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ON THE GEOMETRICAL TRANSFORMATION OF PLANE CURVES.

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(Comunicated by T. A. HIRST, F. R. S.).

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In a note on the geometrical transformation of plane curves, published in the " Giornale di Matematiche ", vol. I, pag. 305, several remarkable properties possessed by a certain system of curves of the n-th order, situated in the same plane, were considered. The important one which forms the subject of this note has been more recently detected, and as a reference to the Jacobian of such a system, that is to say, to the *locus* of a point whose polar lines, relative to all curves of the system, are concurrent.

The curves in question form in fact a *réseau;* in other words, they satisfy, in common, $\frac{n(n+3)}{2}-2$ conditions in such a manner that through any two assumed points only *one* curve passes. They have, moreover, so many fixed *(fundamental)* points in common that no two curves intersect in more than a *variable* point. In short, if, in general, x_r denote the number of fundamental points which are multiple points of the r-th order on every curve of the *réseau*, the following two equations are satisfied:

$$x_1 + 3x_2 + 6x_3 + \ldots + \frac{n(n-1)}{2}x_{n-1} = \frac{n(n+3)}{2} - 2$$

$$x_1 + 4x_2 + 9x_3 + \ldots + (n-1)^2 x_{n-1} = n^2 - 1.$$

This being premised, the property alluded to is, that the Jacobian of ever ysuch *réseau* resolves itself into y_1 right lines, y_2 conics, y_3 cubics, &c., and y_{n-1} curves of the order $n-1$; where the integers y_1, y_2, &c., also satisfy the above equations, and constitute a *coniugate* solution to x_1, x_2, &c., being connected therewith by the relation

$$x_1 + x_2 + \ldots + x_{n-1} = y_1 + y_2 + \ldots + y_{n-1}.$$