

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

discussion of figures bounded by planes is treated in sufficient detail. A short discussion of the perspective of the circle is added, and a still shorter discussion of shades and shadows. The book has a table of contents, an index, a list of books for further reading, and is almost entirely free from typographical errors. It is well fitted for its purpose of providing a knowledge of the essentials of perspective in a small popular volume.

VIRGIL SNYDER.

A Treatise on Statics. By GEORGE M. MINCHIN. Vol. II. Fifth Edition. Revised by H. T. GERRANS. Oxford, The Clarendon Press, 1915.

"IN December, 1913, when the preparations for a new edition became necessary, it was suggested to the author (1) that certain portions should be omitted (in the hope that they might form the basis of a separate work); (2) that some account of the author's recent researches in spherical harmonics should be given; (3) that a substantial number of examples should be added." The author determined which chapters and articles should be left out, but his death occurred before the task of revision was begun.

In this latest edition 467 examples have been added in an appendix, also a very few in the text, while the original numbering of the articles in the fourth edition has been retained. Three entire chapters (of the fourth edition) have been omitted, Chapter XVIII, Analysis of Strains and Stresses, Chapter XIX, Electrostatics, also the chapter on Astatic Equilibrium, viz., Chapter XIV, in which the subject was treated with the aid of quaternions.

Other omissions are arts. 221-226, 228-234, on reciprocal screws, etc., arts. 280, 281, on general properties of static energy and stable configuration, arts. 288-296 on elastic wires, inextensible surfaces and liquid surfaces, arts. 307-314 on tortuous curves and kinetic analogues. Note *A*, on the equation of capillarity, has disappeared, as well as the index to Volume II.

Otherwise this edition is a verbatim reproduction of the fourth edition, with occasional obvious omissions of subscripts. In art. 235 the correct reading is $\phi = qAR$ and $K = pR$. In the last equation in art. 241, the $-$ sign should be $+$, and in equation (2) of problem 9 at the end of the same article α/μ should be a/μ .