

Now (14) is identical with (3) defining the space transversality of  $J$ . Hence our theorem.

The theorem is easily extended to an  $m$  space immersed in an  $n$  space. Since a Riemann space of  $m$  dimensions can always be immersed in a flat space of at most  $\frac{1}{2}m(m+1)$  dimensions, we have an immediate proof of the Gauss theorem for a Riemann space of any number of dimensions. For it is obvious that the transversality of the length integral in a flat  $n$ -space is the orthogonality of lineal elements to  $(n-1)$ -elements with the same base point, and evidently the section of this transversality by any  $m$ -spread contained in the  $n$ -flat is the orthogonality of lineal to  $(m-1)$ -elements in the  $m$ -spread.

PRINCETON UNIVERSITY

---

## ON THE EXTENSION OF A METHOD OF BRIOT AND BOUQUET FOR THE REDUCTION OF SINGULAR POINTS\*

BY B. O. KOOPMAN

In a classical memoir,† Briot and Bouquet gave a method by means of which the differential equation

$$\frac{dx}{X(x, y)} = \frac{dy}{Y(x, y)}$$

could be reduced to a simple standard form in the neighborhood of an analytic singular point, i. e., a point at which  $X(x, y)$  and  $Y(x, y)$  are analytic, but vanish simultaneously. Although the method fails to be directly applicable to certain special cases, it has shown itself to be of sufficient

---

\* Presented to the Society September 9, 1926.

† JOURNAL DE L'ÉCOLE POLYTECHNIQUE, vol. 21, p. 161. See also Picard, *Traité d'Analyse*, Paris, Gauthier-Villars, 1908, vol. 3, p. 34.