ELEVENTH ANNUAL MEETING OF THE
ROCKY MOUNTAIN SECTION

The eleventh annual meeting of the Rocky Mountain Section of the Mathematical Association of America was held at Colorado College, Colorado Springs, Colorado, on April 22, 23. There were forty present including the following twenty members of the association: G. H. Albright, A. G. Clark, E. A. Cummings, I. M. DeLong, Philip Fitch, A. J. Kempner, Claribel Kendall, G. H. Light, W. V. Lovitt, S. L. Macdonald, J. Q. McNatt, W. K. Nelson, Letitia Odell, O. H. Rechard, H. L. Rietz, W. J. Risley, H. E. Russell, Mary S. Sabin, C. H. Sisam, C. W. Wray.

The section voted to hold its next annual meeting at the Colorado School of Mines, Golden, Colorado. The following officers were elected: W. J. RISLEY, chairman; G. W. FINLEY, vice-chairman; PHILIP FITCH, secretary; G. H. LIGHT, treasurer.

At the complimentary dinner given by Colorado College on Friday, Dean C. B. Hershey delivered an address of welcome to which Professor W. J. Risley made the response. The section was favored Friday evening with an address "Group Insurance" by Professor H. L. Rietz of the University of Iowa. Professors H. E. Russell and C. H. Sisam read sketches of the lives and work of the late Dean H. A. Howe and the late Professor F. H. Loud respectively.

The following eleven papers were read:

1. "The sectioning of college freshmen in mathematics by means of the Iowa Placement Test" by Professor C. F. BARR.

2. "A grade weigher" by Professor G. H. ALBRIGHT.

3. "A graphic solution of tensions in cables" by Mr. J. Q. McNATT.

4. "On a type of involutions in space" by Professor C. H. SISAM.

5. "Concerning the Heusler alloys" by Mr. PHILIP FITCH.

6. "An elementary method of solving matricial equations" by Professor O. H. RECHARD.

7. "Applications of elementary divisors" by Mr. D. L. GUNDER (by invitation).

8. "On a geometrical problem from the MONTHLY" by Professor A. J. KEMPNER.

9. "The Carus monograph on statistics" by Professor H. L. Rietz.

10. "Index number bias" by Professor W. V. LOVITT.

11. "A nomograph" by Professor W. K. NELSON.

In the absence of the author, the abstract of Professor Barr's paper was read by Professor Rechard. Abstracts of the papers follow, the numbers corresponding to the numbers in the list of titles.

1. The Iowa Training Examination in Mathematics was given at Purdue University to some 800 entering freshmen engineers, fall of 1925. This paper is a study of the degree of correlation between the grades obtained, and the subsequent classroom records in mathematics, of the persons involved. There was found a high degree of correlation. Furthermore, there appeared clearly defined lines for segregation into inferior, normal, and superior groups. The careful analysis of classroom records for the members of each group showed a remarkably high power of selectivity for the Iowa examination, and commends it as a tool for segregation of entering freshmen in mathematics. The conclusions are supported by the results of a similar study, made the preceding year, and ending simultaneously with the present study. While the paper demonstrates the possibility, it does not argue the advisability of classroom segregation of students.

2. In this paper Professor Albright described the construction and manipulation of a device for determining the average grade of a student involving the weighing of his various marks to correspond to the units of credit carried by his course. The device was of the type of a simple lever. Such an instrument was exhibited which would calculate the average with an error not exceeding three-hundredths of one percent.

3. Mr. McNatt gave a graphic solution of the tensions in a cable used to carry movable loads as in the case of aerial trams.

4. In this paper, the author discusses involutions in space such that the locus of the lines joining corresponding points is a congruence of order one defined by a (l, m) between the points on and the planes through a fixed line. Several particular involutions of this type were discussed at some length.

5. This paper dealt with mathematics as applied to data obtained from measurements on the resistance, permeability and thermo-electric affect of the Heusler alloys.

6. Professor Rechard showed that the solution of the general equation of the same order reduces to the problem of solving n^2 equations in n^2 unknowns, each equation being of degree n. A quadratic equation was used to illustrate the method.

7. Mr. Gunder showed that the principles of elementary divisors was directly applicable to the solution of problems of the dynamics of a particle where the particle is executing small vibrations about an equilibrium configuration. The study of this problem is greatly facilitated by the reduction of the equations of motion from the usual coordinates to normal coordinates.

8. Problem 3171(3167; 1926, 104) states that if, in an ellipse, a straight line is drawn through one Focus F_1, its intersection P_1 with the circumference joined with the other Focus F_2, the intersection P_2 of P_1F_2 with the ellipse again joined with F_1, etc. etc., the limiting position of the straight line will be

the straight line joining F_1F_2. It is shown that this property is in no way characteristic of the ellipse. An analogous property exists, for example, for all closed convex curves.

9. Professor Rietz discussed first the question of making statistical theory more available to the general mathematical reader by means of the third Carus Mathematical Monograph. He then divided the problems considered in the monograph into two general classes. In problems of the first class, the main interest centers around the properties of a random sample drawn from a "population." In problems of the second class, the main interest centers around the question of making and checking the validity of statistical inferences about the population from which the sample is drawn. In dealing with the sample we introduce very early the concepts of relative frequency, arithmetic mean, various other averages, and certain measures of dispersion. In considering the population, we introduce the parallel concepts of probability, mathematical expectation of the value of a variable, and of the powers of the deviations of a variable from its expected value. After discussing these concepts, the paper gives a summary of the material of the monograph dealing with the following three topics of dominant interest in recent progress in statistics: Generalization of frequency curves, correlation theory, and random sampling theory.

10. Definite proofs were made as to the presence or absence of bias for the weighted arithmetic average of relatives for the weights I p_0q_1, II p_0q_1, III p_iq_i, III p_iq_0, IV p_iq_i. Definite proofs were given as to the relative size of the index numbers with weights I, II, III, IV.

11. In this paper a description was given of a nomograph of an approximation to the formula for the relation between effective and nominal interest rates.

For given values of j and p, i could be read accurately to at least four significant figures.

PHILIP FITCH, *Secretary*