

serious, in this reviewer's opinion, is the lack of a complete bibliography; the inexperienced reader may remain unaware of much material in the literature, especially the kind that should certainly be given as suitable for further study. Thus, for example, no mention is made of Hochschild's relative theory, nor is most of the theory dealing with abstract categories and leading to a cohomology theory of sheaves mentioned. Since neither Godement's book nor Grothendieck's Tohoku journal papers are referred to, there is no indication of the many applications of homological algebra to topology and algebraic geometry.

Despite these drawbacks, it should be noted that in the topics treated, the author has given a very careful treatment of a relatively new subject. His work will certainly serve to disseminate these new ideas to a wide public.

ALEX ROSENBERG

Lectures on modern geometry. By B. Segre. With an appendix by L. Lombardo-Radice. Consiglio Naz. di Richerche, Monografie Matematiche. Roma, Ed. Cremonese, 1961. 15+479 pp.

The greater part of this book is a particularly lucid introduction in projective geometry, mainly over commutative fields, which goes as far as Plücker coordinates, invariants of projectivities, and the Schläfli-Berzolari theorem. Up to this point it is a new elaboration of the author's earlier *Lezioni di geometria moderna*. The last two chapters, however, contain new material, mainly due to the author himself, and published in several periodicals. The appendix, written by Lombardo-Radice gives an exposition of newer results on non-Desarguesian finite planes, of Moufang, Hall, Zorn and Levi, Gleason, Wagner and many others. Segre's research on finite planes, as put forth in the present work, is mainly concerned with the notion of k -arc, which is a set of k points no three of which are collinear. For a characteristic $\neq 2$, the $(q+1)$ -arcs, (q =cardinality of the underlying field) are the irreducible conics, and every q -arc is contained in a uniquely determined conic (for $q \geq 5$). There are, however, for characteristic $\neq 2$ maximal k -arcs which are not conics. They are extensively studied also for characteristic 2. Kustaanheimo's betweenness relation, generalizations of Menelaos' and Ceva's theorems, normal rational curves are other subjects. The only chapter dealing with non-pascalian geometries is devoted to reguli and their sections. Its main feature is an attempt on proving Wedderburn's theorem by geometrical means. Though the attempt was not successful (as stated