Multiplying (15) by m, we have

$$Cm \cdot n = Ca_{12} = 0.$$

Since $a_{12} \neq 0$, $C = 0$. Likewise multiplying by n we see that $B = 0$. Hence equation (14) becomes

$$A \frac{\partial^2 Z}{\partial u \partial v} = 0.$$

Hence, *the minimum surface is a surface of translation. The necessary and sufficient condition that a surface in hyperspace be a minimum surface is that the minimum lines on it are characteristics.*

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SOME ALGEBRAIC CURVES.

BY DR. JAMES H. WEAVER.

(Read before the American Mathematical Society, April 28, 1917.)

IN the following paper two algebraic curves are set up and some of their singularities are discussed. The author believes them to be new. At least a search through considerable of the literature on curves has failed to reveal them.

I.

Let there be any two distinct points A and B. Let the line joining A and B be drawn, and let the distance $AB = c$. Let there be drawn through A a line l_1 making an angle θ with AB, and let there be drawn through B a line l_2 making an angle $n\theta$ with AB (n an integer). We also consider that AB, l_1, and l_2 are in one plane. Let the intersection of l_1 and l_2 be C. It is required to find the locus of C.

Let A be the origin and let AB be the x-axis. Then the equations of the lines l_1 and l_2 will be

$$(1)\ y = x \tan \theta, \qquad (2)\ y = (x - c) \tan (n\theta)$$

respectively.