

CONTENTS

PREFACE.	PAGE v
CHAPTER	
I. INTRODUCTION	1
II. ECONOMIC CONSIDERATIONS IN METALLURGICAL PROCESSES By Donald M. Liddell.	13
PART I	
MATERIALS CONSUMED IN METALLURGY	
By Donald M. Liddell	
III. ORES.	23
IV. SLAGS AND FLUXES	29
V. REFRACTORIES AND FURNACE LININGS.	39
VI. FUELS AND THEIR USE.	49
VII. AIR AND WATER SUPPLY	70
PART II	
EXTRACTIVE PROCESSES AND APPARATUS	
By Donald M. Liddell and Gilbert E. Doan	
VIII. ORE PREPARATION FOR EXTRACTION PROCESSES*	105
IX. PYROMETALLURGICAL PROCESSES OR FIRE METALLURGY†.	148
X. HYDROMETALLURGICAL APPARATUS AND PROCESSES*.	238
XI. ELECTROMETALLURGY AND ELECTROMETALLURGICAL APPARATUS*.	263
XII. BRIQUETTING‡ AND SAMPLING*	281
XIII. DUST AND FUME CONTROL*.	293
XIV. THE MEASUREMENT OF TEMPERATURE*	310
PART III	
PHYSICAL METALLURGY	
By Gilbert E. Doan	
XV. THE METALLIC STATE	341
XVI. ALLOYS.	440
XVII. PROPERTIES AS RELATED TO STRUCTURE	511
XVIII. TECHNOLOGY OF SHAPING METALS.	535
XIX. OTHER PHYSICO-METALLURGICAL PROCESSES	556
XX. SLAGS, BULLION, MATTE AND SPEISS.	573
INDEX.	605
* By Donald M. Liddell.	
† By Gilbert E. Doan.	
‡ By A. L. Stillman.	