SOCIETY REPORT

Meetings :

The twentyeighth meeting of the Governing Council of the Society was held on June 18, 1970 at the Indian Institute of Science, Bangalore.

New Members :

Fellow : A. K. N. Reddy,
M. N. Desai,
T. J. Varkey.

Member : K. C. Sethi,
K. K. Samual (transfer)

GENERAL NOTES

Ultrasonic Agitation

Ultrasonic agitation of corrosive solution is aided by development of an acid-proof transducerized plastic polymer tank recently announced by Branson Instruments Co., Stamford, Conn., U. S. A. A process has been patented for bonding transducer to plastic tank. It is said to provide heat dissipation created by transmission of ultrasonic energy while at the same time allowing for effective ultrasonic activity. The plastic tanks permit use of hydrochloric and sulphuric acids and other corrossives without 'double-boiler' setups often required in using ultrasonically agitated corrosives.– Products Finishing, Vol. 34, No. 4, 28, 1970.

Electrocoating Institute

An Electrocoating Institute is being formed in the U. S. A. by a group interested in the electro-deposition of paint. The purpose is to hold educational sessions and committee meetings which will create better understanding of the components that make up a 'system', and to establish standards.

Intergalva 70

The Indian Hot Dip Galvanizers Association and the Indian Intsitute of Metals, Calcutta organised the second programme connected with the series of celebrations of the above during June 1970 at Calcutta. There were talks on : (1) Lead and Zinc in Australia and (2) Zinc coatings. This was followed by the screening of two films : Hot dip galvanizing after fabrication, and 'Thirty years later'—the story of zinc silicate protective coating. Another attraction was a display of photographs depicting the versatility of galvanizing in the field of corrosion protection.

Corrosion Conference in Australia

The theme for the Eleventh Annual Conference of the Australasian Corrosion Association to be held at Newcastle during November 1970 is 'Corrosion in Reticulation and Storage Systems'. Technical sessions include : causes of corrosion, prevention of corrosion, and materials of construction.

Pumps for the Chemical Industry

Australian Chemical Engineering, February 1970 is a Special Issue on the above, and contains the following papers : (1) The characteristics of metering pumps, (2) Stainless steel centrifugal pumps, (3) Evaluation of a coal pipeline scheme, (4) Linear stroke adjustment for metering pumps and (5) Centrifugal pumps for the chemical industry.

Harder Electroforms by New Process

Production of a new range of dies and moulds, capable of operating at high temperature, may result from the development of a new electroforming process at the Birmingham Research Laboratory of International Nickel Ltd. This is a follow-up of the 'Ni-Speed' process for nickel from a sulphamate electrolyte. By the introduction of cobalt a virtually stress-free nickel-cobalt alloy electroform can be produced, which has twice the hardness of conventional electroformed nickel. — Press Information, International Nickel (India) P. Ltd., Bombay, F. 18, May 1970.

Chemical Engineering Congress

The 16th Chemical Engineering Exhibition and Congress, ACHEMA 1970, and the European Meeting of Chemical Engineering organized by DECHEMA was held in Frankfurt during June 1970. The fields covered were : research, literature, chemistry, nuclear science and technology, laboratory techniques, measurement–control–automation techniques, structural materials techniques, and chemical process equipment.

Conference on Electrochemistry

An International Symposium on Electrochemistry was held at the University of Surrey, Guildford, U. K., during April 1970. The topics included electrodeposition, machining techniques, batteries and cells, analytical and preparative methods, and solid state systems.

A IUPAC—sponsored Conference on Electrochemistry in Non-Aqueous Media is scheduled during July 1970 at Paris. There are sessions on solvation, electroanalytical methods, ionic equilibria, and organic electrode reactions.

Design and Analysis of Chemical Process Systems

The second part of the proceedings of a Conference on the above subject has been published in Chemical age of India, April 1970. Seventeen papers cover three sessions on process design education; modification, improvement and scale-down of existing processes; optimization.

Marine Coating and Anti-Corrosion

Industrial Finishing, February 1970, pages 8—29 contains a survey of the above. Leading manufacturers in the U.K. discuss the latest techniques and products available in this field. The performance of materials is summarized in a table.

Corrosion Conference Papers

Three papers presented at a Symposium and Annual Conferences of the Australasian Corrosion Association have been published in Australasian Corrosion Engineering, March 1970: (1) Corrosion problems in ships, (2) Corrosion-be with it or without it and (3) Corrosion of surgical implants.

Metal Finishing—1969

The technical developments in 1969 have been reviewed in two parts in Metal Finishing, January 1970: (a) Inorganic (metallic) finishes, processes and equipment, and (b) Organic (paint) coatings, processes and equipment. There are 502 and 262 references respectively.

Electricity from the Sun

A small, portable generator which converts sunlight into electricity has been developed in West Germany for use on hand. For example, it could provide the power source for "walkie-talkie" radio sets. It has an output of about 3W and is fitted with 6 rechargeable nickel-cadmium batteries, each with a capacity of 1000 mA/h. When the current generated by the solar energy is not being used fully, the cells are recharged automatically. On the other hand, if leak of sunlight reduces the output of the generator, the battery makes up the required energy. With the battery, the generator weighs about 1.2 kg. When folded away it measures only 30×159×182 mm. It is designed to perform reliably in arduous service and requires no maintenance. The generator can be operated quite safely in temperatures ranging from −20 to +50°C. —Inco Nickel, No. 27, 5, 1970.

British Metal Finishing Suppliers' Association

The electroplating suppliers in the U.K. have agreed to form the British Metal Finishing Suppliers' Association with objectives similar to those of the Metal Finishing Suppliers' Association, U.S.A. It is intended to be an active and dynamic body promoting and protecting the interests of suppliers and users.

International Conference on Copper and Its Alloys

The Institute of Metals, London has organized an International Conference on the above topic in Amsterdam during September 1970. Fifty-seven papers will be presented in 11 sections including quality control, alloys and composites, powder metallurgy and corrosion.

Man-Made Fibres

Chemical Age of India, May 1970 is a special number on Man-Made Fibres. There are a large number of articles, including those pertaining to the industry in India, U.K. and Japan.

Maintenance of Equipment in process Plants

A Seminar on the above topic was organized during May 1970 at Bombay by the Fertilizer Corporation of India's Trombay Factory. Sixteen papers were presented in 3 sessions. A digest of the contributions can be found in Chemical Age of India, May 1970.

Electrochemistry Seminar

The Eleventh Seminar on Electrochemistry will be held during November 1970 at the CECRI, Karaikudi.

Space and the Common Man

The above is the title of a Special Issue of "Science Today", May 1970. It contains many

interesting and informative articles on space research, education, technology, telecommunications, weather etc.

Intergranular Corrosion in Ferritic Stainless Steels

It has been recently reported the integranular corrosion in ferritic stainless steels, one of their drawbacks, can be minimized by restricting both the carbon and nitrogen contents of these steels containing 16—18 per cent chromium, or by stabilizing them with titanium. Trans. Met. Soc., AIME, October 1969.

Marine Corrosion

The News Letter of the Institution of Corrosion Technology, London, June 1970 contains abstracts of 3 lectures on Marine Corrosion. Recent research on condenser tubes in seawater is the title of the first, and gives an account of the evaluation of austenitic stainless steels—types 316 and 304 in various metallurgical conditions, for condenser tube nest construction. The second one on iron and steel protection in marine environment deals with several research problems : paints —consumption, shop primers, compatibility with cathodic protection; pigmentation, zinc silicate and under-water painting. Two types of failures, cavitation erosion and wastage, are discussed in the paper on the corrosion and erosion of marine propellers. The March 1970 issue covers a digest of a lecture on corrosion in ships —behaviour and selection of materials.

Industrial Electronics Exhibition

Basel in Switzerland is the venue for the Fifth International Exhibition of Industrial Electronics, during March 1971. Technical groups cover a variety of topics : measuring techniques, control, automation, communications, equipment manufacture, technical literature and training.

Merger of Corrosion Societies

The amalgamation of scientific and technical societies with common interests is taking place, one after another, in the U.K. The latest concerns the Institution of Corrosion Technology, and the Corrosion and Protection Association. The former is a professional body with qualifying standards, and the latter publishes the well known Journal "Corrosion Science".

European Federation of Corrosion

The 1970 Corrosion Conference of the 52nd Event of the Federation was held in Dusseldorf, West Germany during April 1970. The main theme for discussion was "Corrosion in Refuse Incineration Plants".

Metallic Corrosion Congress

The Fifth International Congress on Metallic Corrosion will be held at Tokyo during May 1972. It will deal with fundamental and engineering problems, case histories, and other corrosion problems.

Environmental Engineering

The Society of Environmental Engineers held a Symposium on "Environmental Engineering—the European Contribution" at the Delft University of Technology, Netherlands during April 1970. Corrosion-vibration was the topic for one of the five main sections.

I.I. Chem. E. Meeting

The 23rd Annual General Meeting of the Indian Institute of Chemical Engineers will be held at Hyderabad during December 1970. The technical sessions include chemical engineering education, design, reaction engineering, and case studies on chemical industries.

Nuclear Power Stations and the Environment

More than 50 papers are to be presented at a Symposium on Environmental Aspects of Nuclear Power Stations, to be held at the United Nations Headquarters during August 1970. The five major areas for discussion are : nuclear power as an energy resource, standards for the control of effluents, effluent control and monitoring, considerations affecting steam power station site selection, and benefit-risk assessments.

Nickel in the News

High-nickel alloys, which offer the necessary high strength at elevated temperatures, are used extensively in the power unit of a new high-speed gas turbine train operated on the Paris-Caen run.

Titanium-stabilized 18—8 stainless steel has been used for the fabrication of tanks for three compartment road tankers for transportation of organic chemicals in India.

Electroformed nickel rolls developed originally for screen

printing of textiles are now being employed in a machine that will manufacture complete plastic products, such as tablecloths, doilies and wallpaper, with patterns already incorporated in them.

Both transmitter and receiver are powered by rechargeable nickel-cadmium batteries in a power loader that needs no driver, and if necessary can be operated from a helicopter in West Germany. The sealed 20-cell set for the former produces 24V/15A for about 10 hours per charge, and the two 10-cell sets for the latter produce 12V/22A for about 5 hours.

Electro Formers Ltd., in the U.K., now apply to many of their nickel electroforming operations the Ni-Speed process developed by International Nickel, particularly in the production of continuously-made battery mesh supplied to Japanese and British makers of batteries. The deposition rate here is many times higher than from conventional plating solutions.—News Fillers, International Nickel (India) P. Ltd., Bombay, June 1970.

The Plastics Boom

Living with plastics is the slogan of the twentieth century. They are everywhere in one form or the other, the latest being in the automobile industry. The prototype of the plastic car was displayed at the Frankfurt's International Automobile Exhibition, and it is an answer to the mounting heap of scrap caused by the growing number of traffic accidents because the new car will be antiscrap. Plastics are invading every conceivable sphere of industry. This means that new techniques must be evolved by research and development, so that the industry can cope with the new demands made on it. In West Germany such problems are handled by the German Plastics Centre at Wuerzburg. This country is the world's second largest manufacturer of synthetic and plastic material, and the world's largest consumer of plastics—30 kg per citizen per year.—German News, Vol. 11, No. 11, 7, 1970.

UNIDO Seminar on Problems of Chemical Industry

The operation, maintenance, design and manufacturing of chemical plants and equipment in developing countries was the subject of a two-day Seminar during June 1970 convened in Koenigstein near Frankfurt by the United Nations Industrial Development Oaganization and Dechema. It was organized in conjunction with the 16th chemical engineering exhibition congress in Frankfurt.

Conference on Non-Aqueous Solvents

The Second International Conference on the above subject is scheduled for July 1970 at Manchester. It will cover : preparative chemistry and solvent systems; kinetics, mechanisms and physical techniques ; physical chemistry of solutions.

Metal Pre-Treatment

Industrial Finishing, April 1970 contains a report highlighting some of the latest developments in metal pre-treatment, cleaning and shotblasting. It also covers automation and ultrasonic cleaning, and they are many illustrations.

Surface Treatment Fair

Hannover witnessed again the Fair on Surface Treatment during April-May 1970, with more than 6,000 exhibitors. The industries showed the newest equipment and processes and provided—together with the annual display of similar equipment in the electrical, chemical and tool groups—an unexcelled picture of trends and developments in this field. The items covered pre-treatment, surface refinement, after-treatment, accessories for surface treatment, components for plants and machines for surface refining, and literature.

Chemical Engineering in Australia

A detailed survey of the chemical engineering work in progress in Australia has been published in Australian Chemical Engineering, March 1970. It is divided into the following sections : mass transfer, heat transfer, fluid and particle mechanics, reaction kinetics-reactors, thermodynamic and physical data, plant-materials-instruments-control, optimization biochemical engineering and biomedical engineering.

ACA Symposium on Corrosion

The N. S. W. Branch of the Australasian CorrosionAssociation held a Symposium at Port Kembla during May 1970. The technical papers covered protective coatings, corrosion and copper metals, new steels for chemical engineering,

nickel and cobalt alloys in combating corrosion, continuous coil coating and atmospheric exposure tests.

1970 Gordon Research Conferences

This year's sessions are scheduled for June—September at 7 centres in the U. S. A. The topics for discussion include nuclear chemistry, catalysis, polymers, scientific information problems in research, corrosion, separation and purification.

ACHEMA 1970

A detailed report on the 16th ACHEMA Congress-Exhibition, 1920—1970, has been published in Chemical Age of India, June 1970, pages 621—639. There are several items of interest to electrochemists amongst the new processes-developments covered.

Metal Physics

A new interdisciplinary publication for the phycist and metallurgist, Metal Physics will contain theoretical and experimental papers on the physical properties of metals and their alloys. It is scheduled for publication in May, August and October 1970 as a supplement to Journal of Physics C : Solid State Physics.

Temperature Symposium

The American Institute of Physics, Instrument Society of America, National Bureau of Standards and the US Department of Commerce are jointly sponsoring the fifth Symposium on Temperature at Washington, D.C. during June 1971. The theme of the Conference is temperature and its measurement and control in science and industry.

New Nickel Alloys

General Electric's aircraft engine group recently announced the development of two new nickel-base alloys : (1) Rene 80—carbon 0.17, chromium 14, cobalt 9.5, tungsten 4, molybdenum 4, titanium 5, aluminium 3, zirconium 0.03, boron 0.015 per cent, and balance nickel ; turbine blades and vanes have been successfully engine tested for more than 1000 hours in five different engines. It is a cast alloy which combines high-temperature strength with superior hot-corrosion resistance and thermal fatigue strength. (2) Rene 95—carbon 0.15, chromium 14, cobalt 8, tungsten 3.5, molybdenum 3.5, niobium 3.5, titanium 2.5, aluminium 3.5, zirconium 0.05, boron 0.01 per cent, and balance nickel. It is a wrought, age-hardenable alloy with very high strength up to 1200°F, which permits innovations such as very high disc tip speeds, major weight reductions and superior rotor configurations. It is planned to qualify this alloy for helicopter turbine discs.—Cobalt No. 46, 1970.

Palladium-coated Titanium

An electroless immersion plating low-cost processes has been developed in Japan for the surface treatment of titanium with a very thin coating of palladium. This provides an economic method of enhancing the corrosion resistance of titanium, which is equal to or superior to the palladium-titanium alloy.—Platinum Metals Review, Vol. 14, No. 2, 47, 1970.

Conference on Engineering Materials and Equipment

An All India Conference on Engineering Materials and Equipment is scheduled for November 1970 at Calcutta. It is organized by the Association of Engineers, India in collaboration with the ISI, NBO, GSI, CMPO, Chambers of Commerce and Industry, and Engineering Departments and Institutions. There will be four technical sessions, and the discussions will be primarily based on the practical problems in metropolitain urban development projects.

Hard Coat for Titanium

A new British process available under licence is conversion hard coating of titanium and its alloys. It is claimed to provide anti-galling, anti-corrosion, wear resisting properties ; enables the processed part to become a dielectric, which will reduce chances of galvanic corrosion ; the coating will also dissipate heat and increase surface finish. The process is anodic and well adapted for production. Unlike conventional plating processes, the coating is not a deposit but a transformation metal. The coating is an integral part of the base of the basis metal as the junction of the solution and/ metal formed as a "growth inward" by the action of the solution and current.—Metals and Materials, Vol. 4, 129, 1970.

Cost of Corrosion in Sweden

Rust causes damage to the extent of Kr 2,000 million ($400 million) a year in Sweden, and

this is equivalent to 1.25 per cent of the gross national product—a figure generally applicable to other industrial countries. Damage to two million cars is put at Kr. 500 million, or Kr. 250 per vehicle. The car owners would save Kr. 60 million annually, if exhaust systems were to be made from corrosion-resistant materials. Examples of economics effected are: Kr. 370,000 a year by the use of cathode-protected cables in telecommunications; Kr. 85,000 by the use on a tanker of corrosion-resistant valves.—Corrosion Prevention and Control, Vol. 17, No. 1, 10, 1970.

Anti-Corrosion Data Guide

Beginning with the March 1970 issue Anti-Corrosion Methods and Materials has started a series of Data Guides to give general information on the more common materials in use today. The first and second deal with aluminium and PVC; the third and fourth in the April 1970 issue cover brass and glass; the fifth in the May 1970 issue is on titanium.

AES Meeting

The 57th Annual Convention of the American Electroplaters' Society was held in Montreal during June 1970. Technical Sessions covered: aluminium plating, precious metals, deposition of chromium and nickel, plating on plastics, organic finishing, waste treatment, workshop panels and miscellaneous.

Nickel Shortage in Electroplating

Lea-Ronal in the U. K. have developed a range of electroplating processes to solve the problem: cobalt, white brass, speculum, bronze, bright levelling acid copper and zinc-Al.-Electroplating and Metal Finishing, Vol. 23, No. 3, 24, 1970.

The Computer

The computer is the misunderstood giant of the 20th century. Involved in learning the techniques for obtaining the fullest and most efficient services from this electronic wizard are people from all parts of the world and from various disciplines. Today the computer is being used more and more in research and other activities–all aimed at finding ways of helping the common man make his life fuller and richer. Yet there is the often voiced fear that it will not remain the servant of man but will become his master.–German News, Vol. 11, No. 10, 7, 1970.

Mineral Wealth from the Sea

Advancing technology, growing demands and shortages of accessible supplies on land make the underwater areas valuable sources of a wide variety of materials. In addition to oil, gas, coal and sulphur, there are bright prospects for iron, tin, gold, cobalt, manganese and phosphate. In the deep sea areas, manganese nodules might be the first materials to be mined commercially. Although the nodules contain about 24 per cent manganese and only about one-fourth of a per cent of cobalt, the latter might be the real prize luring the prospectors. The nodules also contain iron, nickel and copper.—Participant J., Vol. 5, No. 1, 37 (1970).

Steel in the U. S. S. R.

The development of economy in the U. S. S. R. is stated to be hampered by a shortage of steel. A recent article discusses the problems faced by the steel industry in that country. It covers production statistics, research and technology, and other aspects.—British Steel, No. 9, 10, 1970.

Institution of Metallurgists' Meetings

The Institution of Metallurgists, London have announced several meetings, courses etc: (1) Extraction and Refining Course, November 1970: trends and new possibilities in extractive metallurgy; a new look at pyrometallurgy; new methods of extraction and refining; (2) Metallurgy of Magnetic Materials, Discussion Meeting, May 1970; (3) Engineering Materials Course, October 1970; (4) Conference on Process Instrumentation in the Metals Industry, April 1971.

—T. L. R.