
Metallography ...

Hoyt Samuel Leslie

Title: Metallography ...

Author: Hoyt Samuel Leslie

This is an exact replica of a book. The book reprint was manually improved by a team of professionals, as opposed to automatic/OCR processes used by some companies. However, the book may still have imperfections such as missing pages, poor pictures, errant marks, etc. that were a part of the original text. We appreciate your understanding of the imperfections which can not be improved, and hope you will enjoy reading this book.







METALLOGRAPHY

THE METALS AND COMMON ALLOYS

METALLOGRAPHY

BY

SAMUEL L. HOYT

PART I.—PRINCIPLES

II.—THE METALS AND COMMON ALLOYS

III.—TECHNICAL PRACTICE
IN PREPARATION

METALLOGRAPHY

PART II

THE METALS AND COMMON ALLOYS

BY

SAMUEL L. HOYT, E. M., PH. D.,

METALLURGICAL ENGINEER, NATIONAL LAMP WORKS
OF GENERAL ELECTRIC COMPANY. FORMERLY
ASSOCIATE PROFESSOR OF METALLOG-
RAPHY, THE UNIVERSITY OF
MINNESOTA

FIRST EDITION

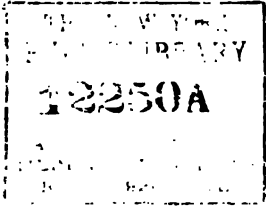
McGRAW-HILL BOOK COMPANY, INC.

NEW YORK: 370 SEVENTH AVENUE

LONDON: 6 & 8 BOUVERIE ST., E. C. 4

1921





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

THE MAPLE PRESS YORK PA

PREFACE

The present book describes the more important metals and alloys. This description includes the constitution and microstructure, the physical and mechanical properties for different conditions of heat and mechanical treatment, the effects of impurities commonly present and a brief discussion of the uses. Those compositions which have proven to be of particular importance have been treated more in detail, and in these cases I have given measured values of the important properties. These diagrams and tables have been selected with care so that they may be relied upon to give the normal behavior of the material in question. Other features which are included for their value for reference and study are critical point diagrams, constitution diagrams, structural diagrams and photomicrographs.

I am equally indebted here to those already mentioned in **PRINCIPLES OF METALLOGRAPHY**, for their assistance in the preparation of this volume. In addition I wish also to express my warmest thanks to Dr. Zay Jeffries for reading Chapter III on the Aluminum Alloys and permission to use photomicrographs and other material in the text, and to the Midvale Steel Company for permission to use information on certain of the special steels obtained in their Bureau of Research. I wish also to acknowledge my indebtedness to Dr. H. Hanemann for many of the photomicrographs used which were selected from his excellent collection.

S. L. H.

NELA PARK, CLEVELAND, OHIO.
January, 1921.

CONTENTS

	PAGE
PREFACE	V
CHAPTER I. THE PURE METALS	
General	1
Aluminum	3
Antimony	7
Bismuth	8
Cadmium	8
Cerium	8
Cobalt	8
Copper	9
Gold	23
Iridium	24
Iron	25
Lead	40
Nickel	41
Platinum	41
Silver	42
Tin	44
Tungsten	45
Zinc	46
CHAPTER II. WHITE METAL ALLOYS	
Lead-tin	49
Lead-zinc	51
Lead-antimony	52
Antimony-tin	54
Tin-zinc	56
Bismuth-tin	56
Antimony-zinc	57
Lead-bismuth	58
Lead-cadmium	59
Cadmium-tin	59
Bismuth-cadmium	60
Bismuth-copper	60
Antimony-copper	61
Bearing metal alloys	61
Type metal	69
CHAPTER III. LIGHT METAL ALLOYS	
Aluminum alloys	71
Casting alloys	79
Forging alloys	85