employed. Attention, however, was called to a fundamental paper of Hölder's in the 34th volume of the *Annalen*. it is important from the Galoisian standpoint: 1, as showing the character of the essential elements of any system of resolvents in which the roots of the given equation can be rationally expressed; 2, as making it imperative to enlarge the notion of a group from a substitution-group whose elements are concrete substitutions on the roots of an equation to a group whose elements are not explicitly given, but merely the laws of their combination.

Professor Pierpont regretted that time did not permit him to develop the theory of finite groups from this abstract standpoint and to touch upon some of the beautiful results obtained by Frobenius, Hölder, Cole and others. The importance of these methods and theories not only for the Galoisian theory, but for many other branches of mathematics, makes it desirable that they be made the subject of a future colloquium.

A GEOMETRICAL METHOD FOR THE TREATMENT OF UNIFORM CONVERGENCE AND CERTAIN DOUBLE LIMITS.

Presented at the Third Summer Meeting of the American Mathematical Society.

BY PROFESSOR W. F. OSGOOD.

The geometrical representation of functions by curves and surfaces is of two-fold importance; for not only does it represent to the eye by means of a concrete picture relations which would otherwise appear only in abstract arithmetic form, but this picture in its turn makes evident new facts and points out at the same time the course that the arithmetic proof of the theorems thus suggested would naturally take. The value of this method for the purposes of instruction alike in elementary and advanced infinitesimal calculus, as well as in analysis generally, can hardly be overestimated. How can the conception of the function be better explained than by such an example as a temperature curve? What better means is there for making clear the idea of the implicit function — y defined implicitly as a function of x by the equation $f(x, y) = 0$ — than by cutting the surface $z = f(x, y)$ by the plane $z = 0$? And how valuable is the surface $u = \varphi(x, y)$ when the differential of a function of two independent variables is introduced!