ence of various branches of science and human activity on one another.

While the reviewer can recommend this book as interesting, clear and stimulating for the moderately well informed reader, he feels that it is unnecessarily long due to redundance of examples, and that its lack of references is an unfortunate weakness.

J. K. L. MACDONALD

Punktreihengeometrie. By E. A. Weiss. Leipzig and Berlin, Teubner, 1939. 8+232 pp.

The purpose of this book is to serve as an introduction to the projective geometry of higher dimensional spaces. The author adopts the point of view of Reye in regarding such space as the map space of various three-dimensional configurations and he thereby succeeds in bringing together a large variety of topics.

After a brief recapitulation of the elementary geometry of the line, the author introduces the concept of a (linear) point range (punktreihe) on a line obtained by equating to zero a bilinear form in variables (ξ_1, ξ_2) and (τ_1, τ_2), which he writes using the Clebsch-Arnold symbolic notation as $(\gamma\xi)(\mu\tau)=0$. He interprets (τ_1, τ_2) as a parametrization of the points (ξ_1, ξ_2) of the line, and he subsequently defines a point range more generally as a "one-dimensional rational manifold provided with a definite parametrization." By means of the coefficients $\gamma_i\mu_j$ linear point ranges on the line can be put in 1-1 correspondence with the points of projective 3-space; singular ranges map into a ruled quadric, pencils and bundles of ranges into lines and planes. From the properties of singular ranges the author deduces the elementary properties of the quadric.

The two main chapters of the book deal with point ranges (and their duals) in two and three dimensions. By using symbolic notation, the Clebsch correspondence principle, and similar devices, the author derives easily such fundamental results as the harmonic properties of a quadrilateral, the projective generation of a conic, and the polar theory in the plane. Further properties of a conic follow by considering it as a point range of the second order defined analytically by $(um)(\gamma\tau)^2=0$. Pascal's configurations are obtained by mapping binary quadratic forms on the points of a plane.

Linear point ranges in the plane can be mapped on R_5, projective space of five dimensions, and singular ranges correspond to a Segre manifold of three dimensions and of order 3. The singular ranges of a pencil or bundle will map into rational cubic curves and surfaces.

The third chapter deals with geometry in R_3 and the development