I hope, however, to have shown in this sketch the origin and reason of the close bonds which unite analysis with geometry and with physics, more generally with every science bearing on quantities which can be measured numerically. The mutual influence of analysis and the physical theories has been in this respect particularly instructive. What has the future in reserve? More difficult problems, corresponding to a higher order of approximation, will introduce complications that we can only vaguely foresee, speaking, as I did just now, of functional equations replacing systematically the differential equations of our present time, or again of integration of equations infinite in number, and involving an infinity of unknown functions. But whatever happens, mathematical analysis will always remain that language which, in Fourier's words, "has no symbols to express confused thoughts," a language endowed with a wonderful power of transformation and able to condense within its formulas an immense number of results.

ON THE CLASS OF THE SUBSTITUTIONS OF VARIOUS LINEAR GROUPS.

BY PROFESSOR L. E. DICKSON.

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1. In a recent memoir * by M. Edmond Maillet the question of the possible number of real elements of a geometric configuration (such as the 27 straight lines on a cubic surface) is made to depend upon the class of the substitutions of the Galois group G of the equation determining the elements or of any known group containing G. In view of such an application in various geometric and function-theoretic problems, Maillet emphasizes the importance of a knowledge of the class of the substitutions of various linear modular groups. For the general linear group on m variables with coefficients modulo n, Maillet determines completely the class of its substitutions when n is a prime, while for n a power of a prime he determines a set of

* *Annales de l'Université de Toulouse* (2), vol. 6 (1904), pp. 277–349. In a paper to appear in the July number of the *Annals of Mathematics*, I obtain wide generalizations of Maillet's geometric results, the methods employed being much simpler than his.