R. G. Sturm, M.S. (Illinois) Research Engineer, Physicist, Aluminum Research Labs., New Kensington, Pa.

V. B. Temple, A.M. (Texas) Head of Dept., Louisiana Coll., Pineville, La.

H. M. Tenney, B.S. (Greenville Coll.) Instr., Chem. and Math., Greenville Coll., Greenville, Ill.

S. B. Townes, A.M. (Oklahoma) Asst. Prof., Univ. of Oklahoma, Norman, Okla.

J. F. Wardwell, A.B. (Hamilton) Jr. Instr., Johns Hopkins Univ., Baltimore, Md.

Margaret C. Weeber, A.M. (Chicago) Asst. Prof., Hood Coll., Frederick, Md.

E. V. White, A.M. (Baylor) Dean, Head of Dept., Texas State Coll. for Women, Denton, Texas.

G. H. Wilson, A.M. (Pennsylvania) Instr., Physics, Univ. of Delaware, Newark, Del.

W. F. Winn, Radio Operator, Sabine Transportation Co., Port Arthur, Texas.

Reports of progress were made on the two commissions of the Mathematical Association and a plan which might provide adequately for funds needed to carry out their plans as they are being developed.

W. D. CAIRNS, *Secretary-Treasurer*

THE APRIL MEETING OF THE ROCKY MOUNTAIN SECTION

The eighteenth regular meeting of the Rocky Mountain Section of the Mathematical Association of America was held at Colorado College, Colorado Springs, Colorado, on Friday and Saturday, April 20–21, 1934.

There were three sessions. Professor C. H. Sisam of Colorado College presided at each.

The attendance was forty-five, including the following twenty-four members of the Association: C. F. Barr, Jack Britton, A. G. Clark, I. M. De-Long, J. R. Everett, J. C. Fitterer, G. W. Gorrell, D. F. Gunder, I. L. Hebel, C. A. Hutchinson, L. Louise Johnson, A. J. Kempner, Claribel Kendall, A. J. Lewis, W. V. Lovitt, S. L. Macdonald, A. S. McMaster, W. K. Nelson, Greta Neubauer, E. D. Rainville, O. H. Rechard, A. W. Recht, Mary S. Sabin, C. H. Sisam.

The members and friends of the Section were guests of the College at a banquet on the evening of April 20. At the business session on Saturday, Professor J. C. Fitterer of Colorado School of Mines was elected Chairman for the coming year. Professor A. W. Recht of the University of Denver was elected Vice-Chairman.

The following ten papers were read:

1. "A note on polynomial curves" by Jack Britton, University of Colorado.

2. "A mathematical analysis of the hardening of copper" by J. D. Keyes, Montana School of Mines. (Read by the secretary in the absence of the author.)

3. "The Schwarz-Christoffel transformation as applied to the solution of certain problems in elasticity" by Professor D. F. Gunder, Colorado Agricultural College.

4. "A problem in magic squares" by Professor W. K. Nelson, University of Colorado.

5. "Fundamentals of the trial load method for stress analysis of arched dams" by R. E. Glover, United States Reclamation Bureau, by invitation.

6. "On the Schwarz-Christoffel transformation" by Professor C. A. Hutchinson, University of Colorado.

7. "Solution of a problem in heat conduction" by E. D. Rainville, Junior Engineer, United States Reclamation Bureau.

8. "A survey course in mathematics" by Professor O. H. Rechard, University of Wyoming.

9. "Complex numbers" by Professor A. J. Kempner, University of Colorado.

10. "Evaluation of certain expectancies" by Professor A. G. Clark, Colorado Agricultural College.

Abstracts of the papers follow, the numbers corresponding to the numbers in the list of titles:

1. The paper given by Mr. Britton is concerned with the following problem: Under what restrictions may we assign all the abscissas and two of the ordinates of the extremes (maxima and minima) of the polynomial curve $y = a_0 x^n + \cdots + a_n$, which is to have the maximum number of extremes? This paper will appear in an early issue of this MONTHLY.

2. Recent investigations at Montana School of Mines by J. D. Keyes, assisted by C. L. Wilson, indicate that the natural law governing the precipitation hardening of copper may be expressed by the equation

$$R = a(T + b)^{-1} + c,$$

where R is the resistivity of the copper being hardened, T is the time of annealing, and a, b, and c are arbitrary constants. Theoretical approach to the problem resulted in failure, but an empirical approach based upon correspondence between certain arithmetical and geometrical series, resulted in the above equation. No effort was made to derive a formula that would fit data on the problem; the effort was made, however, to satisfy a fundamental requirement of a natural law: if corresponding values of the variables within a very limited range are known, and if the natural law is also known, then all other corresponding values of the variables may be found by extrapolation. Tests of extrapolation made with the above equation gave satisfactory results.

3. Professor Gunder gave a brief expository discussion of the value of the Schwarz-Christoffel transformation as applied to the solution of boundary value problems in which the area for which the solution is to be obtained is a polygon. He followed this with an example which gave the solution of the flexure problem for an elastic beam of rectangular cross section but with two symmetrical horizontal slits extending inward along the central line of the section.

4. Professor Nelson discussed a 3×3 magic square which has 9 as its center number. The remaining eight positions are to be filled so that the sum of the rows, columns and diagonals will be 27, with no element greater than 15. The solutions, four in number, were obtained by a graphical interpretation, transformations and inequalities.

5. In this paper, R. E. Glover described the methods devised by engineers of the U. S. Reclamation Bureau for calculating the stresses in such structures. The process is one of successive approximation involving the use of trial loads of various types which are applied for the purpose of satisfying the boundary conditions, and meeting the equilibrium and continuity conditions throughout the structure. The requirements for a satisfactory solution were examined with the aid of Kirchhoff's uniqueness theorem in the theory of Elasticity.

6. A brief outline of the application of the conformal transformation of Schwarz and Christoffel to problems of electric machine design was given.

7. Mr. Rainville considered the problem of the conduction of heat in a plane wedge with special reference to placing the formulas in a form suitable for computation of the temperature history of large dams. The boundary conditions were taken in such a manner that use can be made of the known fact that bedrock is at mean annual air temperature.

8. In this paper Professor Rechard suggested the need for a course in mathematics for students who do not wish to specialize in mathematics but who do wish to know something about the rôle this science has played and is playing in the history of the race. As a basis for discussion he outlined a course given during the winter quarter at the University of Wyoming. The two main points in the outline were the development of elementary mathematics as a human interest story, and the presentation of the foundations of mathematics in such a way as to emphasize the fact that mathematics is an invention of the human intellect.

9. Professor Kempner made some remarks, partly of a pedagogical character, concerning the distinction between "absolute value" and "distance" in the theory of complex numbers.

10. In this discussion, Professor Clark developed some of the most important methods for finding bounds for the expectancies of various functions with reference to distribution functions to which but very mild restrictions are applied. The methods were extended to cover cases of more than one variable and various examples of their application and interpretation were given.

<div align="right">A. J. Lewis, Secretary</div>

THE SECOND ANNUAL MEETING OF THE
WISCONSIN SECTION

The second annual meeting of the Wisconsin Section of the Mathematical Association of America was held at the Oshkosh State Teachers College on Saturday, May 5, 1934. The Chairman of the Section, Professor G. A. Parkinson, presided.

The attendance was sixty-eight, including the following twenty-five members of the Association: Leon Battig, Ethelwynn R. Beckwith, May M. Beenken, Theodore Bennett, H. H. Conwell, L. A. V. DeCleene, Margaret C. Eide, H. P. Evans, M. L. Hartung, R. C. Huffer, M. H. Ingraham, Elizabeth E.