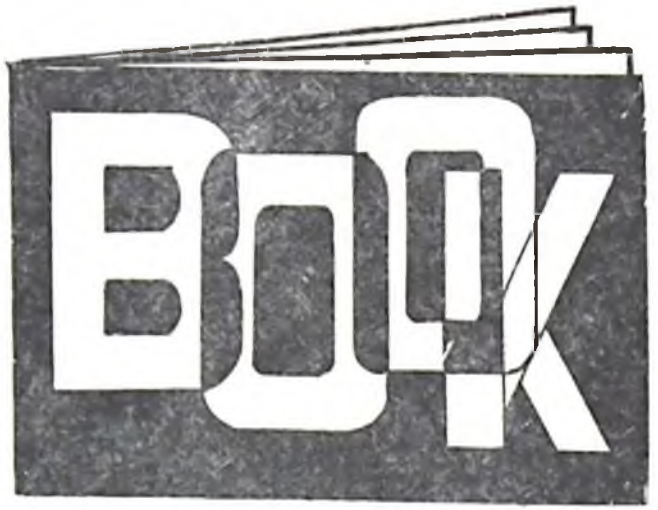


SECTION

BOOK REVIEWS

1. Extractive Metallurgy of Copper, by A.K. Biswas and W. G. Davenport, 1976 Published by Pergamon Press Ltd., Headington Hill Hall. Oxford, OX 30BW, England, 438 Pages, $15.00

As a teacher in extractive metallurgy and a researcher in the electrohydrometallurgy of Copper, the reviewer has been in touch with many books on copper, but here is one with which he is immensely satisfied from all points of view including the price. The book is a masterpiece of cogent presentation; one can expect this because the authors have also been working in the extractive metallurgy of copper.

The book contains 19 lucid chapters dealing with the various aspects of copper metallurgy, and ends up with Appendices pertaining to the text. The first chapter presents a synopsis of copper processes, and the second chapter gives production statistics and information on copper ores and their beneficiations. Roasting is dealt with in Chapter 3 and followed by 5 chapters on matte smelting, and one chapter each on matte conversion and copper losses in slags. Chapter 11 outlines the continuous production processes of blister copper and chapter 12, the preparation of anodes The succeeding 4 chapters deal with the electrohydrometallurgy of copper; leaching, cementation and solvent extraction, electrorefining and electrowining. The last chapter is on cost analy is. All the chapters end with "Summary of Chapter" and "Suggested Reading and References". This is no doubt most useful when this is used as a textbook. The reviewer has no doubt felt that the book gives uptodate information on the extractive metallurgy of copper, and as such will be useful to practising engineers and research scientists.

—K.I. Vasu,
Indian Inst. Science

2. Advances In Corrosion Science and Technology, Volume 5 & 6, edited by M.G. Fontana and R.W. Staele, 1976, published by Plenum Publishing Corpn., 227 West. 17th Street, New York 10011, U.S.A., Vol.5 398 Pages, $34.50; and Vol.6, 267 Pages, $32.50.

This comprehensive series has established itself as a notable, up-to-date contribution to topical subjects in the field of corrosion. As with the earlier volumes of this series, volumes 5 and 6 endeavour to give a thorough discussion on some theoretical and experimental aspects of corrosion science & technology.

In Vol. 5, the first chapter by Filbert and Hair considers gross effects and influences of corrosion on the chemical and mechanical properties of glass. Chapter 2 interprets metal-halogenation data and applies oxidation and corrosion theories to the problems of metal and alloy halogenations; this chapter by Daniel and Rapp is extensive and useful. The final chapter is by Cox on Oxidation of Zirconium and its alloys-and extensive exposition of the historical background and the data of oxidation in dry gases, molten metals, fused salts and aqueous environments, followed by a detailed discussion on oxidation mechanisms and hydrogen absorption based on 632 references

In Vol.6 the initial chapter by Chatterji, De Vries and Romeo considers protection of sup ralloys for turbine applications; the text includes classification of protection systems, processing techniques, pack coatings, coating degradation, testing and inspection, coating performance and conclusions and recommendations. In chapter 2 Magnani deals with Hydrogen embrittlement and stress corrosion cracking of uranium

and its alloys. Chapter 3 by Mansfield discusses the polarization resistance techniques for measuring corrosion currents and corrosion rates; while this chapter gives a critical analysis of the technique, it does not seem to be an exhaustive review on the subject.

There is no doubt that these two volumes present an illuminating exposition of the recent trends and latest developments in the field.

—Dr K. Elayaperumal

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3. Soil Testing For Engineers, by T. William Lambe, Reprint 1977, published by Wiley Eastern Limited AB8, Safdarjung Enclave, New Delhi–110016. 165 Pages, Rs. 22.00

This Volume is a reprint of a 1951 publication, but the author has given a thorough treatment of all aspect of soil testing useful for all engineers. Written in 14 chapters with 2 Appendices, the book covers all aspects of soil testing. Even though there are several books on the theory and practice of soil mechanics, the present one is good as a text book for the teaching of soil testing. Enough consideration has been given to the inclusion of some clay technology and related laboratory tests, such as the determination of clay minerals, nature and amount of exchangeable ions, electrical charges on particles, and pH; this will be of great interest to electrochemists, particularly to see how the theory is linked with a practical problem. The book will be highly useful to all those interested or engaged in soil engineering.

—J. Balachandra

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4. Practical Scanning Electron Microscopy—Edited by J.I. Goldstein and H. Yakowitz 1977, Published by Plenum Press, Division of Plenum Publishing Corporation, 227 West, 17th St., New York 10011, USA, 582 Pages.

Scanning Electron Microscope has become an essential tool in both physical and biological sciences. More than any other factor, the ease with which specimens can be examined with virtually no preparation preceding the examination has contributed to the large number of persons using the scanning electron microscope If the present mushrooming of SEM installations is any indication, that number is going to be on the increase. The present book under review has been written with the aim of providing the basic knowledge about SEM, so that an average user can use the microscope more meaningfully. The initial chapters in the book concentrate on the electron optics, electron beam specimen interaction, image formation in the SEM and contrast mechanisms of interest in materials science. The next chapter is the most interesting one for here a number of examples are discussed in detail. These give a physical picture of what the earlier chapters describe.

Since elemental analysis in SEM has become an accepted practice, principles of elemental analysis has been taken up for considerable coverage. The basic principles are clearly discussed in separate chapters. These acquire meaning in chapter X wherein an actual programme is discussed with specific examples. A short chapter on biological applications is thoughtfully added. The ion microprobe analysis, which is just a step away from the electron microprobe analysis finds its place in the end.

It must be said that the book will prove immensely useful to the average user of the microscope. The simplicity in presentation and citation of specific examples enhance the usefulness of the book.

—Dr R. V. Krishnan

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5. Lead-Acid Batteries—A reference and Data Book compiled by the Indian Lead Zinc Information Centre, Safdarjing Enclave, New Delhi 110016 with the active support of:

Australian Lead Development Association, Melbourne Lead Development Association, London, Lead Industries Association Inc., New York and International Lead Zinc Research Organisation Inc., New York.

Published by:
Elsevier Sequoia S.A., Switzerland
viii + 144 pages 1977 case bound, 5Frs. 42.50 including postage.

The Compilers of this book deserve to be congratulated for their efforts. Their efforts have been very worthwhile as can be seen from the results. The book starts with a review article on the lead acid battery science & technology by Paul Ruetschi, reprinted from the Journal of Power Sources. The review, as pointed out by the author himself, is not complete but is a very comprehensive one with 150 references. It covers the history of the lead acid batte-y, the kinetics of the

electrode processes involved, the anodic corrosion of lead and its alloys. The references cited are extensive and appropriate. The review is a good starting point for a new researcher with an adequate background of electrochemistry.

The rest of the book is divided into eleven sections all dealing with data. All important data on lead and its oxides, alloys and grids used in the batteries, electrolytes used etc., are provided as also data on testing and changing characteristics etc. Tables and graphs have been used extensively making the data comprehensive.

The book is really an exeeellent "reference and data book". The printing has been done excellently on very good paper and photograph reproductions are excellent. The book is a must for all interested and working on the Lead Acid batteries.

—P. Sastri

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6. Batteries, Vol. 2—Lead Acid Batteries and Electric Vehicles--Edited by Karl V. Kordesch, 1977, Marcel Dekker, Inc., 270 Madison Avenue, New York N.Y. 10016, 536 pp. bound; illustrated $59.50 ISBN 0-8247-6489-7.

The book is the second of a series on Batteries. It consists of two main chapters on i) Lead Acid Storage Batteries and ii) The Electric Automobile, and three short chapters on Lead Storage Batteries in Germany, Lead Acid Battery operated Electric Street Vehicles; new constructions from Germany and Lead acid battery history and new technology in Japan.

The first Chapter, Lead Acid Storage Batteries is easily one of the best presentation possible in about 200 pages on the Lead Acid Battery System, containing 440 references. The author of the Chapter, Eugeno Y. Weissman, has dealt with almost all the aspects of the system. The extensive references supplement the chapter excellently, for it would be impossible to cover the topic in the number of pages devoted to it.

The Second Chapter, written by the editor himself traces out the history and development of the electric vehicles very elegantly. Containing 186 references the chapter is an excellent review on the electric vehicle and discusses all aspects of the subject. Surely, it would be an ideal starting point for any one interested in thinking of working on the electric vehicle.

The other three chapters tell us the development taking place in Germany and Japan and will be of interest to anyone desirous of knowing the "state of the art" there. The book on the whole is excellently produced and is a must for all interested in the subject The reviewer looks forward to the additional volume in the series which the publishers say, are in preparation.

—G.S.S. Prasad.