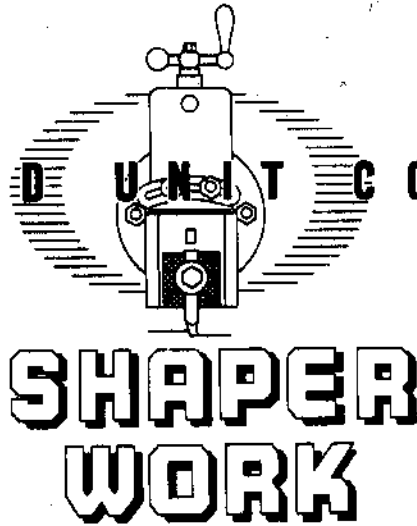
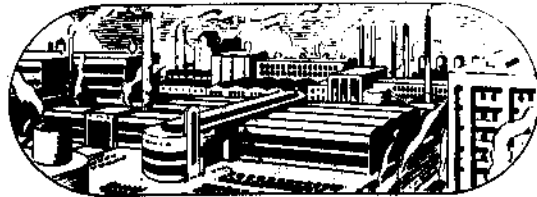


SUGGESTED UNIT COURSE IN

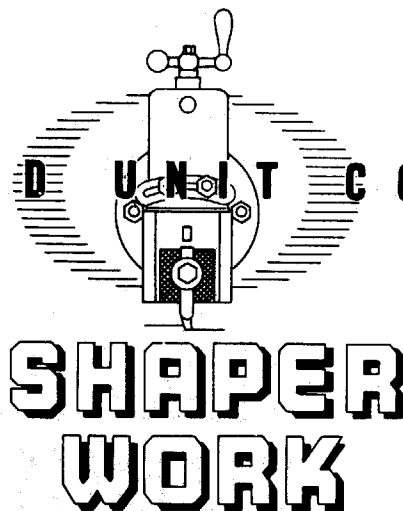


SHAPER WORK



DELMAR PUBLISHERS, INC.
ALBANY 1, NEW YORK

SUGGESTED UNIT COURSE IN



1950

DELMAR PUBLISHERS, INC.

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Preface

The production of interchangeable parts, which is the keystone of our present day manufacturing system, depends largely on the skill of the individual machine operator and of the all-round craftsman in operating machine tools and in using measuring instruments so that each machine part is held within certain prescribed limits of accuracy.

Over a period of years, careful analyses were made to determine essential occupational areas of training for machine shop practice. As a result of these studies, the following seven main divisions of the trade were defined and a series of texts were prepared to cover them: (1) Measurement, (2) Bench Work, (3) Drill Press, (4) Lathe, (5) Milling Machine, (6) Shaper Work, and (7) Heat Treatment of Metals.

Further study revealed that each operation in machine shop practice involves the teaching and learning of basic trade theory and fundamental processes. Following this line of reasoning, two types of instructional units are included in each monograph: (1) a Trade Theory Series and (2) a Fundamental Process Series. A brief description of each type follows.

TRADE THEORY SERIES

The basic trade theory and related technical information, such as principles governing machine shop operations, the derivation and application of formulas, and descriptions of machine tools and accessories, are covered in the Trade Theory Series. This technical information furnishes the student with background trade knowledge necessary to perform machine shop operations skillfully. The Trade Theory units which are directly related to the Fundamental Process units may be used as text or reference material for class, laboratory or home study.

FUNDAMENTAL PROCESS SERIES

The term Fundamental Process covers those manipulative processes which involve the use of hand and machine tools and are common to machine or bench work. The manipulative phases of an operation are described in common trade terminology and are well illustrated with line drawings. As the Fundamental Process units provide reference material for the actual performance of operations, they may be used as supplementary text material for the teaching of fundamental processes either in a school or an industrial plant.

The selected series of instructional units in each text includes those fundamental operations which are common for a specific division of the trade and which apply under all conditions. Throughout the series, the units are arranged in the natural order of dependence of one operation on the next; i.e., in a sequence which conforms to the logical order of teaching and learning difficulty. However, this arrangement may be changed to meet exacting industrial and educational training course requirements without altering the effectiveness of any one of the suggested unit courses.

* * * * *

Acknowledgement is made in footnote form throughout the text for the fine cooperation and helpful assistance given by the following manufacturers: American Tool Works Company, Cincinnati, Ohio; Armstrong Bros. Tool Co., Chicago, Illinois; Carborundum Company, Niagara Falls, N.Y.; Cincinnati Shaper Company, Cincinnati, Ohio; Gould and Eberhardt, Irvington, N.J.; Hendey Machine Company, Torrington, Conn.; Norton Company, Worcester, Mass.; Oilgear Company, Milwaukee, Wis.; "O.K." Tool Co. Inc., Shelton, Conn.; Rockford Machine Tool Company, Rockford, Illinois; Vickers, Incorporated, Detroit, Michigan; Western Machine Tool Works, Holland, Michigan; J. H. Williams and Co., Buffalo, New York.

Sincere appreciation is expressed to the Bureau of Industrial and Technical Education, The New York State Education Department for permission to reproduce this instructional material.

The Editor

Albany, New York

Machine Shop Series

This series of texts covers seven major occupational areas of Machine Shop Practice: (1) Measurement, (2) Bench Work, (3) Drill Press, (4) Lathe, (5) Milling Machine, (6) Shaper Work, and (7) Heat Treatment of Metals.

The instructional material in each book is written in simple trade terminology and illustrated through the generous use of line drawings. The range of technical information (Why-to-do) and fundamental process units (How-to-do) provides basic instruction for beginning students, apprentices and home workshop enthusiasts; and advanced reference material for skilled craftsmen, engineers, supervisory personnel and teachers.

MACHINE SHOP MEASUREMENT

A beginner's text and workbook which covers basic mathematical principles of linear, circular, and angular measurement from the standpoint of related mathematics and machine shop practice.

65 pages (7 3/4 x 10 1/4); 109 line drawings

BENCH WORK

A basic text which describes the theory of Bench Work and the operations performed with measuring, layout and bench tools.

88 pages (7 3/4 x 10 1/4); 159 line drawings; formulas; tables

DRILL PRESS WORK

An introductory text dealing with the theory and operation of drill presses; uses of accessories and holding devices; cutting speeds and feeds; drilling, reaming, countersinking, counterboring and tapping.

42 pages (7 3/4 x 10 1/4); 48 line drawings; 6 tables

LATHE WORK

A comprehensive text covering the related technical information and fundamental processes which are basic for Lathe Work held between centers and in a chuck. A partial list of topics includes: centering, mounting work; grinding tool bits; facing, straight turning; speeds and feeds; turning shoulders, chamfering, knurling, thread cutting, angle and taper turning; mandrel and chuck work; drilling, boring, reaming and tapping.

164 pages (7 3/4 x 10 1/4); 197 line drawings; formulas; tables

MILLING MACHINE WORK

An exhaustive study of modern milling machines and accessories. The instructional units cover in minute detail the theory and practice of basic and advanced milling machine operations, with emphasis on dividing head work.

298 pages (7 3/4 x 10 1/4); over 300 illustrations including phantom and cut-away sections

SHAPER WORK

A new and complete treatise on modern types of crank and hydraulic shapers. The text covers all the basic and advanced operations and related technical information required to do Shaper Work.

326 pages (7 3/4 x 10 1/4); 582 illustrations including phantom and cut-away sections

HEAT TREATMENT OF METALS

A basic text containing two sections: (I) which deals with the theory and practice of simple forging, case hardening, hardening and tempering, and (II) a series of practical laboratory and shop tests and experiments in heat treatment of common ferrous metals.

51 pages (7 3/4 x 10 1/4); well illustrated

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- T Trade Theory Series
- P Fundamental Process Series
- 52 Sequence of Unit

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