elements. Hence the midpoint M_k of the inner segment I_iI_j corresponds to the ideal point of the line I_iI_j. From this it follows that *the ideal line of the plane transforms into a conic through each of the midpoints of the six segments* I_iI_j in addition to passing through A, B and C, as noted above.

We may now show that *this conic is a circle.* If P is an ideal point the lines a and b joining it to two of the mirrors are parallel. Then the sum of the angles α, β and γ is four right angles. Now as P moves on the ideal line a change in

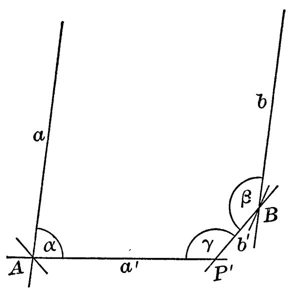

FIG. 3.

the angle α is accompanied by a change in the angle β of the same magnitude but opposite in sign. Then $\alpha + \beta$ is constant and hence $\gamma = 360° - (\alpha + \beta)$ is constant and P' moves on a circle. It follows, then, that *the conic obtained by transforming the ideal line of the plane is the nine-point circle of each of the four triangles* $I_iI_jI_k$.

THE ROCKY MOUNTAIN SECTION.

The second annual meeting of the Rocky Mountain section of the Mathematical Association of America was held at Laramie, Wyoming, under the auspices of the University of Wyoming, March 29 and 30, 1918.

The meeting opened with a dinner in Hoit Hall at 6 P. M., at which the address of welcome by Acting President Nelson of the University of Wyoming and the response by Professor O. C. Lester, of the University of Colorado, were given. After the dinner, an adjournment to the administration building was made and the following program was carried out:

1. Special Courses in Mathematics for Technical Students. PROFESSOR S. L. MACDONALD, Colorado A. & M. College, Ft. Collins.
2. The Theory of the Mercury Arc. PROFESSOR J. W. WOODROW, University of Colorado, Boulder.
3. The Length Integral in the non-Euclidean World of Poincaré. PROFESSOR C. E. STROMQUIST, University of Wyoming, Laramie.

The purpose of this paper was to derive an integral for length in the non-Euclidean world proposed by Poincaré in his "Foundations of Science," English translation by Halsted, page 75. The shortest distance between two points is assumed to be the circle through these points and perpendicular to the boundary sphere. The general form of the length integral under this assumption is then worked out for the case of the plane. Under the further restriction that transversals are perpendicular to their extremals, the length integral along a curve $y = f(x)$ between two points, $P(x_1, y_1)$ and $P(x_2, y_2)$, reduces to the form

$$\int \frac{\sqrt{1 + p^2}}{x^2 + y^2 - R^2}\, dx,$$

where $p = dy/dx$ and R is the radius of the boundary sphere.

4. The Trend Curve for the Price of Copper. PROFESSOR C. S. SPERRY, University of Colorado, Boulder.

5. A Problem in Geometry. MR. J. Q. MCNATT, Colorado Fuel & Iron Co., Florence.

The author gave a new proof for the relation between the side of a regular inscribed pentagon and the side of a regular inscribed decagon.

6. Some Systems of Coördinates. PROFESSOR G. H. LIGHT, University of Colorado, Boulder.

This paper dealt principally with intrinsic coördinates and showed the extremely simple form that the equations of some well-known curves and their evolutes assume when expressed in terms of these coördinates.

7. Mathematics at the Front. MR. W. H. HILL, Greeley High School, Greeley.

8. Some Functions of Solid Angles. PROFESSOR J. C. FITTERER, University of Wyoming, Laramie.

9. The Origin of the name "Rolle's Curve." The Origin of the name "Mathematical Induction." PROFESSOR FLORIAN CAJORI, Colorado College, Colorado Springs.

The second of these papers by Professor Cajori appeared in the May number of this MONTHLY; the first will appear in a later issue.

10. The Sine and Cosine Integrals $\int \sin x/x\, dx$ and $\int \cos x/x\, dx$ in Electromagnetism. PROFESSOR C. C. VANNUYS, Colorado School of Mines, Golden.

This paper deals with interesting physical applications of the functions known to mathematicians as the sine and cosine integrals. One of the problems dealt with is that of determining the equivalent resistance and inductance due to radiation of electromagnetic waves of a long straight conductor carrying a harmonic alternating current of single frequency such as is employed in the oscillation circuits used in radio telegraphy.

Another problem discussed is that of the electromotive force induced in a straight vertical conductor by an oscillatory current in a parallel conductor at a great distance from it. In each case, the results are obtained in terms of these series. The paper closes with an analysis of the five integrals given below. γ in these series is Euler's constant.

$$Six = \int_0^x \sin x/x\, dx = x - x^3/3!3 + x^5/5!5 - \cdots,$$

$$Cix = \int_\infty^x \cos x/x\,dx = \gamma + \log x - x^2/2!2 + x^4/4!4 - \cdots,$$

$$Eix = \int_\infty^x e^{-x}/x\,dx = \gamma + \log x + x + x^2/2!2 + \cdots,$$

$$Shix = \int_0^x \sinh x/x\,dx = x + x^3/3!3 + x^5/5!5 + \cdots,$$

$$Chix = \int_\infty^x \cosh x/x\,dx = \gamma + \log x + x^2/2!2 + x^4/4!4 + \cdots.$$

On account of the length of the program and the interest shown in the papers it was found necessary to adjourn at 11 P. M. until 8:30 the next morning, when the program was completed and officers were elected for the ensuing year as follows:

CHAIRMAN, C. C. VANNUYS, Professor of Physics, Colorado School of Mines.

VICE-CHAIRMAN, S. L. MACDONALD, Professor of Mathematics, Colorado A. & M. College.

SECRETARY-TREASURER, G. H. LIGHT, Assistant Professor of Mathematics, University of Colorado.

Five visitors were present and the following fifteen members: C. R. Burger, Colorado School of Mines; I. M. DeLong, University of Colorado; J. C. Fitterer, University of Wyoming; W. H. Hill, Greeley High School; O. C. Lester, University of Colorado; G. H. Light, University of Colorado; S. L. Macdonald, Colorado A. & M. College; J. Q. McNatt, Colorado Fuel & Iron Co.; O. A. Randolph, University of Colorado; C. B. Ridgaway, University of Wyoming; H. M. Showman, Colorado School of Mines; C. S. Sperry, University of Colorado; C. E. Stromquist, University of Wyoming; G. P. Unseld, Westminster High School; C. C. VanNuys, Colorado School of Mines.

G. H. LIGHT, *Secretary.*

THIRD ANNUAL MEETING OF THE OHIO SECTION.

The third annual meeting of the Ohio Section of the Mathematical Association of America was held at the Ohio State University, Columbus, on March 29, 1918, in connection with the meetings of some sections of the Ohio College Association, and the Association of Ohio Teachers of Mathematics and Science. Chairman Forbes B. Wiley occupied the chair, being relieved by Professor R. B. Allen for an interval.

The following thirty persons were registered, all but the last eight being members of the Association:

R. B. Allen, Kenyon College; W. E. Anderson, Wittenberg College; G. N. Armstrong, Ohio Wesleyan University; C. L. Arnold, Ohio State University;