

# **COPPER REFINING**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649142439

Copper refining by Lawrence Addicks

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

**LAWRENCE ADDICKS**

**COPPER  
REFINING**



EMg  
Add

# COPPER REFINING

BY  
LAWRENCE ADDICKS  
CONSULTING ENGINEER, NEW YORK CITY

FIRST EDITION

160495.  
4.4.21

McGRAW-HILL BOOK COMPANY, Inc.  
NEW YORK: 370 SEVENTH AVENUE  
LONDON: 6 & 8 BOUVERIE ST., E. C. 4  
1921

9173  
66A

COPYRIGHT, 1921, BY THE  
MCGRAW-HILL BOOK COMPANY, INC.

THE MAPLE PRESS YORK PA

To  
M. M. A.





## PREFACE

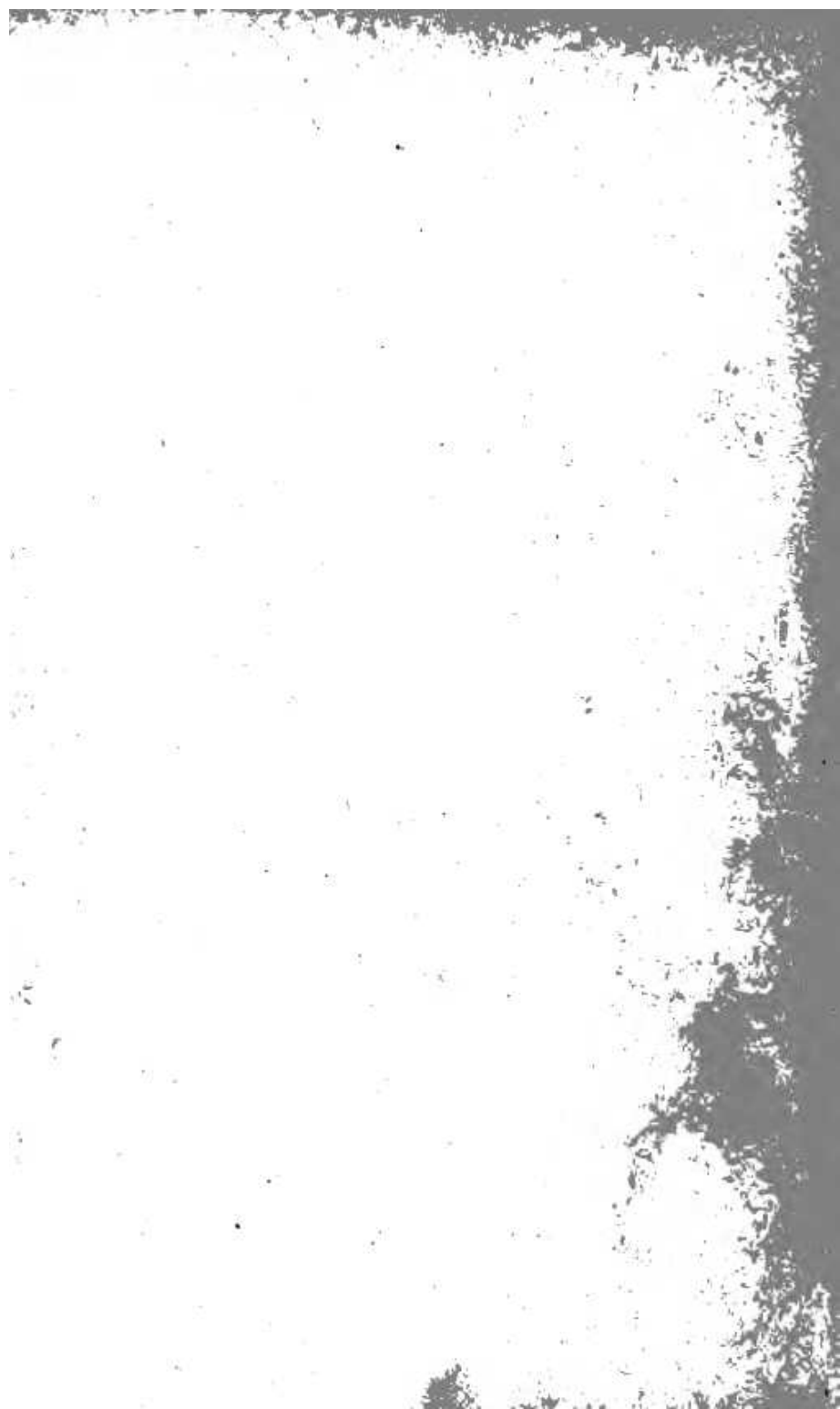
Electrolytic copper refining was for so many years conducted under conditions of strict commercial secrecy that but little has been published regarding the principles of operation, as distinct from descriptions of individual plants.

This little book comprises a series of articles, each dealing with one of the problems of refining, which originally appeared in *Chemical and Metallurgical Engineering*.

Whatever of value it may contain is due to the fact that it is almost entirely a record of personal experience in a field where but little literature is available.

LAWRENCE ADDICKS.

NEW YORK,  
*December, 1920.*



## CONTENTS

	PAGE
PREFACE . . . . .	vii
CHAPTER	
I. METAL LOSSES . . . . .	1
II. METALS IN PROCESS . . . . .	18
III. TANK RESISTANCE . . . . .	38
IV. CURRENT DENSITY . . . . .	54
V. CURRENT EFFICIENCY . . . . .	71
VI. IMPURITIES . . . . .	80
VII. BY-PRODUCTS . . . . .	100
VIII. FURNACE REFINING . . . . .	124
IX. THE REQUIREMENTS OF REFINED COPPER . . . . .	143
X. COPPER FROM SECONDARY MATERIAL . . . . .	158
XI. THE POWER PROBLEM . . . . .	171
XII. ELEMENTS OF DESIGN . . . . .	183
XIII. APPLICATION TO OTHER FIELDS . . . . .	194
INDEX . . . . .	203