

**MECHANICAL
DRAFTING,
PP. 1-237**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649645206

Mechanical Drafting, pp. 1-237 by H. W. Miller & R. K. Steward

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H. W. MILLER & R. K. STEWARD

**MECHANICAL
DRAFTING,
PP. 1-237**

MECHANICAL DRAFTING

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THE MANUAL ARTS PRESS
Peoria, Illinois

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1921

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Engineering
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PREFACE

In writing the original edition of this text it seemed wise to the author to base its arrangement and content upon two principles which considerable experience proved sound. These principles are: first, that the student can just as well, and perhaps better, be taught the use of instruments on work that will at the same time have educational value; second, that for greatest efficiency in teaching drawing the text should be made so complete and follow the classroom work so closely that lecturing is unnecessary.

The above principles were followed by first designing a very flexible course in drafting, substituting drawings of machine parts for the conventional geometrical figures. The work was arranged into definite groups, according to subject, each group being scheduled for a definite amount of time. Second, the text was so arranged that section, lesson or chapter one, gave all information necessary for the work included in group one, etc.

The revision of 1915 was made by the entire staff of the Department of Drawing of the University of Illinois, of which Professor R. K. Steward was then Acting Head, with the aim of making the original text not only more complete but likewise a book of reference that would be of service after the student had completed his course. This revision of 1921 has been made entirely by R. K. Steward, now Professor of Drawing and Design at the Michigan Agricultural College. He has made such changes in the text as his experience of the last six years has proved desirable, and it is felt certain that the work has thereby been rendered much more valuable.

H. W. MILLER.

June, 1921. ✓

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MECHANICAL DRAFTING

CHAPTER 1

LETTERING

FREEHAND

(1) Freehand or offhand lettering is so much a part of every engineer's daily routine that to be unable to letter with speed and grace is considered an inexcusable discredit. The results of practice show that no one need be embarrassed long because of the lack of this skill, for anyone can learn to letter. However, the acquisition of proficiency demands what skill in any manual performance requires,—more or less experience and careful study of principles.

It is fortunate for the beginner in lettering that there are very few elements that must be mastered. Most engineers use extremely simplified styles of freehand letters. The **Reinhardt** alphabet (*slant or vertical*) is especially noted for its simplicity as it has been stripped of all superfluous appendages that made formed styles both complicated and time-consuming in their use. In the practice of either type the beginner will find that all of the letters are made up of but two or three characteristic elements or strokes, each of which is easily constructed.

The first style or type presented is the Reinhardt *slant*. It should be mastered thoroly because it is in use in most drafting rooms and colleges. It is probable that its use in over eighty per cent of the large drafting rooms