NEWS

Book reviews

Hydrometallurgical Extraction and Reclamation
E. Jackson, Ellis Horwood Ltd, Chichester, 1986
266 pp., £17.50, ISBN 0 745 0048 3

The author has sought to produce a text which may be used for a course on hydrometallurgical extraction and reclamation for undergraduate students in applied science and engineering. The book has five chapters which cover (i) sources of metals; (ii) leaching; (iii) separation, purification and concentration by ion exchange, solvent extraction and adsorption; (iv) precipitation processes; (v) electrolytic processes for recovering or refining.

The book places much emphasis on the chemistry of hydrometallurgical processes and the underlying physical chemistry, in particular, is explained with great care and clarity. Hence as a course intended to upgrade the chemistry of engineers and applied scientists, it would have much to offer. On the other hand, I am not convinced that the book presents a balanced view of hydrometallurgical extraction and reclamation. The discussion of all engineering aspects of the topic is very weak while there is no attempt to develop a discussion of the process economics. I was also surprised that the book does not mention aspects such as the morphology of deposits or the importance of the physical properties of the metals produced. Finally, there is little comparison with important competitive technologies.

The book will lead students to believe that electrochemistry has a dominant role within this technology and I wonder whether this view is overplayed. Even so, there are topics such as modern cell design for recovery of metals from dilute solutions which are mentioned but briefly. I was also sometimes unconvinced about the distinction between 'industrial practice' and 'suggested in a research report', but this is perhaps inevitable in this style of book.

Overall the author has done a laudable job in demonstrating the role of chemistry in an important industry and I hope it is widely read by students of applied science and engineering. Ellis Horwood Ltd are also to be congratulated on a wel-produced book at an acceptable price.

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Cathodic Protection: Theory and Practice
V. Ashworth and C. J. L. Booker (Eds), Ellis Horwood Ltd, 1986
357 pp., £42.50, ISBN 0 85312 510 0

This book is based on the lectures presented at a conference organized by the Institution of Corrosion Science and Technology during 1982, but it is claimed that the material has been updated, expanded and edited. The objective is to present an integrated account of cathodic protection whether using impressed current, sacrificial anodes or hybrid systems. Consecutive chapters discuss the basic concepts, the modelling of practical systems, the selection and performance of anode materials, the technology associated with cathodic protection in various environments (e.g. off shore, underground and in concrete), control and monitoring equipment and both problems and hazards associated with the (mis)use of cathodic protection systems.

The discussion of the technology is particularly good. For example, quantitative data is given for the behaviour of anodes in typical environments, and the importance of factors such as an even current distribution and the continuous monitoring of the potential over all the surface are repeatedly stressed and discussed. On the other hand, the treatment of fundamentals is brief and generally practical rather than exact. There is also considerable overlap in content between chapters. The book is well produced and I recommend it equally to those requiring a specialist knowledge of cathodic protection and to the outsider wishing an overview of this important and enduring area of electrochemical technology.

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