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This pathfinder contains suggested materials on Metallurgy that are available at the College of Engineering Library II. However, some references were not included.

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Image URL: <http://www.ais-metallurgical-testing.com/metallurgical-tutorial/images/Steel%20Blooms.jpg>

METALLURGY

PATHFINDER

Books: (c2000-c2012)

Physical metallurgy handbook / Anil Kumar Sinha McGrawHill, c2003.
TN 690.4 S56 2003

Practical metallurgy and materials of Industry /John E. Neely, Thomas J. Bertone , Prentice Hall , 2003
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Smallman, R. E. Physical metallurgy and advanced materials, 7th ed. Elsevier, c2007. TN 690 S56 2007

Suryanarayana, C. Experimental techniques in materials and mechanics. CRC Press, c2011. TA 404.8 S87 2011

Tailings and mine waste '01 : proceedings of the eighth international conference on tailings and mine waste '01, Fort Collins, Colorado U.S.A., 16-19January 2001. A.A. Balkema 2001. TN 535 I58 2001

Tsokos, Chris P. Probability for engineering, mathematics, and sciences. Cengage Learning-Brooks/Cole, 2012.
QA 273 T86 2012

Welding metallurgy and weldability of stainless steels / John C. Lippold, Damian J. Kotecki Wiley, c2005. TS 227.2 L56 2005



Metallurgy

- Is a domain of material science that studies the physical and chemical behavior of metallic elements, their intermetallic compounds and their mixtures, which are called alloys. It is also the technology of metals : the way in which science is applied to their practical use. Metallurgy is commonly used in the craft of metalworking.

HISTORY

- Between the 5th and 6th millennium BC First evidence of Human Metallurgy was found in Archaeological sites of Majdanpek, Yarmovak and Pločnik (Copper Axe from 5,500 BC belonging to the Vinča culture) and Rudna Glava Mine in Serbia and Ai Bunar Mine in Bulgaria (5th Millenium BC) and from the third millennium BC in places like Palmela (Portugal), Cortes de Navarra (Spain) and Stonehedge (United Kingdom). However, as often happens with the prehistoric times, the limits can not be clearly defined and are being updated ceaselessly.
- Silver, copper, tin and meteoric iron can also be found native, allowing a limited amount of metalworking in early cultures. Egyptian weapons made from meteoric iron in about 3,000 BC were highly prized as “Daggers from Heaven”. However, by learning to get copper and tin by heating rocks and combining those two metals to make an alloy called bronze, the technology of metallurgy began about 3500 B.C. with the Bronze Age.
- The extraction of iron from its ore into a workable metal is much more difficult. It appears to have been invented by the Hittites in about 1,200 B.C. beginning the Iron Age. The secret of extracting and working iron was a key factor in the success of the Philistines.

- Historical developments in ferrous metallurgy can be found in a wide variety of past cultures and civilizations. This includes the ancient and medieval kingdoms and empires of the Middle East and Near East, ancient Egypt and Anatolia (Turkey), ancient Nok, Carthage, the Greeks and Romans of ancient Europe, medieval Europe, ancient and medieval China, ancient and medieval India, ancient and medieval Japan, etc. Of interest to note is that many applications, practices and devices associated or involved in metallurgy were possibly established in ancient China before Europeans mastered these crafts (such as the innovation of the blast furnace, cast iron, steel, hydraulic-powered trip hammers, etc. However, modern research suggests that Roman technology was far more sophisticated than hitherto supposed, especially in mining methods, metal extraction and forging. They were, for example, expert in hydraulic mining methods well before the Chinese, or any other civilization of the time.
Source: <http://en.wikipedia.org/wiki/Metallurgy>



Image URL:
http://img.alibaba.com/photo/221253118_1/oil_pump_rotor_auto_parts_powder_metallurgy.jpg

Books: (c2000-2012)

- Ayyub, Bilal M. Probability, statistics, and reliability for engineers and scientists. 3rd.ed. CRC Press, c2011. TA 330 A99 2011
- Black, Bruce J. Workshop processes, practices, and materials. 4th ed. Newnes, 2010. TJ 1160 B53 2010
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- German, Randall, M. A-Z of powder metallurgy. Elsevier , c2005. TN 695 G46 2005
- Holman, J. P. Experimental methods for engineers. 8th ed. McGraw-Hill/Connect Learn Succeed, c2012. TA 152 H64 2012
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- Morris, Arthur E. Handbook on material and energy balance calculations in materials processing. 3rd ed. Wiley, c2011. TP 155.7 M67 2011
- Physical metallurgy/ William F. Hosford . Taylor & Francis , c2005. TN 690 H67