BOOK SECTION

New Publications

The Use of Aluminium in Railway Rolling Stock, published by Aluminium Development Association, London, 1961, 152 pages, £2 sh 2.

Electrode Processes: Transactions of a Symposium by E. Yeager (Ed), published by John Wiley and Sons Ltd., New York, London, 1961.

Electrochemische Kinetik, by K. J. Vetter, published by Springer Verlag, Berlin-Gottingen-Heidelberg, 1961, 698 pages, DM 156.

Progress in Semiconductors, Volume 5, by A. F. Gibsen, R. E. Burgess and F. A. Kroger (Ed), published by John Wiley and Sons, New York, 1961, 316 pages, $11.

An Introduction to Transition-Metal Chemistry, by L. E. Orgel, published by John Wiley and Sons, New York, 1960, 180 pages, $4.50.

Electrolytic Dissociation, by C. B. Monk, published by Academic Press, London and New York, Volume 8 of Physical Chemistry: A Series of Monographs, 1961, 320 pages, 60sh.

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

An Introduction to Coordination Chemistry, Vol. 3, by D. P. Graddon, published by Pergamon Press Inc., New York, 1961, 111 pages, $4.

Soviet Electrochemistry — Proceedings of the Fourth Conference on Electrochemistry, published by Consultants Bureau, New York, Vols, I to III, $15 per vol. or $40 for set.

Handbook of Chemistry, by N. A. Lange (Compiler and Editor), published by McGraw-Hill Book Co., New York, 10th edition, 1969 pages, $11.00

Publications Received

Corrosion Prevention and Control, Vol. 8, No. 4-6, 1961, Scientific Surveys Ltd., London.

Metal Finishing Journal, Vol. 7, No. 76-78, 1961, Industrial Newspapers (Fuel and Metallurgical) Ltd., London.

The Nickel Bulletin, Vol. 34, No. 2-4, 1961, The International Nickel Co., (Mond) Ltd., London.

ISI Bulletin, Vol. 13, No. 2, 3, 1961, New Delhi.

Journal of the Electrochemical Society of Japan, Vol. 28, No. 4-9, 1960, Overseased, ECS of Japan, Tokyo.

Insdoc List, Current Scientific Literature, Vol. 8, No. 10-15, 1961, New Delhi.

Australian Corrosion Engineering, Vol. 5, No. 1-6, 1961, Australasian Corrosion Association, North Sydney, Australia.

Industrial Finishing, Vol. 13, No. 154-156, 1961, Arrow Press Ltd., London.

British Patents, Group 36, London.

CSIR News, Vol. 11, No. 10-14, 1961, New Delhi.

Corrosion, Vol. 17, No. 4, 5, 1961, NACE, Houston, U.S.A.

Bibliographic Survey of Corrosion 1956, published by the National Association of Corrosion Engineers, Houston, Publication No. 60-12, 1960, 240 pages, $27.50.

Electroplating and Metal Finishing, Vol. 14, No. 4, 6, 7, 1961, Robert Draper Ltd., Teddington, Middx, England.

Inco-Mond Magazine, No. 17, 1961, The International Nickel Co. (Mond) Ltd., London.

Battelle Technical Review, Vol. 10, No. 4-6, 1961, Battelle Memorial Institute, Columbus, Ohio, U.S.A.

Crerar Metals Abstracts, Vol. 9, No. 6-9, 1961, The John Crerar Library, Chicago.

Review of Metal Literature, Vol. 18, No. 4-6, 1961, American Society for Metals, Novelty, Ohio, U.S.A.

ZDA Abstracts, Vol. 19, No. 4, 5, 1961, ZDA, London.

The Electro-Erosion Machining of Metals, by A. L. Livshits, translated from the Russian by E. Bishop, edited by R. S. Bennett, published in association with the Dept of Scientific and Industrial Research by Butterworths and Co. (Publishers) Ltd., London, 1960, 115 pages, 30sh.

Hydrogen Peroxide Data Manual, published by Laporte Chemicals Ltd., Luton, Beds, England, 1960, 80 pages.

Atomic Theory for Students of Metallurgy by W. Hume-Rothery, published by the Institute of Metals, London. Monograph and Report Series No. 3, 1960, third revised ed, 427 pages, 50sh.

Tinplate Testing — Chemical and Physical Methods, by W. E. Hoare and S. C. Britton, published by Tin Research Institute, Greenford, Middx, England, 1960, 55 pages.

Metal Finishing Guidebook Directory 1961, published by Metals and Plastics Publications Inc, Westwood, N. J., U S.A., 29th Annual Edition, 754 pages, free to Subscribers of 'Metal Finishing' ($5).

Metal Finishing, Vol. 59, No. 5, 6, 1961, Metals and Plastics Publications Inc, Westwood, N.J., U.S.A.

Science and Appliance, Vol. 25, No. 5, 6, 1961, The Ohio State University Research Foundation, Columbus, Ohio, U.S.A.

Wiggin Nickel Alloys, No. 61, 1961, Henry Wiggin and Co., Birmingham.

European Technical Digests, Vol. 6, No. 2, 1961, OEEC, European Productivity Agency, Paris.

Australian Chemical Engineering, Vol. 2, No. 1-6, 1961, North Sydney, Australia.

Journal of the Indian Institute of Science, Vol. 43, No. 3, 1961, I. I. Sc., Bangalore.

Science and Engineering, Vol. 14, No. 3-4, 1961, I.S E., Calcutta.

Australian Journal of Applied Science, Vol. 12, No. 2, 1961, CSIRO, East Melbourne.

Elementary Science for Electroplating Students and Foremen, by E. A. Ollard, published by Robert Draper Ltd., Teddington, Middx, England, 1961, 99 pages, 18sh.

Electro-Technology, Vol. 5, No. 1, 1961, Society of Electronic Engineers, Bangalore.

Cobalt, No. 11, 1961 Centre D'Information Du Cobalt, Brussels.

Chemical Age of India, Vol. 12, No. 3, 1961, Technical Press Publications, Bombay.

International Atomic Energy Agency Bulletin, Vol. 3, No. 3, 1961, IAEA, Vienna.

UNESCO Bulletin, No. 10, 1961. South Asia Science Cooperation Office, New Delhi.

Quarterly Bulletin of Steel Statistics for Europe, Vol. 11, No. 4, 1960, Economic Commission for Europe, United Nations, Geneva.

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, 1 60, 424 pages, $ 15.

Science Library Bibliographical Series No. 780, 781, Science Museum, London.

BOOK REVIEWS

Hydrogen Peroxide Data Manual, published by Laporte Chemicals Ltd., Luton, Bedfordshire, England, 1960. 80 pages.

This is a useful publication covering the properties and uses of hydrogen peroxide of all concentrations. The manual is divided into four major sections. Physical, chemical and physiological properties, and physical and chemical data, are described in the first two sections with a number of tables and figures. Decomposition properties with special reference to explosive compositions and as a propellant for rocket are given. In the next section material of construction for storage of hydrogen peroxide is described. Details of tank design for storage, precaution in handling, and transport and treatment of surface of vessel for storage, are dealt in the next section. An illustrated list of equipment in handling concentrated hydrogen peroxide will be useful to the chemists and chemical engineers in various industries. The publishers intend producing a companion volume to this manual giving further data on other aspects of the use of hydrogen peroxide. The publication is handy in giving useful information on hydrogen peroxide, and is well produced.

—S.K.

Tin Plate Testing, *by* W. E. Hoare and S. C. Britton, published by Tin Research Institute, Middlesex, England, 1960, 55 pages.

Tin plate is used in a variety of industries, and a close watch on its quality is essential to

obtain uniform products. In this handbook the authors have surveyed the existing methods of testing tin plate and commented on them with a view to guiding the users on the quality of tin plate. It is divide l into two parts. In the first part testing procedures for appraising the characteristics of the superficial layers of tin plate, and performance tests like corrosion resistance, lacquerability, solderability etc. are described. A number of appendices giving details of testing procedures is included in the second part. Both parts of the handbook are comprehensive and authoritative. They are fully and clearly illustrated, and literature references are given. To anyone requiring details about procedures of testing tin plate, the handbook is invaluabie as a compact and reliable source of reference for chemical and physical methods of testing tin plate.

—S.K.

Bibliographic Survey of Corrosion 1956, published by the National Association of Corrosion Engineers, Houston, U.S.A., publication No. 60-12, 1960, 240 pages, $27.50.

This is a compilation of abstracts of papers on corrosion published in 1956. The NACE is well known for its publications in the field of corrosion, and this survey is the seventh in the series. The Association has really done a good service to research and industry in publishing this volume.

The abstracts have been divided into 8 groups: general, testing, characteristic corrosion phenomena, corrosive environments, preventive measures, materials of construction, equipment and industries. Each group is further divided and sub-divided, as shown in the table of contents. The classification is by the NACE Corrosion Abstract Filing Index. There is an appendix giving information on location of journals or procurement of copies, together with author and subject index at the end. The output of corrosion literature has increased enormously in recent years, and it would have added to the value of this survey if it was published earlier. Four years is a good gap, and many methods and techniques either get outmoded or modified. This compilation is a valuable source of reference to electrochemists, metallurgists, corrosion engineers and others concerned with metallic corrosion and its prevention.

—T.L.R.

Elementary Science — for Electroplating Students and Foremen, *by* E. A. Ollard, published by Robert Draper Ltd., Teddington, Middx, England, 1961, 99 pages, 18sh.

This short monograph has been written with a view to familiarize the job plater with 'the elementary principles of chemistry, electricity and electrochemistry, the terms used in describing chemical reactions and the like, and the methods of calculation used in the control of electroplating operations'. It is specially intended for those who do not have an elementary knowledge of the subject. The book serves this purpose admirably, and the publishers deserve to be congratulated for this venture. The author is well known in this field.

Seven chapters of the volume cover principles of chemistry, chemical analysis, electricity and electrochemistry, properties of electrodeposits, units of heat, and plating calculations. There is a useful appendix in the end, followed by an index. Each topic has been dealt with in a simple manner, and the treatment is excellent. The questions and answers form an extremely interesting and instructive part of the presentation. A good knowledge of chemistry and electrochemistry is very essential for plating work, and chapters 1 and 4 have been given the attention due to them. The publication is moderately priced. It can be safely recommended as a guide in elementary science to junior students and industrial platers.

—T.L.R.

Metal Finishing Guide book — Directory 1961, published by Metals and Plastics Publications Inc, Westwood, N. J, U. S. A., 29th annual ed, 754 pages, free to subscribers of 'Metal Finishing.'

This is the twenty-ninth edition of the Directory brought out every year by the publishers of the monthly Journal 'Metal Finishing' familiar to everybody in the field.

It consists of the following sections: finishing, plant engineering, mechanical surface preparation, chemical surface preparation, plating solutions and operating data, special plating procedures, special surface treatments, organic finishing, control-analysis-testing, tables and data sheets, and directory. There is a comprehensive index at the end. The presentation of matter has an industrial bias, and the treatment is quite good. Due attention has been given to

surface preparation which is a very important step in any finishing process. In the plating section, new baths like the fluoborate and sulphamate are included. But there is no mention of pyrophosphate copper. Bright nickel has been covered, as also alloys of tin, and chromium-hard and porous. The deposition of copper-tin alloys could have been described in greater detail. The recent developments like metallizing non-conductors, electroforming, electropolishing and anodizing have been touched upon. Analytical and testing procedures have been adequately discussed. The tables and data sheets contain very useful information. Product classifications, trade names, suppliers' addresses and miscellaneous items make up the directory. As in the previous editions, the 1961 guide-directory contains a fund of technical information, and is a very valuable reference volume in the field of metal finishing.

—T.L.R.

Atomic Theory for Students of Metallurgy, *by* WILLIAM HUME—ROTHERY, published by the Institute of Metals, London 1960, Monograph and report Series No. 3, 427 pages, 50 s, $ 7.50.

This third revised edition speaks for itself the demand for the book. It is broadly divided into six parts *viz.*, general background, structure of the free atom, assemblies of atoms, free-electron theory of metals, Brillouin-Zone theory of metals, and electrons, atoms, metals and alloys. The book is well written starting from the Bohr model of hydrogen atom to the theory of Brillouin Zones. Part I is excellently written and will be of immense interest not only to the metallurgists but also to the chemists and physicists. The soft x-ray spectra of solids, nature of van der Waals forces, directed valencies and metallic linkages are nicely pictured. The experimental determination of the electronic structure of metals has been added to the chapter on the Brillouin-Zone theory of metals. This publication which is written by the Platinum medallist who is internationally known for his pioneering research work on the structure of metals and alloys is a 'must' not only to the advanced student of metallurgy, but also to any one interested in the 'Solid State of Matter'.

—J.S.

The Electro-Erosion Machining of Metals, *by* A. L. LIVSHITS, translated from the Russian by E. BISHOP, and edited by R. S. BENNETT, published by Butterworths, London, in association with Department of Scientific and Industrial Research, 1960, 115 pages, 30 sh.

This publication represents the laudable efforts of a Russian author in the electro-erosion machining field to make available to any one interested in the topic a single comprehensive source of information regarding the research work carried out in a few specialised laboratories in Russia. Very interesting fields of application have been illustrated in the text due to the practical knowledge of the author. The electro-erosion principles have been dealt with in a concise manner and the subject, which is still in its infancy, has been elevated to a distinct scientific level.

The book is organized into five chapters. Chapter I presents a classification of electro-erosion methods of machining metals, and compares the specific energy consumption between electrical and mechanical methods. The pulse generator is an important element in an electro-erosion machine. Electro-erosion maching has occasioned the development of devices for producing undirectional powerful current impulses in the audio-frequency range. The author groups the pulse generators into two main types—dependent and independent, and discusses the operational advantages and disadvantages of each type in Chapter II. Chapters III considers some modern automatic control circuits containing power voltage amplifiers. In Chapter IV the author gives the various parameters influencing the rate of metal removed from a material to be machined, the electrical conditions that should exist, the sequence of operations to be followed, and also the machine time required for a particular work. In addition, a survey is presented of the application of the electro-erosion machine for carrying out specialised jobs such as hole drilling, sinking internal cavities, grinding etc. Chapter V describes a few modern electro-erosion machines with possible further developments, and furnishes examples of the various routine and specialized operations which can be carried out with them.

The book attempts, by means of general laws and definitions applicable to various types of electro-erosion machines, to give a basic concept of the physical principles involved in an understandable way. The reading is not difficult. The format is excellent and the price is reasonable. The reviewer feels that the book should be of substantial interest to metal scientists and manufacturers.

—H.V.G.