

modelling of the text-books and school-books of algebra and geometry in this country and in Germany, belongs undeniably to Dr Salmon of Dublin.¹ The conception of a form—be this geometrical or algebraic—suggests the investigation of the change, the recurrence of forms. How do forms under the process of geometrical or algebraical manipulation alter or preserve their various properties? The processes of projection practised by Monge, Poncelet, and Chasles in France had already led to a distinction between descriptive and metrical properties of geometrical figures. A corresponding examination of algebraical forms, which are all capable of geometrical representation or interpretation, would lead to the extensive and fundamental doctrine of the invariants of these forms—*i.e.*, of such arrangements of the elements as remain absolutely or proportionally unaltered during the processes of change and combination. Notably instead of the geometrical process of projection by central perspective we may employ in our algebraic formulæ a corresponding process, that which is known as linear substitution. And at the time when it was recognised that geometrical transformation had its

¹ Of Dr Salmon, whose 'Lessons introductory to the Modern Higher Algebra' appeared in 1859 (4th ed., 1855; 1st German ed. by Fiedler, 1863), Meyer says: "Recognising how the special results in this domain gradually acquired a considerable bulk, we must the more gratefully acknowledge the work of Salmon—who had already, in the direction of algebra as well as of geometry, furnished valuable contributions of his own—in undertaking the labour of collecting the

widely-scattered material in a concise monograph. For the promulgation in Germany we have to thank Fiedler both for his edition of Salmon, and for having already given an independent introduction to the subject, in which especially he made Cayley's applications to projective geometry generally accessible. About the same time (1862) there appeared likewise an edition by Brioschi, which gained many adherents for the theory of Invariants in Italy."