

SHORTER NOTICES.

Étude de quelques surfaces algébriques engendrées par des courbes du second et du troisième ordre. Par M. STUYVAERT, Professeur à l'Athénée Royale de Gand. (Thèse). Gand, Hoste, 1902. 72 pp.

CONSIDERING surfaces generated by a curve, plane or twisted, as a logical generalization of the ruled surface, Stuyvaert discusses surfaces generated by a conic or a twisted cubic. His style is clear and concise and he arrives at many known results in a new way and gives many new and interesting ones. The dissertation is divided into three chapters. Chapter I discusses surfaces which are generated by a plane which contains a conic having six points on a directrix curve or system of directrix curves. The first case considered is that of a single directrix C_m , a unicursal curve of order m . The class of this surface is determined as follows. Let S_2 be a quadric passing through four fixed points, A, B, C, D , and cutting C_m in $2m$ points, and let π be a plane through a general line d , cutting C_m in m points. The class of the surface will be the number of groups of six points common to the planes through d and the quadrics through A, B, C, D . The quadrics mark on C_m an involution I_5^{2m} , the planes mark an involution I_1^m . The number of groups of six points common to the two is expressed by

$$C_1^{2m-5} \cdot C_5^{m-1} = (2m-5)C_5^{m-1}.$$

But in each of the four planes $(dA), (dB), (dC), (dD)$, there are C_5^m groups of six points situated on degraded quadrics and hence should be excluded, therefore the class is given by

$$v = (2m-5)C_5^{m-1} - 4C_5^m.$$

By essentially the same method the class of surfaces whose directrix curves consist of a line and a C_m , a conic and C_m , etc., is obtained. As corollaries of the preceding theorems follow readily the determinations of the orders of surfaces generated by ∞^1 conics which move on a system of directrices. In this connection the theorem is given: *Conics whose plane passes through an axis $\alpha\beta$, and which cut five independent lines generate a surface of order eight.*