

Projecting from the centre of the sphere upon any plane we have a plane pentagon which is such that the perpendiculars let fall from the summit upon the opposite sides respectively meet in a point. This (as easily seen) implies that the two portions into which each perpendicular is divided by the point in question have the same product.

Conversely, starting from the plane pentagon and marking the point of intersection  $x$  perpendicular to the plane, the length of this perpendicular being equal to the square root of the product in question we have the centre of a sphere such that the projection upon it of the plane polygon is the pentagon inscribed in the sphere.

I remark as to the analytical theory, that the intersection of the perpendiculars  $(A, a), (B, b), (C, c), (D, d), (E, e)$  respectively, is independent of the order in which the perpendiculars are taken.

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SUR LES CONIQUES DÉTERMINÉES PAR CINQ CONDITIONS DE CONTACT AVEC UNE COURBE DONNÉE.

[From the *Comptes Rendus de l'Académie des Sciences à Paris*, tom. LXIII. (Juillet—Décembre, 1866), pp. 9—12.]

This paper (dated Cambridge, 26 June 1866), contains the expressions for the numbers (5), (4, 1), (3, 2) (3, 1, 1), (2, 2, 1), (2, 1, 1, 1) and (1, 1, 1, 1, 1), of the conics which satisfy five conditions of contact with a given curve, as obtained in the paper 406 "On the Curves which satisfy given conditions," see p. 214, and which expressions were found by the same process, viz. by consideration of functional equations obtained by supposing the given curve to break up into two curves of the orders  $m$  and  $m'$  respectively; there was in the expression for (1, 1, 1, 1, 1) a numerical error as mentioned in the footnote of the same page. The paper contains also the formula  $\mu'' - \frac{2}{3}\nu'' + \frac{2}{3}\rho'' - \sigma'' = 0$ , and the expression for  $(2X, 3Z)$  given, pp. 203, 204.