may also be done, but this may involve greater difficulties, by imposing appropriate conditions on the coefficients of the system.

Thus, *the projective geometry of an analytic r-spread in a linear space of n dimensions is equivalent to the theory of the invariants and covariants of a completely integrable system of linear partial differential equations with r independent variables, whose general solution depends on* $n + 1$ *arbitrary constants.*

If we recall our preliminary discussion regarding the arbitrariness of the space element, and the great generality which is therefore involved in the notion "r-spread in n dimensions" even as applied to ordinary space, we shall appreciate the sweeping character of this generalization which unifies such a vast domain. To the mathematician who knows that metric properties may, in a certain sense, be regarded as projective properties, it will be evident what must be added in order that this unifying principle may embrace metric geometry as well.

THE UNIVERSITY OF CHICAGO,
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ON CERTAIN NON-LINEAR INTEGRAL EQUATIONS

BY MR. H. GALAJIKIAN.

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NON-LINEAR integral equations of the Volterra type have been considered by Lalesco,* Cotton,† and Picone.‡ The two theorems of the present paper give results which are of more general character. Theorems apparently still more general have been stated very recently by Evans.§ The method used is that of successive approximations. The plan of treatment applies to integral equations of the type

* *Journal de Mathématiques*, series 6, vol. 4 (1908), p. 165; Introduction à la Théorie des Equations Intégrales, p. 127.

† *Bulletin de la Société math. de France*, vol. 38 (1910), p. 144.

‡ *Rendiconti del Circolo Matem. di Palermo*, vol. 30 (1910), p. 351.

§ Proceedings of the International Congress of Mathematicians, Cambridge, December, 1912. The present paper was completed without knowledge of Professor Evans' work, and forms one section of a Cornell University master's thesis, which was officially approved in May, 1912.