Book Section

New Publications

Treatise on Analytical Chemistry, Vol. 1 of Part I, by I. M. Kolthoff and P. J Elving, published by Interscience Publishers, New York, 1959.

Electrolytic Conductance, by R. M. Fuoss, published by Interscience Publishers, New York, 1959, 286 pages, $7.50.

Tantalum and Niobium, by G. L. Miller, published by Butterworths Scientific Publications, London, 1959, approx. 740 pages, 120 sh.

A Handbook of Colorimetric Chemical Analytical Methods, published by The Tintometer Ltd, Salisbury, England, 1959, 30 sh.

Semiconductors by N. B. Hannay (Ed), published by Reinhold Publishing Corp, New York, ACS Monograph 140, 1959, 767 pages, $15.

Proceedings of the Twelfth Annual Battery Research and Development Conference, published by Battery Conference Committee, Power Sources Division, U. S. Army Signal Research and Development Laboratory, Fort, Monmouth, N.J., U.S.A., 1958, 134 pages, $10 first copy, $5 each additional copy.

Cathodic Protection—Its theory and practice in Corrosion Prevention, by J. H. Morgan, published by Leonard Hill (Books) Ltd, London, 60 sh.

An Introduction to Chemical Nomenclature, by R. S. Cahn, published by Butterworths Scientific Publications, London 1959, 104 pages 10 sh. 6d.

Proceedings of the 9th Meeting, CITCE, Paris, 1957, by G. Valensi (Ed-in-chief), published by Butterworths Scientific Publications, London, 1959, 498 pages, 120 sh.

Qualitative Analysis and Electrolytic Solutions, by E. J. King, published by Harcourt, Brace and Co. Inc, New York, 1959, 641 pages, $6.95.

The Metal Molybdenum, by J. J. Harwood (Ed), published by the American Society for Metals, Cleveland, 1958, 696 pages.

Sixth Report of the Corrosion Committee, by J. C. Hudson (Compiler), published by the Iron and Steel Institute, London 1959, 217 pages £3 sh3.

Handbook of Practical Electroplating, by T. M. Rodgers, published by the Macmillan Co, New York and London, 59sh 6d.

Electrolyte Solutions, by R. A. Robinson and R. H. Stokes, published by Butterworths Scientific Publications, London, 2nd ed, 1959 574 page, 65sh.

Ion Exchange—A Laboratory Manual, by J. E. Salmon and D. K. Hale, published by Butterworths Scientific Publications, London, 1959, 143 pages, 25sh.

The Determination of Molecular Structure by P. J. Wheatley, published by the Oxford University Press, London, 1959, 263 pages.

Electronic Theory and Chemical Reaction—An Elementary Treatment, by R. W. Stott, published by Longmans, Green and Co, New York, 4th Ed, 1958, 112 pages.

Chemical Constitution—An Introduction to the Theory of the Chemical Bond, by J. A. A. Ketelaar, published by Elsevier Publishing Co, Amsterdam, London, New York, Princeton, 2nd Ed, 1958, 456 pages, 47sh 6d.

Publications Received

Crerar Metal Abstracts Vol. 7, No 11, 12, 1959, John Crerar Library, Chicago.

C.S.I.R. News, Vol, 9, No. 19-22, 1959, C.S.I.R , New Delhi.

Insdoc List, Current Scientific Literature, Vol. 6, No. 20-24, 1959, Insdoc, New Delhi.

Corrosion Prevention and Control, Vol. 6, No. 8-10, 1959, London.

Industrial Finishing, Vol. 11, No. 135, 136, 1959, Arrow Press, London.

Cobalt, No. 4, 1959, Centre D'Information Du Cobalt, Brussels.

Journal of the Electrochemical Society of Japan, Vol. 27, No. 4-6, 1959, Overseas Ed in English, ECS of Japan, Tokyo.

The European Steel Market in 1958, prepared by the Secretariat of the Economic Commission for Europe, U. S., Geneva, 1959, 79 pages, $0.50.

International Atomic Energy Agency Bulletin, Vol. 1, No. 3, Special number, 1959, through the U. N. Information Centre, New Delhi.

Inco-Mond Magazine, No. 11, 1959, 36 pages, The Mond Nickel Co, London.

Journal of the Indian Institute of Science, Vol. 41, Sect A & B, No. 4, 1959, Bangalore.

Organic Chemistry, By D. J. Cram and G. S. Hammond, published by McGraw-Hill Book Co. Inc., New York, Toronto, London, 1959, 712 pages, $8.50.

Problems in Physical Chemistry, by L. G. Sillen, P. W. Lange and C. O. Gabrielson, published by Prentice-Hall Inc, Englewood Cliffs, N.J, U.S.A., 4th Printing, 1959, 370 pages, $6.75.

Science and Engineering, Vol. 12, No. 7-8, 1959, ISE, Calcutta.

Delaware Valley Announcer, Vol. 32, No. 9, 10, 1959, Engineers' Club of Philadelphia.

Metal Finishing, Vol. 57, No. 10, 11, 1959, Metals and Plastics Publications, Inc. Westwood , N.J., U.S.A.

ZDA Abstracts, Vol. 17, No. 9, 10, 1959, ZDA, London.

Metal Finishing Journal, Vol. 5, No. 57, 58, 1959, Industrial Newspapers Ltd., London.

The Nickel Bulletin, Vol. 32, No. 8-10, 1959, The Mond Nickel Co., London.

Electroplating. India, Vol. 1, No. 6, 1959, Bombay.

Corrosion, Vol. 15, No. 9, 10, 1959, NACE, Houston, U.S.A.

UNESCO Bulletin, New Series No. 7, 1959 South Asia Science Co-operation Office, New Delhi.

Corrosion Technology, Vol. 6, No. 9, 10, 1959, Leonard Hill. London.

Battelle Technical Review, Vol. 8, No. 10, 1959, Battelle Memorial Institute, Columbus, Ohio, U.S.A.

Science and Appliance, Vol. 23, No. 8, 1959, The Ohio State University Research Foundation, Columbus, U.S.A.

Electro-Technology, Vol 3, No. 2, 3, 1959, Society of Electronic Engineers, ER and DE. Bangalore.

Electroplating and Metal Finishing, Vol. 12, No. 10, 11, 1959, Robert Draper Ltd., Teddington, Middx, England.

Wiggin Nickel Alloys, No. 53, 1959, Henry Wiggin and Co., Birmingham.

British Patents, Group 36, The Patent Office, London.

Science Library Bibliographical Series No. 769, 1959, Science Museum, London.

Book Reviews

Materials for Nuclear Reactors, by B. Kopelman (Editor), published by McGraw-Hill Book Co., New York, Toronto, London, 1959, 411 pages, $12.

Various materials are used in the nuclear reactor. Each has a specific role to play in the operation of the reactor. In this volume all the important aspects of the material's problem have been dealt with in a comprehensive manner. Preparation of the different materials, their physical and mechanical properties and their limitations in actual use have been covered in a fairly exhaustive manner.

The book is divided into ten chapters. The first two are devoted to the extraction and characteristics of reactor materials and fuel elements. The third and fourth chapters cover the fabrication of fuel elements and testing techniques. The fifth chapter deals with the aspect of radiation effects on the materials. In the sixth chapter problems associated with the use of liquid fuel elements, coolants and corrosion have been discussed. The seventh chapter covers the various problems associated with processing of spent fuels. Chapters eight, nine and ten are devoted to the properties, use and processing of materials other than fuel elements such as moderators, shields and control rods.

The book deals in a lucid manner with all the aspects of materials used in nuclear reactors, with ample illustrations and experimental data. Edited by one closely associated with work in the atomic energy field the text contains much useful and authoritative information on the subject. The book is nicely printed and neatly got up, and is a very valuable addition to the literature on nuclear reactors.

—J.B.

Problems in Physical Chemistry, by L. G. Sillen, P. W. Lange and C. O. Gabrielson, published by Prentice Hall Inc, Englewood Cliffs. N. J., U.S.A., 4th printing, 1959, 370 pages, $6.75.

This book on physico-chemical problems is a translation of the Swedish edition designed originally for use in Swedish schools. The principal

aim of the book is 'to give the reader an insight into the ways of thinking and working in the science of physical chemistry'.

It is divided into 11 chapters: first law of thermodynamics, second and third laws of thermodynamics, partial quantities—activities, law of mass action—gas equilibria, solution equilibria, chemical electromotive forces, solubility, complex and redox equilibria, acid-base equilibria transport of electricity by electrolytes, rate of reaction and phase boundaries—atoms and molecules. There are appendices on numerical calculations, symbols, journals and handbooks and, answers to problems. Author and subject indices are included.

The introductions in each chapter give an idea of the background knowledge required for solving the problems which follow. The reader is expected to have adequate training in physics, mathematics and chemistry. The problems, which are quite exhaustive, are drawn from published chemical literature to which references are given.

The volume serves admirably the purpose for which it has been written. The publishers deserve to be congratulated in bringing out the English edition which will attract a large number of readers. The book can be safely recommended to physical chemistry students in universities and to others engaged in physico-chemical calculations. —T.L.R.

Hot Dip Galvanising: Edited proceedings of the Benelux Conference (Fifth International Conference) held by the European General Galvanisers Association in Holland and Belgium, 1958, published by European General Galvanisers' Association (Secretariat Zinc Development Association, London), 1959, 355 pages, 60sh.

The proceedings of the Fourth International Conference was reviewed in this Bulletin (Vol. 7, 52, 1958). This volume contains the twenty main papers presented at the 1958 Fifth International Conference on Hot Dip Galvanising held by the European General Galvanizers Association. The Proceedings comprising the papers have been arranged in ten chapters covering each aspect of the industry by an expert in the field and are supplemented by carefully edited discussion and additional material to allow the volume to take its place as a standard work of reference, as it contains material published for the first time and as it records the development of the galvanising industry in the last 150 years.

In the first chapter on pickling and fluxing the efficiency of hydrochloric acid from spent pickle liquors are described. The results are reported for the first time on the behaviour of some molten fluxes containing several constituents for the hot dipping process in zinc, tin and lead. Chapter two deals with bath heating describing the various types in use. In the third chapter a survey has been made of various galvanising processes with special reference to the efficiency of the use of zinc. Very useful data has been given with regard to the consumption of zinc, losses of zinc in ash, flux skimmings and dross, coating weight, flux consumption, labour etc. in respect of each process. Chapters four and five describing strip galvanising and wire galvanising respectively are new additions to this volume. Continuously galvanised strip is a new product which has not yet been fully exploited and will lead to greater productivity. Variations in the characteristics of steel wire due to hot dip galvanising are well brought out. Chapter seven deals with the influence of bath composition and of composition of steel on galvanised coatings. Painting of galvanised steel with reference to composition of paints and quality classification of one and two coat systems is described under chapter five

An important addition in this volume is the chapter on non-destructive testing of galvanised coatings with particular emphasis on methods of testing the thickness of galvanised coating. Various guages in use have been described with emphasis on the possible error in using electromagnetic gauges due to uneven surface condition of the specimen. This chapter has been dealt with exhaustively and will be of immense use to the galvanisers. Another new chapter is on materials handling. Suggested layouts, storage, flow of materials, mechanisation, etc. are some of the salient points well brought out in this section. The last chapter on human progress through technical progress is devoted to an account of the improvements in working conditions resulting from technical progress in the galvanising industry.

As a volume giving every worthwhile piece of information about hot dip galvanising, the new edition is invaluable and can justifiably be regarded as a useful publication from the point of view of galvanisers. The absence of an index is keenly felt. The printing and the get up is good.

—S.K.

Chemistry Made Easy, by C. T. Snell, and F. D. Snell, published by Chemical Publishing Co., Inc. New York, 1959, Part I, 186 pages, Part II, 232 pages and Part III, 262 pages, $10.

'Chemistry Made Easy' first appeared in 1943 and three of the original four volumes have been combined in this volume. The authors state in a note to the reader that this book is specifically 'designed for home study and presented as to

make it easy for the reader to grasp the essential principles of chemistry by himself and without a teacher'. They have tried to avoid a stiff and rigorous text book treatment of the subject. The book is divided into three parts.

Part one covers the theory and underlying principles of chemistry comprising 22 chapters. In the first chapter the reader is acquainted with the treatment of the subject of chemistry in this volume. Subsequent chapters cover units of measurement, chemical change, oxygen, hydrogen and molecules. Then follow a number of chapters on symbols and equation, chemical calculation, solutions and their electrolysis, valence. General principles of periodicity of elements and pH value of solutions and its determination, oxidation, and reduction are some of the important aspects dealt with in this section. In the last chapter, mention has been made of nuclear particles. At the end of each chapter questions on the topic dealt with in the chapter are included. At the end of this section, further questions are set covering different topics. A Glossary of words emphasising on pronunciation commonly used in chemistry is a very useful guide to the student reader. An index has been included.

Part two covers elements and compounds in inorganic chemistry. Starting from halogen, other non-metals and metals all the important topics in inorganic chemistry have been well explained. The heading of chapters are catchy and has been so chosen as to bring out the characteristics of the particular metal or non-metal. For example, 'Phosphorous may make food or poison', Chromium is a serviceable plating material', 'Copper is a good conductor of electricity', 'Mercury is the only liquid metal', etc. In the last two chapters radioactive elements and chain reactions are dealt in a brief manner. Even in this section every chapter ends with a set of questions to make the student think of what he has learnt in that chapter. Final questions covering the entire field are also included. There is an index included in this part.

Organic chemistry forms the subject matter of part three. Section one deals with aliphatic compounds and section two covers aromatic compounds. All the topics useful from a college student's point of view, are covered in these two sections. Last three chapters describe proteins, vitamins and antibiotics briefly. As in the previous parts each chapter ends with a set of questions. Finally questions covering various topics are set for testing the assimilation of the subject by the student. Glossary of words to guide pronunciation is included in each of the sections. An adequate index in each section has been included.

This text book on chemistry is different from the orthodox types in that the entire book is written in an unconventional manner. The authors have tried to humanize the subject with illustrations from every day life to arouse the intellectual curiosity of the reader. Such text books are welcome as they will undoubtedly stimulate much further reading due to clarity of their presentation and brevity.

—S. K.

Organic Chemistry, by D. J. Cram and G. S. Hammond, published by McGraw-Hill Book Co, Inc., New York, Toronto, London, 1959, 712 pages, $8.50.

A significant departure from the traditional presentation of organic chemistry according to classes of compounds has been made by the authors and instead the subject matter is lucidly treated based on the classes of reactions. Subsidiary themes such as reaction mechanisms and steric relationships are elaborated therefrom in a cogent and natural way. The book is divided into 27 chapters with two more devoted to nomenclature and literature in organic chemistry. The greater emphasis on reactions makes easy comprehension of various subjects of organic chemistry in an integrated manner with a sound theoretical basis to support. The reviewer is particularly happy with the many beautiful molecular orbital drawings and three-dimensional formulas that are included in this book since they enable quick grasp of the subject even by a beginner in stereo-chemistry. Although designed to 'take the reader a long way into the field of organic chemistry' this introductory text should be very useful for premedical students, biochemists, engineers and others.

P.L.N.