NEWS SECTION

SECTION REPORT

Personals

T.L. Rama Char has been elected as President, Chemical Engineering Association, Indian Institute of Science, Bangalore.

J. Sundararajan has returned to India from the U.K., and joined the Metals Research Committee of the CSIR as Pool Officer at Jamshedpur.

GENERAL NOTES

NACE Corrosion Reports

The May 1963 issue of 'Materials Protection' has published reports on 1962 corrosion activities in India, Australia, Holland and Germany. The addresses of the foreign correspondents for each country are given.

Aluminium in Electrical Technology

Fourteen papers were presented at the technical session on 'Aluminium in Electrical Technology' during the Seventh Indian Standards Convention held at Calcutta in January-February 1963. They covered the wire and cable industry, transmission and distribution, corrosion problems, switchgear and transformers. Prevention of Corrosion in Automobile Industry was one of the topics under the session on Standardization in Automobile Industry'. The titles of the contributions together with the discussions can be found in the ISI Bulletin, May–June 1963.

Passivity Symposium Transactions

The Second International Symposium on Passivity was held at the University of Toronto, Canada in September 1962 under the auspices of the Deutsche Bunsen Gesellschaft, Electrochemical Society and Faraday Society. The Journal of the Electrochemical Society has published 16 of the papers presented in a special issue, Vol. 110, No. 6, Section II, 597–708, 1963.

Tarnish-Free Finish

The 'Silver Shield' process has been developed by the Union Carbide Corporation, U.S.A. to produce a tough, durable and invisible protective coating for silver domestic holloware. The essential compound solution is a toluene-based silicone composition which is applied by normal spray equipment. Although the coating has a thickness of only about 0.0001 inch it is highly durable, providing the article is handled normally and not subjected to severe abrasion or knife cuts. The film is transparent and the finish is aesthetically acceptable on either new or antique silver as it in no way impairs the natural lustre of the freely polished metal. It is inert and colourless, and will not discolour or craze with age.—Industrial Finishing, Vol. 15, No. 180, 32, 1963.

Corrosion of Aluminium

The June 1963 issue of Materials Protection contains 5 papers on the corrosion of aluminium: (1) Ten years weathering data on aluminium alloys, (2) Galvanic corrosion behaviour of aluminium in the atmosphere, (3) Brittle failure of aluminium alloys in mercury and liquid zinc amalgam, (4) Aluminium alloys in offshore pipelines and (5) Susceptibility of aluminium alloys to stress corrosion.

Electrothermal Industries Symposium

A Symposium on Electrothermal Industries was organized by the Northern Regional Centre, Indian Institute of Chemical Engineers at New Delhi in April 1962. The April 1963 issue of 'Indian Chemical Engineer' has published the following papers presented therein: (1) Refractories for electrothermal industries, (2) Importance of graphite for electrothermal industries, (3) Electrode paste for aluminium and ferro-alloy furnaces, (4) Project design for a phosphorus plant, (5) Electrothermic zinc, (6) Progress of the aluminium industry in India, (7) Electrothermal production of aluminium and (8) Furnace design changes for calcium carbide production.

Anode Baskets — Titanium for Jigs and Carriers

The Imperial Chemical Industries (Kynoch) Ltd., held a Symposium on Anode Baskets in June

and another on Titanium for Jigs and Carriers in May 1963. Eight papers contributed to these Symposia have been published in 'Electroplating and Metal Finishing', July 1963. Copies of the complete papers can be obtained free of charge from the Birmingham office of the firm.

Corrosion of Metals

A publication by the above title has been issued by the Defence Research and Developmental Organization and the Council of Scientific and Industrial Research, Govt. of India (1963, 292 pages). It covers the proceedings of the Symposium held at Kanpur in November 1962 (This Bulletin, Vol. 12, 4, 1963).

Gordon Research Conferences

The 1963 Gordon Research Conferences were held from July 8 to August 16, 1963 at Tilton, Meriden and New London, N.H., U.S.A. The topics for discussion were: chemistry and metallurgy of semiconductors, physical metallurgy, corrosion and, chemistry and physics of solids. The May 1963 issue of the Journal of the Electrochemical Society gives the titles of over 50 papers discussed at the Conferences.

Conference on Surface-Active Substances

The European Committees, members of the Comite International de la Detergence, are organizing the Fourth International Congress on Surface-Active Substances in Brussels during September 1964. The aim is to review the latest developments in the fields of research and application of surface-active substances.

Corrosion at the Petroleum Congress

The Sixth World Petroleum Congress took place during June 1963 in Frankfurt-on-Main, West Germany. There were some papers on corrosion under the sections on drilling and production, and materials and transportation. Titles of the papers presented as well as the panel discussion on corrosion can be found in the July 1963 issue of Corrosion Prevention and Control.

Mixed Plating

The British Iron and Steel Research Association has recently demonstrated the high speed deposition of powdered metals by a combination of electrolysis and electrophoresis, while diamond powder is being codeposited with nickel to make diamond cutting tools on a substantial scale. Improvements in corrosion-resistance as well as increased strength can be obtained by the use of suitable inclusions in electrodeposits, while the development of entirely new finishes is already under way. We are only just beginning to appreciate the possibilities of this type of combination in the plating industry, and it would be surprising if we did not see many new applications of these techniques quite soon.—Metal Finishing J, Vol. 9, 260, 1963.

New Corrosion-Resistant Nickel Plate

Bright nickel containing non metallic inclusions improves corrosion resistance when used as part of multiplelayer system or even as a single nickel plate. Udylite Corporation, Detroit, U.S.A. have developed this new nickel plating process named "Dur-Ni.", and microporosity is the key to dramatically increased corrosion resistance. Dur-Ni is actually a variation of satylite, a low-luster nickel deposit. Like satylite, Dur-Ni contains bath-insoluble inorganic particles that codeposit with the nickel. But unlike the satin nickel this one is full-bright, and the particles are much finer. The only reason for depositing nickel containing these insolubles is that the tiny inclusions apparently induce micropcsity in the chromium plate. The effect of this in controlling corrosion is claimed to be similar to that produced by microcracked chromium.—Products Finishing, Vol. 27, No. 10, 138, 1973.

Utilization of Metallurgical Wastes

A Symposium on the Utilization of Metallurgical Wastes will be held at the National Metallurgical Laboratory, Jamshedpur in February 1964. The scope of the Symposium will cover: (1) treatment of fines and other low-grade by-product materials, (2) utilization of by-products and wastes produced in extractive metallurgical operations, (3) utilization of waste gases and flue dusts, (4) utilization of metallic scraps, (5) utilization of spent pickle liquors, and (6) theoretical considerations of recovery of by-products and utilization of metallurgical wastes.

Corrosion Research

The theory of corrosion is a study of surfaces and all corrosion cells and anti-corrosion techniques are practical examples of skin effects. Any investigator making a precise analytical study of corrosion phenomena must eventually reach the conclusion that all the important work is based on the theories of interface reactions. The corrosion theory of solid-liquid and solid-gas reactions bears this out if it is accepted that diffusion is an extension of interfacial theory. Even the complicated theories behind stress corrosion arise as the result of a study of interface reactions be-

tween crystals. The fact that anti-corrosion technology is still very empirical means either that much scientific study is still required or that there is great need for translation of research work conclusions into practical language.—Corrosion Technology, Vol. 10, 189, 1963.

Tarnish-Free Copper

The International Copper Research Association, New York, has devised a four-layer silicone-acrylic coating system which is claimed to protect copper-base metals from tarnishing for at least 5 years in interior use even under conditions involving abrasion from hard contact and contact with common tools and detergents. Applications envisaged for copper so protected include hardware, car interior trim, furniture and costume jewellery. The coatings are transparent and uncoloured and are based on two layers of a silicone primer and two layers of an acrylic topcoat.—Electroplating and Metal Finishing, Vol. 16, 275, 1963.

Corrosion and Passivity Symposium

The Second International Symposium on "Problems of Electrochemical Corrosion and Passivity" will be held at Dresden, East Germany during December 1963. It is being sponsored by the Institut fur Elektrochemie und physikalische Chemie and the Chemical Society of DDR.

Automation and Technological Change

The July-August 1963 issue of Battelle Technical Review discusses in 4 papers automation and technological change and their implications for education, labour, industry and government. Seven tables list the areas of advance and typical means, and the results obtained.

—T. L. R.

(*Concluded from Page 94*)

The study of materials science as a single subject is receiving prominent attention with the growing need of materials with specific purposes. The present book, which deals with the role of electrons in different processes in materials, is one of the two volumes proposed to present materials science in a unified way. The sister volume under preparation is expected to deal with properties dependent on thermodynamic processes.

The first two chapters deal with crystal structures and x-ray diffraction. The concepts of quantum mechanics and statistical mechanics with their applications to x-ray spectra, atomic bonding and other phenomena are presented in the succeeding chapters. A considerable portion of the book is devoted to the theory of semiconductors, semiconducting materials and devices, and electron emission processes. Chapters on dielectric, magnetic and optical processes in solids are also included. Each chapter is presented in a scholarly way and contains in not too detail the theory and often its applications. The chapters are also provided with suggestions for supplementary reading and for advanced treatment of the subjects. To test the grasp of the subject matter by a reader, each chapter is supplied with typical exercises, for some of which answers are given. The book is not free from rare typographical errors.

The book is provided with three helpful appendices. Symbols recently adopted for various physical quantities by the International Union of Pure and Applied Physics are given in the appendix. In the second and third appendices, units in different systems and atomic radii under different conditions of bonding are given.

This volume can be easily followed with the acquaintance of fundamentals of chemistry, physics and calculus. It will certainly be helpful at graduate and post-graduate levels in metallurgy, physics and electrical and electrical communication engineering curricula.

—C.C.P.