

## ENCYKLOPÄDIE—III 2, 7-13

*Encyklopädie der mathematischen Wissenschaften mit Anschluss ihrer Anwendungen.* Band III 2, Hefte 7-13. Teubner, Berlin and Leipzig.

The early parts on algebraic geometry appeared more than twenty years ago. The manuscripts of some of the other parts were also prepared, but various circumstances prevented their publication at that time. Most of these have now been brought down to date, but in two cases the deaths of their respective authors have made this impossible.\*

*Mehrdimensionale Räume.* By C. Segre. Band III 2 A, Heft 7. 1920. Pages 769-972.

Corrado Segre (1864-1924) had been interested chiefly in the geometry of hyperspace prior to and a few years after the beginning of the present century. Because of the variety and value of his contributions to this field, it was natural for him to be chosen to write the monograph on hyperspace for the Encyklopädie; indeed, as Loria says in his biography of Segre,† the plan of a great encyclopedia of mathematics could scarcely be thought of without designating him to discuss the geometry of  $n$  dimensions.

In the monograph, a bibliography is given first with abbreviated titles for future reference, followed by a short table of frequently used symbols. The historical introduction covers sixteen pages. It contains numerous references and copious footnotes. Here and all through the monograph, the footnotes contain discussions of the references which are very valuable.

Following the historical introduction, the monograph is divided into ten large subdivisions, which we shall call chapters. The chapters are further subdivided into sections, of which there are forty-seven, numbered continuously throughout the monograph.

In the first two chapters, the elementary properties of hyperspace and the generalized principles of projective geometry applied to  $n$  dimensions are developed.

The third chapter deals with hyperquadrics—their properties, collineations under which a manifold of the second order is invariant, and systems of hyperquadrics. This is followed by a short chapter on null systems and the linear line complex.

In Chapter 5, hyperspace curves are discussed in detail, first as to their characteristics and their generation by intersecting manifolds. The formulas of Veronese are then derived, followed by a treatment of normal curves and the postulation of curves on surfaces. The last two sections are devoted to rational and elliptic curves.

Similarly, in Chapter 6, surfaces in hyperspace are discussed. The generation of surfaces by intersecting manifolds and the tangent spaces of surfaces

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\* In what follows, the separate parts are reviewed by different persons, under the general direction of Virgil Snyder.—THE EDITORS.

† *Annali di Matematica*, (4), vol. 2 (1924-25), p. 9