BOOK SECTION

New Publications

Rare Metal Extraction by Chemical Engineering Techniques, by W. D. Jamrack, published by Pergamon Press, London, 1963, 360 pages, 70 sh.

Physical Chemistry by C. W. Wood and A. K. Holliday, published by Butterworth & Co, London, 1963, 338 pages, 21 sh.

An Introduction to Metallic Corrosion. by U. R. Evans, published by Edward Arnold (Publishers) Ltd., London, 2nd ed, 1963, 30 sh.

Corrosion Resistance of Metals and Alloys, by F. L. LaQue and H. R. Copson (Ed), published by Reinhold Book Division, New York, ACS Monograph No. 158, 2nd ed, 1963, 736 pages, $ 21.

Nickel—An Historical Review, by F. B. Howard-White, published by Methuen and Co, London, 1963, 350 pages, 45 sh.

Research and Practice in the Soviet Electroplating Technique (Fourth Conference for Electrochemistry, Moscow), published by E. G. Leuze Verlag, Saulgau, Wttbg, Germany, 105 pages : in German.

Nickel Plating: Its Technique and Applications, published by International Nickel Co. (Mond) Ltd., Publication 2563, 1963, 51 pages.

Advances in X-ray Analysis, Volume V. Proceedings of the Tenth Annual Conference on Application of X-Ray Analysis, by W. M. Mueller (Ed), published by Sir Isaac Pitman and Sons Ltd, London, 1963, 564 pages, 135 sh.

Basic Concepts of Nuclear Chemistry, by R. T. Overman, published by Chapman and Hall Ltd, London, 1963, 116 pages, 16 sh.

Modern Polarographic Methods, by H. Schmidt and M. V. Stackelberg, translated from German by R. E. W. Maddison, published by Academic Press, New York, 1963, 99 pages, 44 sh.

Surface Chemistry—Theory and Industrial Applications, by L.J. Osipow, published by Reinhold Publishing Corporation, New York, ACS Monograph No. 153, 1963, 473 pages, 108 sh.

Comprehensive Chemistry, by J. Hicks, published by Cleaver Hume Press Ltd, London, 1963, 809 pages, 35 sh.

Calculations in Physical Chemistry, by B.W.V, Hawes and N. H. Davies, published by The English Universities Press Ltd, London, 1963, 206 pages, 10sh 6d.

Corrosion and Protection of Metals by G. T. Bakhvalov and A. V. Turkovskaya, translated and edited by G. Isserlis, published by Pergamon Press Ltd, Oxford, 310 pages, 35 sh (approx).

Corrosion : Volume 1. Corrosion of Metals and Alloys, Volume 2. Corrosion Control, by L. L. Shreir, published by George Newnes Ltd, London, 1963, 1963 pages, £ 12 sh 12.

Better Plating on Die Castings, published by the British Non-Ferrous Metals Research Association, London, 1963, 7sh 6d.

Chemical Engineers' Handbook, by R. H. Perry, C. H. Chilton and S. D. Kirkpatrick (Ed), published by McGraw-Hill, 4th ed, 1916 pages, $ 29.50.

The Mechanical Properties of Electrolytic Deposits, by A. T. Vagramyan and Yu. S. Petrova, translated from Russian, published by Consultants Bureau Enterprises Inc, New York, 1962, 108 pages, $ 12. 50.

Effluent Treatment in the Metal Finishing Industry, by R. Weiner, translated from German, published by Robert Draper Ltd, Teddington, Middx, 1963, 258 pages, 65 sh.

Tinplate Handbook, by W. E. Hoare, published by Tin Research Institute, Greenford, Middx, England, 1963, 58 pages.

Corrosion Inhibitors, by J. I. Bregman, published by Macmillan Co. New York, 320 Pages, $ 12.50.

Progress in Dielectrics, Vol. 5, by J. B. Birks and J. Hart (Ed), published by Academic Press Inc, New York, 1963, $ 13.

Advances in Analytical Chemistry and Instrumentation, Vol. 2, by C. N. Reilley (Ed),

published by Interscience Publishers Inc, New York, 1963, 408 pages, $ 15.

Electrochemistry of Germanium and Silicon, by E. A. Efimov and I. G. Erusalimchik, published by Sigma Press, Washington D.C, 1963, 199 pages, $ 11.

The Mechanism of Corrosion by Fuel Impurities, by H. R. Johnson and D. J. Littler, published by Butterworth & Co. Ltd, London, 1963, 660 pages, 148 sh.

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Australian Chemical Engineering, Vol. 4, No. 8-12, 1963, North Sydney, N.S.W.

Review of Metal Literature, Vol. 20, No. 8-11, 1963, American Society for Metals, Metals Park, Ohio.

Engineering Progress at the University of Florida, Vol. 17, No. 2, 6, 7, 1963, Florida Engineering and Industrial Experiment Station, Gainseville.

Chemical Age of India, Vol. 14, No. 6-9, 1963, Technical Press Publications, Bombay.

CSIR News, Vol. 13, No. 18-24, 1963, New Delhi.

Industrial Finishing, Vol. 15, No. 182-186, 1963, Arrow Press Ltd. London.

Electro-Technology, Vol. 7, No. 2-4, 1963, Society of Electronic Engineers, Bangalore.

ISI Bulletin; Vol. 15, No. 5, 6, 1963, New Delhi.

Australasian Corrosion Engineering, Vol. 7, No. 8-12, 1963, North Sydney, N.S.W.

Insdoc List — Current Scientific Literature, Vol. 10, No. 19-23, 1963, New Delhi.

Australian Journal of Applied Science, Vol. 14, No. 3, 1963, CSIRO, East Melbourne.

Zinc Abstracts, Vol. 21, No. 7-10, 1963, ZDA, London.

Lead Abstracts, Vol. 3, No. 7-10, 1963, LDA, London.

Metal Finishing Journal, Vol. 9, No. 105-108, 1963, Fuel and Metallurgical Journals Ltd, London.

Electroplating and Metal Finishing, Vol. 16, No. 9-12, 1963, Robert•Draper Ltd. Teddington, Middx, England.

The Properties and Characteristics of Aluminium Casting Alloys, published by The Association of Light Alloy Refiners and Smelters Ltd, London, 1963, 112 pages, 5sh.

Materials Protection, Vol. 2, No. 8-12, 1963 NACE, Houston.

British Patents, Group 36, London.

Corrosion Technology, Vol, 10, No. 9-12, 1963, Technology Publications Ltd, London.

Science and Appliance, Vol. 27, No. 7-9, 1963, The Ohio State University Research Foundation, Columbus, Ohio.

Inorganic Laboratory Preparations, by G. G. Schlessinger, published by Chemical Publishing Co. Inc, New York, 1962, 294 pages, $12.

International Atomic Energy Agency Bulletin, Vol. 5, No. 4, 1963, IAEA, Vienna,

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

The Nickel Bulletin, Vol. 36, No. 7-11, 1963, The International Nickel Co (Mond) Ltd, London.

Inco-Mond Magazine, No. 22, 23, 1963, The International Nickel Co (Mond) Ltd, London.

Wiggin Nickel Alloys, No. 72, 73, 1963, Henry Wiggin and Co. Ltd. Birmingham.

Battelle Technical Review, Vol. 12, No. 9-12, 1963, Battelle Memorial Institute, Columbus, Ohio.

Corrosion, Vol. 19, No. 8-11, 1963, NACE, Houston.

Metal Finishing, Vol. 61, No. 9-12, 1963, Metals and Plastics Publications Inc, Westwood, N. J, U.S.A.

Electrochemistry — Theoretical Principles and Practical Applications, by G. Milazzo, published by Elsevier Publishing Co, Amsterdam-London-New York, 1963, 708 pages, £5 sh10.

Cobalt, No. 20, 21, 1963, Centre D'Information Du Cobalt, Brussels.

Introduction to Physical Inorganic Chemistry, by K. B. Harvey and G. B. Porter, published by Addison-Wesley Publishing Co. Inc, Reading, Mass, U.S.A. 1963, 437 pages.

Quarterly Bulletin of Steel Statistics for Europe, Vol. 14, No. 1, 2, 1963, UN, New York, through UN Information Centre, New Delhi.

Science Library Bibliographical Series No. 788, Science Museum, London.

Finishes for Aluminium, Vol. II, Process Manual, published by Reynolds Metals Co, Richmond Virginia, USA, 1963, 95 pages.

Crerar Metals Abstracts, Vol. 11, No. 8, 9, 12, 1963' The John Crerar Library, Chicago.

Materials of Construction for Chemical Plant, by I. L. Hepner (Ed), published by Leonard Hill (Books) Ltd, London, 1962, 204 pages, 45 sh.

Science and Engineering, Vol. 16, No. 7-8, 1963, ISE, Calcutta.

Journal of the Electrochemical Society of Japan, Vol. 30, No. 4, 1962, Tokyo.

Nickel Plating -- Technique and Applications, published by the International Nickel Co (Mond) Ltd, London, 1963, No. 2563, 51 pages.

Florida Engineering News, Vol. 5. No. 4, 1963, Florida Engineering and Industrial Experiment Station, Gainseville.

Journal of the Indian Institute of Science, Vol. 45, No. 4, 1963, Bangalore.

Inco-Mond Nickel, No. 6, 1963, The International Nickel Co (Mond) Ltd, London.

UNESCO Bulletin, No. 15, 1963, South Asia Science Corporation Office, New Delhi.

Corrosion Prevention and Control, Vol. 10, No. 11, 12, 1963, Scientific Surveys Ltd, London.

The Bulletin of the European General Galvanizers Association No. 3, 1963, ZDA, London.

BOOK REVIEWS

Electrochemistry — Theoretical Principles and Practical Applications, *by* G. Milazzo, published by Elsevier Publishing Co., Amsterdam-London-New York, 1st English Ed., translation from Italian by P. J. Mill, 1963, 708 pages, £5 sh 10.

This treatise gives an account of the fundamental as well as industrial aspects of electrochemistry. The subject has developed rapidly in recent years, and an excellent attempt has been made to cover a number of topics in a volume which is not too big. Some of the chapters have been written in collaboration with other authors.

The book is divided into 12 chapters. The introduction deals with thermodynamics and electrical units. Chapters 2 to 4 cover electrolytic condition, galvanic cells and, electrolysis and electrochemical kinetics. Analytical applications are discussed in the next chapter, and colloids and electrokinetic phenomena in chapter 6. The following 6 chapters are more or less devoted to the applications of electrochemistry: electrochemical plants, electrometallurgy, non-metallurgical processes, fused salt electrolysis, primary cells and storage batteries and the electrochemistry of gases.

The treatment of the matter is quite clear and intelligible to non-specialists. There are adequate tables and figures for illustration, but the references to literature are perhaps too few. Topics like electrochemical plants, electroplating and corrosion deserve a more detailed presentation. On the whole it should be stated that this publication is certainly a useful one in the field of theoretical and applied electrochemistry. It can be recommended as a textbook as well as a reference book.

—T. L. R.

Corrosion and Corrosion Control, *by* H. H. Uhlig, published by John Wiley and Sons Inc., New York-London, 1963, 371 pages, $ 10.

This book is intended as an introduction to corrosion science and corrosion engineering. It is based on a course to senior students in the U. S. A. by the author who is internationally well known in the corrosion field.

It consists of 26 chapters. The electrochemistry of corrosion and other fundamental aspects are dealt with at first. This is then followed by a discussion on prevention methods, Individual metals and alloys have been considered in the later chapters, In the end there are problems, an appendix and an index.

The modern concepts of corrosion of metals and its prevention have been admirably presented in this concise volume. There are extensive references to literature. One finds a slight repetition of matter in different places, and this is justified because it is more or less unavoidable. This publication will doubtless be a big success. It is a 'must' for advanced students and to all those interested in the prevention of metallic corrosion.

—T.L.R.

Introduction to Physical Inorganic Chemistry *by* B. K. Harvey and G. B. Porter, published by Addison Wesley Publishing Company Inc., Reading, Mass, U.S.A., 1963, 437 pages.

Harvey and Porter seem to have achieved their aim in furnishing an inorganic text which underlines the principles of chemical behaviour.

A teacher of inorganic chemistry may well feel pleased that there is now a good book which he can recommend. The ground covered in ten chapters may be indicated by the following headings: introduction, ionic crystals, atomic structure, thermochemistry, molecular structure, transition metal complexes, crystal chemistry, thermodynamics, solutions of electrolytes, and rates and mechanisms of reactions. As implied by the authors' declared objectives the most important aim in a book of this kind is to lay a sound foundation in principles. Though it contains more material than is intended for a oue year course of study, the inclusion of a detailed mathematical treatment of basic principles contained herein would have put the aspiring student in a position to appreciate and to have a thorough grounding. Absence of an introduction to experimental methods of determination of inorganic structure and mechanism will keenly be felt by many who wish to see the book serve as a standard text in physical chemistry to graduate students. It is well produced and most readable.

—S. S.

The Properties and Characteristics of Aluminium Casting Alloys, published *by* The Association of Light Alloy Refiners and Smelters, London, 1963, 112 pages, 5sh.

This is an excellent monograph on the properties and characteristics of aluminium casting alloys, and will be particularly useful in view of the increasing application of aluminium alloys in various fields today. Beginning with an introduction the matter is presented in the following order : standard aluminium casting alloys, guide to the selection of alloys, properties and characteristics of individual alloys, heat-treatment of alloy castings and identification of casting alloys. The data cover physical, chemical and mechanical properties of 21 alloys. There are 11 tables. The publication contains a fund of vital information in the choice and application of aluminium alloy castings to design engineers and metallurgists.

T. L. R.

Inorganic Laboratory, Preparations, by Gert G. Schlessinger, published *by* Chemical Publishing Company Inc., New York, 1962, 294 pages, $ 12.

Teaching of collegiate inorganic chemistry suffers from an inadequate appreciation of the need for systematic grounding in basic principles of preparative work. The book under review comes in very handy in this respect. It covers the preparation of a " carefully selected and tested group of elements and compounds, designed to supplement the usual knowledge of inorganic chemistry that the graduate brings to his work in industry ". Over 150 compounds including coordinate complexes, colloids and organo-metallic compounds are described in detail. While the book serves the purposes of an undergraduate remarkly well, the reviewer feels that addition of a few more items of interest to the organic chemist and biochemist could considerably extend its popularity.

P. L. N. R.

Physico-chemical Principles of Nickel Plating, *by* K. M. Gorbunova and A. A. Nikiforova, translated from Russian by Abraham J. Aladjem, published for the National Science Foundation, Washington D. C. and the Department of Commerce by the Israel Program for Scientific Translations, Jerusalem, 1963, 155 pages, $ 1.50.

This is an English translation of the Russian version of the Physicochemical Principles of Nickel Plating, published in Moscow by the Academy of Sciences, Institute of Physical Chemistry, 1960, and fulfils the long felt need for a comprehensive treatment on the fundamental aspects of chemical nickel plating. The nickel coating is very widely used as a decorative and protective coating mostly by electrodeposition. The process of chemical nickel plating has been developed for the past fifteen years and has reached a stage when it can be adopted as production plating process. Chemically reduced nickel has characteristics very much different from the electrodeposited nickel. The aim of this monograph is to summarise the data of various investigations dealing with the conditions under which the process takes place, the mechanism of the reaction and the properties of the metallic coatings and the results of research carried out by the investigators of the Institute of Physical Chemistry, Academy of Sciences of USSR and other investigators in the field. The monograph consists of nine chapters. The first and the second chapters deal with the history of the research on the reducing action of hypophosphite on the salts of heavy metals and the conditions under which nickel coatings are formed in an acid medium. Methods for improving the process and the course of the process in alkaline solutions form the subject

matter of next two chapters. Other aspects of chemical plating like properties of the coatings, structure and mechanism of the process of reduction of nickel by hypophosphite and quantitative determination of the hypophosphite and phosphite in the solutions are well covered in four chapters. The authors have paid considerable attention to technical aspect of the process including costing. Deposition of nickel on non-metallic surfaces and conditions under which cobalt-nickel alloy coatings are formed are outlined in two chapters.

The authors of this monograph are to be commended for correlating the different data obtained by various authors and the exhaustive literature survey. Research workers and practical workers in the field of chemical nickel plating will find this volume very valuable. In every chapter there are tables and figures. There is an index at the end. The nicely got up publication is very moderately priced for a technical translation of such a nature.

—S. K.

Materials of Construction for Chemical Plant, by I. L. Hepner (Ed), published by Leonard Hill (Books) Ltd., London, 1962, 204 pages, 45 sh.

Dr. I. L. Hepner, Editor, of Chemical and Process Engineering has rendered a great service to the chemical engineering profession by compiling in book form a series of articles on materials of construction for chemical plant which appeared in CPE along with three introductory articles. All the articles in the book are by specialists in their respective fields with considerable practical knowledge and therefore have an air of authority about them.

The book is divided into eight parts. The introductory part is sub-divided into survey of materials of construction, optimum selection and metallic corrosion. The remaining seven parts are devoted to seven groups of materials of construction. Under the ferrous metals, mild steel, cast iron, and stainless steel are covered. The group on non-ferrous metals include articles on aluminium, copper and nickel and their respective alloys. Platinum group metals, silver, lead, titanium, new metals (beryllium, zirconium, niobium, tantalum, molybdenum and chromium) are covered under Non-ferrous Metals — Special Purpose. The other parts cover silicate minerals, (glass, ceramics and cement, polymers, polyvinyl chloride, poly olefins, reinforced plastics and rubber)., miscellaneous materials, (carbon, graphite, and timber) and protective coatings (zinc coating, paints, aluminium paints and epoxide resin paints).

Each of the twentysix articles in the book devoted to different materials of construction, discusses the usefulness and application of the respective materials from the point of view of the stringent demands of the chemical engineer, for the construction of chemical plant and equipment indicating the properties, fabrication methods, advantages and limitations of the material under discussion. The three chapters in the introductory part are really excellent and summarise the underlying philosophy of the book. The first chapter gives the classification of various materials and the basis of selection of materials with interesting case histories. In the chapter on optimum selection there are 3 tables on the properties of different grades of stainless steel and three more tables on mechanical, physical and chemical properties of important materials which are very useful. A review of various aspects of corrosion associated with materials of construction used in chemical plant is given in the third introductory chapter.

The book is very valuable to practising chemical engineers and should find a place in every technological library.

—N. R. K.

Nickel Plating — Technique and Applications, published by The Internaitonal Nickel Company (Mond) Limited, London, 1963, 51 pages.

This monograph presents comprehensive information on nickel plating and its applications. The subject matter has been presented under: introduction, surface preparation of basis metal, various plating procedures, mechanical properties of the deposits, plating practice, applications, plant design, testing of deposits, references and useful data. In addition to the various types of well established baths for nickel plating, this volume also covers tin-nickel plating and nickel-phosphorous-alloy electroless plating. The matter has been well supplemented and illustrated in 12 tables and 26 figures.

The publications of the International Nickel Company in the field of chemistry of nickel and its alloys are well known all over the world, and the company has really done a good service in bringing out this publication. This volume

is strongly recommended for all those concerned with the plating of nickel.

—S. V.

Finishing for Aluminium, Vol. II Process Manual, published by Reynolds Metals Company, Richmond, Virginia, U. S. A., 1963, 95 pages.

This monograph is a process manual for aluminium finishers. It is a practical book offering directions for operations that can be fully defined. The general pattern of presentation is to give a description of the basic process followed by proprietary names with their characteristics like concentration, temperature and time of processing. The process manual is divided into six chapters — cleaning, mechanical finishing, anodising, enamelling, electroplating and chemical conversion coatings. Exhaustive information on normal finishing processes used on aluminium have been included. Standard specifications for aluminium finishes are given. All the proprietary names pertain to U.S.A. and an index of such manufacturers has been provided. The monograph is clearly printed and will serve as a guide to the practical finisher engaged in processing aluminium.

—S. K.

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cable to Uranium and other Purifications, (4) Titanium in Electrochemical Processes, (5) Demineralisation of Brackish Water by Electrodialysis, (6) The Influence of Brine Quality on the Current Efficiency of the Mercury Cell and (7) The Design and Construction of Automatic Electroplating Plants.

International Hot Dip Galvanzing Conference

Paris is the venue of the Seventh International Conference on Hot Dip Galvanizing, June 15-19, 1964 organized by the French Galvanizing Association and the European General Galvanizers Association. Six technical sessions are scheduled on (1) Galvanising Plant-Equipment for Galvanizing and Handling, (2) Pretreatment (3) Performance including Corrosion Behaviour, (4) Special Galvanizing Processes, (5) After-treatments for Galvanized Steel and (6) Metallurgy of the Process.

T. L. R.