

THE MANAGEMENT OF STEEL

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The Management of Steel by George Ede

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GEORGE EDE

**THE MANAGEMENT
OF STEEL**

THE
MANAGEMENT OF STEEL

BY
GEORGE EDE
AUTHOR OF 'GUNS AND GUN MATERIAL'

Seventh Edition



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PREFACE

TO THE FOURTH EDITION.

It has long been acknowledged that a small practical work upon the forging, annealing, hardening, and tempering of steel, and the case-hardening of iron, &c., was wanting amongst us; and it was with the object of assisting to supply this want, that I contributed my mite in publishing and giving my experience in the small work on the Management of Steel. How far my efforts have succeeded in supplying this want, I am not about to say; but the flattering reception and high praise it has received in passing through its several editions, have induced me to issue a much larger work in a revised form. I gave it the title of "The Management of Steel" when I published the first edition, simply because I could think of no other better; and I continue the name, because I am still unable to think of one more suitable. In this present attempt, my aim has been to write a work which would be found as useful to the novice or amateur mechanic as to the

practical man; and I have endeavoured to word the subject in such a homely style, that persons totally unacquainted with the processes on which it treats will be able to judge for themselves as to the reasonableness of my remarks. It treats upon the manufacture of iron and steel, the choosing of steel for tools, forging iron and steel, annealing cast iron and steel, hardening and tempering of cast iron and steel, expansion and contraction of steel, shrinking of iron and steel, and the case-hardening of wrought iron, also the toughening of mild cast steel for guns, shot, railway bars, &c.

It will, I believe, be found in the future an inestimable treasure to those young mechanics who may possess it; for, in my opinion, if young apprentices were taught to make themselves better acquainted with the materials they work upon, likewise the materials from which their tools are made, and the management of that material, the advancement of the sciences would be greatly hastened, as this knowledge would increase the powers of the head to contrive, and the powers of the hands to execute. The inventions which become publicly known are few in comparison with those which spring up in the minds of ingenious mechanics and perish with the hour that gave them birth, through the want of a better knowledge of the properties of materials.

Although this work is not calculated to supply all this knowledge, still my aim has been to be of use and to contribute towards it. I cannot expect that it will entirely satisfy the wishes of all my readers; but I have dwelt at greater length on those subjects which I have considered from my own experience to be the most important, and I sincerely hope that its contents may prove of some benefit to those who may favour me by an impartial perusal.

GEORGE EDG.

PREFACE

TO THE SIXTH EDITION.

As there is a growing demand for 'The Management of Steel,' and the Fifth Edition being exhausted, the Author feels great pleasure in issuing this, the Sixth Edition. The present issue is simply reprinted from stereotyped plates. No changes have been made in the book for various reasons, among others, (1) because since the publication of the last edition no improved methods calculated to supersede those already given in the book for the proper and successful dealing with highly carbonised steels, subsequent to their manufacture, have been discovered by, or come within the knowledge of the Author; (2) because in reference to the subject of the treatment, management, and employment of the milder or less carbonised kinds of steel, such as are used for guns, &c., the Author has only just recently given minute, novel, theoretical, and practical information in a new and separate work entitled 'Guns and Gun Material,' which he cannot doubt will be acceptable

to those interested in its subjects; and (3) because it is difficult, at present, to see in what additional way the book could be made more definitely and widely useful.

The present is an age in which every branch of technical knowledge is being prosecuted with ever-increasing earnestness. Every advance, no matter how small, is not only a national benefit, but also, in the end, a gain to the world. The Author is thankful that in his own department he has, from time to time, been enabled to render direct, special, and material service to the Government of his own country; and also indirectly by means of what he has written to benefit the cause of industrial science and art generally. He would, therefore, humbly urge all who may have an interest in this line of work to seek not only to attain to what is already known, but also to aim at contributing something additional, be it large or small, to the general manufacturing and labouring prosperity of our time.

It may here be mentioned that the right to translate this book into French and German has already been sold. This fact would seem to be a proof of the importance with which the subject of which it treats is being regarded abroad, and, consequently, of the necessity of our own manufacturers and workmen at home striving to maintain the

highest possible proficiency in this branch of technical knowledge.

In conclusion, the Author would anew cordially thank those numerous journals and friends that have been pleased to express themselves in such impartial and favourable terms in regard to the value of the book now going forth again in the present edition.

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