

# Preface

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This, the 11th edition of *The Making, Shaping and Treating of Steel*<sup>®</sup>, Long Products Volume, has been prepared following a long tradition of providing information relating to the latest theory, technology and operating practices used in the making and processing of steel. Each of the first 10 editions of *The Making, Shaping and Treating of Steel* described all aspects of steelmaking and processing, beginning from iron- and steelmaking and ending with production of finished steel products.

The first edition was distributed in 1919 in the form of hectographed notes intended for use in training courses for salesmen and other non-technical employees of the Carnegie Steel Co. In the following year, two printed and bound editions, enlarged by extensive revisions, were published. The authors of these early editions were James McIntyre Camp and Charles Blaine Francis. They co-authored the book until 1925. The fifth edition, published in 1940, was rewritten by Mr. Francis.

Beginning with the sixth edition, published in 1951, writing the book became a group effort, with many individuals from various departments of United States Steel Corporation making significant contributions. This work was carried out under the editorial direction of the Research Department. The policy of anonymity and cooperative team effort continued in the seventh edition published in 1957.

In the next three editions of *The Making, Shaping and Treating of Steel*, the team approach to revision was replaced by the prominence of editors. The eighth edition of 1964 and the ninth edition of 1971 were edited by Harold E. McGannon, each with a large number of contributor names in the prefaces. The 10th edition of 1985 was edited by a team of four men: William T. Lankford Jr., Norman L. Samways, Robert T. Craven and Harold E. McGannon (editor emeritus).

After the publication of the 10th edition of *The Making, Shaping and Treating of Steel* in 1985, the Association of Iron & Steel Engineers (AISE) assumed total responsibility for the future of this prestigious document. The Association for Iron & Steel Technology (AIST), which was formed by the merger of AISE with the Iron & Steel Society (ISS) in January 2004, now has the rights to the MSTs volumes.

The readers of this 11th edition will note the significant change in the book's format and presentation in comparison with its previous editions. Considering the enormous influx of new technology for the making and processing of steel since the publication of the 10th edition in 1985, and also the global character of the steel industry, the 11th edition of this book was divided into five volumes:

Ironmaking Volume (published in 1999)

Steelmaking and Refining Volume (published in 1998)

Casting Volume (published in 2003)

Flat Products Volume (published in 2014)

Long Products Volume (published in 2017)

I am convinced that the past 30 years will be viewed by the future generations of the steel community involved in the development and operation of equipment for production of long steel products as a period of significant breakthroughs made in all aspects of the multi-disciplinary know-how required for the production of high-quality long products, including but not limited to:

- In-depth understanding of the metallurgical aspects in the rolling of long products.
- Creation of novel wire rod and bar production technologies utilizing in-line heat treatment processes.
- Introduction of endless rolling of wire rod and bar.
- Implementation of spooler technology for rebar production.
- Significantly increasing the productivity and utilization of rolling mill plants by quick changing of roll stands, single-family roll pass design and the ready-to-roll concept.
- Implementation of advanced main drives and speed control technology for high-speed wire rod rolling.
- Implementation of reversing tandem mills with universal stands for rolling of medium and heavy sections.
- Further improving technology for control of geometrical, mechanical and metallurgical parameters of billets, wire rod, bar, sections and tubes.
- Implementation of advanced process lines.
- Full automation of rolling mills, forge shops and process lines.

Unlike previous editions of *The Making, Shaping and Treating of Steel*, produced by the departments of United States Steel Corporation, this book is a compilation of international knowledge in this area of expertise. The reader shall consider the fact that, because of the unprecedented rate of consolidation and globalization of the steel industry which occurred during the last 30 years, the names of many companies have been changed, while the old names might remain occasionally in the text.

I am grateful to the Association for Iron & Steel Technology for offering me to become the editor of the Long Products Volume. The book contents and a list of its contributors that I proposed were reviewed, partially revised and approved by the AIST Steering Committee. Kurt Edwards, Karen Hickey, Amanda Blyth, Brian Bliss and Kenneth Landau, all of AIST, played an instrumental role in soliciting and collecting articles, communicating with their authors, assisting me in editing the book and preparing it for publication.

My hope is that this book will attract the interest of the university students, research and development workers, designers of equipment, producers of long steel products and training instructors.

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