

the former, any tetrahedron and any unit point are shown to fix a system, and the coordinates are interpreted as anharmonic ratios, thus justifying the name projective coordinates. Projection is defined as a (1, 1) correspondence between the elements of any two entities, when the correspondence is defined by a system of linear equations with a non-vanishing determinant. In the second added article the projective theory of distance and angle are treated, thus justifying the earlier classification of quadrics. The discussion is also outlined for non-euclidean space, but the treatment is so brief that it can hardly be of assistance to the reader.

The chapter on confocal quadrics contains three added notes which connect the theory of confocal surfaces with that of poles and polars with regard to the absolute circle, and a number of proofs are simplified by means of duality. Use is made of the contents of these articles when discussing invariants and covariants of a system of quadrics. No other changes are made in this later chapter.

In the first part of the chapter on curves and developables, a considerable number of problems on curves defined by parametric equations, mostly concerning curves of order 3 or 4, is added. This excellent treatment of the projective properties of algebraic curves, the extension of Plücker's numbers to space curves, and the illustrations by means of curves of orders 3 and 4 is still standard, forty years after its first appearance.

In the second part of this chapter the Codazzi formulas and the Frenet formulas have been added, and Staude's construction of confocal quadrics is treated in fairly full outline.

This volume is provided with an index of subject matter and with a list of authors cited.

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*Oeuvres de Charles Hermite.* Publiées sous les auspices de l'Académie des Sciences par EMILE PICARD. Vol. III. Paris, Gauthier-Villars, 1912. 8vo. 522 pp.

A REVIEW of the first two volumes of Hermite's works has been given in volume 13, pages 182-190, and volume 16, pages 370-377 of this BULLETIN. The thirty-nine memoirs which make up the present volume belong to the years 1872-1880. A fourth volume will contain the remaining papers and bring the work to a close.