

**A TEXT BOOK OF GEOMETRICAL
DRAWING: FOR THE USE OF MECHANICS
AND SCHOOLS, IN WHICH THE
DEFINITIONS AND RULES OF GEOMETRY
ARE FAMILIARLY EXPLAINED**

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A text book of geometrical drawing: for the use of mechanics and schools, in which the definitions and rules of geometry are familiarly explained by William Minifie

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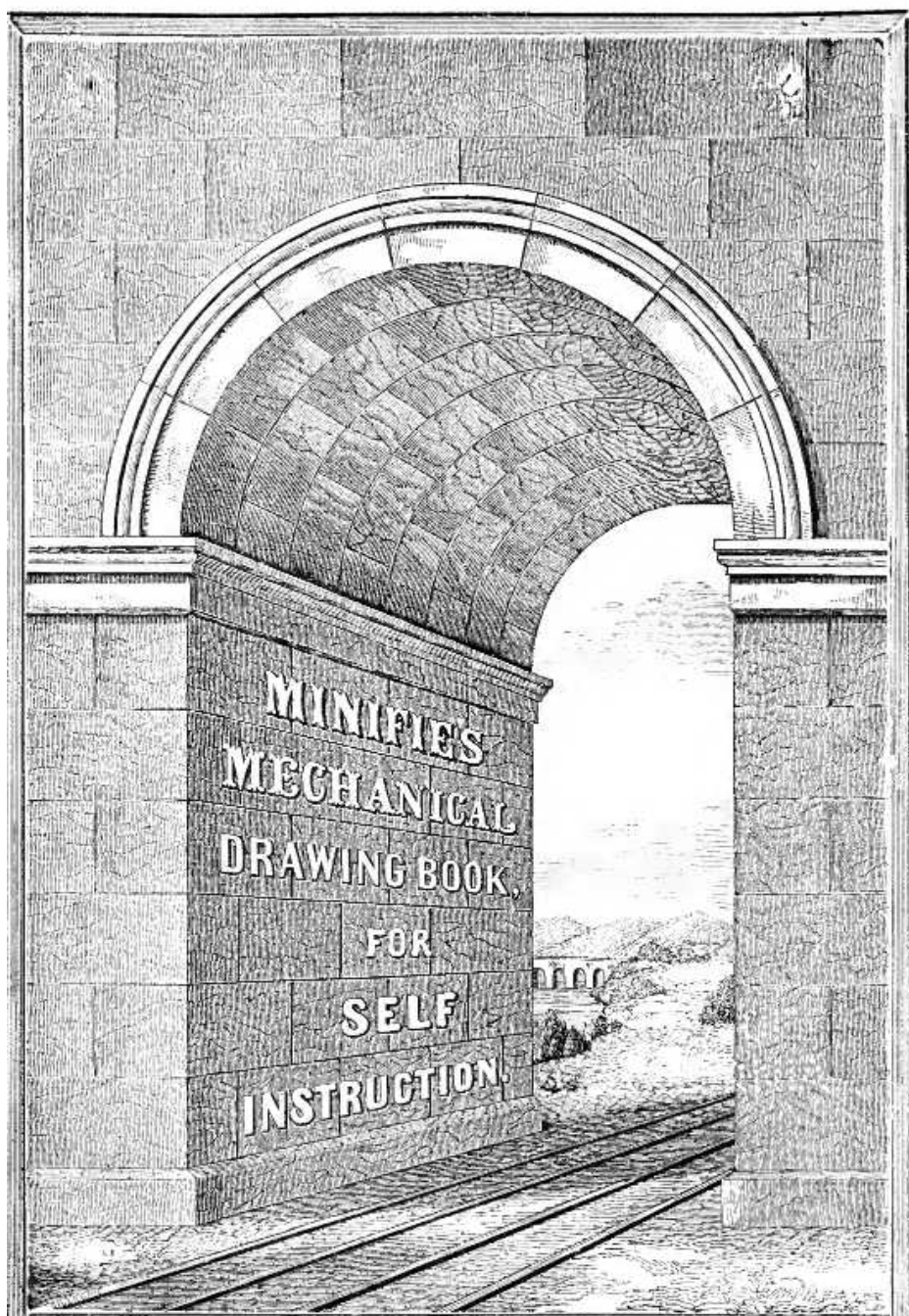
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WILLIAM MINIFIE

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AND SCHOOLS, IN WHICH THE
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ARE FAMILIARLY EXPLAINED**



NINTH THOUSAND.

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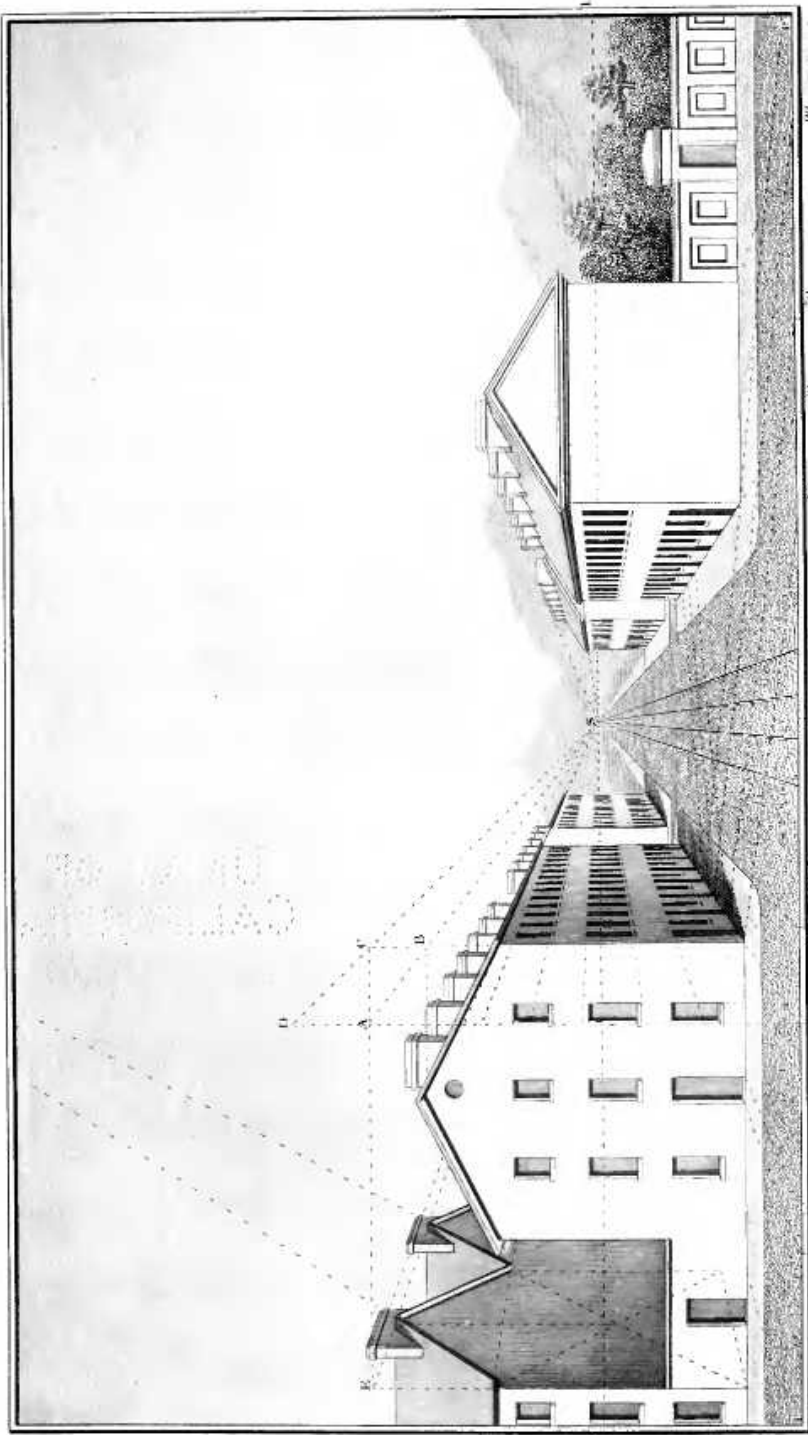


Photo 51.
PERSPECTIVE.

A TEXT BOOK
OF
Mechanical
~~GEOMETRICAL~~ DRAWING;

FOR THE USE OF
MECHANICS AND SCHOOLS,

IN WHICH THE DEFINITIONS AND RULES OF GEOMETRY ARE FAMILIARLY EXPLAINED, THE PRACTICAL PROBLEMS ARE ARRANGED FROM THE MOST SIMPLE TO THE MORE COMPLEX, AND IN THEIR DESCRIPTION TECHNICALITIES ARE AVOIDED AS MUCH AS POSSIBLE;

WITH ILLUSTRATIONS FOR DRAWING
PLANS, SECTIONS AND ELEVATIONS OF BUILDINGS AND MACHINERY.

AN INTRODUCTION TO ISOMETRICAL DRAWING:

A COURSE OF

LINEAR PERSPECTIVE AND SHADOWS:

AN ESSAY ON

THE THEORY OF COLOR,

AND

ITS APPLICATION TO ARCHITECTURAL AND MECHANICAL DRAWINGS

THE WHOLE ILLUSTRATED WITH

FIFTY-SIX STEEL PLATES.

By WM. MINIFIE, ARCHITECT. *Minifie*

NINTH THOUSAND, REVISED BY THE AUTHOR.

NEW YORK:
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BY WM. MINIFIE,

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P R E F A C E .

HAVING been for several years engaged in teaching Architectural and Mechanical drawing, both in the High School of Baltimore and to private classes, I have endeavored without success, to procure a book that I could introduce as a text book; works on Geometry generally contain too much theory for the purpose, with an insufficient amount of practical problems; and books on Architecture and Machinery are mostly too voluminous and costly, containing much that is entirely unnecessary for the purpose. Under these circumstances, I collected most of the useful practical problems in geometry from a variety of sources, simplified them and drew them on cards for the use of the classes, arranging them from the most easy to the more difficult, thus leading the students gradually forward; this was followed by the drawing of plans, sections, elevations and details of Buildings and Machinery, then followed Isometrical drawing, and the course was closed by the study of Linear perspective and shadows; the whole being illustrated by a series of short lectures to the private classes.

I have been so well pleased with the results of this method of instruction, that I have endeavored to adopt its general features in the arrangement of the following work. The problems in constructive geometry have been selected with a view to their practical application in the every-day business of the Engineer, Architect and Artizan, while at the same time they afford a good series of lessons to facilitate the knowledge and use of the instruments required in mechanical drawing.

The definitions and explanations have been given in as plain and simple language as the subject will admit of; many persons will no doubt think them too simple. Had the book been intended for the use of persons versed in geometry, very many of the explanations might have been dispensed with, but it is intended chiefly to be used as a *first book in geometrical drawing*, by persons who have not had the benefit of a mathematical education, and who in a majority of cases, have not the time or inclination to study any complex matter, or what is the same thing, that which may appear so to them. And if used in schools, its detailed explanations, we believe, will save time to the teacher, by permitting the scholar to obtain for himself much information that he would otherwise require to have explained to him.

But it is also intended to be used for *self-instruction*, without the aid of a teacher, to whom the student might refer for explanation of any difficulty; under these circumstances I do not believe an explanation can be couched in too simple language. With a view of adapting the book to this class of students, the illustrations of each branch treated of, have been made progressive, commencing with the plainest diagrams; and even in the more advanced, the object has been to instil principles rather than to produce effect, as those once

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obtained, the student can either design for himself or copy from any subject at hand. It is hoped that this arrangement will induce many to study drawing who would not otherwise have attempted it, and thereby render themselves much more capable of conducting any business, for it has been truly said by an eminent writer on Architecture, "that one workman is superior to another (other circumstances being the same) directly in proportion to his knowledge of drawing, and those who are ignorant of it must in many respects be subservient to others who have obtained that knowledge."

The size of the work has imperceptibly increased far beyond my original design, which was to get it up in a cheap form with illustrations on wood, and to contain about two-thirds of the number in the present volume, but on examining some specimens of mathematical diagrams executed on wood, I was dissatisfied with their want of neatness, particularly as but few students aim to excel their copy. On determining to use steel illustrations I deemed it advisable to extend its scope until it has attained its present bulk, and even now I feel more disposed to increase than to curtail it, as it contains but few examples either in Architecture or Machinery. I trust, however, that the objector to its size will find it to contain but little that is absolutely useless to a student.

In conclusion, I must warn my readers against an idea that I am sorry to find too prevalent, viz: that drawing requires but little time or study for its attainment, that it may be inhaled involuntarily as one would fragrance in a flower garden, with little or no exertion on the part of the recipient, not that the idea is expressed in so many words, but it is frequently manifested by their dissatisfaction at not being able to make a drawing in a few lessons as well as their teacher, even before they have had sufficient practice to have obtained a free use of the instruments. I have known many give up the study in consequence, who at the same time if they should be apprenticed to a carpenter, would be satisfied if they could use the jack plane with facility after several weeks practice, or be able to make a sash at the end of some years.

Now this idea is fallacious, and calculated to do much injury; proficiency in no art can be obtained without attentive study and industrious perseverance. Drawing is certainly not an exception; but the difficulties will soon vanish if you commence with a determination to succeed; let your motto be PERSEVERE, never say "it is too difficult;" you will not find it so difficult as you imagine if you will only give it proper attention; and if my labors have helped to smooth those difficulties it will be to me a source of much gratification.

WM. MINIFIE.

BALTIMORE, 1st March, 1849.

PREFACE

TO THE REVISED EDITION.

IN ISSUING this *seventh edition* of THE GEOMETRICAL DRAWING BOOK, the author desires to return his grateful thanks to the public, for the favor with which the previous editions have been received: more especially for the favorable notices elicited from the press, both in the United States and Great Britain, particularly from that portion devoted to Fine Art, Architecture, Engineering and Mechanics, as in all those pursuits a knowledge of drawing is indispensable to success, and the conductors of its literature may be fairly considered as the most competent to decide on the merit of a treatise on this subject; their approval has, therefore, afforded me the more satisfaction.

Many of the schools and colleges of the Union have adopted the work as a Text Book. It has also been recommended by the Department of Art of the British Government to the National and other Public Schools and Institutions throughout the kingdom.

The present edition has been carefully examined and the few typographical errors corrected. The Essay on the Theory of Color and its application to Architectural and Mechanical Drawings, which was issued as an appendix to the fourth and following editions, has now been revised and arranged in the body of the work, and a full Index to the Essay added, together with a few other matters of interest, which it is hoped will be found to add to the usefulness of the book, and enable the student much more readily to refer to the information required.

BALTIMORE, *May*, 1867.