News Section

SOCIETY REPORT

Meetings :

A Meeting of the Governing Council of the Society was held on October 22, 1970 at the Indian Institute of Science, Bangalore with Mr. B K. Balu in the Chair.

Special lectures :

Three special lectures on "Desalination of Water" were arranged on November 19, 20 and 21, 1970 at the Institution of Engineers (India), Mysore Centre, Bangalore jointly with this Institution, with Dr. A. N. Kappanna in the Chair. The first lecture on principles and processes was presented by (Miss) T. S. Vanaja and T. L. Rama Char, I.I.Sc., and covered : techniques – distillation, freezing, electrodialysis, reverse osmosis and others ; theoretical aspects. Materials for desalination plant was the topic for the second lecture by J. Balachandra, BARC, Trombay, and a review was made of the R and D work on the performance of alloys of copper and nickel, and of titanium. This was followed by the materials of construction and design considerations – with reference to copper – nickel alloys, aluminium, steels; titanium and others, by (Miss) T. S. Vanaja and T. L. Rama Char. The third lecture by the latter authors dealt with nuclear desalination, applications, economics and future trends.

New Members :

Fellow : S. K. Panikkar, J. D. Talati

Personals :

T. L. Rama Char has been invited to be an Hon. Member of the Hon. Council, Fifth International Congress on Metallic Corrosion to be held in Tokyo during May 1972.

GENERAL NOTES

Project Evaluation :

Four papers presented at the Symposium on "Economic Evaluation of New Projects" held by the university of N. S. W. Chemical Engineering Association during July 1970 have been Published in Australian Chemical Engineering, July 1970 : (1) Economic evaluation of projects – the groundwork, (2) Criteria for economic evaluation, (3) The evaluation of projects at the A. G. L. and (4) Computer packages in the evaluation of new products.

Energy Survey of India :

The Energy unit of the Planning Commission carried out analytical studies covering the major energy sectors – electricity, oil, coal, energy consuming and combined energy, together with non – commercial energy. The principal activities of the unit during 1969–70 are briefly reported in the Bulletin of the Institution of Engineers (India), Volume 20, September 1970.

Electronic Methods :

A Symposium on "Electronic Methods of Testing and Measurement in Science and Industries" was organized by the Electronics and Telecommunication Engineering Division, Institution of Engineers (India) at Lucknow during August 1970. The Bulletin of the Institution, September 1970 covers this in a brief report.

Science and Civilization :

The Ciba Foundation is contributing to the social awareness of scientists by organizing a a Symposium on the above subject in London during June – July 1971.

Thermal Analysis :

The Third International Conference on Thermal Analysis will be held in Davos, Switzerland during August 1971. Subjects covered include advances in instrumentation, organic chemistry including polymers, ceramics and earth sciences. There will also be an Exhibition of equipment for differential thermal and thermogravimetric analysis and related techniques.

Electrochemical Engineering :

The institution of Chemical Engineers is holding a symposium on the above subject at the University of Newcastle upon Tyne during March 1971. The theme is the novel use of electricity in process engineering and petroleum technology.

Water and Waste Treatment :

The July 1970 issue of Galvanotechnik contains several papers

on the treatment of water and waste in metal finishing: water recirculation system, metal recovery, purification of waste waters, automatication of ion exchangers and application of ion-sensitive electrodes in effluent treatment systems.

Polymer Plating :

Polymer Plating Ltd., U. K. has developed a 'one-jig' system for the bulk plating of polymers The jig is coated with PVC and the contacts are of stain'ess steel. The process is : etch, double rinse, neutralize, double rinse, immersion activator, triple rinse, accelerating solution, electroless nickel. Electroplating follows – bright levelling acid copper, and nickel, gold, black chrome, silver or rhodium. A wide variety of plastic bath room fittings is electroplated. – Metal Finishing J., Vol. 16, 223, 1970.

Metal Finishing Conference in Australia :

The 1970 Annual Conference of the Australasian Institute of Metal Finishing was held at Adelaide, S. A. during October 1970. The technical sessions covered : review of finishing processes, decorative chromium, finishing of new metals and alloys, precious metal deposition, metal cleaners, surface coating by electric fields, paint processing and electrophoretic deposition of paint.

Electronics in Industry :

A symposium on the above topic was held at Calcutta during September 1970. It reviewed in detail the growth of the industry in India over the last 7 years, its current status and outlook for the future There were 4 technical sessions : computers, instrumentation, reliability and industry.

Chemistry Teaching :

There are 6 articles of interest on the teaching of Chemistry in "Chemistry in Britain", August 1970: (1) A new approach to undergraduate chemistry teaching, (2) Chemical links between schools and universities, (3) Undergraduate chemistry in the US, (4) Tertiary education in France, (5) Assessment of objectives in chemistry teaching and (6) SI units for chemistry.

Physica Status Solidi :

This is the title of a monthly Journal covering pure fundamental solid state research published by Academic-Verlag, Berlin and Academic Press, London – New York, In addition there will be another monthly "Phisica Status Solidi (a) – Applied Research" dealing with the application and methodical aspects.

Plating on Plastics :

It appears that electroplating of plastics today ranks as one of the major preoccupations of the metal finishing industry. A recent survey covering 12 major European countries and published in Switzerland indicates that the consumption of ABS for electroplating rose from 1,030 in 1967 to 1,850 metric tons in 1968; while the first half of 1969 saw a further large increase to 1,440 tons. The break up for the applications is motor industry 30, domestic sanitary equipment 25, manufacture of radio and TV sets 15 and general hardware 15 per cent. Country – wise the figures for consumption are : Italy 42, Germany 28, Great Britain, 11 France 8; Benelux countries 4 and seven others 8 per cent of the total. One interesting point here is that the amount of nickel used for plating comes to a total of 200 tons; it is only 0.3 per cent of the total nickel used in Britain for plating, and for the motor industry 0.25 per cent of the decorative nickel plate on a motor car. It is concluded that it will take some time yet before electroplating of plastics in Europe can be expected to justify all the work and money which has been invested into its development over the last decade. The development of this branch of the plating industry is proceeding more slowly than many people expected. – Electroplating and Metal Finishing, Vol. 23, No. 8, 11, 1970.

Particulate Electrodes

Investigations are in progress in the U. K. on the development of special type of electrodes to overcome the problem of scale-up in electrochemical reactions. A possible solution is the use of beds of metal or metal coated particles as electrodes, with which a very large surface area is available for contact with the electrolyte. They are the particulate electrodes, including the fluidised electrode. The beds can be operated in a variety of modes. It has been shown that in many applications, by judicious selection of the mode of operation, there are

distirct advantages over conventional electrodes : lower electrode and cell costs, and better heat and mass transfer characteristics. Applications include organic reduction, inorganic oxidation and reduction ; electrometallurgy-refining/winning/recovery of metals; control of pH and effluent – J. Electrochem. Soc., Vol. 116, 1600, 1969.

ACIF Exhibition and International Corrosion Conference :

The Anti-Corrosion and Industrial Finishing Exhibition held in London during June 1970 was an important event in the U. K. It covered all aspects of industrial finishing, corrosion prevention and surface treatments. An International Corrosion Conference was also organized during this period by the British Joint Corrosion Group of the European Federation of Corrosion, the general theme being "The Protection of Metals in Storage and Transit". The 12 papers presented covered the treatment, packaging, handling and storage of many types of equipment. The exhibition review and the titles of the Conference papers can be found in Corrosion Prevention and Control, June 1970, and reflections on the exhibition in Anti-Corrosion Methods and Materials, July 1970.

VPI :

Cyclo – hexylamine carbonate can exist simultaneously as a solid and as a gas with no intermediate liquid stage, and is a valuable vapour phase inhibitor. It is supplied as a water or petroleum soluble tablet or as a powder in porous sachets; there are savings in costs. Called "Chadpac", the substance is a useful tool in packaging of items in long distance transport and in storage of metal items in closed spaces. –Anti-Corrosion Methods and Materials, Vol. 17, No. 7, 22, 1970.

Paint Electrodeposition :

There are two papers of interest in Bonder Technik, Germany, No. 16, 2, 13, 1969 ; (1) Special investigation on zinc phosphate coatings in relation to paint electro-deposition and (2) Bonder processes for chemical pretreatment of metals before paint electrodeposition. Abstracts can be found in zinc Abstracts, Vol. 28, No. 6, 5995–5996, 1970.

Intergalva 70 :

The Ninth International Conference on Hot Dip Galvanizing was held in Dusseldorf during June 1970. A digest covering this has appeared in Metal Finishing Journal, August 1970 A new feature was a "users" sessions". The scientific sessions included general metallurgy and corrosion, sheet galvanizing, galvanizing practice, joining processes, wire galvanizing and galvanized steel reinforcement. Three competitions were also held at this time.

Chemical Plant Engineering Exhibition :

Tokyo was the venue for the Fifth Chemical Plant Engineering Exhibition and Conference during September 1970. A report on this has been published in Chemical Age of India, October 1970.

Process Design Course :

An intensive three – week Course for chemical engineers from industry "Strategy of Process Design" has been arranged at the IIT, Kanpur during January 1971. The topics include: (1) Process analysis, simulation and evaluation ; (2) Optimization and (3) Process engineering in the presence of uncertainty.

Travancore - Cochin Chemicals :

The year 1969–70 witnessed an appreciable increase in the production of the main products by Travancore–Cochin Chemicals. A plant to fuse caustic soda lye with a rated capacity of 60 m. tonnes per day has been erected. Expansion plans include caustic soda–chlorine with necessary hydrochloric acid and chlorine liquefaction plants; sodium hydrosulphite and sulphide. Feasibility studies are on hand for the establishment of a chlorine utilization plant, a plant for conversion of zinc hydroxide to zinc, and the construction of salt pans.

Electrochemistry Conference in Australia :

The Third Australian Electrochemistry Conference will be held at Terrigal, N. S. W. during February 1972 under the auspices of the Royal Australian Chemical Institute, Electrochemistry Division. Special emphasis will be placed on contributions in the fields of Mineral Processing, and Electroanalytical Chemistry – especially Ion Specific Electrodes.

Anti–Corrosion Coatings Congress:

Colorificio Italiano Max Meyer sponsored an International Congress on "New Trends in Anti – Corrosion Coatings" at Milan during October 1970. The topics included : (1) Economic aspects of metal corrosion, (2) Process and corrosion forms : steel and light alloy protection, (3) Surface preparation, (4) Advanced application methods, (5) Zinc–rich anti–corrosion primers, (6) Protection of pipelines, sea–lines, pressure water pipes and dams, (7) Paint systems for the chemical and petrochemical industries and (8) Comparison between conventional and long–lasting paint systems. The contributors were drawn from Czechoslovakia, France, U.S.A., Sweden, Italy and U. K.

Lead–Acid Batteries :

Delhi is the venue for a Symposium on the above topic to be held during March 1971 under the auspices of the Indian Lead Zinc Information Centre, Calcutta and SAEST, Karaikudi. This is part of the observance of 1971 as International Lead Power Year throughout the world.

Electroplating Symposium :

The 55th Event of the European Federation of Corrosion : "3rd Electroplating Symposium" was organized by the Corrosion section of the Budapest Scientific Society of Mechanical Engineers at Budapest during December 1970. The subjects discussed were electroplating plants and industrial electrodeposits.

Protection of Steel Structures against Atmospheric Corrosion :

This is the subject of an International Conference held in Prague during November 1970 as the 57th Event of the European Federation of Corrosion. It was organized by the Czechoslovak Scientific and Technical Society and the National Research Institute for the Protection of Metals. The papers covered atmospheric corrosion, use of low–alloyed steels, protective coatings and surface treatment.

Corrosion Science, Engineering and Education :

A digest of the 1969 Report on the above topic covering the European Federation of Corrosion has been presented in the News Letter, Institution of Corrosion Technology, London, September 1970. A list of the 16 research projects handled has been included.

International Chemistry Review :

That Chemistry is a key factor in 20th century progress and has made an impact on all spheres of life was reaffirmed at the Chemistry–70 Exhibition held in Moscow. It attracted the participation of about 2,000 firms and organizations from 25 countries of Europe, Asia and America. The chemical industry's latest machines, instruments, technological processes and products were on display.

Porous Electrodes :

The SAEST held a technical session on "The Theory and Applications of Porous Electrodes" at Karaikudi during November 1970. Prof. J.O'M. Bockris, University of Pennsylvania delivered a special lecture on "Electrochemical Energy Conversion and Storage".

Black Colour on Zinc :

A Bulgarian method for obtaining a glossy corrosion resistant black finish on zinc plated work involves electrolytic treatment using A.C. at 50 HZ in a solution containing caustic soda 24–44 and sodium chloride 5–10 g/l at 30°C and 400 asf for 20 minutes. The coating is 4–5 μm thick. The main disadvantage is that the process is rather a lengthy one for incorporation into an automatic plating sequence. – Electroplating and Metal Finishing, Vol. 23, No. 9, 43, 1970.

Materials in the News :

As aircraft get bigger and faster, so the amount of **nickel** contained in them increases. For example, the DC 3 contained about 350 pounds of nickel, but, in the Boeing 707, the amount went up 10 times – to 3,500 pounds. The 747 Jumbo jet contains about 11,000 pounds, while the supersonic Concorde takes the nickel jackpot with 15,000 pounds. However, this lead may be short–lived–in more ways than one–if the SST gets off the ground, for it has been calculated that this supersonic transport will contain about 18,000 pounds nickel. These figures demonstrate the vital role of nickel-containing materials and high–nickel alloys in the construction of advanced aircraft, providing great strength and resistance to heat. – Press Infor-

mation, International Nickel (India) Ltd. Bombay, September, 1970.

A Symposium on "**Stainless Steel** in Building" was held by the Stainless Steel Development Association in London during April 1970. Twelve papers were presented in three sessions covering: building material, economic case, design, fasteners and fixings, windows – entrances – shop fronts, domestic water services, curtain walling and cladding, balustrading – signs – wall finishes, door and window furniture, handling and erection of components, experience in France-Germany-Italy, and the future.

Stainless Steel, No. 15, 1970 contains an article on "**Stainless steel** in public works equipment". It discusses housing, street furniture and recreational equipment, refuse and sewage disposal; there are 13 illustrations.

One of the results of space exploration has been the development of and research into new methods of uniting unusually **difficult metals.** A new process, termed diffusion bonding, has been developed; it covers the achievement of metallurgical union between metals by the interdiffusion of adjoining surfaces, by means of reactions which may be either solid or liquid state in type. It is possible to unite metals such as beryllium, molybdenum and tungsten – Tooling, Vol. 24, No. 7, 39, 1970.

A technique has been developed in the U. S. S. R. for **restoring components** by electroplating and subsequent carburizing. It can be applied to machine tools, for example, for the restoration of spindles, shafts and gearbox components. – Tooling, Vol. 24, No. 7, 44, 1970.

Recent investigations on corrosion resistant **lead** alloys needed for the production of acid resistant pumps for the chemical industry show that, under dynamic conditions alloys with copper and tellurium are to be preferred to one with 11 per cent antimony presently used, at 70°C and sulphuric acid concentration up to 70 per cent. The new 4 lead–antimony alloys under static conditions exhibit corrosion resistance twice as high as the antimony alloy. – Abstracts of Bulgarian Scientific Literature – Chemistry, Vol. 12, No. 1, 41, 1969.

The Second International Conference on the **Strength of Metals and alloys** was held in Pacific Grove, Calif., U. S. A. during August–September 1970.

Alloy 638 – commercial designation "**Coronze**", is a cobalt–modified aluminium – silicon **bronze** developed for use in oxidizing atmosphers: copper 2.5 – 3.1, aluminium 1.5 – 2.1, silicon 0.25–0.55; the cobalt addition has been made to slightly increase strength, retard grain growth during hot rolling and annealing, and stabilize mechanical properties over the required composition range. Other possible applications are: springs, current–carrying springs, and contact and terminal materials; electrical conductor alloy or as tubes in heat exchanges and as fins for extended surfaces; glass–to–metal seals. – Cobalt, No. 47, 105, 1970.

Work in the U. S. S. R. has indicated that the addition of 3–5 per cent aluminum reduced the high–temperature corrosion resistance of **cobalt**; but further raising to 11 per cent sharply increased it, after which it remained fairly constant. The best performance corresponded to alloys with surface scales comprised mainly of $CoAl_2O_4$ and Al_2O_3.– Cobalt, No. 47, 105, 1970.

"Recent developments in the processing of high speed **steels**" is the title of a booklet of 36 pages, published by the Climax Molybdenum Co., London. It discusses the influence of melting, solidification and hot working practices, as well as some specialized approaches such as electroslag refining, casting–to–size, powder metallurgy, resulphurisation, thermomechanical treatment and steam tempering.

A lecture on "Air transport–a changing scene" discusses various aspects of the role of **materials in the aircraft** industry. The metals used in a modern airliner are: light alloys – aluminium base 54–56, steels 25–27, nickel–base alloys 1.0–1.5, magnesium alloys 1.0–1.5, titanium alloys 0.1–0.5, copper 1.5–2.5 and copper alloys 0.1–0.4 per cent of air frame weight. The future developments

are likely to be with materials like beryllium, boron, silicon and carbon; and fibres – reinforced ones. – Metals and Materials, Vol. 4, No. 8, 323, 1970.

Brighton in the U. K. is the venue for the Third European Symposium on "The Applications and Economics of **Powder Metallurgy** and Its Relation to Competitive Processes" to be held during November 1971.

An International Conference on **Corrosion Fatigue** will be held during June 1971 at the University of Connecticut, Storrs, Conn., U. S. A. under the sponsorship of the National Association of Corrosion Engineers and the American Institute of Mechanical Engineers. The primary aim is to provide an integrated and interdisciplinary approach to the problem of corrosion fatigue. The contributions will cover physical metallurgy, corrosion and continuum mechanics.

The 13th German **Plastics** Conference will be held in Mainz during March 1971. It will concentrate on advances in plastics technology from the construction and engineering viewpoints, and also consider the economics of fabrication and use in construction.

"Early **Metallurgy** in the Near East" is the title of an article in Metals and Materials, July 1970. This is the report of an International reconnaissance expedition to locate and examine early metallurgical and other industrial sites that might have contributed to the ancient Middle Eastern Civilisations. It covers Afghanistan, Iran and Turkey. Three tables, 6 figures and 24 references are included.

An account of the activities of the Institute of **Materials Problems** started in Kiev, U. S. S. R. during 1955 has been published in Metals and Materials, July 1970. Its interests are centred round powder metallurgy, high temperature materials, ceramics and cermets, and wear and corrosion – resisting coatings.

The "Glitter of **Steel**" is the title of an article in British Steel, August 1970. Cut steel jewellery has been made in the U. K. since the 16th century, and illustrations of many fine pieces have been given. Many quite early samples survive as they are often more substantial, and therefore, have weathered the buffeting of time.

"**Steel** in the U. S. S. R." is the title of a new monthly translation Journal commencing publication from January 1971. It will provide a better and more comprehensive picture of Soviet metallurgical development than has previously been available in English. The Iron and Steel Institute, London will publish this, replacing "Stal" in English.

Because of properties such as excellent resistance to corrosion and considerable strength, the use of **glass fibre reinforced plastics** is now growing at a considerable rate in Europe and elsewhere. The building industry and pleasure boating absorb half the European consumption. The annual growth rate is estimated to be pipes and tanks 25–30, electrical applications 22 and miscellaneous 15 per cent. – Corrosion Prevention and Control, Vol. 17, No. 3, 8, 1970.

A rise of more than 6 percent in the consumption of refined **lead** in Europe during 1969 has been reported. The main growth has been in lead acid batteries, reflecting not only the greater number of cars on the road but also the increasing use of battery–driven vehicles; the consumption for anti–knock compounds has also expanded. – Corrosion Prevention and Control, Vol. 17, No. 3, 12, 1970. Recent trends and future prospect for the consumption of lead and **zinc** in Japan has been outlined by the Japan Lead Zinc Development Asssociation (February 1970, 5 pages; Zinc Abstracts, Vol. 28, 6073, June 1970). Galvanizing accounts for about 57 per cent of the consumption of slab zinc.

Wiggin Nickel Alloys, No. 97, 1970 highlights the applications for **Incoloy** alloy 825 for road tanker and at the operating table, and alloy 800 in furnace tubes and aircraft engine components.

The Indian Aluminium Company's Smelter and **alumina** plant complex at Belgaum, Mysore State was inaugurated in November 1970. Representing a capital investment of Rs. 43 crores, the smelter is now producing 30,000 tonnes of aluminium per year, to be expanded ultimately to a capacity of 100,000 tonnes. This unit consists of related bauxite–mining and alumina – making facilities, and a 11,500 tonne sheet–rolling mill under construction at Taloja, near Bombay. Indal today produces the metal at 70,000 tonnes per annum, of which 24,000 tonnes are fabricated

in the form of sheets and circles etc. plus extrusions, foil, paste and powder. The Belgaum plant represents an annual savings, by way of imports, to the tune of Rs. 14 crores. The Sharavathy project supplies the power requirement of 75 MW, raising up to 250 MW at a later date.

An experimental industrial installation in Kiev, U. S. S. R. has shown that **plasma-arc resmelting** method is more suitable than any other for improving the quality of technical alloys of platinum and palladium. It reduces losses of precious metals considerably. The process is also used industrially for producing titanium ingots, and holds promise of applications in the iron and steel Industry. – Soviet Union, No. 10(247), 52, 1970.

The use of **plastic** pipes for water supply has been discussed in Australasian Corrosion Engineering, August 1970, with reference to the developments in Germany. U. K., Holland, Japan and Italy, and compared with the experience in Australia.

"**New Materials** and Their Application", and "**Materials Problems** under Extreme Environment" are two main themes for the International Science, Research and Technology Exhibition and Conference held in London during October 1970 under the sponsorship of the Institute of Physics and the Physical Society.

The **strongest steel** in the world is claimed to have been developed in Japan by the Technical Research Institute of Ishikawajima Harima Heavy Industries. Called "In-U-Steel", the new material has enough tensile strength to resist pressure up to 250 kg/sq. mm; it is 1.5 times stronger than the strongest American steel. Other characteristics include low cost and light weight, The steel will have wide ranging applications, especially for super high speed engines and gas turbines, and space science. -Science and Engineering, Vol. 23, 149, 1970.

Chicago is the venue for the **Corrosion/71** and 1971 **Materials Engineering and Corrosion Show** scheduled for March by the National Association of Corrosion Engineers. The papers will emphasize new techniques used to protect materials and new methods for evaluating the performance of materials in corrosive environments. The theme for the Corrosion Research conference is "Fundamental Corrosion Research in Progress."

Pollution in the News

The Clean Air Society of Australia and New Zealand, N. S. W. Branch organized a one-day Symposium on "The way to **Air Pollution Control**" during September 1970 at Lidcombe.

If existing knowledge were properly utilized, we could go a long way towards creating a more healthy and pleasant environment, proclaims a 250-page report issued by the American Chemical Society in 1969: "**Cleaning Our Environment.** The Chemical Basis of Action". It spells out both short and long-term plants to come to grips with air and water pollution, and the problems of solid wastes and pesticides. The following important areas are, however, not covered: thermal and radioactive pollution, aircraft engine exhaust or the problems relating to food additives, of which each American is reported to ingest 35 pounds a year. – Chemistry and Industry, Vol. 5, 434, 1969.

Environmental Pollution is the title of a new International Quarterly Journal published from July 1970 by Elsevier Publishing Co., Barking, Essex, England. It is concerned mainly with the biological effects of pollution, and includes papers on the ecological effects of all types of environmental pollution and includes papers on the ecological effects of all types of environmental pollution and pollution control. The members of the Editorial Board are drawn from the U. K., Germany, U. S. A., Japan, Canada, Sweden, Switzerland, Czechoslovakia, Australia and U. S. S. R.

Plans for the UN Conference on problems of the **human environment**, to be held in Stockholm during 1972, have begun to take shape, and have helped to focus the attention of the nations on this world-wide challenge.

"Environmental Factor's and Man's Health" was the theme of a Symposium presented during the 79th Annual Meeting of the Ohio Academy of Science at Springfield, Ohio during April 1970. The papers contributed included the following: (1) People, populations, and pollution; (2) The population explosion and micro-organisms as a source of food; (3) Ecologic aspects of

fresh-water supplies; (4) Radiation effects – perspectives and comparisons; (5) Human crowding and health.

The removal of sulphur dioxide from gaseous industrial effluent – typically that from a power station consuming coal or oil – is a serious and important matter in the treatment of **air-pollution.** The Monsanto Enviro – Chem Systems produced in the U.S.A., for removing fly ash and sulphur dioxide from industrial gaseous effluent, have been described in Physics Bulletin, Vol. 21, 323, 1970.

An International Symposium on Identification and Measurement of **Environmental Pollutants** will be held in Ottawa during June 1971.

The First British **Environmental Pollution** Exhibition, and the Effluent and Water Treatment Exhibition and Convention are to be held in London during 1971.

"A Guide to **Industrial Pollution** Control" is the title of a Special Issue of Chemical Engineering, Vol. 77, No. 9, 1970. There are 4 sections: pollution control, solid waste disposal and air pollution control.

It has been recently pointed out that the question of **pollution** is one that tends to be neglected in **Corrosion** Studies. The few papers at conferences that attempt to study the actual environmental effects are normally general rather than specific. Of course, pollution is a word that resembles corrosion in that it represents a general feeling of "uncleanliness" One is apt to concentrate more on such pollution factors as smog and dust levels, rather than on an important facet like the cost of corrosion due to atmospheric pollution. Stopping corrosivity at its source means tackling the pollution problem. It is hoped that the proper approaches in this behalf will lead to "anti-pollution engineering". – Anti-Corrosion Methods and Materials, Vol. 17, No. 7, 3, 1970.

The factors involved in effective **water pollution** control have been discussed, indicating procedures which can be used at plating plants to reduce the amount of waste. – Plating, Vol. 57, 258, 1970.

An Occupational Health Research Institute, the first of its kind in India is being set up in Ahmedabad by the ICMR in collaboration with the WHO. It will study the changing **environmental problems** and work out health programmes at the national and local levels. A special study will be made of the effects of **air pollutants** on enzyme systems. An air pollution monitoring device is also being set up. It has been pointed out that, in India, the term pollution should include pollution of the environment by man, and the fight for a better environment has to begin at an elementary level. –Indian Express, Bangalore Edition, 6, November 12, 1970.

"Water Sans Pollution" is the title of the Editorial in the Bulletin of the Institution of Engineers (India), Volume 20, No. 2, October 1970. It has been pointed out that **environmental pollution** has by no means been an accidental occurrence or a transitory flaw of technology; the dilemma has been caused by man. Pollution being a national problem, enforcement of its solutions logically belongs to the engineer who necessarily devises and manages its various complexes. The steps suggested in this behalf are suitable water pollution control acts, and the establishment of River Control Boards.

The latest methods of combating industrial **air pollution** in the residential districts of big cities and in industrial centres were discussed at a Leningrad gathering of specialists. More than 50 papers were contributed from Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania and the U. S. S. R.

Science Today, October 1970, pages 22–49, contains several articles of interest on the **pollution of land, water and air.** The effects of pollutants of various kinds have been discussed in detail.

—T. L. R.