being assigned at will, to find the functional relation between the intercepts, $\Phi(\alpha, \beta) = 0$ (*i. e.*, the law governing the motion of the line), in order that the given point may trace an envelope and, finally, to obtain the equation of the envelope. The required relation is given by either of the differential equations

$$x' = \phi(\alpha, \beta) = \frac{\alpha^2}{(\alpha - \beta)d\alpha/d\beta}, \quad y' = \psi(\alpha, \beta) = \frac{\beta}{(\beta - \alpha)d\beta/d\alpha}$$

In general both equations will be needed in order to determine the constants of integration. Having thus obtained the function Φ, which is, in effect, the tangential equation of the envelope, the equation in rectangular coordinates readily follows.

Several examples applying the principles were presented and its application to other families of loci was suggested as a promising field of investigation for the amateur mathematician.

LAENAS GIFFORD WELD,
Secretary.

THE STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

A PROOF OF THE FUNDAMENTAL THEOREM OF ANALYSIS SITUS.

BY PROFESSOR G. A. BLISS.

(Read before the American Mathematical Society, December 28, 1905.)

THE theorem that a Jordan curve divides the plane into two regions, an interior and an exterior, has in recent years received much attention. The proofs which have been given may be roughly divided into two classes, those in which the object has been to prove the theorem with the fewest possible hypotheses on the curve,* and those in which generality has to a certain extent been sacrificed for simplicity.† The following proof belongs to the second class. In § 1 it is assumed that the curve considered is continuous and has a continuously turning tangent at every point ; but in § 3, by extending the proof of one of the auxiliary theorems, curves with a finite number

* Veblen, *Transactions Amer. Math. Society*, vol. 6 (1905), p. 83.

† Ames, *Amer. Jour. of Math.*, vol. 27 (1905), p. 353. Bliss, BULLETIN, vol. 10 (1904), p. 398. For further references, see the paper by Ames.