Notes on differential geometry, by Noel J. Hicks. D. Van Nostrand, Princeton, New Jersey, 1965. vi + 183 pages. $2.98.

This is a modern introduction to the theory of manifolds and connections, and the applications of these concepts to the study of classical differential geometry of submanifolds, especially surfaces in a 3-dimensional Euclidean space.

The materials are arranged in a way that one may choose to teach only the first three chapters in a course at the junior level, or the first six chapters for one semester course in differential geometry at the senior level. The entire book which contains ten chapters can be covered in a full year introductory graduate course.

It consists of the following chapters: 1. Manifolds. 2. Hypersurfaces in R^n. 3. Surfaces in R^3. 4. Tensors and forms. 5. Connections (classical and bundle approach). 6. Riemannian manifolds and submanifolds. 7. Operators on forms and integration. 8. Gauss - Bonnet theory and rigidity. 9. Existence theory. 10. Topics in Riemannian Geometry (including: First and second variation formulae, the Morse Index Theorem, Manifolds with constant Riemannian curvature, manifolds with non-positive curvature).

To the reviewer's opinion this book provides a solid understanding of the basic concepts of differential geometry.

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Définition des fonctions eulériennes par des équations fonctionelles, by Jean Anastassiadis. Mémor. Sci. Math., Fasc. CLVI. Gauthier-Villars et Cie, Éditeur-Imprimeur, Paris, 1964. v + 77 pages. 16 F.

The content of this interesting and very useful booklet could be approximately described as more or less the convex hull of papers of the author [Bull. Sci. Math. (2) 76 (1952), 148-160; ibid. (2) 81 (1957), 78-87; ibid. (2) 81 (1957), 116-118; ibid. (2) 83 (1959), 24-32; C.R. Acad. Sci. Paris 250 (1960), 2663-2665; ibid. 252 (1961), 55-56; ibid. 253 (1961), 2446-2447]. of P. Montel [ibid. 251 (1960), 2111-2113]; of E. Artin [Einführung in die Theorie der Gammafunktion, Teubner, Leipzig, 1931] and of W. Krull [Math. Nachr. 1 (1948), 365-376; ibid. 2 (1949), 251-262] the latter are summarized in an appendix.

The well-chosen and fulfilled aim of the author is not only to characterize the gamma- and beta-functions by equations of finite differences and conditions of logarithmic convexity, monotony, semi-convexity or semi-monotony, but also to deduce many of the properties of these functions from these equations and conditions (and not from the explicit forms). A few further generalizations are also given.