DESCRIPTIVE GEOMETRY; A TREATISE FROM A MATHEMATICAL STANDPOINT, TOGETHER WITH A COLLECTION OF EXERCISES AND PRACTICAL APPLICATIONS

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Descriptive geometry; a treatise from a mathematical standpoint, together with a collection of exercises and practical applications by Victor T. Wilson

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VICTOR T. WILSON

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DESCRIPTIVE GEOMETRY

A TREATISE FROM A MATHEMATICAL STANDPOINT

TOGETHER WITH

A COLLECTION OF EXERCISES AND PRACTICAL APPLICATIONS

BY

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PREFACE.

Descriptive geometry is essentially a mathematical subject. The application of its principles to the making of working drawings, however, and the modifications which are made to suit the contingencies of practice, have had a tendency to obscure this fact, and like other theoretical subjects it has suffered mutilation in the interest of short cuts to immediate practical uses. But does not technical education, after all, consist chiefly in an equipment of sound theory? It has been the author's purpose to refrain from any attempt to hold the student's interest by clothing a few principles with some immediate pratical application, but instead, to present a sound theoretical treatment. How well he has succeeded he leaves others to judge.

The principles are herein formulated under theorems, as in plane and solid geometry; illustrative problems are solved in accordance with these theorems and special constructions discussed. The plan of, at least, one well know text is followed of dividing all problems into two parts; the first of which is a statement of the geometrical principles and the theoretical solution called an analysis; the second is a description of the graphic solution, accompanied by a drawing. An important feature is added, however, of giving the statement of the geometrical conditions and the solution in the analysis in a general form, instead of being made to refer to a certain kind of problem exclusively.

As an illustration of the generalized treatment throughout, attention may be called to the discussion of the cone. A common conception of a cone is that of a right circular cone, or cone of revolution. A generalized definition is given, however, to include all the surfaces which may be generated by a right line moving so as to pass through a fixed point and touch a curve. Further, it is stated that every cone is generically a right cone, and may be specifically named from the shape of a cross section so taken that a perpendicular, let fall from the fixed point or apex to the plane of the section, will pierce the latter in the center, focus, or other characteristic point, as a cusp, point of inflection, etc., etc.

While the third angle is undoubtedly to be preferred for working drawings, it is not thought that descriptive geometry, as mathematics, has any concern with a particular angle. The illustrative problems used deal indifferently with all so that the emphasis can be laid upon sound theory.

Exercises for students are grouped in the back of the book and suitably designated as belonging to a certain part of the text. An appendix deals with the subject of approximate methods, which has no proper place in the body of the book.

The author wishes to acknowledge his indebtedness to the well known texts, notably those of Church and of McCord, and also in particular to Arthur G. Hall, professor of mathematics at the University of Michigan, for valuable service in examining the mathematical treatment of the text.

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