Let

$$n - m = k_1 r, \quad m - l = k_2 r$$

$$\therefore n = (k_1 + k_2)r + l, \quad m = k_2 r + l$$

and

$$x_2 = \epsilon x_1 \quad \text{where} \quad \epsilon^r = 1.$$

We may easily show that x_1 is determined by the equation

$$(\epsilon^l - \epsilon)x_1 + \epsilon^l - 1 = 0,$$

and that x_1 and x_2 must be conjugate; and the investigation may be completed as in the last case.

It is obvious that the above method may be continued so as to include equations containing any number of terms.

It may be stated in conclusion that the problem solved in the present paper is connected with the more difficult problem of determining a quantity ρ, a function of a_0 and a_1, such that there shall always be a root either of the equation $f(x) = a$ or of the equation $f(x) = b$, with modulus less than ρ, and that this latter problem is connected with the theorem of Picard, which is discussed in Dr. Landau's paper.

STANFORD UNIVERSITY,
February, 1907.

ON THE DISTANCE FROM A POINT TO A SURFACE.

BY PROFESSOR PAUL SAUREL.

(Read before the American Mathematical Society, April 27, 1907.)

IT is well known that in order that the distance from a given point to a given surface be a maximum or a minimum it is necessary that this distance be measured on a normal to the surface. But, so far as I know, the various possible cases have not been enumerated. This is done in the following theorem :

If P be an elliptic point of a surface, and if C_1 be the nearer and C_2 the more remote of the principal centers of curvature, the distance from a given point N of the normal to P will be a minimum if N and P lie on the same side of C_1, a maximum if N and P lie on opposite sides of C_2, and neither a minimum nor a maximum if N coincide with C_1 or C_2, or lie between them.