this interesting work has been made accessible to the English speaking community.

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An introduction to differential geometry. By T. J. Willmore. New York, Oxford University Press, 1959. 10+317 pp. $5.60.

Despite the renewed interest in differential geometry in the last decade, there has been but one text in English published since the war suitable for undergraduates. That one, by Struik, limits itself to topics in the classical theory of curves and surfaces. This is unfortunate, since a student familiar only with vector methods would find the geometric content of many modern research papers inaccessible merely on account of notation and terminology. Yet, current propaganda to the contrary, many geometers hestitate to do entirely without "line segments with arrows on the ends," especially in undergraduate lectures. For them, and for mathematicians in other branches who wish to find out a little of what's going on in the field, Willmore's new text is highly recommended.

No doubt the author will be accused of falling between the three fires of vector, tensor, and differential form notations, and it is clear that a book this size cannot do justice to all three. What is remarkable is how much is here, and how pertinent it is to modern trends in differential geometry.

The book is divided into two parts. The first is devoted to surface theory and uses vector notation almost exclusively. Chapter I covers some standard local theory of curves in three space, through the fundamental existence theorem. Topics not usually found in such a treatment are the discussions of differentiability hypotheses, existence of arc length, existence of the osculating plane, and an appendix giving an existence proof for solutions of systems of ordinary linear differential equations.

Chapter II, *Local intrinsic properties of a surface*, is an excellent introduction to Riemannian geometry. There is a good discussion of local isometric correspondence between surfaces as motivation for the study of intrinsic properties. Geodesics, geodesic curvature, the Gauss-Bonnet formula, conformal mapping, and geodesic mapping are treated, and an appendix proves the existence of normal coordinates (which, incidentally, are mentioned by name nowhere in the book).

Principal curvatures, developables, minimal surfaces (a minimal treatment), and ruled surfaces are covered in Chapter III, *Local non-intrinsic properties of a surface*. The fundamental existence theorem