circles consisting of points the ratio of whose distances from the points $z=0$ and $z=m$ was constant, or between two circles consisting of points at which the segment from $z=0$ to $z=m$ subtended a constant angle. The roots of $C(z)=0$ were then found to lie in a region obtained by expanding, in a suitable manner, the region containing the roots of $A(z)=0$.

2. *The characteristics and applications of photo-cells*, by Walther Richter, American Institute of Electrical Engineers, introduced by Professor R. H. Bardell.

3. *Mathematics training for the armed forces now in progress at the University of Wisconsin*, by Professor R. E. Langer, University of Wisconsin.

4. *Mathematics in the signal corps*, by Haym Kruglak, Milwaukee Vocational School, introduced by Professor H. P. Evans.

5. *Applications of mathematics to industry*, by J. A. Deubel, Perfex Corporation, introduced by Professor Ethelwynn R. Beckwith.

P. L. TRUMP, *Secretary*

THE SECOND ANNUAL MEETING OF THE METROPOLITAN NEW YORK SECTION

The second annual meeting of the Metropolitan New York Section of the Mathematical Association of America was held at Brooklyn College, Brooklyn, New York, on Saturday, May 8, 1943. Professor F. H. Miller presided at the morning session. At the afternoon session, Professor H. F. Mac Neish, Chairman of the Section, acted as general chairman, and Dr. Edna E. Kramer-Lassar, Vice-Chairman of the Section, acted as program chairman.

The attendance was about one hundred and twenty-three, including the following fifty-eight members of the Association: R. G. Archibald, L. A. Aroian, A. V. Baez, Brother Bernard Alfred (Welch), Frank Boehm, C. B. Boyer, A. B. Brown, Jewell Hughes Bushey, J. H. Bushey, Louise M. Comer, T. F. Cope, W. H. H. Cowles, Jesse Douglas, W. H. Fagerstrom, J. M. Feld, Edward Fleisher, R. M. Foster, Etta Greenberg, Harriet M. Griffin, C. C. Grove, R. A. Harrison, Solomon Hurwitz, R. A. Johnson, Sidney Kaplan, Herman Karnow, E. H. Koch, Jr., Edna E. Kramer-Lassar, Nathan Lazar, C. H. Lehmann, Herman Levy, C. C. MacDuffee, H. F. Mac Neish, P. H. Mc Grath, May Hickey Maria, A. E. Meder, Jr., Joseph Milkman, F. H. Miller, E. C. Molina, L. T. Moore, M. A. Nordgaard, Max Peters, Mina S. Rees, Moses Richardson, S. G. Roth, Arthur Sard, S. A. Schelkunoff, Edna C. Schnefel, James Singer, E. R. Stabler, J. E. Thompson, H. E. Wahlert, Israel Wallach, Alan Wayne, John Williamson, H. P. Wirth, Jack Wolfe, Margaret Y. Woodbridge, R. C. Yates.

At the beginning of the afternoon session President Harry D. Gideonse of Brooklyn College welcomed the Section to Brooklyn College. At the close of the afternoon session the following officers were elected for the coming year: Chair-

man, C. C. MacDuffee, Hunter College; Vice-Chairman, Max Peters, New Utrecht High School; Secretary, H. E. Wahlert, New York University; Treasurer, F. H. Miller, Cooper Union

The following papers were presented:

1. *Mathematics in navigation*, by Lieutenant Commander Delwyn Hyatt, USN, U. S. Merchant Marine Academy, introduced by Professor Mac Neish.

It was pointed out in this address that problems in navigation involve a considerable amount of mathematics up to and including spherical trigonometry, but that the actual practice of navigation has been reduced to the use of tables so that the navigator needs only the ability to copy numbers correctly from the tables, and to perform additions and subtractions. It was stated that the armed forces have learned that the average youth inducted in recent years has not been able to perform the simple mathematical operations required in practice.

2. *Some applications of mathematical statistics in the war effort*, by Professor Harold Hotelling, Columbia University, introduced by Dr. Kramer-Lassar.

The speaker described a number of war time applications of mathematical statistics. Among the applications mentioned were the following: determination of probabilities of hits and associated probabilities, quality control of manufactured articles by sampling inspection, cryptography, personnel placement and psychological researches, meteorology, medical and agricultural research, statistical designs in physical, chemical, and engineering research, and economic and administrative statistics. It was predicted that those who make fundamental studies of mathematical statistics with a view of its immediate usefulness will be able to utilize their knowledge after the war.

3. *Secret communications*, by Major D. D. Millikin, New York University, introduced by Mr. Wahlert.

Major Millikin gave a loosely chronological discussion of codes and ciphers, chosen for their human interest or humor, but which illustrated the devices most frequently employed for secret communications. Included in the presentation were many examples of historic interest, with special emphasis on the methods used during the period from the Revolutionary War through World War I. Applications of cryptography in the fields of literature, recreation, business, and sports were also described.

4. *Pure mathematics as a war course*, by Professor F. J. Murray, Columbia University, introduced by Professor Jewell Hughes Bushey.

The speaker called attention to the fact that our civilization is based upon techniques which are fundamentally mathematical. It was remarked that the content and sequential arrangement of the standard mathematics courses has been developed through many centuries for the purpose of solving technical problems, and in order to obtain a precise description and understanding of natural phenomena. Emphasis was placed upon the thesis that to cut or weaken the standard mathematics curriculum would be a very harmful procedure.

5. *Should the present practical trend in secondary mathematics be extended to the college mathematics curriculum?* by Dr. Nathan Lazar, Midwood High School.

6. *Should the related mathematics course be the required mathematics course for all ninth year pupils?* by Max Peters, New Utrecht High School.

In February, 1943, a special one-year course in related mathematics was introduced in the New York City high schools to give non-academic students the essential mathematics needed for success in pre-induction and post-induction training. The course included the following topics: a review of arithmetic with emphasis on applied problems; the simple properties of plane and solid geometric forms; the use of instruments such as the protractor, micrometer, vernier, and the slide rule; a unit of algebra including the equation, the formula, ratio and proportion, variation, and graphs; indirect measurement, including scale drawing, the Pythagorean theorem, and trigonometry of the right triangle; a unit on vectors. The speaker expressed the opinion that such a course with its emphasis on applications gives the student a much richer insight into the role that mathematics plays in our civilization, and permits greater flexibility in adapting the ninth year students, both academic and non-academic.

H. E. WAHLERT, *Secretary*

MEETINGS OF THE ASSOCIATION AND ITS SECTIONS

The following is a list of the Sections of the Association with dates of future meetings so far as they have been reported to the Secretary.

ALLEGHENY MOUNTAIN, Pittsburgh, Pa., April, 1944
ILLINOIS
IOWA
KANSAS
KENTUCKY
LOUISIANA-MISSISSIPPI, Ruston, La., 1943
MARYLAND-DISTRICT OF COLUMBIA-VIRGINIA
METROPOLITAN NEW YORK, New York, April 22, 1944
MICHIGAN
MINNESOTA
MISSOURI
NEBRASKA
NORTHERN CALIFORNIA, Berkeley, Jan. 29, 1944
OHIO, Columbus, April 6, 1944
OKLAHOMA
PHILADELPHIA, Philadelphia, November, 1944
ROCKY MOUNTAIN
SOUTHEASTERN
SOUTHERN CALIFORNIA, Los Angeles, MARCH 11, 1944
SOUTHWESTERN
TEXAS
UPPER NEW YORK STATE
WISCONSIN, Milwaukee, May, 1944