

same relation to an ordinary differential that geodesic parallelism bears to ordinary parallelism and from this the operator  $\nabla$  is defined similar to the usual definition. The absolute derivative is then derived as  $\nabla V$  where  $V$  is a vector or system of the first order. The various products of  $\nabla$  with the various affinors give the formulas needed in hyperspace. Chapter three deals with the curvature properties of a curved space of  $m$  dimensions contained in a curved space of  $n$  dimensions which do not depend on the Riemann-Christoffel tensor. The whole development is similar to the ordinary treatment of an  $m$ -spread in a euclidean space of  $n$  dimensions. There is a remarkable similarity in the formulas in the two cases.

The fourth chapter treats those curvature properties which depend on the Riemann-Christoffel tensor.

The text is preceded by an introduction of twelve pages which it is worth anyone's while to read. The last twenty pages are devoted to a bibliography which contains nearly four hundred titles. This gives one a good notion as to the historic development of the subject. The author has been very careful to give credit to the proper author for all ideas and formulas. The reference one meets most frequently is to Schouten, for the notation used is largely due to him.

The book is not easy reading, but as one becomes more familiar with the notation, he will find that the difficulty decreases, and he will feel amply repaid for his trouble.

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*A First Course in Nomography.* By S. Brodetsky. London, G. Bell and Sons, Ltd., 1920. 135 pp.

Brodetsky has supplied us with the sort of book the subject has needed: a brief, readable exposition of elementary character. It will well serve two purposes. It is an excellent introduction to D'Ocagne, and it also enables its reader to gain a practical working knowledge of the nature and uses of nomograms with a minimum expenditure of time.

The author states in his preface that "it is the object of this First Course to offer a clear and elementary account of the construction and use of such (nomographic) charts" and that "it is a treatment that should be found useful by the reader who desires to become acquainted both with the theory of nomography and with its practical use."

On the whole the author has carried out his intentions fairly well, but, as a text for college students, the book is open to criticism. While a considerable amount of knowledge of algebra, trigonometry, and analytic geometry is presupposed, the author's treatment is very uneven in its demands upon the reader's knowledge and intelligence.