

**PRACTICAL METALLURGY: AN  
ELEMENTARY TEXT-BOOK FOR THE USE  
OF CLASSES UNDER SUBJECT 19  
OF THE SYLLABUS ISSUED BY THE  
BOARD OF EDUCATION, SECONDARY  
BRANCH, SOUTH KENSINGTON**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649496327

Practical Metallurgy: An Elementary Text-Book for the Use of Classes Under Subject 19 of the Syllabus Issued by the Board of Education, Secondary Branch, South Kensington by Alfred Roland Gower

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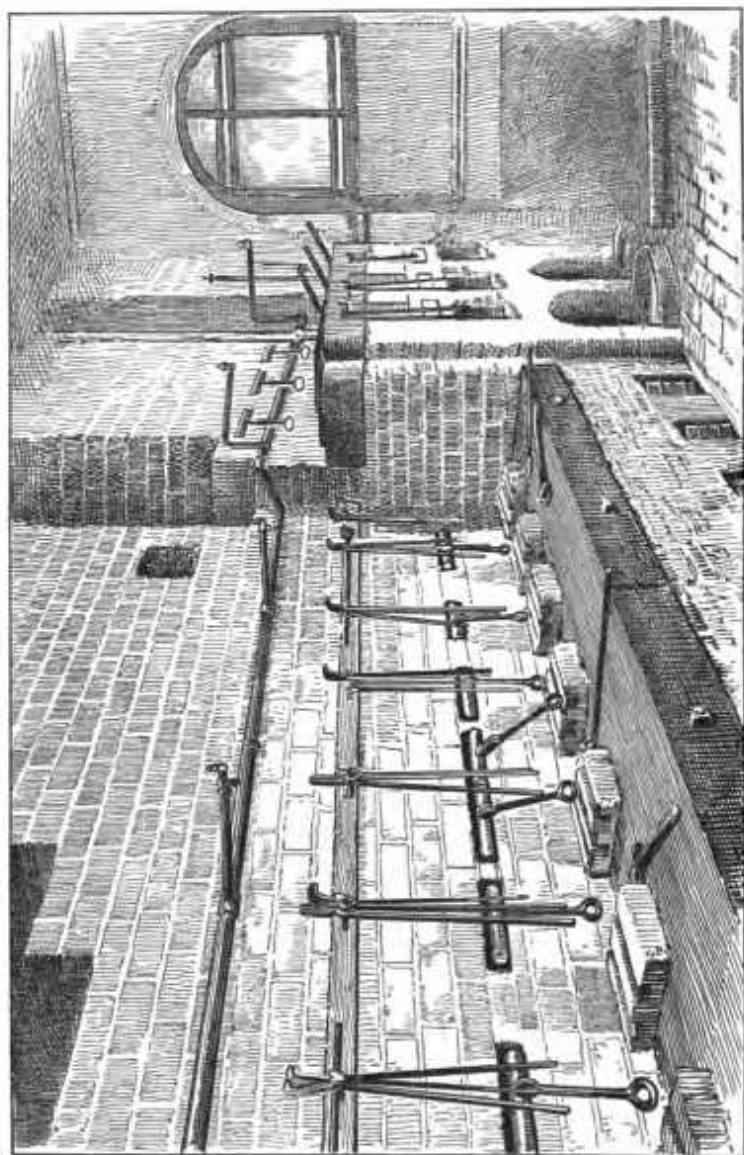
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PRACTICAL METALLURGY.



ARRANGEMENT OF FURNACES AND MUFFLES IN METALLURGICAL LABORATORY.

# PRACTICAL METALLURGY

AN ELEMENTARY TEXT-BOOK

*For the Use of Classes under Subject 19 of  
the Syllabus issued by the Board of Education,  
Secondary Branch, South Kensington*

BY

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NEW EDITION



LONDON:

CHAPMAN & HALL, Ltd.

11 HENRIETTA STREET, W.C.

1902

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## PREFACE.

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THE re-issue of this small work is intended to meet the requirements of the Elementary and Advanced Students in classes under Subject 19, Practical Metallurgy, of the Board of Education, Secondary Branch, South Kensington.

In it is arranged a series of typical experiments illustrative of the subjects in the Syllabus.

Part I. treats of such experiments as may be readily performed in a metallurgical laboratory, with the aid of balances turning with  $\cdot 5$  grain when loaded with 500 grains in each pan, and contains all that is necessary for a student presenting himself for the elementary examination.

In Part II. many of the experiments are such as would require a balance turning with  $\cdot 005$  grain when loaded with 100 grains in each pan, and they, together with those described in Part I., will be found sufficient to enable students to pass in the advanced examination.

The book has been brought up to date by the introduction of some experiments on cementation as applied to iron, and others on the treatment of gold ores by the chlorination processes.

I have added, in the form of an Appendix, a very brief description of most of the various ores, &c., with which students entering for the Advanced and Honours Theoretical Examination are expected to be acquainted, in the hope that it may be useful in discriminating and naming metallurgical minerals. A table of

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equations of the principal reactions which take place in metallurgical operations has also been appended.

The importance of students in Practical Metallurgy having some previous knowledge of theoretical chemistry cannot be overestimated, at least as far as combining proportion, valency, and the various laws and theories that are to-day received in chemical philosophy, as no useful knowledge of Practical Metallurgy can be acquired unless upon this foundation.

I take this opportunity of thanking my friend, Mr. F. J. Hardy, for the able manner in which he has sketched the illustrations for these pages, and also of expressing my indebtedness to my old and valued friend, Mr. A. Adams, for examining the proof-sheets, and for various suggestions so kindly given.

A. R. GOWER.

BARROW-IN-FURNESS,  
1902.

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