BOOK SECTION

New Publications

Ions in Hydrocarbons, by A. Gemant, published by Interscience Publishers, New York, 1962, 261 pages, $ 12.50.

Progress in Semiconductors — Vol. VI, by A. F. Gibson, R. E. Burgess and F. A. Kroger (Ed), published by John Wiley & Sons Inc., New York, 1963, 324 pages, $ 11.

An Introduction to Metal Degreasing and Cleaning, by A. Pollack and P. Westphal, published by Robert Draper Ltd., Teddington, Middx, England, 1963, 245 pages, 60sh.

Electroplaters Process Control Handbook, by D. G. Foulke and F. D. Crane (Ed), published by American Electroplaters' Society Inc., Newark, N.J., U.S.A., 1963, 464 pages (approx), $ 14.75.

The Finishing of Aluminium by G. H. Kissin (Ed), published by American Electroplaters' Society Inc., Newark, N.J., U.S.A. 1963, 256 pages (approx), $ 12.

Corrosion of Reactor Materials: II—Conference Proceedings, Salzburg, June 1962, published by International Atomic Energy Agency, Vienna, 1962, 290 pages, $ 11.

Electroplating and Corrosion Prevention, by E. Molloy (Ed), published by George Newnes Ltd, London, 1962, 288 pages, 18 sh.

The Electronics of Laboratory and Process Instruments, by V. H. Griffins and W. H. Lea, published by Chatto and Windus, London, 1962, 368 pages, 50 sh.

Corrosion and Corrosion Control, by H. H. Uhlig, published by John Wiley & Sons, New York, 1963, 371 pages, $ 10.

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Journal of the Eelectrochemical Society of Japan, Vol. 30, No. 2, 3, 1962, ECS of Japan, Tokyo.

Science and Appliance, Vol. 27, No. 1-5, 1963, The Ohio State University, Research Foundation, Columbus, Ohio.

Battelle Technical Review, Vol. 11, No. 12, 1962; Vol. 12, No. 1–4, 1963, Battelle Memorial Institute, Columbus, Ohio.

Engineering Progress at the University of Florida, Vol. 16, No. 11, 12, 1962, Florida Engineering and Industrial Experiment Station, Gainsville.

Concise Chemical and Technical Dictionary, by H. Bennett (Ed), published by The Chemical Publishing Co. Inc., New York, 1962, 1039 pages, $ 15.

Practical Industrial Formulary, by M. Freeman, published by The Chemical Publishing Co. Inc., New York, 1962, 297 pages, $ 7.95.

Proceedings — Conference on Anodising Aluminium—1961, published by The Aluminium Development Association (now Aluminium Federation), London, 1962, 248 pages, 40 sh.

Insdoc List-Current Scientific Literature, Vol. 10, No. 5–12, 1963, New Delhi.

CSIR News, Vol. 13, No. 4–11, 1963, New Delhi.

Electroplating and Metal Finishing, Vol. 16, No. 2–5, 1963, Robert Draper Ltd., Teddington, Middx, England.

Corrosion Technology, Vol. 10, No. 1–5, 1963, Technology, Publications Ltd., London.

Australian Chemical Engineering, Vol. 4, No. 1-4, 1963, North Sydney, N S.W.

Australasian Corrosion Engineering, Vol. 7, No. 1-5, 1963, North Sydney, N.S.W.

Corrosion, Vol. 19, No. 1–3, 1963, NACE, Houston, Texas.

Chemical Age of India, Vol. 14, No. 1, 2, 1963, Technical Press Publications, Bombay.

Science and Engineering, Vol. 16, No. 1–2, 1963, India Society of Engineers, Calcutta.

Review of Metal Literature, Vol. 19, No. 12, 1962; Vol. 20, No. 1-4, 1963, American Society for Metals, Novelty, Ohio, U.S.A.

Metal Finishing, Vol. 61, No. 1–5, 1963, Metals and Plastics Publications Inc., Westwood, N.J., U.S.A.

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Materials Protection, Vol. 2, No. 1, 1963, NACE, Houston, Texas.

Finishing News, Vol. 1, No. 10, 1963 Scientific Surveys Ltd., London.

The Nickel Bulletin, Vol. 35, No. 12, 1962: Vol. 36, No. 1-3, 1963, The International Nickel Co. (Mond) Ltd., London.

Inco-Mond Magazine, No. 21, 1963, The International Nickel Co. (Mond) Ltd., London.

British Patents, Group 36, London.

Electro-Technology, Vol. 6, No. 6, 1962, Society of Electronic Engineers, Bangalore.

Crerar Metals Abstracts, Vol. 10, No. 11, 12; Vol. 11, No. 1–5, 1962, The John Crerar Library, Chicago.

The European Steel Market in 1961, United Nations, Geneva, 1962, through UN Information Centre, New Delhi.

Quarterly Bulletin of Steel Statistics for Europe, Vol. 13, No. 3, 1963, UN.

Statistics of World Trade in Steel—1961, UN, Geneva, 1963.

Florida Engineering News, Vol. 5, No. 1, 1963, Engineering and Industrial Experiment Station, Gainseville.

Metal Finishing Guidebook Directory 1963, published by Metals and Plastics Publications Inc., Westwood, N.J., U.S.A., 742 pages, $2.50 and $15 as part of subscription to 'Metal Finishing'.

Wiggin Nickel Alloys, No. 69, 70, 1963, Henry Wiggin & Co. Ltd , Hereford, England.

Metal Industry Handbook and Directory 1963, published by Iliffe Books Ltd., London, 544 pages. 21 sh.

Diffusion in Solids, by P. G. Shewmon, published by McGraw-Hill Book Co., Inc., New York — Sanfrancisco — Toronto — London, 1963, 203 papes, $9.50.

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Metal Finishing Journal, Vol. 9. No. 99-101, 1963, Fuel and Metallurgical Journals Ltd., London.

Industrial Finishing Vol. 15, No. 177–179, 1963, Arrow Press Ltd., London.

Journal of the Indian Institute of Science, Vol. 45, No. 2, 1963, Bangalore.

Inco-Mond Nickel, No. 4, 1963, The International Nickel Co. (Mond) Ltd., London.

Zinc Abstracts, Vol. 21, No. 1–3, 1963, ZDA, London.

ISI Bulletin, Vol. 15, No. 2, 1963, New Delhi.

International Atomic Energy Agency Bulletin, Vol. 5, No. 2, 1963, IAEA, Vienna.

UNESCO Bulletin, No. 13, 1963, South Asia Science Corporation Office. New Delhi.

Science Library Bibliographical Series No. 782–785, 1963, Science Museum, London.

Lead Abstracts, Vol. 3, No. 4, 1963, LDA, London.

BOOK REVIEWS

Proceedings — Conference on Anodizing Aluminium — 1961, published, *by* The Aluminium Development Association (now Aluminium Federation), London, 248 pages, 40 sh.

The Aluminium Development Association (ADA), in collaboration with the University of Nottingham, convened a conference on Anodising Aluminium in September 1961 and this volume includes all the papers presented at the conference.

Anodised aluminium, either for decorative, or for enhanced resistance to wear or, for corrosion resistance, has been in great demand for the past ten years, and the ADA felt that the time was ripe for bringing together the users and anodisers for discussion and exchange of ideas on the subject. The proceedings consists of eighteen papers presented at the conference by eminent authors in the field, together with oral and written discussion. The papers have been divided into six sessions, each dealing with a different aspect of anodising. In the first session on "Anodising from the Users' View-point" three papers are included. The second session deals with "Special Surface Characteristics". Current views on Anodic Coatings' consisting of three papers are presented in the subsequent session. "Industrial Applications of Anodised Aluminium" are discussed in the next session consisting of three papers—anodic finishes for decorative, electrical insulation and for wear resistance. In the fifth session, "Theory of related Processes" is discussed with reference to polishing, dyeing and sealing. The last session deals with "Recent Advances in Anodising Techniques". With the increased use of anodised aluminium for architectural work, multi-colour dyeing is assuming considerable importance. At the end of each session, discussion on the papers is included. References are also given at the end of the papers. A useful index has been included.

This volume covers almost all the aspects of anodising of aluminium and will be a useful publication of reference as each paper has been

contributed by an expert in the field. This is a valuable addition to the literature on anodising of aluminium. The printing and get up are excellent.

—S.K.

Metal Industry Hand Book and Directory 1963, published, *by* Iliffe Books Ltd., London, 544 pages, 21 sh.

The 52nd edition of the Hand Book and Directory published annually by Iliffe Books Ltd., is completely revised. The general arrangement of matter, contents and the number of pages are about the same as the 1962 edition except for the revision in order to bring the publication up to date. The hand book is divided into three sections. In the first section general properties of metals and alloys are dealt with including information on about 700 proprietory alloys, standard specifications like B.S., D.T.D. etc. The second section contains useful compilation of general data and tables on weights, conversion factors and other physical properties of non-ferrous metals. The third section dealing with electroplating processes like phosphatising, colouring of metals, etc, will be of great help to the practical plater. Inclusion of newer type of baths, like pyrophosphate, sulphamate and fluoborate will enhance the value of this section. The last section is the directory portion giving information of buyers and has been enlarged.

The handbook covers almost all aspects of non-ferrous metals and contains a fund of valuable information for the metallurgist, chemist and engineer. The get up is excellent and the publication, as in previous years, will serve as an excellent reference publication.

—S. K.

Diffusion in Solids, *by* P. G. Shewmon, published by McGraw-Hill Book Co. Inc., New York – San Francisco—Toronto—London, 1963, 203 pages, $ 9.50.

This is an advanced treatise based on a course taught to senior students. It consists of 7 chapters: diffusion equations, atomic theory of diffusion, diffusion in dilute alloys, diffusion in a concentration gradient, diffusion in nonmetals, high-diffusivity paths, thermal diffusion and electrolysis in solids.

The treatment of the subject, including the mathematical approach, is excellent. Each chapter contains references to literature as well as a set of problems. There is an index in the end. The publication admirably serves the purpose for which it is intended, that is, " to present a clear, concise, and relatively complete treatment of diffusion in solids ". This book will, no doubt, be of immense value to the post-graduate student and the research worker.

— T.L.R.

Comparison of Steel-Making Processes, published, *by* the Economic Commission for Europe, United Nations, New York, 1962 83, pages, $ 1.

This publication records the findings of the inquiry by the ECE Steel Committee. The primary aim is 'a general approach to the assessment of the comparative advantages and disadvantages of different steel-making processes, which may be of some help when evaluating the most suitable process for the particular condition of a given country, or even of a given iron and steel works'.

The report is divided into 6 chapters: (1) the development of steel-producing methods, (2) the role of oxygen and electricity, (3) properties and qualities of steel, (4) flexibility and specific input consumption, (5) investment and production costs, and (6) conclusions. There are 32 tables and 56 figures. References to literature are also included. This short monograph contains valuable information on the processes for the making of steel.

— T.L.R.

Metal Finishing Guidebook Directory 1963, published, *by* Metals and Plastics Publications Inc., Westwood, N.J., U.S.A., 742 pages, $ 2.50 and $ 15 as part of subscription to 'Metal Finishing'.

This thirty-first edition of the guide book is brought out every year by the publishers of the Journal 'Metal Finishing'. Metal Finishing Industry's guide book is divided into ten Sections. Finishing plant engineering section give information on plating equipment, flooring details, waste and water treatment. Mechanical and chemical surface preparations for vat and barrel plating are given next. Plating solutions and operating data are quite comprehensive, covering the entire field of plating from antimony to zinc plating. Special plating procedures and special surface treatments including anodising, electroless plating, conversion coatings, etc., are dealt with in the two sections In the section on organic finishing, details from the preparation of surface for painting to testing of organic coatings are included. A separate section has been provided for analytical and testing procedures. Tables and data sheets contain useful information. The last section — directory contains commercial information like

professional societies, product classification, trade names, suppliers' addresses, etc. There is a comprehensive index at the end.

The guide book has been well written in a concise manner carrying a fund of technical information on the subject of metal finishing and can be recommended as a reference book to all those concerned with metal finishing.

— S.K.

Concise Chemical and Technical Directory, *by* H. BENNETT (Ed), published by Chemical Publishing Co., Inc., New York, 1962, 1039 pages, $ 15.

This is the second enlarged edition of the dictionary with about five thousand new entries. It gives information concerning new chemicals, processes and apparatus; scientific terms; raw materials and finished products; engineering terms; shop practice etc. The data for chemical compounds are listed in detail, together with foreign and domestic trade-mark products. This dictionary contains a fund of information of immense use to one and all.

— T.L.R.

Practical Industrial Formulary, *by* M. FEEMAN, published by the Chemical Publishing Co., Inc., New York, 1962, 297 pages, $7.95.

The book presents a collection of reliable up to date formulae carefully selected to serve the many needs of professional chemists, pharmacists, manufacturers, teachers and others besides. Instructions given are simple yet explicit, and the materials covered include pharmaceuticals, aromatics, preservatives, household and industrial products. Data on analysis of foods, properties of gems and other exceptional features add to its usefulness.

— P.L.N.R.

Electrochemical Reactions—The Electrochemical Methods of Analysis, *by* G. CHARLOT, J. BADOZ-LAMBLING AND B. TREMILLON, published by Elsevier Publishing Co. Amsterdam, 1962, 376 pages, D fl. 40.

The book is concerned mainly with an attempt to characterize the electrochemical reactions that occur at electrodes by means of current-potential curves, and is written for the chemist to enable him to interpret the electrochemical reactions that occur in various electrochemical methods of analysis.

The first chapter deals with a qualitative treatment of electrochemical reactions proceeding at an infinite rate and also at finite velocity. The differences between these two types are brought about very closely. The influence of the transport of matter to the electrode proceeding at a finite velocity is also given. In the second chapter quantitative equations for current-potential curves in some simple cases are developed. The changes that occur in current-potential curves both for the fast and slow electrode reaction when a reactant is added little by little is discussed with a number of practical examples (acid-base reactions, complex formation and redox reactions) in chapters 3 and 4. In Chapter 5 the influence of physical factors, namely surface area and the nature of the electrode, effect of stirring, temperature and adsorption on current-potential curves, are treated. The experimental determination of current-potential curves is given in chapter 6 with good practical details. In Chapters 7 to 10 the authors have discussed at great length the following electrochemical techniques: potentiometry, amperometry and coulometry, with a number of practical examples. They have shown how current-potential curves are of great use in understanding the electrochemical reactions involved. Chapter 11 covers other applications such as dissolution of metals, separations and preparations. In a catch-all chapter (chapter 12) the study of chrono-amperometry, chronopotentiometry, oscillographic polarography, A.C. polarography, A.C. chronopotentimetry and anodic stripping polarography are given with practical examples. The last chapter is devoted to studies in non-aqueous solvents and in fused salts.

The book is mainly devoted to an understanding of the electrochemical reactions by a study of current-potential curves. In many places the treatment is quite novel. The inclusion of a large number of hypothetical examples helps in understanding the theoretical portions involved very clearly. Polarographers are usually accustomed to consider the reduction currents as positive and the oxidation currents as negative. In this book the opposite convention is used. Since the entire book is more or less developed to a study of current-potential curves, probably it might have been better to use the polarographic conventions.

— R.S.S.