ANOMALOUS PLANE CURVE SYSTEMS ASSOCIATED WITH SINGULAR SURFACES[1]

T. R. HOLLCROFT

1. **Introduction.** A plane curve system of order n and genus p, with δ nodes, κ cusps, ι statangents, τ bitangents, is of first virtual dimension d_0, of virtual dimension d_0', and of effective dimension d. For such a system, $d_0' = 3n + p - \kappa - 1 = 3m + p - \iota - 1$. If the curve system has only distinct nodes and cusps, $d_0 = d_0'$; if higher singularities, $d_0 < d_0'$.

For any irreducible, continuous, complete curve system, $d \geq d_0$. If $d = d_0$, the curve system is called homalous, if $d > d_0$, anomalous. The anomaly A of a plane curve system is defined by the relation $A = d - d_0$. The above definitions were introduced by B. Segre.[2]

The sections by a plane π of the tangent cones to a nonsingular surface of order ν from the points of S_3 constitute a continuous plane curve system with the characteristics:

$$n = \nu(\nu - 1), \qquad \kappa = \nu(\nu - 1)(\nu - 2),$$
$$\delta = (1/2)\nu(\nu - 1)(\nu - 2)(\nu - 3).$$

B. Segre[3] has shown that for this curve system,

$$d_0 = (5/2)\nu(\nu - 1), \qquad d = (1/6)(\nu + 1)(\nu + 2)(\nu + 3) - 5,$$
$$A = d - d_0 = (1/6)(\nu - 2)(\nu - 3)(\nu - 4).$$

Hence, for $\nu \geq 5$, this plane curve system is anomalous.

The purpose of the present paper is to ascertain the dimensions and anomaly of plane sections of tangent cones to certain singular surfaces.