BÔCHER, M. A Simple Proof of a Fundamental Theorem in the Theory of Integral Equations. Read Dec. 28, 1910. *Annals of Mathematics*, vol. 14, No. 2, pp. 84-85; Dec., 1912.
- BRADSHAW, J. W. An Infinite Product for  $\pi/4$  Derived from Gregory's Series. Read Sept. 7, 1910. *Quarterly Journal of Pure and Applied Mathematics*, vol. 43, No. 4, pp. 378-379; July, 1912.
- BRENKE, W. C. Transformation of Series by Means of Functions Admitting a Recurrent Relation. Read (Southwestern Section) Nov. 28, 1908, Nov. 27, 1909, and Nov. 26, 1910. *Annals of Mathematics*, vol. 13, No. 1, pp. 40-51; Sept., 1911.
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- CAMP, B. H. Singular Multiple Integrals, with Applications to Series. Read April 27, 1912. *Transactions of the American Mathematical Society*, vol. 14, No. 1, pp. 42-64; Jan., 1913.

- CARMICHAEL, R. D. Note on Multiply Perfect Numbers. Read April 28, 1911. *Proceedings of the Indiana Academy of Sciences*, pp. 257-270; 1912.
- On the Theory of Relativity: Analysis of the Postulates. Read September 10, 1912. *Physical Review*, vol. 35, No. 3, pp. 153-176; Sept., 1912.
- Generalizations of Euler's  $\varphi$ -Function, with Applications to Abelian Groups. Read (Southwestern Section) Dec. 2, 1911. *Quarterly Journal of Pure and Applied Mathematics*, vol. 44, Nos. 1-2, pp. 94-104; Oct., 1912, -Jan., 1913.
- On the Remainder Term in a Certain Development of  $f(a+x)$ . Read Feb. 29, 1908. *American Mathematical Monthly*, vol. 20, No. 1, pp. 20-25; Jan., 1913.
- On the Theory of Relativity: Mass, Force and Energy; Philosophical Aspects. Read (Southwestern Section) Nov. 30, 1912. *Physical Review*, ser. 2, vol. 1, Nos. 2, 3, pp. 161-197; Feb.-March, 1913.
- Note on Fermat's Last Theorem. Read Dec. 31, 1912. *Bulletin of the American Mathematical Society*, vol. 19, No. 5, pp. 233-236, and No. 8, pp. 402-403; Feb. and May, 1913.
- Linear Mixed Equations and Their Analytic Solutions. Read Oct. 29, 1910. *American Journal of Mathematics*, vol. 35, No. 2, pp. 151-162; April, 1913.
- On the Theory of Linear Difference Equations. Read (Chicago) April 6, 1912. *American Journal of Mathematics*, vol. 35, No. 2, pp. 163-182; April, 1913.
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- COOLIDGE, J. L. A Study of the Circle Cross. Read Dec. 31, 1912. *Transactions of the American Mathematical Society*, vol. 14, No. 2, pp. 149-174; April, 1913.
- CRATHORNE, A. R. The Total Variation in the Isoperimetric Problem with Variable End Points. Read (Chicago) March 22, 1913. *Bulletin of the American Mathematical Society*, vol. 19, No. 10, pp. 519-522; July, 1913.
- CURTISS, D. R. An Extension of Descartes' Rule of Signs. Read (Chicago) April 8, 1910, and April 5, 1912. *Mathematische Annalen*, vol. 73, No. 3, pp. 424-435; March, 1913.
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- DINES, L. L. The Highest Common Factor of a System of Polynomials in One Variable. Read April 28 and Oct. 28, 1911. *American Journal of Mathematics*, vol. 35, No. 2, pp. 129-150; April, 1913.
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- Some Special Boundary Problems in the Theory of Harmonic Functions. Read Sept. 11, 1912. *Bulletin of the American Mathematical Society*, vol. 19, No. 5, pp. 227–233; Feb., 1913.
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