1. Record Nr. UNINA9910811912003321 Autore Upadhyaya G. S. Titolo Metal science: past, present and future / / Upadhyaya, G. S Pubbl/distr/stampa Switzerland:,: Trans Tech Publications,, 2013 ©2013 **ISBN** 3-03826-381-8 Descrizione fisica 1 online resource (259 p.) Materials Science Foundations;; Volume 75 Collana Disciplina 669.0901 Soggetti Metals - History Metallurgy - History Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references. Nota di contenuto Metal Science: Past, Present and Future: Dedication, Author Information and Preface; Table of Contents; CHAPTER 1. INTRODUCTION; 1.1 Beginning of Metallurgy as a Science; 1.2 The Industrial Revolution and Metallurgy (1750-1850); 1.3 Metal Science in late 19th and 20th Century: 1.4 Colonialism and its Influence on Metallurgical Progress:. 1.5 Epilogue.; References. Further Reading.; CHAPTER 2. EXTRACTIVE METALLURGY I: Pyrometallurgy. 2.1 Mineral Dressing (Mineral Beneficiation).; 2.2 Chemistry as a Precursor to Extractive Metallurgy.; 2.3 Basics of Pyrometallurgy; 2.4 Ironmaking. 2.5 Steelmaking. 2.6 Alloy Steels: 2.7 Copper: 2.8 Nickel: 2.9 Titanium: 2.10 Tin: 2.11 Lead: 2.12 Zinc.; 2.13 Platinum Group Precious Metals.; References. Further Reading; CHAPTER 3. EXTRACTIVE METALLURGY. Electro- and Hydro-Metallurgy. 3.1 Electrometallurgical Extraction of Metals; 3.2 Hydrometallurgical Extraction of Metals.; 3.3 Some Recent Developments; 3.4 Summary of the Historical Aspects of Hydrometallurgy: References; Further Reading; CHAPTER 4. PHYSICAL METALLURGY I: Structure of Metals and Alloys.; 4.1 Macrostructure.; 4.2 Microstructure and its Examination; 4.3 Crystal Structure 4.4 Nanostructure 4.5 Electronic Structure and Periodic Table; 4.6

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Sommario/riassunto

Metals, because of their inherent properties, have been in service to mankind from the Early Periods. Metal craft started turning into metal science in the 19th Century and got matured in 20th century. The present book, to the best of author's memory, is the first attempt to present the history of metal science in one volume, covering both extractive and physical metallurgy. The book is aimed as a supplementary text book for students in metallurgy and materials science and also selectively for general readers. After a brief introduction (Chapter 1), the second and third chapters are devoted to