clerical details which can be of considerable aid to the reader,—the careful numbering of paragraphs and formulas, adequate cross-references, and the explicit statement of theorems,—have been scrupulously attended to. There are numerous diagrams and an excellent bibliography.

Analysis situs is a comparatively young science; yet its importance can not be doubted. It deals with the most primitive questions of geometry and is fascinating to those who enjoy moulding in precise mathematical rigor the visions of a sharpened physical intuition. Its most important problems deal with the very structure of space, and many of them are still to be solved. It is pleasant to reflect that much of what has been accomplished has been the work of American mathematicians, and to that work the present volume is a distinguished contribution.

P. A. SMITH

FUBINI AND ČECH

Introduction à la Géométrie Projective Différentielle des Surfaces. By Fubini et Čech. Paris, Gauthier-Villars, 1931. vi+291 pp.

This volume is in some sense a sequel to the treatise entitled *Geometria Proiettiva Differenziale* published in two volumes in 1926 and 1927 by the same authors. It should receive a generous welcome from the geometrical public for several reasons. First of all, it is in French, a language admittedly more widely read than Italian. The authors, profiting no doubt by their previous experience, have produced a quite readable book. Some detailed developments of their treatise have been omitted; the treatment here is more elementary, and the style of exposition is clearer than before. The discussion is confined to surfaces in ordinary space. Altogether, this book should serve well its purpose of being an introduction to projective differential geometry.

It must not be understood that the present volume is merely an abstract from the treatise. In fact, certain subjects are included which do not appear in the larger work at all. An analysis of the contents of the volume under review will amplify these remarks.

There are in all fourteen chapters, of which the first three may be regarded as introductory. The first is properly an introduction, containing some preliminary analytical results concerning collineations and correlations, matrices, and algebraic forms. The second treats of plane curves, and the third of curves in ordinary space.

Chapters IV–VIII contain an exposition of the projective differential theory of curved surfaces in ordinary space. The point of view is primarily that of the method of differential forms, but the differential equations which define a

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(Footnote contined from page 647.) "The proof as outlined holds for simplicial and convex cells, the only types for which it is used later in the book. The proof for the general case has been obtained recently by A. W. Tucker." Chapter III, No. 45, replace everywhere "M" by "$\overline{M}$."
page 206, end of No. 49, add, "For $n=1$, $Lc\,(\Gamma_0\cdot\Gamma_0')$ can also be defined provided that either Γ_0 or $\Gamma_0'\sim 0$.
page 403, end of reference to W. Mayer, add "219–258."