4. *A mathematical peculiarity of the plastic stress-strain relations*, by E. A. Davis, Westinghouse Research Laboratories, introduced by Dr. Sturm.

Mr. Davis stated that when a ductile metal flows under the influence of combined stresses, three mutually perpendicular directions can be found along which the deformations are pure extensions. There are two theories at present which deal with the values of the three principal strain rates at any given instant. The older is based upon the law of viscous flow which states that the shear rate on any plane of principal shear stress is proportional to the stress acting on that plane. The newer theory claims that the rates are not proportional to the stresses, but that they may be expressed by relations involving power functions of the stresses. This theory reduces to the older one when a certain exponent n has the value 1. The peculiarity pointed out is that in the newer theory the distribution of strain rates when $n=1$ is the same as the distribution when $n=3$. This is due to the fact that the expression $[a^n-b^n]/[(a+b)^n+b^n]$ has the same value for $n=3$ and for $n=1$.

H. L. DORWART, *Secretary*

THE ANNUAL MEETING OF THE ROCKY MOUNTAIN SECTION

The twenty-seventh annual meeting of the Rocky Mountain Section of the Mathematical Association of American was held on Friday and Saturday, April 16–17, 1943, at the University of Denver, Denver, Colorado. It was a joint meeting with the National Council of Teachers of Mathematics and the Eastern Division of the Colorado Education Association. Section meetings were held Friday afternoon and evening, at both of which the Vice-Chairman of the Section, Professor A. W. Recht, presided. Three additional sessions were held on Saturday in conjunction with the other organizations participating in the meeting.

The attendance was one hundred and thirty-five, including the following fifteen members of the Association: A. G. Clark, Sister Rose Margaret Cook, J. R. Everett, J. C. Fitterer, G. W. Gorrell, D. F. Gunder, J. O. Hassler, A. J. Kempner, Claribel Kendall, W. J. LeVeque, A. J. Lewis, A. E. Mallory, A. W. Recht, C. H. Sisam, H. W. Williams.

At the business meeting the following officers were elected for the coming year: Chairman, Professor A. E. Mallory, Colorado State College of Education; Vice-Chairman, Professor A. J. Kempner, University of Colorado.

The following papers were presented:

1. *On the place of mechanics in the system of sciences, and the training of mathematicians for work in applied mechanics*, by Dr. Paul Nemenyi, University of Colorado, introduced by Professor Kempner.

The speaker discussed the unity of the sciences and the place of mechanics in the scheme of scientific studies. He classified mechanics as a part of physics, and considered the relation of mechanics to other parts of physics and to mathe-

matics. In particular, the relation between mechanics and probability was brought out. A program for the training of mathematicians for research and teaching in mechanics was then outlined.

2. *A method of measuring effectiveness in the teaching of college mathematics*, by Professor J. O. Hassler, University of Oklahoma.

Professor Hassler investigated the grades in Calculus II of the students of eleven teachers of Calculus I. The records of the "A," "B," "C" and "D" students were examined separately, and the successes (by separate groups) of the students of the various teachers compared. This was a measure of the effectiveness of the teaching in the first course. The students in each of the four grade classifications were also divided into two groups, namely those who remained with the same teacher and those who had the second course with a different teacher. In this way was obtained an evaluation of the teachers' grading scales.

3. *The integral* $\int x^{-1}dx = \log x$ *as a limiting case of* $\int x^{n-1}dx = x^n/n$, by W. J. LeVeque, University of Colorado.

In this paper it was shown that the integral $\int x^{-1}dx$ can be studied by considering the limit of $\int x^{n-1}dx$ as n approaches zero. The geometric properties of the approximation curves were also investigated.

4. *On a continuous stochastic process*, by Professor A. G. Clark, Colorado State College.

Professor Clark stated that, in ballistics research, it has been the practice to measure the variability of an ordered succession of random variables $x_1, x_2, \cdots, x_n$ by using the mean square successive difference $\delta^2 = (N-1)^{-1}\sum_{i=1}^{N-1}(x_{i+1}-x_i)^2$ as a criterion for measuring variability, rather than the quantity $s^2 = N^{-1}\sum_{i=1}^{N}(x_i-\bar{x})^2$. He considered the problem of testing for determination of trend, and showed that δ/s is the proper criterion to use for this purpose.

5. *On the introduction of coördinates in an affine plane geometry*, by Mrs. Margaret S. Matchett, University of Denver, introduced by Professor Recht.

Using only axioms of connection for points and lines, the parallel axiom, and the configuration of Desargues, it is possible to introduce a system of coördinates into a geometry. These coördinates satisfy all the field properties except that of commutative multiplication. In order to define these coördinates one considers the group of those one-to-one transformations of the plane which map parallel lines into parallel lines. The translations form an invariant sub-group of this group. The inner automorphisms of this sub-group, with addition and multiplication suitably defined, form the division algebra from which the coördinates are taken.

6. *Graphical methods for representation of various types of functional relations*, by Professor A. J. Kempner, University of Colorado.

This paper dealt with a method of plotting the graph of an equation of the type $F[f(x, y), g(x, y)] = C$. The details are as follows: Let $X = f(x, y)$ and

$Y=g(x, y)$. Plot the curve $F(X, Y)=C$ with reference to X and Y axes, and plot on a separate chart the two families of curves $f(x, y)=\alpha$ and $g(x, y)=\beta$ where α and β are parameters. If (α, β) is any point on the curve $F(X, Y)=C$, a point of intersection of the two curves $f(x, y)=\alpha$ and $g(x, y)=\beta$ is a point of the curve $F[f(x, y), g(x, y)]=C$. The method can be extended to the representation of the equation $F[f(x, y), g(x, y)]=H(z)$, leading to a one parameter family of curves in the xy-plane.

7. *Teaching mathematics effectively for war or peace*, by Professor J. O. Hassler, University of Oklahoma.

Professor Hassler reviewed briefly the controversy over the transfer of training, and reported that eighty per cent of the psychological experiments up to date show clear evidence of transfer of training. He remarked that to teach consciously for transfer of training is a prime goal of effective teaching. It was also stated that this object can be achieved by relating subject-matter in every possible way to practical applications, by cultivating habits of independent thinking and generalization, and by exploiting the spirit of discovery in the pupil.

8. *Mathematics abridged has gone to war*, by Professor J. O. Hassler, University of Oklahoma.

The speaker reviewed the present situation wherein frantic efforts (by means of concentrated courses) are being made to make amends for deficient training in mathematics among the youths in the army or about to go into the army. He gave some facts concerning dilution of mathematics courses in the recent past which has contributed to this delinquency. He made a plea for teachers to equip themselves to fight against having a denatured, abridged, and diluted mathematics in the post-war curriculum of the high schools.

A. J. Lewis, *Secretary*

THE MARCH MEETING OF THE SOUTHERN CALIFORNIA SECTION

The twenty-third regular meeting of the Southern California Section of the Mathematical Association of America was held at the University of Southern California, Los Angeles, California, on Saturday, March 13, 1943. Professor Morgan Ward, chairman of the Section, presided.

The attendance was fifty-five, including the following twenty-six members of the Association: O. W. Albert, C. K. Alexander, L. D. Ames, Clifford Bell, L. T. Black, Myrtie Collier, P. H. Daus, D. C. Duncan, W. H. Glenn, Jr., Frances C. Hinds, P. G. Hoel, C. G. Jaeger, G. R. Kaelin, Ada A. McClellan, G. F. McEwen, P. M. Niersbach, W. T. Puckett, Jr., H. R. Pyle, J. M. Robb, G. E. F. Sherwood, D. V. Steed, A. E. Taylor, S. E. Urner, Morgan Ward, W. M. Whyburn, Euphemia R. Worthington.