April Meeting of the Metropolitan New York Section

The American Mathematical Monthly, Vol. 55, No. 1 (Jan., 1948), 49-52.

Stable URL:
http://links.jstor.org/sici?sici=0002-9890%28194801%2955%3A1%3C49%3AAMOTMN%3E2.0.CO%3B2-Z

The American Mathematical Monthly is currently published by Mathematical Association of America.

Professor L. R. Ford of the Illinois Institute of Technology was visiting professor at the University of Utah during June and July of the 1947 Centennial.

Professor Mario O. Gonzalez of Havana University has been appointed visiting professor at the University of Alabama.

Associate Professor Cornelius Gouwens of Iowa State College has been promoted to a professorship.

Assistant Professor Albert Grau of the University of Kentucky has been appointed to an associate professorship at the University of Alabama.

Professor L. M. Graves of the University of Chicago has been appointed to a visiting professorship at Indiana University for the current academic year.

William Gustin of the University of California at Los Angeles has been appointed to an assistant professorship at Indiana University.

D. W. Hall of the University of Maryland has been promoted to a professorship.

Dr. N. A. Hall of United Aircraft Corporation has been appointed to a professorship of thermodynamics at the University of Minnesota.

Dr. O. G. Harrold of Princeton University has been appointed to a professorship at the University of Tennessee.

THE MATHEMATICAL ASSOCIATION OF AMERICA

Official Reports and Communications

APRIL MEETING OF THE METROPOLITAN NEW YORK SECTION

The sixth annual meeting of the Metropolitan New York Section of the Mathematical Association of America was held at Pratt Institute, Brooklyn, N. Y., on Saturday, April 19, 1947.

There were one hundred and seventy-two present, including the following sixty-eight members of the Association: R. G. Archibald, L. A. Aroian, Aaron Bakst, Brother Bernard Alfred, Samuel Borofsky, C. B. Boyer, Benjamin Braverman, Paul Brock, A. B. Brown, Hobart Bushey, Jewell Hughes Bushey, Mannis Charosh, Ruth T. Coleman, T. F. Cope, W. H. H. Cowles, Constance H. Davis, D. R. Davis, J. N. Eastham, W. H. Fagerstrom, J. M. Feld, Edward Fleisher, R. M. Foster K. G. Fuller, Irving Gerst, B. P. Gill, Harriet M. Griffin, George Grossman, Frank Hawthorne, G. C. Helme, Morris Hertzig, E. Marie Hove, L. C. Hutchinson, Joseph Jablonower, H. S. Kieval, Helen L. Kutman, Nathan Lazar, C. H. Lehmann, A. A. LePori, M. E. Levenson, S. B. Littauer, H. F. MacNeish, May H. Maria, F. H. Miller, A. J. Mortola, M. A. Nordgaard, P. B. Norman, L. F. Ollmann, Max Peters, Walter Prenowitz, J. K. Reckzeh, Rose Roll, G. J. Ross, S. G. Roth, John Salerno, Charles Salkind, A. A. Schwartz, Aaron Shapiro, James Singer, J. E. Thompson, H. E. Wahlert, Etta A. Waite, Israel Wallach, Alan Wayne, Margaret C. Weeber, D. E. Whitford, John Williamson, J. M. Wolfe, H. J. Zimmerberg.

Professor W. H. H. Cowles and Mr. Morris Hertzig, Vice-Chairmen of the Section, presided at the morning and afternoon sessions respectively. At the opening of the morning session Dean Nelson S. Hibshman of the School of Engineering welcomed the Section to Pratt Institute. At the opening of the afternoon session a brief business meeting was held, with Professor H. E. Wahlert, Chairman of the Section, presiding. The following officers were elected for the coming year: Chairman, W. H. H. Cowles, Pratt Institute; Vice-Chairmen, Brother Bernard Alfred, Manhattan College, and George J. Ross, Erasmus Hall High School; Secretary, James Singer, Brooklyn College; Treasurer, Aaron Shapiro, Midwood High School. A report was presented by the Committee on Awards and Prizes. It was moved, seconded and carried without opposition that the Committee be continued for another year with a view to presenting its recommendations in writing, subject to the approval of the Executive Committee, with the call of the next annual meeting of the Section. At the close of the afternoon session all those present were invited to remain for tea at the Women's Club as guests of The Faculty Wives' Club of Pratt Institute.

The following papers were presented at the morning and afternoon sessions:

1. *The mathematics of magic squares*, by Harry Sitomer, New Utrecht High School, introduced by the Secretary.

The first n^2 positive integers can be written uniquely in the form $N=na+b$ where $a=0, 1, 2, \cdots, n-1$, and $b=1, 2, 3, \cdots, n$. Thus a magic square can be decomposed into two auxiliary squares, the first (called an A square) containing the a's, the second (called a B square) containing the b's; and corresponding a's and b's occupy those similarly-placed cells occupied by N. Any line in A (row, column, or diagonal) has a sum L_A, and a line in B has a sum L_B. Then $nL_A+L_B=n(n^2+1)/2$, the sum of each line in a magic square. Thus the problem of constructing magic squares is resolved through the construction of A squares and conjugate B squares. The simplest A square is regular, that is, $L_A=n(n-1)/2$. In regular B squares, $L_B=n(n+1)/2$. Often an A square can be transformed into a conjugate B square by adding one to each a and rotating the square 90°. This method of constructing magic squares simplifies the construction, permits a census of a set of squares, and leads naturally to methods for constructing magic cubes, hypercubes, and so forth.

2. *Elementary geometry as an algebraic system*, by Professor Walter Prenowitz, Brooklyn College.

An ordered linear geometry (for example, euclidean, ordered affine, or hyperbolic geometry) can be converted into an algebraic system by defining (1) $a+b$ for distinct points a, b to be the set of points between a and b (segment ab), and (2) $a+a$ to be a. The resulting system is a special type of multigroup or generalized group with many-valued composition. The difference $a-b$ of points a, b, defined as the set of points x for which $b+x$ contains a, is the prolongation of segment ab beyond a, provided $a\neq b$. A formalism is developed which enables one to derive geometrical properties algebraically. The fundamental classes of geometrical figures in non-metrical geometry, (1) convex sets, (2) linear spaces (points, lines, planes, $\cdots$), (3) half-spaces (rays, half-planes, $\cdots$) can be formulated respectively as semi-groups (subsets closed under $+$), subgroups (subsets closed under $+$, $-$) and residue classes of congruence relations.

3. *Mathematics in psychology*, by Dr. Lloyd Henry Beck, Department of Psychology, Yale University, introduced by the Chairman.

The design, execution, and analysis of psychological experiments involve the use of mathematics. The design requires hypothesizing correspondences between psychological elements and mathematical elements, and between psychological operations and mathematical operations. The execution obtains data relative to the hypothesis and requires measurement of the psychological elements. This measurement ranges from a statement of presence or absence at one extreme to quantification at the other. The execution frequently requires apparatus designed on the basis of mathematics in other sciences. The analysis of the data requires at a minimum description of association between variables, that may be described graphically or by an arbitrary function. In addition the design correspondences may enable one to deduce the experimentally-observed association at three levels: (1) the form of the function is given theoretically but the constants have to be determined by the data; (2) the form and some of the constants are given theoretically, the others being determined from the data; (3) both the form and the constants are given theoretically.

4. *What statistics, if any, in a required general mathematics course? Report of an attack on this problem at Queens College*, by Professor T. F. Cope, Queens College.

As a result of about eight years experience with a required mathematics course at Queens College, the speaker reported that the subject of statistics was of intrinsic interest to students in the arts and the social sciences, and it could, in his opinion, be used to great advantage by departments of mathematics in teaching mathematics to these students. He discussed in some detail the topics in statistics that are included in the work of the second term of a required one-year course at Queens College, and the methods used in presenting these topics.

5. *The tentative secondary school syllabus in mathematics for grades 7 through 12*, by Joseph Orleans, George Washington High School, introduced by the Secretary.

The tentative course of study in mathematics for grades 7 to 12, recently prepared by a committee for the New York State Department of Education under the chairmanship of the State Supervisor of Mathematics, must be considered in three parts: (1) the work of the seventh, eighth, and ninth years, (2) the geometry of the tenth year, and (3) the content of the eleventh and twelfth years. The work listed for the seventh, eighth, and ninth years resembles in general the content of what has come to be regarded as the mathematics of the Junior High School. It may involve a change in sequence of topics and shifting of emphasis; but it arouses no serious differences of opinion. The work of the eleventh and twelfth years likewise consists of the present half-year courses in intermediate algebra, trigonometry, advanced algebra, and solid geometry, with topics rearranged into two comprehensive one-year courses, with some deletions and some additions. It is the tenth year that may be the basis for serious differences of opinion among teachers of mathematics. In presenting the year of plane geometry, the committee proposes a new emphasis on the importance of definitions and of assumptions in mathematics and in non-geometric situations. The new course also calls for keeping alive throughout the tenth year the arithmetic and algebraic skills and concepts learned in previous years, and it includes the introduction of a short unit of coördinate geometry and a new emphasis on types of thinking in geometric and non-geometric situations.

6. *A report on high school mathematical preparation*, by Professor F. H. Miller, The Cooper Union School of Engineering.

The speaker reported on the results of a questionnaire, prepared by Professor S. G. Roth and himself, and circulated among fifty-seven high schools in the metropolitan New York area. Questions of varying degrees of difficulty, arranged under twelve headings on topics in algebra and

trigonometry, were listed. Chairmen of high school mathematics departments were asked to indicate whether these items were considered in elementary, intermediate, or advanced algebra courses, in trigonometry courses, or not at all. Results of the questionnaire, obtained from twenty-eight high schools, were presented and discussed by the speaker. The full questionnaire, distribution of replies received, and conclusions drawn from the results will appear in an early issue of the *Journal of Engineering Education*. The hope was expressed that similar projects will be undertaken in other regions so that college mathematics teachers may better determine the degree of preparation of their entering students.

C. B. BOYER, *Secretary*

APRIL MEETING OF THE KANSAS SECTION

The thirty-second annual meeting of the Kansas Section of theMathematical Association of America was held at the University of Wichita, in Wichita, on Saturday, April 19, 1947. Morning and afternoon sessions were held. Professor C. A. Reagan presided at these sessions. The morning session was a joint meeting with the Kansas Association of Teachers of Mathematics.

The attendance was one hundred fifty-seven including the following thirty-two members of the Association: Frances M. Breneman, Virginia L. Chatelain, L. E. Curfman, Paul Eberhart, H. P. Fawcett, W. H. Garrett, Edison Greer, J. R. Hanna, A. J. Hoare, W. C. Janes, L. E. Laird, C. F. Lewis, H. W. Linscheid, Anna Marm, Thirza Mossman, O. J. Peterson, P. S. Pretz, O. M. Rasmussen, C. B. Read, C. A. Reagan, L. M. Reagan, E. S. Robbins, R. G. Sanger, G. W. Smith, R. G. Smith, W. T. Stratton, Sister M. Helen Sullivan, C. B. Tucker, Gilbert Ulmer, E. B. Wedel, A. E. White, Ferna E. Wrestler.

At the business meeting the following officers were elected for next year: Chairman, Sister M. Helen Sullivan, Mt. St. Scholastica College; Vice-Chairman, R. G. Sanger, Kansas State College; Secretary-Treasurer, Anna Marm, Bethany College.

The following papers were presented:

1. *The development of teachers of mathematics*, by Professor Harold P. Fawcett, Ohio State University.

2. *Development of schools of mathematics*, by Professor R. G. Sanger, Kansas State College.

The development of certain schools of mathematics, such as the Pythagorean School, the one at the University of Paris, and the one at Göttingen, was considered. In addition, an attempt was made to ascertain the cultural, political, and social conditions amidst which mathematics might flourish.

3. *On non-euclidean planes*, by S. G. Kneale, University of Kansas.

In the euclidean plane, statements involving the notion of length follow from the three axioms to which the length is subjected. Thus, we arrive at the notion of a non-euclidean plane with a non-euclidean distance, where the last is defined by any numerically valued function of couples of points which satisfies these axioms. Many elementary configurations will change their shape in a geometry with a different definition for distance. Some radical and interesting changes will occur if the distance between two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$ is defined as the greater of two numbers $|x_2-x_1|$ and $|y_2-y_1|$. The perpendicular bisector (that is the locus of points equidistant from two fixed points) is considered in this connection. In the plane with the distance defined as