

**A PRACTICAL MANUAL OF
AUTOGENOUS WELDING, (OXY-
ACETYLENE) WITH A CHAPTER
ON THE CUTTING OF METALS
WITH THE BLOWPIPE**

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A practical manual of autogenous welding, (oxy-acetylene) with a chapter on the cutting of metals with the blowpipe by R. Granjon & D. Richardson

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R. GRANJON & D. RICHARDSON

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WITH A CHAPTER ON THE CUTTING
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BY

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DIRECTEURS DE L'OFFICE CENTRAL DE L'ACÉTYLÈNE ET DE LA
REVUE DE LA SOUDURE AUTOGÈNE.

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LECTURER ON AUTOGENOUS WELDING AT THE NORTHERN POLYTECHNIC.

THIRD EDITION.

With 257 Illustrations.

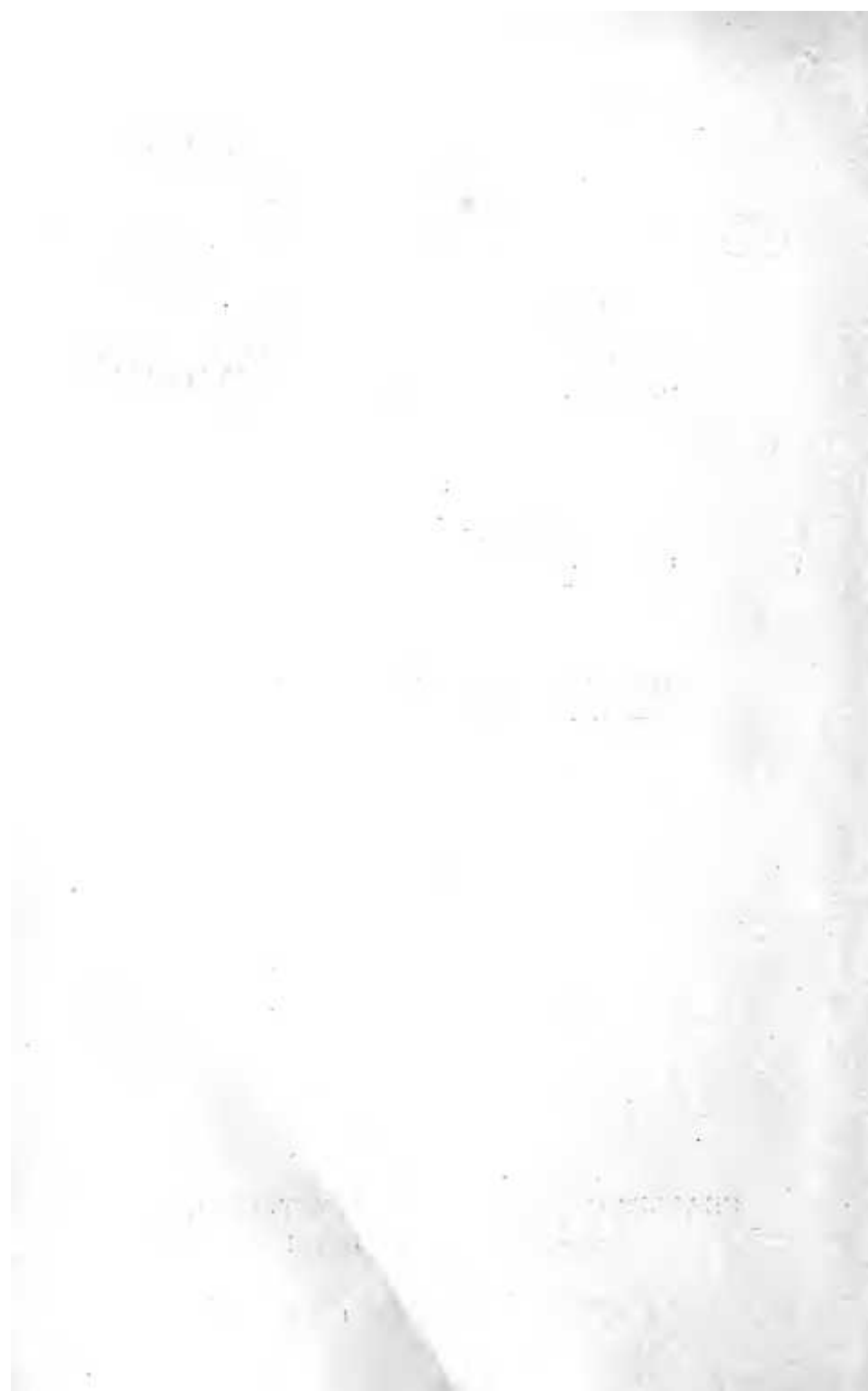


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PREFACE TO FIRST EDITION.

AUTOGENOUS welding by oxy-hydrogen and oxy-acetylene blowpipes has, within the last few years, been applied in thousands of workshops. In spite of the fact that these applications have, at least in many cases, been undertaken without precise methods, without theoretical or practical knowledge, in a word, without technique, it has become an extremely important process capable of numerous and varied applications in all branches of metallic construction and repair. A great future can be foreseen for this process from the moment its technique becomes known to the welder, and when manufacturers who use the process realise that knowledge and reflection are at least as important as skill and dexterity of hand.

Autogenous welding is certainly the one process of construction and repair that requires, from top to bottom of its application, most reflection, intelligence, and conscientiousness.

It is, for the welder, a trade which differentiates it from the majority of others in this sense that mechanical work is completely excluded from its practice, and that an immediate judgment cannot always be passed on the realisation, more or less perfect, of an intimate joining of which the metal holds the secret.

This handbook is intended for the welder as well as for all those who wish to acquire a simple and reliable technique in the art of autogenous welding. It has been simplified by the omission of all intricate scientific considerations relevant only to a more advanced study of the subject, but it has not been deprived of the fundamental and technical principles serving as the base for all the applications of the science.

Such a work should not frighten the practitioner. Even the least inexpert welder will find useful instruction relating to manipulation, methods of operation, dexterity of hand, various apparatus and their safety; he will acquire a mass of information concerning the process which he uses, sufficient technique to increase his efficiency and enable him to apply his art in a rational and easy manner.

The *Union de la Soudure Autogène*, by their publications and practical courses, have already disseminated the principles for obtaining work as perfect as possible, and at the same time securing absolute safety for those in charge.

In this practical handbook we continue the enterprising work by entering further into the details of the process. Its publication has been delayed because such a work should be complete. True, it is neither perfect nor final, since the technique of autogenous welding is still in its infancy. This technique, already on a solid foundation, will be enriched by further studies. Those that utilise autogenous welding have only themselves to thank for any benefits which they may derive from this book, since the work emanates from their association, the *Union de la Soudure Autogène*. We are only their collaborators.

R. GRANJON AND P. ROSEMBERG.

NOTE TO THIRD EDITION.

THAT a third edition of this work should be called for in less than twelve months from publication of the second edition is sufficient evidence of its usefulness. A few enterprising English firms, from whom apparatus and materials can be obtained, have gladly availed themselves of advertisement space at the end of this book. A gentleman named Swingle, of Chicago, has shown his appreciation of the book by copying, without acknowledgment, some of the text and illustrations, which he has issued as a booklet, and which British and Colonial booksellers are warned not to sell.

May 1915.

TRANSLATOR'S PREFACE.

No apology is needed for the presentation of a work in English which has already proved its value by a second French Edition being called for within a year of its publication.

There being no other work on the subject in the English language, the Translator and Publishers anticipate a ready welcome for this Edition, which has been prepared from the second French Edition, and embodies all the latest important advances that have been made in the industry.

A study of the pages which follow will quickly convince engineers and manufacturers of the great importance of the process, and, indeed, the new power which has been placed in their hands.

A process which has such varied application as, for instance, to render *as new* the damaged aluminium crank-case of a motor, or such light article, and, on the other hand, can be taken to the stem or rudder of a steamship, and a complete repair made *in situ*, must make a very strong appeal.

Welders will find full and complete information of the process and the materials and apparatus involved, and in order that the work may maintain its reputation as a complete vade-mecum on the subject, in English as well as French, the prices and conditions of sale of dissolved acetylene, other regulations, and all tables and dimensions have been rendered in their English equivalent.

The policy of the British Acetylene and Welding Association in establishing classes for theoretical and practical instruction in oxy-acetylene welding in London and other industrial centres has emphasised the need for such a work.

In conclusion, the Translator desires to express his cordial thanks to the Publishers, who have rendered every assistance and made many valuable suggestions.

D. RICHARDSON.

LONDON, October 1913.