

Preface:

The purpose of this book is to supply a deficiency of long standing in the metal trades for a comprehensive exposition of the hand scraping art and its principal application, the reconditioning of machine tools. The author has attempted to set down in simple language, not only the basic principles and practices, but also the more advanced techniques utilized by skilled, experienced scrapers.

The arrangement of this book has a two-fold purpose. First, to acquaint the novice with the basic scraping procedures and to teach the principles involved. Second, to apply this knowledge to the specific problems of machine tool reconditioning.

In describing the methods employed in treating the various machine tools, a progressive, step-by-step procedure is followed. Starting with an outline of the components, each part is sub-divided into its constituent bearing surfaces. The OBJECTIVES required of each surface are established, and accompanied by a more or less detailed explanation of the recommended treatment. In other words, each part of the entire operation is given and presented in the logical order. It should answer the questions, "Where do I start?" and, "What next?" Where sound alternative procedures are possible, they are mentioned. This has been done, not to make the work encyclopedic in content, but to suggest the use of other apparatus equally appropriate.

Each major operation, and many minor ones, are graphically illustrated by perspective and mechanical drawings. These show the physical set-ups and utilize the very minimum of standard equipment. Many of the diagrams show the permissible tolerances in connection with alignments.

The subject matter has been arranged, as far as possible, to make it useful as a handbook for foremen and other supervisory personnel. Both the section headings and index should make possible the rapid finding of essential information. For experienced operators, the illustrations alone should solve many problems with little reference to the text.

Most of this information cannot be found in standard engineering handbooks, machinist's manuals, or even in books dealing with the mechanical trades generally, but it is nonetheless indispensable to anyone charged with the responsibility for maintaining, at highest efficiency, the production machinery of mill, factory, or shop.

The status of hand scraping in modern industry is an important one. It is an integral operation of machine tool building and repair, which is the key industry of America's mass production system of manufacture. Moreover, it is an essential process in the production of master gages for factories.

Although there have been many technological advances in machine design, new processes developed in metallurgy, innovations in metal hardening and in grinding practice, this progress has not diminished the need for hand scraping. Machines have not yet replaced the skilled scraping operator, nor are they likely to. In the manufacture of industry's master tools, such a development is even less probable.

Naturally, scraping ability cannot be cultivated in a day. To become a skilled scraping operator requires not only much practice and varied experience, manual dexterity and physical strength, but also great patience and an equable temperament. Thus it is obvious that not all are fitted for the task. However, for those qualified, the period of learning may be materially shortened by a study of this book and correct application of its principles. While an occasional short cut may be taken on some of the procedures discussed, these are for the skilled practitioner and not for the novice. Experimentation, legitimate as it is, ought not to be too freely exercised when reconditioning costly machines. If the novice will conform to the procedures herein described, there will be reasonable efficiency for the effort expended.

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