

## THE SUMMER MEETING IN NEW YORK

The forty-fourth Summer Meeting and Semicentennial Celebration of the Society was held at Columbia University in New York City from Tuesday to Friday, September 6–9, 1938.

The following report deals with the features of the program regularly associated with a Summer Meeting. The special events of the Semicentennial Celebration are only mentioned briefly. A detailed account of the Celebration will appear in the January issue of the Bulletin.

The meeting proved to be a very successful and enjoyable occasion. Approximately seven hundred mathematicians and guests were in attendance. The following four hundred nineteen members of the Society registered during the meeting:

C. R. Adams, H. S. Adams, R. B. Adams, C. F. Adler, R. P. Agnew, E. B. Allen, E. S. Allen, C. B. Allendoerfer, H. F. Archibald, R. C. Archibald, R. G. Archibald, B. M. Armstrong, L. A. Aroian, H. T. R. Aude, W. L. Ayres, H. M. Bacon, D. H. Ballou, Louis Baron, W. D. Baten, Samuel Beatty, E. R. Beckwith, E. M. Beesley, E. T. Bell, P. O. Bell, A. A. Bennett, A. C. Berry, W. James Berry, W. Johnston Berry, E. E. Betz, Garrett Birkhoff, G. D. Birkhoff, Archie Blake, Gertrude Blanch, G. A. Bliss, Henry Blumberg, R. P. Boas, H. W. Bode, Paul Boeder, Samuel Borofsky, M. A. Bowden, J. W. Bower, C. B. Boyer, A. D. Bradley, Richard Brauer, H. E. Bray, R. W. Brink, J. R. Britton, F. L. Brooks, A. B. Brown, G. S. Bruton, H. E. Buchanan, J. A. Bullard, L. H. Bunyan, R. W. Burgess, J. H. Bushey, Jewell H. Bushey, W. E. Byrne, S. S. Cairns, W. D. Cairns, J. W. Calkin, R. H. Cameron, B. H. Camp, C. C. Camp, W. B. Campbell, M. E. Carlen, I. S. Carroll, R. V. Churchill, C. E. Clark, J. A. Clarkson, M. D. Clement, L. W. Cohen, Nancy Cole, J. B. Coleman, W. B. Coleman, J. L. Coolidge, W. C. Coombs, T. F. Cope, A. H. Copeland, L. P. Copeland, Richard Courant, A. P. Cowgill, W. H. H. Cowles, H. S. M. Coxeter, C. H. Currier, H. B. Curry, D. R. Curtiss, D. R. Davis, C. I. Davison, M. M. Day, L. J. Deck, F. F. Decker, R. L. Dietzold, C. E. Dimick, L. L. Dines, Arnold Dresden, J. C. Durand, W. L. Duren, J. E. Eaton, Carolyn Eisele, Churchill Eisenhart, L. P. Eisenhart, J. S. Elston, G. C. Evans, G. W. Evans, Fay Farnum, F. A. Ficken, William Findlay, T. S. Fiske, W. B. Fite, J. H. Fithian, D. A. Flanders, Edward Fleisher, W. W. Flexner, Tomlinson Fort, R. M. Foster, J. S. Frame, Philip Franklin, Bernard Friedman, Orrin Frink, T. C. Fry, H. G. Fudge, A. S. Gale, C. A. Garabedian, J. J. Gergen, B. P. Gill, R. E. Gilman, Jekuthiel Ginsburg, Wallace Givens, Michael Goldberg, Saul Gorn, S. H. Gould, P. H. Graham, M. C. Gray, J. W. Green, Louis Green, H. M. Griffin, C. C. Grove, Laura Guggenbühl, Margaret Gurney, D. W. Hall, F. C. Hall, N. A. Hall, O. H. Hamilton, Harris Hancock, E. H. Hanson, D. C. Harkin, Philip Hartman, G. G. Harvey, T. W. Hatcher, Alan Hazeltine, L. B. Hedge, G. A. Hedlund, E. R. Hedrick, Robert Henderson, Coleman Herpel, Maximilian Herzberger, Fritz Herzog, R. A. Higdon, E. H. C. Hildebrandt, T. H. Hildebrandt, T. F. Holgate, D. L. Holl, M. P. Hollcroft, T. R. Hollcroft, Charles Hopkins, H. M. Hosford, Harold Hotelling, S. E. Hotelling, E. M. Hull, E. V. Huntington, W. A. Hurwitz, W. L. Hutchings, D. H. Hyers, M. H. Ingraham, Dunham Jackson, S. B. Jackson, Nathan Jacobson, C. G. Jaeger, R. L. Jeffery,

E. D. Jenkins, Walter Jennings, S. A. Joffe, R. A. Johnson, B. W. Jones, Harris Jones, H. A. Jordan, L. C. Karpinski, Edward Kasner, E. S. Kennedy, L. S. Kennison, J. R. F. Kent, R. B. Kershner, S. H. Kimball, S. C. Kleene, J. R. Kline, L. A. Knowler, E. R. Kolchin, C. C. Krieger, A. C. Ladner, M. E. Ladue, F. A. LaMotte, H. G. Landau, A. W. Landers, M. K. Landers, A. E. Landry, R. E. Langer, G. A. Larew, C. G. Latimer, V. V. Latshaw, V. S. Lawrence, Solomon Lefschetz, D. D. Leib, B. A. Lengyel, Howard Levi, Madeline Levin, D. C. Lewis, H. G. Lieber, L. R. Lieber, P. H. Linehan, G. H. Ling, Marie Litzinger, W. R. Longley, E. R. Lorch, R. G. Lubben, E. D. McCarthy, N. H. McCoy, R. S. McKee, M. G. McNeil, E. J. McShane, L. A. MacColl, J. K. L. MacDonald, C. C. MacDuffee, Roy MacKay, Saunders MacLane, N. B. MacLean, H. M. MacNeille, H. F. MacNeish, W. G. Madow, Morris Marden, W. T. Martin, R. G. Mason, T. E. Mason, A. E. Meder, G. M. Merriman, A. D. Michal, Norman Miller, G. R. Mirick, E. B. Mode, Virginia Modesitt, E. C. Molina, Deane Montgomery, E. I. Moody, C. N. Moore, Lillian Moore, R. L. Moore, E. M. Morenus, F. M. Morgan, Max Morris, Richard Morris, A. P. Morse, D. S. Morse, Marston Morse, E. J. Moulton, H. T. Muhly, G. W. Mullins, F. J. Murray, S. B. Myers, J. L. Nagle, Tadasi Nakayama, L. I. Neikirk, D. L. Netzorg, R. E. O'Connor, G. A. O'Donnell, Rufus Oldenburger, E. G. Olds, E. R. Ott, F. W. Owens, H. B. Owens, J. C. Oxtoby, Gordon Pall, T. P. Palmer, E. W. Paxson, W. F. Penney, F. W. Perkins, R. M. Peters, H. B. Phillips, A. E. Pitcher, M. H. Plass, Hillel Poritsky, E. L. Post, I. R. Pounder, E. A. Pratt, Walter Prenowitz, G. B. Price, R. G. Putnam, Tibor Radó, G. Y. Rainich, S. E. Rasor, H. W. Raudenbush, E. H. Raybould, G. E. Raynor, M. S. Rees, C. F. Rehberg, W. T. Reid, Haim Reingold, R. W. Rempfer, C. N. Reynolds, C. E. Rhodes, Moses Richardson, R. G. D. Richardson, D. E. Richmond, H. L. Rietz, R. F. Rinehart, John Riordan, J. F. Ritt, H. P. Robertson, G. de B. Robinson, S. L. Robinson, J. B. Rosenbach, S. G. Roth, B. M. Rubin, N. E. Rutt, Arthur Sard, Max Sasuly, A. C. Schaeffer, S. A. Schelkunoff, O. F. G. Schilling, I. J. Schoenberg, G. E. Schweigert, W. T. Scott, Wladimir Seidel, Stephan Serghiesco, W. E. Sewell, I. M. Sheffer, E. W. Sheldon, L. W. Sheridan, Max Shiffman, J. A. Shohat, L. P. Sicheloff, L. G. Simons, M. E. Sinclair, James Singer, Abraham Sinkov, H. L. Slobin, M. M. Slotnick, L. L. Smail, M. F. Smiley, A. H. Smith, C. E. Smith, P. A. Smith, Virgil Snyder, F. W. Sohon, E. S. Sokolnikoff, I. S. Sokolnikoff, O. H. Stecker, R. P. Stephens, J. J. Stoker, R. W. Stokes, E. B. Stouffer, E. C. Strayhorn, W. C. Strodt, D. J. Struik, M. M. Sullivan, J. L. Synge, J. D. Tamarkin, A. H. Taub, J. S. Taylor, M. E. Taylor, W. C. Taylor, H. P. Thielman, G. B. Thomas, E. M. Torrance, R. E. Traber, J. I. Tracey, W. J. Trjitzinsky, A. W. Tucker, J. W. Tukey, Annita Tuller, G. B. Van Schaack, R. L. Vitale, M. E. G. Waddell, R. W. Wagner, G. W. Walker, R. J. Walker, J. L. Walsh, R. M. Walter, S. E. Warschawski, J. H. Weaver, Warren Weaver, J. V. Wehausen, Louis Weisner, M. E. Wells, E. T. Welmers, Albert Wertheimer, A. H. Wheeler, C. H. Wheeler, O. L. Wheeler, H. S. White, E. A. Whitman, Hassler Whitney, D. V. Widder, Norbert Wiener, E. P. Wiggin, L. R. Wilcox, R. L. Wilder, S. S. Wilks, C. R. Wilson, E. W. Wilson, R. M. Winger, Aurel Wintner, Audrey Wishard, L. A. Wolf, M. C. Wolf, F. L. Wren, B. F. Yanney, C. H. Yeaton, M. M. Young, Leo Zippin, O. J. Zobel.

One of the special features of this meeting was the series of ten addresses which were delivered at the invitation of the Subcommittee on Invited Speakers of the Committee on the Semicentennial Celebration. Details will be given in the report of the Celebration.

All sectional sessions were held on Tuesday, September 6, in various rooms of the School of Business. At 9:30 A.M. there were four sections: Analysis, Professor R. E. Langer presiding, Professor G. A. Hedlund, secretary; Algebra, Professor J. F. Ritt presiding, Dr. E. R. Lorch, secretary; Geometry and Foundations, Professor A. A. Bennett presiding, Professor G. B. Price, secretary; Statistics and Applied Mathematics, Professor T. H. Hildebrandt presiding, Professor I. J. Schoenberg, secretary. At 2:00 P.M. there were three sections: Analysis, Professor J. L. Walsh presiding, Dr. Nelson Dunford, secretary; Algebra and Theory of Numbers, Professor W. B. Fite presiding, Dr. R. H. Cameron, secretary; Topology and Point Sets, President R. L. Moore presiding, Professor Deane Montgomery, secretary.

Registration headquarters were in the rotunda of Low Library, Columbia University. This spacious room served well both for registration activities and as a place for meeting and conversation.

All desiring dormitory rooms were housed in the Columbia University dormitories, families and women in Johnson Hall and men in John Jay Hall. Meals were served in the Men's Faculty Club of Columbia University.

On Monday afternoon, September 5, in Johnson Hall, the Departments of Mathematics of Columbia University, New York University, Brooklyn College, College of the City of New York, Hunter College, and Queens College entertained the mathematicians and their guests at tea.

On Tuesday evening, Columbia University welcomed the mathematicians and their guests at a reception given in Johnson Hall. Following this, at 9 P.M., the opening session of the Semicentennial Celebration was held in McMillin Theater, President R. L. Moore presiding. The main features of the evening's program were the presentation of delegates from scientific organizations, an address of appreciation to Columbia University by Vice President R. E. Langer, and an address of welcome by Nicholas Murray Butler, President of Columbia University. The founder of the Society, Professor Emeritus Thomas Scott Fiske, of Columbia University, was on the platform.

A panoramic photograph of those attending the meeting was taken at noon, Wednesday, on the steps of Low Library.

On Wednesday, a luncheon for women mathematicians was held at the Faculty Club.

The Semicentennial banquet at the Hotel Astor, Wednesday evening, was attended by three hundred sixty-eight mathematicians and guests.

The exhibitions of the Plimpton, Smith, and Dale collections of manuscripts and books, the models and instruments at Teachers College, and the Astronomical Hollerith-Computing Bureau, were a much appreciated adjunct to the program.

A number of interesting excursions were arranged by the local committee. These included a boat trip on the Hudson to the United States Military Academy at West Point, a visit to the Hayden Planetarium for a special showing, and trips to Jones Beach and to the 1939 World's Fair site.

The Council met on Wednesday, September 7, at 12:45 P.M. in the Faculty Club, and later held an adjourned meeting in the Social Room of the School of Business. The Board of Trustees held a session at 12:45 P.M., Friday, in the Faculty Club. The actions of the Council are given below.

The Secretary announced the election of the following thirteen persons to membership in the Society:

Professor Joseph Barnett, Jr., Oklahoma Agricultural and Mechanical College;  
Professor William Allen Barnett, Burlington High School, Burlington, Ky.;  
Dr. William Z. Birnbaum, New York University;  
Professor William Byron Brown, Mississippi Women's College, Hattiesburg, Miss.;  
Mr. Louis Burgess, 17 Battery Place, New York, N. Y.;  
Professor Jesse Gerald Chaney, Texas Agricultural and Mechanical College;  
Dr. Richard James Duffin, Purdue University;  
Miss Muriel Anna Hopwood, Kauai High School, Lihue, Kauai, Hawaii;  
Mr. Alfred Welwood Jones, Columbia University;  
Mr. Loyal Frank Ollmann, University of Michigan;  
Mr. Edmund Addison Pratt, Philadelphia, Pa.;  
Mr. Edmund Henry Umberger, University of Maryland;  
Professor Fred W. Urban, Central Missouri State Teachers College.

The following appointments by President Moore were reported: as representative of the Society at the Academic Ceremonies on Monday, June 6, in connection with the Centennial Celebration of the first session of Emory and Henry College, Emory, Virginia, Professor W. W. Elliott; as representative of the Society at the concluding Semicentennial Celebration of the Founding of Utah State Agricultural College, Logan, Utah, on June 5-7, Professor V. H. Tingey; as a committee to select the Gibbs Lecturers for 1939 and 1940, Professors A. B. Coble (chairman), G. C. Evans, and M. H. Stone; as a Committee on Resolutions for the Semicentennial meeting, Professors Tomlinson Fort and Richard Morris.

The 1939 spring meeting in Chicago is to be held on April 14-15. An invitation to hold the Summer Meeting of the Society in Seattle at the University of Washington at as early a date as possible was

received with thanks by the Council. The following Committee on Arrangements for the 1939 Summer Meeting in Madison was appointed: Professor M. H. Ingraham (chairman), Dr. Elizabeth S. Sokolnikoff, Professors H. P. Evans, and W. L. Ayres.

The Council recommended to the Society that the By-Laws be amended so as to provide for four instead of three on the Editorial Board of the *Bulletin*. This recommendation was adopted by the Society at a brief business meeting Wednesday afternoon. In accordance with this action, Article I, Section 1, now reads as follows: "The officers of the Society shall be a President, three Vice Presidents, a Secretary, four Associate Secretaries, a Treasurer, a Librarian, and four Editorial Committees—one of four members for the *Bulletin*, one of three members for the *Transactions*, one of three members for the *Colloquium Publications*, and one consisting of three representatives of the Society on the Board of Editors of the *American Journal of Mathematics*."

The Committee on the Mathematical Symposium, to be held at Duke University in connection with the Society's meeting, April 7-8, 1939, reported that the following three persons have accepted invitations to give addresses: Professors A. B. Coble, Hermann Weyl, and Norbert Wiener.

The editors of the *Transactions* were authorized to add one hundred pages to the second volume for 1938.

Professors C. N. Moore (chairman), Saunders MacLane, and G. B. Price were constituted a Committee on Publicity to work experimentally during the next year. It has been generally felt that mathematics does not get its full share of science publicity, but that, on the other hand, it is better to have none than to have sensational stories.

Four committees were authorized, to select hour speakers; one committee each for meetings in the east, midwest, and west, and one for annual and summer meetings.

The Committees on the International Congress of Mathematicians, to be held in Cambridge, Massachusetts, in 1940, held two sessions, at 6:30 P.M., Monday, and 12:45 P.M., Tuesday. They reported to the Council and the Trustees that plans are well along. A preliminary notice of the Congress appeared in the September, 1938, number of the *Bulletin*.

The titles and cross references to the abstracts of the papers read at the regular sessions follow below. The papers were read in the various sections as follows: papers 1 to 11, Analysis (morning); papers 12 to 17, Algebra; papers 18 to 27, Geometry and Founda-

tions; papers 28 to 35, Statistics and Applied Mathematics; papers 36 to 46, Analysis (afternoon); papers 47 to 55, Algebra and Theory of Numbers; papers 56 to 65, Topology and Point Sets. Papers 66 to 109, whose abstract numbers are followed by the letter *t*, were read by title. Paper 5 was read by Dr. Scott, paper 7 by Dr. Clarkson, paper 9 by Mr. Reade, paper 39 by Professor Moskovitz, paper 40 by Dr. Schaeffer, paper 41 by Professor Sewell, paper 43 by Professor Copeland, paper 48 by Mr. O'Connor, paper 50 by Dr. M. C. Wolf, paper 62 by Professor Montgomery. Professor J. A. Shohat summarized briefly in English the paper presented by Professor Popoff. Of those presenting papers, Dr. Palermo was introduced by Professor L. S. Kennison, Professor Riabouchinsky by Professor R. C. Archibald, Professor Popoff by Dean R. G. D. Richardson, Professor Kamke by Professor A. H. Copeland, Dr. Bergmann by Dean R. G. D. Richardson, Dr. Glenn by Professor T. R. Hollcroft, Dr. Robbins by Professor Hassler Whitney, and Dr. Williams by Professor Walter Bartky.

1. *On singularities and solutions of linear ordinary differential equations*, by J. K. L. MacDonald. (Abstract 44-9-356.)

2. *Asymptotic expansions for certain Bessel functions*, by A. J. Palermo. (Abstract 44-9-366.)

3. *Bounded self-adjoint operators and the problem of moments*, by B. A. Lengyel. (Abstract 44-7-302.)

4. *Sufficient conditions for the convergence of a continued fraction*, by Walter Leighton. (Abstract 44-7-301-*t*.)

5. *A general continued fraction expansion*, by Walter Leighton and W. T. Scott. (Abstract 44-9-351.)

6. *A class of orthogonal functions on plane curves*, by Dunham Jackson. (Abstract 44-9-348.)

7. *The type of certain Borel sets in several Banach spaces*, by C. R. Adams and J. A. Clarkson. (Abstract 44-7-287.)

8. *A solution of the problem of infinite play in chess*, by Marston Morse. (Abstract 44-9-360.)

9. *A characterization of minimal surfaces*, by E. F. Beckenbach and Maxwell Reade. (Abstract 44-7-309.)

10. *Underdetermined systems of linear partial differential equations and Lagrange's multiplier method*, by K. O. Friedrichs. (Abstract 44-9-339-*t*.)

11. *Pseudo-norms in linear spaces*, by D. H. Hyers. (Abstract 44-9-347.)

12. *Ideals in partially ordered sets, ideal extension theorems, and the*

*projectivization of incidence geometries* (preliminary report), by Saul Gorn. (Abstract 44-5-201.)

13. *Matrix representation of algebraic units and the solution of algebraic equations*, by D. C. Harkin. (Abstract 44-9-343.)

14. *Concerning nil-rings with minimal condition for admissible left ideals*, by Charles Hopkins. (Abstract 44-9-345.)

15. *On symmetric algebras and Galois moduli over modular fields*, by Tadasi Nakayama. (Abstract 44-9-362.)

16. *On decomposition of elements in abelian groups*, by Rufus Oldenburger. (Abstract 44-9-365.)

17. *A method for proving certain abstract groups to be infinite*, by H. S. M. Coxeter. (Abstract 44-9-331.)

18. *Additional properties of the second derivative of a polygenic function*, by J. J. DeCicco. (Abstract 44-7-289.)

19. *Groups of cubes and groups of regular tetrahedra inscriptible in a cube*, by A. H. Wheeler. (Abstract 44-9-383.)

20. *Three-circle problems in modern geometry*, by C. D. Smith. (Abstract 44-9-378-t.)

21. *New point configurations and algebraic curves attached to them*, by Arnold Emch. (Abstract 44-9-335-t.)

22. *Integral invariants of projective differential geometry*, by P. O. Bell. (Abstract 44-9-327.)

23. *Regular plane curve systems with more cusps than the number possessed by certain irregular systems of the same order*, by T. R. Holcroft. (Abstract 44-9-344.)

24. *The generalization of Miquel's theorem*, by Henry Gerhardt. (Abstract 44-7-321-t.)

25. *Note on a recent set of postulates for the calculus of propositions*, by E. V. Huntington. (Abstract 44-7-316.)

26. *Procedural rules in the propositional calculus*, by T. P. Palmer. (Abstract 44-9-368.)

27. *Galileo's antinomy and the class of numbers defined by their value and origin*, by Dimitri Riabouchinsky. (Abstract 44-9-372.)

28. *Criteria for the reality of apparent periodicities and other regularities* (preliminary report), by Archie Blake. (Abstract 44-7-310.)

29. *The moments of  $F$  and of  $z$* , by L. A. Aroian. (Abstract 44-9-324.)

30. *Concerning the distribution of the means of  $n$  independent chance variables when each is subject to a certain frequency law*, by W. D. Baten. (Abstract 44-9-326.)

31. *Tubes and spheres in  $n$ -spaces, and a class of statistical problems*, by Harold Hotelling. (Abstract 44-9-346.)

32. *Tensor equations equivalent to the Dirac equations*, by A. H. Taub. (Abstract 44-7-306.)

33. *On the subdivision of a mechanical system of corpuscles in equilibrium*, by Stephan Serghiesco. (Abstract 44-9-375.)

34. *Application des méthodes d'intégration de Poincaré à la balistique extérieure*, by Kyrille Popoff. (Abstract 44-9-399.)

35. *On the problem of temperatures in a non-homogeneous bar with discontinuous initial temperatures*, by R. V. Churchill. (Abstract 44-9-329.)

36. *Regularity of function-to-function transformations*, by M. M. Day. (Abstract 44-9-332.)

37. *Superposition on monotonic functions. II*, by Esther M. Torrance. (Abstract 44-9-381.)

38. *The Plateau problem for minimal surfaces which are not relative minima*, by Max Shiffman. (Abstract 44-9-377.)

39. *On convexity in a linear space with an inner product*, by David Moskovitz and L. L. Dines. (Abstract 44-9-361.)

40. *Extension of a theorem of S. Bernstein to non-analytic functions*, by R. J. Duffin and A. C. Schaeffer. (Abstract 44-9-334.)

41. *Note on degree of trigonometric and polynomial approximation to an analytic function*, by J. L. Walsh and W. E. Sewell. (Abstract 44-7-322.)

42. *Some remarks on linear differential systems*, by W. T. Reid. (Abstract 44-9-371.)

43. *A new proof of Sturm's comparison theorems*, by Erich Kamke. (Abstract 44-9-349.)

44. *Theory of non-linear  $q$ -difference equations*, by W. J. Trjitzinsky. (Abstract 44-9-382.)

45. *Bicontinuous linear transformations in complex euclidean spaces*, by E. R. Lorch. (Abstract 44-7-293.)

46. *On the theory of harmonic functions of three variables*, by Stefan Bergmann. (Abstract 44-11-435-*t*.)

47. *The number of representations function for binary quadratic forms*, by N. A. Hall. (Abstract 44-7-299.)

48. *The quaternion congruence  $iat \equiv b \pmod{g}$* , by R. E. O'Connor and Gordon Pall. (Abstract 44-9-364.)

49. *On the location of the roots of real polynomial equations when two roots are equal*, by D. H. Ballou. (Abstract 44-9-325.)

50. *The linear equation in matrices with elements in a division algebra*, by Magarete C. Wolf and Louise A. Wolf. (Abstract 44-9-384.)

51. *On  $p$ -adic and modular representations of semi-simple algebras*, by Richard Brauer. (Abstract 44-9-328.)

52. *Relatively highly composite numbers*, by R. G. Archibald. (Abstract 44-9-323.)
53. *The modular covariants (mod 2) of formal type, of the quantics of orders less than 8*, by O. E. Glenn. (Abstract 44-9-340.)
54. *Prime and composite polynomials with coefficients in any infinite field*, by Howard Levi. (Abstract 44-9-352.)
55. *Linear diophantine equations in quaternion analysis. I*, by Bernard Friedman. (Abstract 44-9-338.)
56. *On the classification of the mappings of a 2-complex into a space*, by H. E. Robbins. (Abstract 44-9-373.)
57. *Concerning non-alternating interior transformations*, by G. E. Schweigert. (Abstract 44-9-374.)
58. *Induced norms in topological groups*, by E. W. Paxson. (Abstract 44-7-318.)
59. *The extension of homeomorphisms of normal spaces to topologically related spaces*, by R. G. Lubben. (Abstract 44-9-353.)
60. *Some theorems concerning points and continua left invariant by transformations of continua not locally connected*, by O. H. Hamilton. (Abstract 44-7-314.)
61. *On the general point transformation*, by Henry Blumberg. (Abstract 44-9-387.)
62. *Non-abelian compact connected transformation groups of three-space*, by Deane Montgomery and Leo Zippin. (Abstract 44-7-303.)
63. *A class of singular 2-manifolds*, by W. W. Flexner. (Abstract 44-9-336.)
64. *Simultaneous invariants of a complex and subcomplex*, by C. E. Clark. (Abstract 44-9-330.)
65. *Planarity of Peano spaces in terms of homology bases*, by Roy MacKay. (Abstract 44-9-357.)
66. *Asymptotic forms for the generalized Legendre functions*, by G. E. Albert. (Abstract 44-7-288-t.)
67. *The significance of the system of subgroups for the structure of the group*, by Reinhold Baer. (Abstract 44-7-308-t.)
68. *Additive functionals on lattices*, by Garrett Birkhoff. (Abstract 44-5-282-t.)
69. *On Green's functions in the theory of heat conduction*, by H. S. Carslaw and J. C. Jaeger. (Abstract 44-7-319-t.)
70. *Asymptotic directions of a field of lineal elements*, by J. J. DeCicco. (Abstract 44-7-290-t.)
71. *The derivative clock congruence of a polygenic function*, by Edward Kasner and J. J. DeCicco. (Abstract 44-5-284-t.)

72. *Non-commutative arithmetic*, by R. P. Dilworth. (Abstract 44-9-333-t.)

73. *Green's function and the problem of Plateau*, by Jesse Douglas. (Abstract 44-7-297-t.)

74. *Minimal surfaces of higher topological structure*, by Jesse Douglas. (Abstract 44-7-298-t.)

75. *The most general form of the problem of Plateau*, by Jesse Douglas. (Abstract 44-7-311-t.)

76. *Remarks on Riemann's doctoral dissertation*, by Jesse Douglas. (Abstract 44-7-312-t.)

77. *Totally geodesic Einstein spaces*, by Aaron Fialkow. (Abstract 44-7-313-t.)

78. *Duality theorems for singular generalized manifolds*, by W. W. Flexner. (Abstract 44-9-337-t.)

79. *Class number relations for the form  $x^2 - 2y^2$* , by W. H. Gage. (Abstract 44-7-320-t.)

80. *Cremona involutions determined by a pencil of quartic surfaces*, by F. C. Gentry. (Abstract 44-7-291-t.)

81. *Quaternary Cremona groups of ternary type*, by F. C. Gentry. (Abstract 44-7-292-t.)

82. *Twisted cubics associated with a space curve*, by Louis Green. (Abstract 44-9-341-t.)

83. *On harmonic separation*, by Archibald Henderson and J. W. Lasley. (Abstract 44-7-315-t.)

84. *Polygenic functions whose associated element-to-point transformations  $T$  convert the points of the  $\gamma$  plane into unions of the  $z$  plane*, by Edward Kasner. (Abstract 44-5-283-t.)

85. *On complementary manifolds in certain Banach spaces*, by E. R. Kolchin. (Abstract 44-7-300-t.)

86. *Semiregular continued cotangents*, by D. H. Lehmer. (Abstract 44-9-350-t.)

87. *Generalized regular rings*, by N. H. McCoy. (Abstract 44-7-317-t.)

88. *On the degree of convergence of the derivatives of the Birkhoff series*, by W. H. McEwen. (Abstract 44-9-354-t.)

89. *A note on Sturm-Liouville expansions and interpolations*, by J. K. L. MacDonald. (Abstract 44-9-355-t.)

90. *The structure of automorphism groups of  $p$ -adic fields*, by Saunders MacLane. (Abstract 44-9-358-t.)

91. *Concerning sets of polynomials orthogonal simultaneously on several ellipses*, by G. M. Merriman. (Abstract 44-9-359-t.)

92. *The behavior of a function on its critical set*, by A. P. Morse. (Abstract 44-7-294-t.)
93. *The approximate solution of certain linear functional equations*, by E. N. Oberg. (Abstract 44-9-363-t.)
94. *On the factorization of generalized quaternions*, by Gordon Pall. (Abstract 44-9-367-t.)
95. *On differentiation in Banach spaces*, by B. J. Pettis. (Abstract 44-7-295-t.)
96. *Definitions and properties of monotone functions*, by G. B. Price. (Abstract 44-9-369-t.)
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