gramme, and in particular the grouping together of all forms, which, like the resultant, are reducible to zero by the aid of given equations, under the class name of an algebraic modulus. In his Festschrift and the later expository papers of his pupils are proposed methods for testing any given system for its character, whether general, or special of the first sort (loci with a curve in common), or of the second or higher sort (loci with a surface, etc., in common). The expansion of this body of doctrine or abstract theory into a concrete *geometry* with fulness of examples remains a task, not all deductive but largely creative, for coming decades or generations.

Not the possession of eliminants actually calculated by Bézout's deservedly famous scheme is needful for the geometer, but the knowledge of the conditions under which such an eliminant will exist, and what conditions will modify it. So with regard to the more far-reaching scheme of Kronecker; it is ultimately, perhaps, not the full elaboration of particular examples as such, that we wish to have, but a precise knowledge of *how* the relative operations could be executed in finite time, and a precise formulation of conditions that would modify or influence the result of those operations. Which is of greater value, the logic or the concrete object to which it is applied? Let everyone decide when both are in his possession!

ON THE REPRESENTATION OF NUMBERS BY MODULAR FORMS.

BY PROFESSOR L. E. DICKSON.

(Read before the Chicago Section of the American Mathematical Society, January 2, 1909.)

1. For any field F in which there is an irreducible equation $f(\rho) = 0$ of degree m, the norm of

$$x_0 + x_1\rho + x_2\rho^2 + \cdots + x_{m-1}\rho^{m-1}$$

is a form of degree m in m variables which vanishes for no set of values x_i in the field F, other than the set in which every $x_i = 0$. For a finite field it seems to be true that every form of degree m in $m+1$ variables vanishes for values, not all zero, in the field. For $m = 2$ and $m = 3$ this theorem is