

THE THIRTY-SIXTH ANNUAL MEETING OF THE ASSOCIATION

The thirty-sixth annual meeting of the Mathematical Association of America was held at Washington University, Saint Louis, Missouri, on Tuesday, December 30, 1952, in conjunction with the annual meetings of the American Mathematical Society, the American Association for the Advancement of Science, and the Association for Symbolic Logic. About five hundred persons were registered, including the following two hundred and eighty-one members of the Association:

V. W. Adkisson, L. W. Akers, A. A. Albert, H. W. Alexander, C. B. Allendoerfer, R. D. Anderson, P. M. Anselone, Beulah Armstrong, Miriam C. Ayer, W. G. Bade, B. J. Ball, I. A. Barnett, M. A. Basoco, P. T. Bateman, J. D. Baum, P. R. Beesack, E. G. Begle, R. H. Bing, A. H. Black, H. D. Block, Brother J. A. Boose, R. D. Boswell, Jr., C. A. Bridger, R. W. Brink, R. H. Bruck, H. D. Brunk, P. B. Burcham, R. S. Burlington, Jewell H. Bushey, R. K. Butz, S. S. Cairns, H. H. Campaigne, K. H. Carlson, J. O. Chellevoid, Y. W. Chen, Elsie T. Church, R. V. Churchill, D. E. Coffey, L. A. Colquitt, Brother Damian Connelly, Byron Cosby, W. A. Couch, N. A. Court, Mary L. Cummings, J. C. Currie, Robert Davies, A. H. Diamond, Jim Douglas, Jr., T. L. Downs, W. C. Doyle, Nelson Dunford, W. L. Duren, William H. Durfee, J. M. Earl, J. C. Eaves, Samuel Eilenberg, R. E. Ekstrom, H. Margaret Elliott, J. G. Elliott, D. O. Ellis, Bernard Epstein, D. H. Erkieltian, Jr., H. J. Ettliger, G. M. Ewing, W. H. Fagerstrom, F. D. Faulkner, H. M. Feldman, William Feller, W. T. Fishback, Harley Flanders, A. J. Flynn, W. C. Foreman, G. E. Forsythe, J. S. Frame, C. V. Fronabarger, H. M. Gehman, J. J. Gergen, Reverend F. J. Gerst, A. M. Gleason, H. E. Goheen, V. D. Gokhale, Michael Goldberg, W. A. Golomski, Reverend H. H. Gottbrath, S. H. Gould, R. F. Graesser, W. W. Graham, L. M. Graves, F. L. Griffin, J. S. Griffin, Jr., H. C. Griffith, H. T. Guard, D. L. Guy, Franklin Haimo, Edwin Halfar, A. E. Hallerberg, P. C. Hammer, H. W. Handsfield, J. R. Hanna, Frank Harary, H. G. Harp, Nola A. Haynes, P. W. Healy, I. L. Hebel, G. A. Hedlund, C. E. Heilman, Melvin Henriksen, I. N. Herstein, Fritz Herzog, Edwin Hewitt, T. H. Hildebrandt, J. J. L. Hinrichsen, F. E. Hohn, D. L. Holl, L. Aileen Hostinsky, Aughtum S. Howard, Reverend J. A. Hratz, S. T. Hu, G. B. Huff, Ralph Hull, M. Gweneth Humphreys, M. H. Ingraham, Fritz John, H. J. Johnson, L. W. Johnson, B. W. Jones, F. B. Jones, P. S. Jones, W. C. Kalinowski, Irving Kaplansky, J. L. Kelley, M. R. Kenner, J. R. F. Kent, D. E. Kibbey, V. L. Klee, Jr., S. C. Kleene, George Klein, L. A. Knowler, J. C. Koken, R. L. Lambert, C. E. Langenhop, R. E. Langer, Paolo Lanzano, Leo Lapidus, H. D. Larsen, W. G. Leavitt, A. S. Lee, Joseph Lehner, R. A. Leibler, Walter Leighton, B. L. Lercher, W. J. LeVeque, D. R. Lintvedt, H. D. Lipsich, Lee Lorch, T. A. Love, L. L. Lowenstein, C. I. Lubin, G. R. MacLane, Saunders MacLane, H. M. MacNeille, J. F. Manogue, C. G. Maple, Morris Marden, R. H. Marquis, J. M. Marr, Ella Marth, W. S. Massey, W. C. McDaniel, E. J. McShane, G. M. Merriman, R. J. Michel, R. R. Middlemiss, J. S. Minas, Nellie P. Miser, W. L. Miser, T. W. Moore, W. L. Moore, Thirza A. Mossman, H. T. Muhly, Zeev Nehari, Albert Newhouse, C. V. Newsom, T. A. Newton, C. O. Oakley, J. H. Oppenheim, Morris Ostrofsky, T. P. Palmer, S. T. Parker, G. W. Patterson, H. P. Pettit, C. F. Pinzka, C. G. Pitner, J. C. Polley, G. B. Price, J. E. Pryor, O. J. Ramler, J. F. Randolph, L. T. Ratner, L. M. Reagan, Mina Rees, R. F. Reeves, Francis Regan, Haim Reingold, J. G. Renno, P. R. Rider, J. K. Riess, J. D. Riley, R. F. Rinehart, L. A. Ringenberg, L. V. Robinson, L. D. Rodabaugh, I. H. Rose, Alex Rosenberg, P. C. Rosenbloom, J. B. Rosser, W. C. Royster, Charles Saltzer, Hans Samelson, R. G. Sanger, R. D. Schafer, Edith R. Schneckenburger, J. A. Schumaker, Nathan Schwid, L. L. Scott, W. R. Scott, R. R. Seeper, Jr., D. M. Seward, M. Anice Seybold, Harold Shniad, Marlow Sholander, Edward Silverman, Annette Sinclair, Sister M. Leonarda, Sister M. Pachomia, Sister Mary Teresine, Sister Presentation, Sister Rose Margaret, Sister Seraphim, M. F. Smiley, James C. Smith, R. L. Snider, W. S. Snyder, C. P. Sousley, E. J. Specht, R. L. Sternberg, A. G. Swanson, Gabor Szego, C. T. Taam, T. T. Tanimoto, Mildred E. Taylor, H. P. Thielman, R. H. Thompson, A. W. Tucker, J. L. Ullman, W. R. Utz,

B. O. Van Hook, G. B. Van Schaack, H. E. Vaughan, Reverend Dunstan Velesz, T. L. Wade, G. L. Walker, R. J. Walker, H. S. Wall, C. Y. Wang, J. A. Ward, L. E. Ward, Jr., A. M. Wedel, J. V. Wehausen, L. M. Weiner, Brother Bernard Alfred Welch, F. J. Weyl, P. M. Whitman, G. T. Whyburn, R. L. Wilder, W. L. Williams, J. L. Wilson, R. H. Wilson, Jr., G. N. Wollan, Alice K. Wright, J. W. T. Youngs.

Sessions of the Association were held on Tuesday morning and afternoon in Louderman Auditorium of Washington University. Vice-President Jewell H. Bushey presided at the morning session and President Saunders MacLane at the afternoon session. The Program Committee for the meeting consisted of Walter Leighton, Chairman, V. W. Adkisson, and M. K. Fort, Jr.

FIRST SESSION OF THE ASSOCIATION

"The Mathematical Work of Jacques Hadamard," by Professor Szolem Mandelbrojt, Rice Institute and College de France.

"Recent Applications of Convex Functions," by Professor J. W. Green, University of California at Los Angeles. (Presented by title due to illness of Professor Green.)

"The Scientific Research Program of the Office of Ordnance Research," by Dr. A. H. Diamond, Office of Ordnance Research, U. S. Army.

"Mathematics and the Educational Octopus," by Professor S. S. Cairns, University of Illinois.

SECOND SESSION OF THE ASSOCIATION

Symposium: The Teaching of Service Courses in Mathematics.

"Engineering Mathematics at Mid-Century," by Professor S. H. Caldwell, Electrical Engineering, Massachusetts Institute of Technology.

"What Shall We Teach in Service Courses?," by Professor F. E. Hohn, University of Illinois.

"Mathematics for Physicists, Pure or Applied?," by Professor J. W. Buchta, Physics, University of Minnesota.

"Abstract Mathematics for Scientists," by Professor W. L. Duren, Jr., Tulane University and National Science Foundation.

MEETING OF THE BOARD OF GOVERNORS

The Board met on Monday morning in the Lounge of Brown Hall, with sixteen members present. Among the more important items of business transacted were the following:

Professor W. L. Duren, Jr., of Tulane University was elected Second Vice-President for 1953-1954.

Approval was given to the appointment by President MacLane of the following Nominating Committee for 1953: W. T. Martin, Chairman, J. C. Brixey, and G. K. Kalisch.

The Board voted to establish a standing committee on the Earle Raymond Hedrick Lectures and to discharge with thanks the Committee on Expository

Lectures (G. B. Price, Chairman, G. C. Evans, and J. C. Oxtoby) which had arranged for the first two series of Hedrick Lectures. It was also voted to approve the invitation to Professor P. R. Halmos of the University of Chicago to deliver the second series of Hedrick Lectures at the 1953 Summer Meeting on the subject of Axiomatic Set Theory.

The Thirty-fourth Summer Meeting of the Association will be held on August 31 and September 1, 1953, at Queen's University and the Royal Military College, Kingston, Ontario, Canada.

The Board voted to approve the appointment by the President of a committee to study the possible establishment of an employment bureau, of a joint committee (with the National Council of Teachers of Mathematics) on teacher education in mathematics, of a committee on the Undergraduate Mathematical Program, and of a joint committee (with the National Council of Teachers of Mathematics) to explore the possibility of publishing a mathematical journal for high school students. The President was also authorized to appoint two representatives on the United States sub-committee of the International Mathematical Instruction Committee.

ANNUAL BUSINESS MEETING OF THE ASSOCIATION

The annual business meeting of the Association was held on Tuesday, December 30, 1952 at 2:00 P.M. in Louderman Auditorium of Washington University, Saint Louis, Missouri. President Saunders MacLane presided.

The Secretary announced the results of the balloting for officers, in which 1222 votes were cast. E. J. McShane of the University of Virginia was elected President for the two-year term 1953-1954. S. S. Cairns of the University of Illinois and A. W. Tucker of Princeton University were elected Governors for the three-year term 1953-1955.

MEETING OF SECTION OFFICERS

A meeting of Section Officers of the Association was held on Sunday evening in Room 107 of Brown Hall. President MacLane presided. Thirty-five persons were present representing twenty-one of the twenty-five sections of the Association. The following matters were discussed: problems pertaining to programs of section meetings, special activities of sections, such as contests for high school students, traveling lectureships, study of curriculum and teaching of secondary school mathematics, and collection of problem material from industry. Several suggestions for future activities were submitted. The method of electing sectional governors was described.

MEETINGS OF OTHER ORGANIZATIONS

The sessions of the American Mathematical Society began on Saturday, December 27, and continued through Monday, December 29. The Josiah Willard Gibbs Lecture was delivered by Professor Marston Morse of the Institute for Advanced Study on "Topology and Geometrical Analysis." The invited ad-

dress by Professor A. M. Gleason of Harvard University on "Natural Co-ordinate Systems" was awarded the Newcomb Cleveland Prize of one thousand dollars by a committee of the American Association for the Advancement of Science as a "noteworthy paper representing an outstanding contribution to science." Professor John von Neumann of the Institute for Advanced Study gave his Retiring Presidential Address on the topic: "A Logical Theory of Automata."

Section A of the American Association for the Advancement of Science held a single session on Monday at which Professor R. L. Wilder of the University of Michigan delivered his Retiring Vice-Presidential Address on "The Origin and Growth of Mathematical Concepts."

The Association for Symbolic Logic held its sessions on Monday morning and afternoon.

ARRANGEMENTS, ENTERTAINMENT AND RECREATION

The Committee on Arrangements for the meeting consisted of R. R. Middlemiss, Chairman, T. L. Downs, H. Margaret Elliott, H. M. Gehman, Francis Regan, Marlow Sholander, and J. W. T. Youngs.

Registration headquarters was in the entry hall of the Women's Building of Washington University. Those attending the meetings were housed in hotels, including the Chase, Melbourne, Roosevelt and Sheraton Hotels. Meals were served in the cafeteria of Lee Hall.

Washington University entertained with coffee on Saturday evening in the Women's Building and tea was served on Sunday, Monday and Tuesday afternoons. A sightseeing tour of Saint Louis was held on Monday morning. An Opera Workshop Performance was presented on Sunday evening in the Auditorium of Brown Hall by the Music Department of Washington University.

A dinner for the members of the mathematical organizations and their guests was held on Monday at 6:30 P.M. in the Gymnasium of the Women's Building. Professor T. L. Downs of Washington University acted as toastmaster. Vice-Chancellor L. J. Buchan of Washington University brought greetings from the University and spoke about the scientific development of the University during the past century. Professor G. T. Whyburn, President-elect of the American Mathematical Society, spoke of the common interest of the organizations represented at the meeting in the advancement of mathematics. Professor L. M. Graves, Vice-President of Section A of the A.A.A.S., asked for the support of that organization. Professor C. B. Allendoerfer, representing the Mathematical Association of America as its Editor-in-chief, related the plans of the Association for carrying out its primary job of improving undergraduate instruction in mathematics. President J. B. Rosser of the Association for Symbolic Logic told of the successful meeting of that organization.

A motion prepared by Professor J. S. Frame was adopted by a rising vote of those present, expressing sincere thanks to the officers of Washington University for placing at our disposal the excellent facilities of the University and expressing

deep appreciation to the members of the local committee on arrangements whose cooperative efforts had made this meeting so pleasant and congenial.

HARRY M. GEHMAN, *Secretary-Treasurer*

THE OCTOBER MEETING OF THE OKLAHOMA SECTION

The annual meeting of the Oklahoma Section of the Mathematical Association of America was held October 31, 1952 at Oklahoma City University, Oklahoma City, Oklahoma.

There were sixty-two in attendance, including the following thirty-seven members of the Association:

E. F. Allen, R. V. Andree, Arthur Bernhart, J. C. Bradford, J. C. Brixey, R. L. Caskey, N. A. Court, R. B. Deal, D. C. Dragoo, N. A. Eisen, I. E. Glover, A. A. Grau, E. V. Greer, L. A. Guest, O. H. Hamilton, J. O. Hassler, E. E. Heimann, J. E. Hoffman, W. N. Huff, P. W. M. John, L. W. Johnson, J. T. Krattiger, J. E. LaFon, Gene Levy, H. W. Linscheid, Dora McFarland, G. E. Meador, Mrs. Dorothea Meagher, R. R. Murphy, C. M. Pirrong, J. W. Sehestedt, H. W. Smith, C. E. Springer, Vivian Spurgeon, R. W. Veatch, G. R. Vick, J. H. Zant.

The following officers were elected for the coming year: Chairman, Professor W. N. Huff, University of Oklahoma; Vice-Chairman, Professor I. E. Glover, Langston University; Secretary-Treasurer, Professor R. V. Andree, University of Oklahoma.

The following program was presented:

1. *Analytic functions with an irregular linear measurable set of singular points*, by Professor I. E. Glover, Langston University.

This paper will be published in the *Canadian Journal of Mathematics*.

2. *A mapping of the n -dimensional euclidean space on plane*, by Mr. A. Zirakzadeh, Oklahoma Agricultural and Mechanical College, introduced by the Chairman.

A set of n points x_1, x_2, \dots, x_n lying on n coplanar parallel lines X_1, X_2, \dots, X_n respectively, is called a point in the n -dimensional parallel space P^n . By a suitable choice of origins on these n parallel lines, it is possible to establish a one-to-one correspondence between points $P_e(a_1, \dots, a_n)$ of an n -dimensional euclidean space E^n and points (X_1, \dots, X_n) of space P^n .

Two points $P_e(a_1, \dots, a_n)$ and $P_e(b_1, \dots, b_n)$ of the space E^n map into (X_1, \dots, X_n) and (Y_1, \dots, Y_n) of space P^n . The $n-1$ lines $X_i X_{i+1}$ meet the $n-1$ lines $Y_i Y_{i+1}$ in $n-1$ points $x_{i-1, i}$. This set of $n-1$ points is the image of the line joining $P_e(a_1, \dots, a_n)$ and $P_e(b_1, \dots, b_n)$ in the space E^n . Any other point $P_e(c_1, \dots, c_n)$ of this line maps into a point (Z_1, \dots, Z_n) such that the line $Z_i Z_{i+1}$ passes through the point $x_{i-1, i}$.

This mapping is one-to-one and preserves incidence and parallelism. In case $n=2$ it reduces to a special form of duality in plane.

It is also possible to map planes and hyperplanes since they can be defined in terms of points and lines.

This mapping makes it possible to prove the theorems concerning incidence in plane or higher spaces with the use of only the axioms of the plane euclidean geometry. It also gives easier solutions to many of the problems concerning point and line.

An application of this mapping leads to a new graphical method for the solution of a system of 4 non-homogeneous linear equations in 4 unknowns.