to-one correspondence between finite projective geometries with $n+1$ points on a line and complete sets of $(n-1)$ mutually orthogonal n-rowed latin squares.

2. *A brief survey of meteorology*, by W. R. Jarmain, introduced by the Secretary.

The speaker pointed out that the development of meteorology as applied to weather forecasting has been slow, due to the fact that it required some quite recently invented scientific devices. Not until the twentieth century was the subject on a mathematical basis, and even today, forecasting is still very much an art as well as a science. The importance of Bjerknes' polar front theory in making day to day predictions was emphasized. Five day forecasting is still in its infancy, and considerable research remains to be done in this field. Extra-terrestrial influences on the earth's weather were deemed rather unimportant. The speaker indicated that meteorology has made great strides in recent years, and has a bright future.

3. *Social implications of atomic energy*, by Professor Elda Anderson, Milwaukee Downer College, introduced by Professor Ethelwynn R. Beckwith.

At the afternoon session reports were given by members of the educational committee referred to above, indicating some aspects of the status of mathematical education in Wisconsin and activities of the National Committee for the Co-ordination of Studies in Mathematical Education. There followed a discussion in which there was general and enthusiastic participation. It was agreed that the Wisconsin Section should proceed to organize and plan for the purpose of cooperating in all ways feasible in a constructive effort to meet the problems of mathematical education in Wisconsin's secondary schools.

PAUL L. TRUMP, *Secretary*

ANNUAL MEETING OF THE METROPOLITAN NEW YORK SECTION

The fifth annual meeting of the Metropolitan New York Section of the Mathematical Association of America was held at The Cooper Union, Cooper Square, New York, N. Y., on Saturday, May 4, 1946. Professor H. E. Wahlert, Vice-Chairman of the Section, presided at the morning session; and Professor H. E. Miller, Chairman of the Section, presided at the afternoon session.

There were ninety present, including the following fifty-four members of the Association: R. G. Archibald, Brother Bernard Alfred (Welch), C. B. Boyer, A. D. Bradley, Benjamin Braverman, A. B. Brown, Jewell Hughes Bushey, H. R. Cooley, W. H. H. Cowles, W. H. Fagerstrom, Edward Fleisher, R. M. Foster, Harriet M. Griffin, J. I. Griffin, George Grossman, Frank Hawthorne, R. V. Heath, Morris Hertzig, J. H. Hlavaty, Solomon Hurwitz, L. C. Hutchinson, F. W. John, R. A. Johnson, Aida Kalish, Herman Karnow, Edward Kasner, L. S. Kennison, E. R. Kiely, Nathan Lazar, C. H. Lehmann, Emanuel Levine, H. F. MacNeish, John Mandel, D. May Hickey Maria, Joseph Milkman, F. H. Miller, E. C. Molina, P. B. Norman, L. F. Ollmann, Water Prenowitz, Edward

Rayher, W. D. Reeve, S. G. Roth, Leila Rubashkin, Charles Salkind, Aaron Shapiro, Lao G. Simons, James Singer, E. R. Stabler, H. E. Wahlert, Israel Wallach, Alan Wayne, V. H. Wells, R. C. Yates.

At the opening of the morning session Dean George F. Bateman welcomed the Section to The Cooper Union. At the opening of the afternoon session a brief business meeting was held at which the following officers were elected for the coming year: Chairman, H. E. Wahlert, New York University; Vice-Chairmen, W. H. H. Cowles, Pratt Institute, and Morris Hertzig, Forest Hills High School; Secretary, C. B. Boyer, Brooklyn College; Treasurer, Aaron Shapiro, Midwood High School.

The program consisted of the following papers:

1. *Cartesian geometry from Fermat to Lacroix*, by Professor C. B. Boyer, Brooklyn College.

The basic principle of coördinate geometry was discovered independently by Descartes and Fermat, but the works of these men differ markedly in emphasis. The speaker therefore proposed that the problem of finding the equations of given loci be designated "analytic geometry in the sense of Descartes," and that the inverse aspect, the study of curves determined by given equations, be referred to as "analytic geometry in the sense of Fermat." It was pointed out that the Cartesian aspect dominated thought for well over a century, but that the point of view of Fermat was represented in England by Newton and Maclaurin and on the Continent by Euler and Cramer. The widely-held opinion that Descartes arithmetized geometry was shown to be inconsistent with the Cartesian goal of exhibiting the geometric "constructibility" of determinate and indeterminate equations. A true arithmetization of geometry was hinted at by Lagrange, but it was finally carried out in 1795–1798 by Monge and Lacroix. Comparing this "analytical revolution" in France with the so-called chemical revolution of the same period, the speaker proposed that the idea of expressing a geometry in algebraic language be designated "analytic geometry in the sense of Monge and Lacroix."

2. *Geometry of ship waves*, by Professor J. J. Stoker, New York University, introduced by Professor H. E. Wahlert.

3. *Evaluating a syllabus in experimental geometry a priori*, by Charles Salkind, Samuel J. Tilden High School.

To replace the present tenth-year course, a group of New York City teachers of mathematics have prepared an instrument titled, "Experimental (non-Regents) Geometry Course." The speaker pointed out that the alleged superiority of the course lies in (1) exhibiting geometry as an elementary illustration of the scientific method (induction); (2) clarifying the complementary roles of experimentation and deduction. He held, however, that an a priori evaluation of the course discloses that it adds to existing burdens without removing any of the fundamental difficulties; and he questioned the validity of the proposed

program for the following reasons. (1) Procedures based *primarily* on measurement are amply provided for in the junior high school. (2) The results of deductive reasoning do *not* gain credence from experimentation and measurement. Contrary evidence exists to show that overindulgence in informal methods *inhibits* the acceptance of deductive results. (3) Scientific induction should be taught to secondary pupils, but by teachers specially qualified to do so. (4) The proposed course fails to meet the standards of a properly-planned educational experiment.

4. *Coordinating high school and college mathematics*, by Professor W. D. Reeve, Teachers College, Columbia University.

Professor Reeve's paper appears as the first article in the present issue.

5. *Infinity in art*, by Professor Edward Kasner, Columbia University.

The speaker described the construction and properties of what he called an *infinite Christmas tree*. From the upper end of a vertical unit line segment, two mutually perpendicular segments of length $\frac{1}{2}$ are constructed to make angles of 135° with the unit segment; from the extremities of each of these, two new mutually perpendicular segments of length $\frac{1}{4}$ are similarly drawn at 135° to the half-unit segments; and so on ad infinitum. The distance from the base to any one of the asymptotic limiting points, measured along the trunk and branches, is two units. The class of nodes (or branching points) is denumerable and hence has as its number Cantor's $\aleph_0$; the points of condensation (terminal buds) are non-denumerable and their number is that of the continuum c. The speaker suggested the determination of the area of the smallest circumscribing rectangle, the study of the design of nodes and buds, and the construction of an analogous configuration in three dimensions.

C. B. BOYER, *Secretary*

CALENDAR OF FUTURE MEETINGS

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

ILLINOIS, Peoria, May 9–10, 1947

INDIANA

IOWA, Cedar Falls, April 18–19, 1947

KANSAS

KENTUCKY

LOUISIANA-MISSISSIPPI

MARYLAND-DISTRICT OF COLUMBIA-VIR-
GINIA

METROPOLITAN NEW YORK, Brooklyn, April, 1947

MICHIGAN

MINNESOTA

MISSOURI

NEBRASKA, Lincoln, May 3, 1947

NORTHERN CALIFORNIA, San Francisco, January 25, 1947

OHIO, Columbus, April 3, 1947

OKLAHOMA

PACIFIC NORTHWEST

PHILADELPHIA

ROCKY MOUNTAIN

SOUTHEASTERN, Columbia, S. C., April 18–19, 1947

SOUTHERN CALIFORNIA, Claremont, March 8, 1947

SOUTHWESTERN

TEXAS

UPPER NEW YORK STATE, Rochester, May 10, 1947

WISCONSIN, Madison, May, 1947