changed, then the pitch p is unaltered.

III. If tangent planes be drawn through the rays of a congruence of any surface, the pitch p remains unaltered if the surface be deformed in any manner carrying the rays in its tangent planes.

Also is discussed the limiting value of the pitch, $dp/d\sigma$, which has interesting applications, in particular to the Anormalita of Levi-Civita.

This book is very readable and can be easily understood by any student who has had a first year course in Differential Geometry. In the opinion of the reviewer, this is a worthwhile addition to the library of any one who is interested in the classical theory of surfaces.

JOHN DECICCO

Methods of algebraic geometry. By W. V. D. Hodge and Daniel Pedoe. Cambridge University Press, 1947. 8+440 pp. $6.50.

This work by two disciples of H. F. Baker naturally retains some of the flavor of the latter's *Principles of geometry*; but in keeping with the modern trend it is more algebraic and less geometrical. The spirit of the book is indicated by the fact that there is no mention of order or continuity. The first four of the nine chapters are concerned with algebraic preliminaries, chiefly in preparation for vol. II, and are so clear and concise that they would serve very well as an introduction to modern algebra, quite apart from their application to geometry. The topics treated in this part include groups, rings, integral domains, fields, matrices, determinants, algebraic extensions, and resultant-forms. The theory of linear dependence is developed without assuming commutativity of multiplication, and there is a neat algebraic treatment of partial derivatives and Jacobians.

Analytic geometry of projective n-space is taken up in Chapter V. A point of right-hand projective number space is defined as a set of right-hand equivalent $(n+1)$-tuples of elements of a given field, not necessarily commutative; and right-hand projective space is defined as a set of elements which can be put in one-to-one correspondence with the points of such a number space by means of any one of a certain set of "allowable" coordinate systems. A linear subspace is defined as the set of points which are linearly dependent on $k+1$ linearly independent points; and the Propositions of Incidence follow readily. The notation of Möbius' barycentric calculus, as developed by Baker, arises naturally at this stage, and is used in proving Desargues' Theorem for coplanar triangles. Quadrangular constructions are given for the points $O+U(\alpha+\beta)$ and $O+U\alpha\beta$ as de-