# Book Section

## REVIEWS

First International Conference on Vacuum Coatings – London, February 1971, Conference Conference Papers Published by Wheatland Journals Ltd., Watford, England 1971, £ 3.00.

In recent years there has been a rapid growth in the application of vacuum metdllizing, and this conference held at London from February 9 to 11 is of special interest as it was primarily concerned with the industrial agplications of vacuum coatings. There were 19 papers representing a wide range of industries, and dealing with "application of basic techniques", ,'auxiliary techniques" and "vacuum coating equipments". The conference proceedings present a picture of a vigorous and highly scientific industry, with many ideas in the pipeline for the extended use of vacuum coating methods; this offers considerable possibilities in the electronic industries. For wear resistance and corrosinn protection, a great deal of research is yet needed to make the processes comparable in cost and perfnrmance with alternative processes such as electroplating and metal spraying. In this context, the proceeding will be of immense use to the research workers. Each article gives a large number of references for further reading, and the equipments are given in detail for the general usefulness of all.

—K. I. V.

Symposium on the Automation of Mining Operations–Homburg, France, April 1970, published By Economic Commission for Europe, United Natious, New York, 1970, 277 pages, plus Annex., $ 2.50.

Automation of industrial processes is the order of the day, leading to improved efficiency and lower operating costs. The present publication concerning the mining industry will no doubt be valuable addition to the literature on the application of automation. After the introduction there are 13 reports on various aspects. A summary of the discussions is included in the end. There are quite a number of figures. The contents of the proceedings of a symposium like this will be very useful to the industries in developing countries.

—T.L.R.

Surface Finishing of Aluminium, Information Bulletin 13, published by Aluminium Federation, Birmingham, Second Edition, 1969, 88 pages.

The knowledge of conventional and modern methods of surface finishing is indispensable for all aluminium users and technicians. It beomes all the more so, seeing the stringent specifications and varied specific properties demanded in this fast growing industry. In view of this, ths present publication will be undeterrently appreciated by designers, architects, production engineers, plant operators and curious readers alike.

This is a revised version of an earlier publication in 1947, and includes many new things, particularly chemical conversion coatings. A new touch has been given to vitreous enamelling, while chapters on surface preparation for finishing, mechanical treaments, plated coatings etc. are given as usual. A subject index and selected bibliogeaphy at the end will be helpful in securing quick and additional knowledge. However, most of the references are up to 1960, and the recent references are missing. Similarly the inclusion of a chapter on anodizing would have been appropriate.

The book contains many tables and is rich with illustrations where necessary. It is written in a simple and lucid style. The printing is good and the get-up is moderate. As such,

it will be a door to surface finishing of aluminium, and hence will be welcome by one and all concerned with it.

—S.K.N.

IUPAC Secretariat, Oxford. 1971, Information Bulletin - Appendices on Tentative Nomenclature symbols, Unity, and Standards: (1) No. 9-Abbreviations and Symbols for Nucieic Acids, Polynucleotides and their constituents, 5 pages; (2) No. 10—Abbreviatiations and Symbols for the Description of the Conformation of Polypeptide Chains, 17 pages; (3) No. 11—Recommedations for the presentation of Raman Spectra for Cataloging and Documentation in Permanent Data Collections, 4 pages; (4) No. 12—List of Abbreviations for Synthetic Polymers and polymer Materials, 3 pages; (5) No. 13—Basic Definitions of Terms Relating to Polymers. 13 pages.

The recent developments in elucidation of nucleic acid sequences and syntheses of specific poly nucleotides with possible modification of sugar components and introduction of "unnatural linkages", call forth a unified system for representing long sequences of varied types of nucleoside residues. In an effort towards this end, the earlier IUPAC-IUB recommendations (1969) have been modified in respect of abbreviations and symbols along with directions as to appropriate use of the three-letter and one-letter symbols and representation of modified bases (and their derivatives), sugars or phosphates in polynucleotides. While individual ribonucleosides are designated Ads, Guo, etc, "a nucleoside" is a blacksheep strutting about as "Nuc" and not as "Nus" for no apparent reason. For the description of the conformation of polypeptide chains, the earlier propsals (1966) have been brought in line with nomenclature in vogue in organic and polymer chemistery-Rule 1. General principles of notation of designation of atoms, amino-acid acid residues, peptide units, bond lengths, bond anples angles and and torsion angles; Rule 2. The sequence rule and choice of torsion angle; Rule 3. The main chain (polypeptide backbone); Rule Side chains; Rule 5. Hydrogen bonds; and Rule 6. Helical segments. An appendix contains recommendations on "Conformation and configuration" and on "definitions of Primary, Secondary, Tertiary and Quarternary Structure". The recommendations on documentation of Raman spectra (Stimulated by the present widespread use of optical lasers) cover recording and presentation of data, intensity adjnstments, corporations. for instrumental response and other operational parameters and depolarization factors. Abbreviations used substantively (for 17 synthetic polymers and polymeric matetials) and adjectively (for two polymeric materials) which have evolved by common usage are listed for promoting uniformity. Emphasis on structure-based concepts lead to refinements in basic definitions in polymer science and, to serve the needs of those working in the fundamental areas, the 1952 and later reports on Macromolecules have been revised. Two broad sets of definitions based on the sirucrure or the process producing the polymer, are presented. While the primary definition of polymer is strcture based, the process-based set is linked with it through the terms **polymerization** and **monomer.** All other difinitions are derived from these terms.

—P.L.N.R.

Central Electrochemical Research Institute, Karaikudi, Annual Report 1970, 44 plas 58 pages.

The activities of the CECRI for 1970 have been covered in this Report in 13 sections, inoluding rerearch and development, industrial liaison and extension, conferences, patents, administration and publications. The projects relate to batteries, corrosion, electrothermis, electro—organic/inorganic, metal finishing, fundamentals and miscellaneous.

—T.L.R.

Reverse Osmosis, by S. Sourirajan, published by Logos Press Ltd, London, 1970, 580 pages, £8.

This monograph deals with reverse osmosis extensively, expecially about the reverse osmosis membrane separation process (also called ultrafiltration or hyperfiltration). It is a general and widely applicable technique for the separation.

concentration or fractionation of substances in fluid solution. This process is a new development in the field of solute-solvent separation and its importance is increasing rapidly in desalination of water from the brine solution.

The process consists in letting the fluid mixture flow over an appropriate porous memberane and eollecting the memberane permeated product at the lower pressure ; the product is enriched in one or more of the constituents of the mixture. No heating of the memberane and no phase change in product rccovery are involved in this separation process.

The author has prsented the fundamental and practical aspects of reverse osmosis from the point of view of the general applicability of the technique, and has provided a comrehensive review of the studies which have been carried out by himself and his associates. The book consists of eight chapters, and the process of reverse osmosis is built steadily right from the fundamental principle of reverse osmosis to the applications and engineering developments in the reverse osmosis separation process. The discussions on the preparation of the memberane, transports of ions through it, the concentration polarisation effect in reverse osmosis, reverse osmosis process as a general concentration technique, separation of mixed solutes in aqueous solution of mixtures of organic liquids are the unique features of this book. All those interested in the delopment of the reverse osmosis process will welcome this publication,

—(Miss) T.S.V.

## NEW PUBLICATIONS

Hard Chromium Plating- A Hand book of Modern Practice, by J.D. Greenwood, published by Robert Draper Ltd., Teddington, Middx., England, 2nd revised ed., 1971, 217 pages, £5.50.

Academic Press, New York–London: (1) Physical Surface, by J.J. Bikerman, 1970, 476 pages, $25; (2) Handbook of Unit Operations, by D. A. Blackadder and R.M. Nedderman (Ed.), 1970, 300 pages approx., (3) Modern Aspects of Graphite Technology, by L.F.C. Blackman (Ed.), 1970, 320 pages; $ 14; (4) Electrochemistry, 1970, Part A, 563 pages, $ 25; Part B. 501 pages, $ 25; Physical Chemistry Series, Volume 9, by H.Eyring, W.Jost and D.Henderson (Ed.), (5) Ionic Interactions, by S. Petrucci(Ed.), 1971, Volume 1; (6) Essays in Chemistry, by J. N.Bradley and coworkers(Ed.), 1970, 115 pages, $ 3.25.

Wiley, 1971: (1) Physical Chemistry of Adhesion, by D. H. Kaelble, 507 pages, $ 27.50; (2) Molecular Weight distributions in Polymers, by L. H. Peebles, 331 pages, $ 17.50

Boston Studies in the Philosophy of Science, Volume V-Proceedings of the Boston Colloquium for the Philosophy of Science, 1967–1968, by R.S. Cohen and M. W. Wartofsky (Ed ), published by D. Reidel Publishing Co., Dordrecht. Holland, 1969, 482 pages, $ 16.25.

Essays in Chemistry by J.N.Bradely and coworkers (Ed.), published by Academic Press, London–New York, Volume 2,, 1971, 124 pages, £ 1,50.

Metals Handbook, Volume 5: Forging and Casting, published by ASM, 8th Ed, 1970, 488 pages, £ 14.70; through Chapman & Hall Ltd., London.

Material Science and Engineering in the United States-Proceeding of a Colloquium held in 1969, by R. Roy (Ed.), published by State University Press, Pennsylvania, 1970, 178 pages. £4.50.

Polymer Data Book, No. 1, 1971, published by UK Plastic Dept., BP Chemicals International Ltd., London.

AMIE World Symposium on Mining and Metallurgy of Lead and Zinc, 1970, Volume 1– Mining and Concentrating, 1017 pages; Volume 2– Extractive Metallurgy, 1090 pages, published by AMIE, New York, $ 27.50 per volume or $ 50.00 for the set.

Advances in Optical and Electron Microscopy, by R. Barer and V.E. Cosslett (Ed.), published by Academic Press, London and New York, Volume 4, 1971, 424 pages, £ 7.50.

Air Pollution Control, by W. Strauss (Ed.), published by Wiley-Interscience, New York,

Part I, 1971, 456 pages, $ 19.95

Report of the Committee on corrosion and Protection, published by Dept. of Trade and Industry, HMSO, London, 1971, 80 pages.

Plating on Plastics, by G. Muller and D.W. Baudrand, revised by G.D.R. Jarrett and C.R. Draper, published by Robert Draper Ltd., Teddington, Middx, England, 2nd ed., 1971, 206 pages, £ 5.

Problems of Air and Water Pollution arising in the Iron and Steel Industry, published by the UN, New York, 1970, 16 pages, $ 1.50.

Electron Diffraction, by T. B. Rymer, published by Methuen, London, 1970, 192 pages, £2.50.

Interscience, New York, 1970, Techniques of Metals Research, Volume IV, Parts 1 and 2 – Physicochemical Measurements in Metals Research, by R.A. Rapp (Ed.); Part 1, 562 pages, £ 14.25; Part 2, 705 pages, £ 16.50.

Studies in the History of Chemistry, by H. Hartley, published by Oxford University Press, London, 1971, 243 pages, £2.75.

The History of Scientific Ideas ; A Teacher's Guide, by D. Steele (Ed.), published by Hutchinson Educational, London, 1970, 279 pages, £1.05.

Oxy Metal Finishing Europe Congress Papers - Amsterdam, published by Oxy Metal Finishing Europe, Geneva, 25DM.

Wiley - Interscience, 1971 : (1) The Primary Battery in Theory and Practice, Vol. 1, by G. O. Heise and N. C. Cahoon, 500 pages, $24.95; (2) Corrosion of Copper, Tin and Their Alloys, by H. Leidheiser, The Corrosion Monograph Series, 411 pages, $29.95.

Handbook on Ultrasonic Cleaning, by D. Tadgell - Foster, published by Dawe Instruments Ltd., London.

A Dictionary of Named Effects and Laws in Chemistry, Physics and Mathematics, by D.W.G. Ballentyne and D. R. Lovett, published by Chapman and Hall, London, 1970, 335 pages, £ 3.

Materials Science - Selection of Materials, by S.W. Jones, published by Butterworths, London 1971, 130 pages, £1.60.

Bibliography on the Fatigue of Materials, Components and Structures 1838-1950, by J. Y. Mann, published by Pergamon Press Ltd., Oxford, 1971, 326 pages, £6.

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Electro Technology, Vol. 14, No. 5, 6, 1970, Society of Electronic Engineers, Bangalore.

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News Letter, The Institution of Engineers (India), Mysore Centre, July-August 1971.

Monthly Newsletter, Australasian Institue of Metal Finishing, Melbourne Branch, March-may 1971.

UN Weekly Newsletter, Vol. 19, No. 22-31, UN Information Centre, New Delhi.

Soviet Space Research, 1971, 64 pages: through Information Department of the U. S. S. R. Embassy in India, New Delhi.

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Chemical Age of India, Vol. 22, No. 5,6, 1971, Technical Press Publications, Bombay.

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The American Reporter Vol. 21, No. 11, 12, 1971, US Information Service, New Delhi.

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