

*Constructive Geometry.* Exercises in elementary geometric drawing. Prepared under the direction of EARLE RAYMOND HEDRICK. New York, Macmillan Company, 1916. 4to. 72 pages; 43 figures.

THIS book is a manual in very elementary work in geometric drawing. The scheme is first a discussion of a problem, then a number of exercises, finally a number of blank pages on which to draw the exercises. It begins with divisions of a straight line, and emphasizes neatness and accuracy in each detail.

Exercises on the circle include a considerable number in design, all of which are very elementary. While this drill is in the right direction, it is almost too simple to be of much value. In fact one of the greatest needs of our instruction in geometry is a more comprehensive treatment of construction by means of ruler and compass, including a full discussion of the graphical solution of quadratic equations.

VIRGIL SNYDER.

*Grundzüge der Perspektive nebst Anwendungen.* By Professor KARL DOEHLEMANN, of the technical school at Munich. (Aus Natur und Geisteswelt, volume 510.) Leipzig, Teubner, 1916. 104 pages, 91 figures, and 11 photographs.

THE volumes of this series are to be written in a popular style, suitable for readers with little or no previous training in the specific line discussed by each volume. Thus, in the present case no use is made of solid geometry, and only the most elementary properties of similar polygons in plane geometry are assumed as known. Probably for this reason the introductory chapter strikes a reader as heavy and prolix, although the method of introduction is unusually well chosen. The author finds it necessary to present the essentials of the  $h-v$  orthogonal projection, but only in so far as points and straight lines are concerned, and these are employed immediately to produce a perspective picture.

The concept of the vanishing point and vanishing line is developed in great detail. No exercises are proposed for the reader, except that an occasional construction is left to be completed, but on the other hand a large number of drawings and several reproductions of paintings are given, to assist in illustrating the point under discussion. Apart from the very brief explanation of the two-plane orthogonal projection, the