BOOK SECTION

New Publications

Metal Finishing Dictionary, by H. W. Dettner, published by Georg Siemens Pub. House, Berlin and Bielefeld, W. Germany, 389 pages, DM 24, $6.

1961 Finishing Handbook and Directory, published by Sawell Publications Ltd., London, 536 pages.

Guide for Determining Accurate Cost Comparison of Metal Parts Finishing, published by Apollo Metal Works, Chicago.

Metals Handbook, Vol. I. Properties and Selection of Metals, by T. Lyman (Ed), published by American Society for Metals, Novelty, Ohio, USA, 8th ed. 1961, 1300 pages, 30$.

pH Measurement and Titration, by G. Mattock, published by Heywood & Co. (Publishers), London, 1961, 406 pages, 63 sh.

Nickel-Chromium Plating, A Symposium organized by the Institute of Metal Finishing, London, published by Robert Draper Ltd, Teddington, Middx, England, 1961, 139 pages, 25 sh.

Proceedings of the First International Industrial Finishes Convention, 1960, published by Scientific Surveys Ltd., London, £2 sh 2.

Introduction to Electroplating, by E. A. Blount, published by American Electroplaters' Society, Newark, N. J., U.S.A., 20 pages, 25 Cents (1 to 99 copies).

Interfacial Phenomena, by J. T. Davies and E. K. Rideal, published by Academic Press, New York and London, 1961, 474 pages, $14.

Publications Received

Metal Finishing, Vol. 59, No. 7, 9, 1961, Metals and Plastics Publications Inc, Westwood, N. J., U.S.A.

Corrosion, Vol. 17, No. 6-9, 1961, NACE, Houston, U.S.A.

Insdoc List Current Scientific Literature, Vol. 8, No. 16-21, 1961, New Delhi.

Science and Engineering, Vol. 14, No. 5-8, 1961, ISE, Calcutta.

Corrosion Prevention and Control, Vol. 8, No. 7-9, 1961, Scientific Surveys Ltd, London.

CSIR News, Vol. 11, No. 15-20, 1961 CSIR, New Delhi.

British Patents, Group 36, The Patent Office, London.

Metal Finishing Journal, Vol. 7, No. 79-81, 1961, Industrial Newspapers (Fuel and Metallurgical) Ltd., London.

The Use of Aluminium in Railway Rolling Stock: Proceedings of a Symposium, London, May 1960, published by the Institution of Locomotive Engineers and the Aluminium Development Association, London, 1960, 152 pages, 2 guineas.

Australian Chemical Engineering, Vol. 2, No. 7-9, 1961, North Sydney, Australia.

ISI Bulletin, Vol. 13, No. 4, 5, 1961, New Delhi.

Battelle Technical Review, Vol. 10, No. 7, 8, 1961, Battelle Memorial Institute, Columbus, Ohio, U.S.A.

Industrial Finishing Year Book 1961, published by Arrow Press Ltd., London, 416 pages, issued free to subscribers for 'Industrial Finishing', or 15 sh.

ZDA Abstracts, Vol. 19, No. 6, 1961, ZDA, London.

Australian Corrosion Engineering, Vol. 5, No. 7-9, 1961, North Sydney, Australia.

Review of Metal Literature, Vol. 18, No. 7, 8, 1961, American Society for Metals, Novelty, Ohio, USA.

Electro Technology, Vol. 5, No. 2, 1961, Society of Electronic Engineers, Bangalore.

Electroplating and Metal Finishing, Vol. 14, No. 8, 9, 1961, Robert Draper Ltd., Teddington, Middx, England.

The Nickel Bulletin, Vol. 34, No. 5-8, 1961, The International Nickel Co. (Mond) Ltd., London.

Chemical Age of India, Vol. 12, No. 4, 1961, Technical Press Publications, Bombay.

Wiggin Nickel Alloys, No. 62, 1961, Henry Wiggin and Co., Birmingham.

Cobalt, No. 12, 1961, Centre D'Information Du Cobalt, Brussels.

Crerar, Metals Abstracts, Vol. 9, No. 10, 11, 1961, The John Crerar Library, Chicago.

Principles of Metallic Corrosion, by J. P. Chilton, published by the Royal Institute of Chemistry, London, Monographs for Teachers No. 4, 1961, 64 pages, 6 sh.

Industrial Finishing, Vol. 13, No. 159, 1961, Arrow Press Ltd., London.

Journal of the Indian Institute of Science, Vol. 43, No. 4, 1961, Bangalore.

Canning Journal, No. 2, 1961, W. Canning and Co., Birmingham, through S. Mitra and Co., Bombay.

Nickel-Chromium Plating, published by Robert Draper Ltd., Teddington, Middx, England, 1961, 140 pages, 25 sh.

BOOK REVIEWS

Cobalt—Chemistry, Metallurgy and Uses, by R. S. Young (Ed), published by Reinhold Publishing Corp, New York—Chapman and Hall Ltd., London, ACS Monograph 149, 1960, 424 pages, $ 15.

The importance of cobalt and its compounds is being increasingly realised in both inorganic and organic fields as well as in biological activity. Within a course of about 50 years cobalt has gained its indispensable position of to-day from what was only a glazing and colouring material for porcelain. After the first world war cobalt became an important component of high speed tool steels. It now enters into a variety of fields such as ground cobalt frit, driers, electroplating, catalysis, cemented carbides, magnets high temperature alloys, glass to metal seals, radiography, radioactive tracers and animal nutrition.

An absorbing account of this versatile element and its compounds is given in the book under review which belongs to the series of ACS Monographs. Prior to the present publication the only source book for references to cobalt and its compounds was an earlier ACS Monograph (108) written by the present editor and published in 1948. The widespread literature that has grown recently on the metallurgy of the element and the chemistry of its compounds has been brought succiently in this one volume containing 17 chapters included in about 420 pages. Eight outstanding experts including the Editor have contributed to this enthusiastic endeavour which covers more than 1,300 references. The Editor and his associates are to be congratulated for bringing out this remarkably interesting and informative monograph.

The title of the Monograph itself implies that it deals with the chemistry and metallurgy of the element as well as the properties and uses of the compounds. A brief historical account of the development of the chemistry and metallurgy of cobalt for the past 400 years is presented in the first and introductory chapter. The data included in this account mostly concerns with the production and utilization in U.S.A. whereas the consumption in other parts of the world including the USSR must be quite substantial. Occurrence of cobalt in the form of different types of ores (some 60 types) in different parts of the world with their chemical composition and their methods of identification is described in chapter two. The extraction process with the useful information forms the third chapter. One could have expected the treatment to include the importance of thermodynamics in metallurgical processes under this head, and this would have enhanced the value of the book even for a specialist. Physical and chemical properties of cobalt, the simple and coordination compounds of cobalt have been dealt in chapters four, five and six respectively. Information concerning different oxidation states, the coordination number, geometric structure and stereo-chemical behaviour of cobalt, has been gathered from more than 400 papers have been included in the sixth chapter. The seventh chapter refers to the phase diagrams for cobalt and furnishes extremely interesting fundamental information though on a limited scale.

The industrial applications of both the metal and its compounds gain greater emphasis in the chapters beginning with the eighth which deals with the magnetic, electrical and electronic applications. The following topics form the subject matter of the remaining 8 chapters: (9) cobalt alloys in high temperature, high strength service, (10) tool steels and other metallurgical applications, (11) cemented carbides, (12) electro plating of cobalt, (13) cobalt compounds in the glass and ceramic industries, (14) catalytic behaviour of cobalt, (15) biology and biochemistry, (16) radioactive cobalt and (17) analysis of cobalt.

Thus up-to-date technical knowledge about cobalt in all its aspects is found in this single volume. The book will remain a companion to one whether he is a metallurgist or a chemist or a biologist or even an industrialist.

— A. R. V.

Industrial Finishing Year Book 1961, published by Arrow Press Ltd., London, 16 sh, free to subscribers to Industrial Finishing.

The publishers of the Industrial Finishing Journal bring out this hand book every year. This volume covers almost all the aspects of industrial finishing, and has been considerably enlarged with valuable additional information. The year book has been divided into five major sections. In the first section on workshop practice useful information is given on industrial flooring, mechanical handling of materials and protective clothing. A new section on materials and processes has been added on plastic coating, dyeing of anodised aluminium, electrostatic

painting, paint costing etc. In the section on technology detailed information on cleaning, polishing, electroplating, metal colouring, anodizing, wood finishes, paint finishes and application, paint data are given. A separate section has been devoted to paint manufacturers and suppliers and the types of paint they offer. Official finishing specifications and list of British standards are included in this section. Many of the data have been presented in tabular forms for ease of reference. In the section on Buyer's guide names and addresses of suppliers have been included. The list has been more than doubled resulting in comprehensive classification of products. The volume includes also a list of professional institutes and trade associations and an index to advertisers.

The year book serves as a source of valuable technical information on metal and wood finishing for technicians, engineers and chemists in the field of finishing.

—S.K.

The Use of Aluminium in Railway Rolling Stock, Proceedings of a Symposium 1960, published *by* the Institution of Locomotive Engineers and the Aluminium Development Association, London, 1960, 152 pages, £2 sh2.

This publication covers the proceedings of a Symposium held in May 1960 by the Institution of Locomotive Engineers and the Aluminium Development Association, London. It consists of 13 papers in 2 Sections: design and construction and, operation and service experience. Properties and uses, general aspects, stress determination, and crumpling of tubular structures are discussed in the first section. The second section deals with service experience from several countries: U.K., Canada, France, East Africa, Germany and U.S.A. The discussion on the papers has also been included. This monograph is a valuable reference to all those engaged in the design, manufacture and operation of railway rolling stock. The organizers of the symposium deserve to be congratulated for bringing out the proceedings in book form. The subject has added significance in view of the increasing use of aluminium and its alloys in various fields including the railways. This volume is strongly recommended to design engineers and metallurgists in the railways.

— T.L.R.

Principles of Metallic Corrosion, by J. P. CHILTON, published *by* the Royal Institute of Chemistry, London. Monographs for Teachers No. 4, 1961, 64 pages, 6 sh.

This monograph intended for teachers is published by the Royal Institute of Chemistry. It is a nicely written book and is broadly divided into four sections, viz., Corrosion of Metals in Gaseous Environments, Corrosion of Metals in Aqueous Environments, Prevention of Corrosion and some Further Corrosion Phenomena. Oxidation laws are discussed in detail. The mechanism of growth of oxide films is also well explained. The importance of polarization studies has been properly stressed in the second chapter. The principle of differential aeration and influence of oxygen on corrosion are briefly but nicely dealt with. Dissolution of metals in neutral, acid and alkali media are also discussed. Atmospheric Corrosion has formed a part of this chapter, though one would like a lengthier treatment of the subject in a separate chapter by itself. The methods of prevention of corrosion fall under four major headings in the third chapter: modification of the envirnoment, modification of properties of the metal, use of protective coatings and cathodic protection. In such monographs, one should admit that it is not possible to go into details of say, the mechanism of inhibitor action, passivity and anodizing. In the last chapter some types of corrosion like intergranular corrosion, stress corrosion, corrosion fatigue, pitting etc. have been enumerated and briefly explained. At the end there is a bibliography of books for further reading. This excellent publication is strongly recommended for teachers and research workers in the fields of electrochemistry and metallurgy.

— J. S.