

Book Reviews*

Encyclopedia of Chemical Technology. Third Edition. Volume 17. Peroxides to Piping Systems. Edited by M. Grayson and D. Eckroth. John Wiley & Sons, New York. 1982. xxvi + 957 pp. \$165.00.

The importance of this volume becomes apparent when one realizes that it includes chapters on a variety of aspects of petroleum, pharmaceuticals, phenols, phosphorus, photochemistry, phthalic acids, and pigments. As is customary in this series, the chapters are reviews not only of technology but also of chemistry and in many instances constitute the only up-to-date treatment of the chemistry from an applied point of view. Each chapter is independently contributed, and the authors are drawn from both industries and universities. Although there is understandably some variation in treatment, the leveling hand of careful editing can be detected in the uniformly high standard. A minor point of criticism is in the prominence given to CA Registry Numbers. There is no question about their usefulness, but they can be distracting when one is trying to follow the chemistry when reading equations. Perhaps some typographic means could be found to make them less obtrusive.

Each volume in this series is separately paginated, and the alphabetic arrangement makes it easy in most cases to find a desired subject. However, a cumulative index for Volumes 13-16, bound separately, accompanied Volume 17.

McGraw-Hill Encyclopedia of Science & Technology. Fifth Edition. Edited by S. P. Parker, J. Weil, and B. Richman. McGraw-Hill Book Co., New York. 1982. 15 volumes. \$850.00 the set.

It has been only 5 years since the previous edition of this work, which is said to have been extensively revised and brought up to date with contributions by 3000 experts, including 16 Nobel Prize winners. Chemistry plays a prominent part in the broad spectrum of disciplines included, but the ancillary subjects may be more useful to the chemists than the chemical entries. The articles are interesting and informative to the technically educated but are, of course, not designed for the specialist. The many illustrations and figures are especially good.

To gain a perspective on the general quality of the scientific content of such a work, one can best examine the entries closest to one's own field. The organic chemistry has, unfortunately, more than its share of inaccuracies. The entry "Anthranilic acid", for example, offers the structural formula of sodium phthalamate as that of anthranilic acid, a rather shocking error. Under "Ammonia", one finds NH_2 shown where NH_3 is required and NH_4^+ in place of NH_4^+ . Nomenclature is questionable, as in "2,3-propanediol" for 1,2-propanediol and in the prohibited stacking of functional suffixes in "cyclohexane-(1,3)cisretrol-4,5-dione". Benzene rings are drawn confusingly inconsistently, sometimes with an internal circle, sometimes with formal double bonds, and sometimes as a regular hexane and at other times with a badly distorted hexagon (single bonds short, double bonds long!). These points will not confuse professional chemists but are likely to frustrate the nonchemist reader, to whom the chemical entries are primarily addressed. It is to be hoped that editorial care has been more diligent in the nonchemical entries.

Poly(*N*-vinylcarbazole). By J. M. Pearson (Eastman Kodak Co.) and M. Stolkal (Xerox Corporation). Gordon and Breach Science Publishers, New York. 1981. xiv + 163 pp. \$52.00.

This book is Volume 6 of "Polymer Monographs", edited by M. B. Huglin. Each volume is a short monograph dealing with one specific polymer of commercial importance and is intended to "cover equally basic scientific information on a polymer and information pertinent to its practical utilization" and to "present the maximum of current information in the minimum of space". This volume meets these objectives admirably. The extensive literature, both patent and scientific, on poly(*N*-vinylcarbazole) (PVK) is covered thoroughly and succinctly. Some aspects, such as photoconductivity, are treated in considerable detail. It can be recommended with confidence to those who wish to quickly and easily become familiar with the synthesis of PVK and its properties and behavior. As pointed out by the authors, studies of PVK have advanced the understanding of photoelectric phenomena in organic and polymeric solids. The book is surprisingly free of typographical errors, though a trivalent carbon appears on page 13. The authors' contention that PVK is a very rigid chain polymer is not supported by the values for the exponent in the Mark-Houwink-Sakurada equation ($a = 0.50-0.76$) nor by those for the chain stiffness parameter ($\sigma = 2.66-2.85$). PVK may be stiff compared to the usual vinyl polymers but not in comparison to

rigid polymers capable of forming mesophases.

Richard D. Gilbert, North Carolina State University

α,β -Unsaturated Thioketones: Some Problems of Synthesis and Structure. By V. A. Usov and M. G. Veronkov (Siberian Division of the USSR Academy of Sciences). Harwood Academic Publishers, P.O. Box 786, Cooper Station, New York, NY 10276. 1982. 47 pp. \$22.50.

This expensive little booklet also doubles as Vol. 2, No. 2, of "Sulfur Reports", which appears in periodical format at irregular intervals. It is a review largely devoted to synthesis of β -substituted vinyl thioketones by sulfhydrolysis of iminium salts. By far the largest proportion consists of β -aminovinyl thioketones, which the authors unfortunately consistently refer to as "enamino thioketones", a misnomer that implies a substituent of the form $\text{R}_2\text{C}=\text{CR}-\text{NH}-$. For the thioether analogues, $\text{R}-\text{S}-\text{CR}_2=\text{CR}-\text{C}(=\text{S})\text{R}$, they use a different confusing term, " β -alkylthiovinylene thioketones", where " β -alkylthiovinyl" is called for; the same incorrect terminology is used for β -halovinyl thioketones. These transgressions put an unnecessary barrier in the way of the reader's understanding.

The concluding section of this review considers tautomerism, restricted rotation, and conformation.

Useful as it is to have reviews of this sort, one cannot help but wonder if this is a suitable way to put them in the hands of chemists.

Volumes of Proceedings Received

Radiation Biology and Chemistry, Research Developments. Edited by H. E. Edwards, S. Navaratnam, B. J. Parsons, and G. O. Phillips. Elsevier Scientific Publishing Co., Amsterdam and New York. 1979. xiv + 505 pp. \$78.00.

Proceedings of a meeting held in Wales in 1979.

Life in the Universe. Edited by J. Billingham. The MIT Press, Cambridge MA. 1982. 461 pp. Softbound, \$12.00; hardbound, \$20.00.

Proceedings of a conference held at NASA Ames Research Center in 1979, containing papers on chemical evolution, life-supporting environments, and detectability of life.

Noninvasive Probes of Tissue Metabolism. Edited by J. S. Cohen. John Wiley & Sons, Inc., New York. 1982. 270 pp. \$49.50.

Contains nine considerably expanded papers from a symposium held in New Orleans in 1980, plus an index.

Application of Short-Term Bioassays in the Fractionation and Analysis of Complex Environmental Mixtures. Edited by M. D. Waters, S. Nesnow, J. L. Husingh, S. S. Sandhu, and L. Claxton. Plenum Press, New York & London. 1978. 588 pp.

Short-Term Bioassays in the Analysis of Complex Environmental Mixtures. Volume II. Edited by M. D. Waters, S. S. Sandhu, J. L. Husingh, L. Claxton, and S. Nesnow. Plenum Press, New York and London. 1980. 524 pp.

The above two books contain papers on bioassay, sampling, and current research from a symposium held in Williamsburg in 1978 and 1980.

Frontiers of Bioorganic Chemistry and Molecular Biology. IUPAC. Edited by S. N. Ananchenko. Pergamon Press, New York and London. 1980. 473 pp. \$80.00.

Proceedings of an international symposium held in the USSR in 1978, consisting of papers on original research, reproduced directly from the authors' typescripts. No index.

Advanced Chemical Methods for Soil and Clay Minerals Research. Edited by J. W. Stucki and W. L. Banwart. D. Reidel Publishing Co., Dordrecht, London, and New York. 1980. x + 477 pp. \$58.00.

Proceedings of the NATO Advanced Study Institute held at the University of Illinois in 1979, consisting of ten lectures on subjects ranging from Mössbauer spectroscopy and ESR to photoacoustic spectroscopy.

Atmospheric Pollution. Edited by M. M. Benarie. Elsevier Scientific Publishing Co., Amsterdam and New York. 1982. xii + 404 pp. \$88.25.

Proceedings of an international colloquium held in Paris in 1982, reprinted from "The Science of the Total Environment", Vol. 23.

Limits of Life. Edited by C. Ponnampereuma and L. Margulis. D. Reidel Publishing Co., Dordrecht, Holland/Boston, U.S.A./London, England. 1980. 199 pp. \$26.50.

Proceedings of a symposium on chemical evolution, held in Maryland in 1978, originally published in the periodical "Origin of Life".

* Unsigned book reviews are by the Book Review Editor.

Kinetic Data Analysis. Design and Analysis of Enzyme and Pharmacokinetic Experiments. Edited by L. Endrenyi. Plenum Press, New York and London. 1981. 427 pp.

Proceedings of a symposium held in Toronto in 1979.

Faraday Discussions of the Chemical Society. No. 70. Photoelectrochemistry, 1980. Edited by D. A. Young. Royal Society of Chemistry, London. 1981. 438 pp. £18.00.

Proceedings of a "Discussion" held in 1980. Contains the texts of 24 papers and lectures and transcripts of the discussions that followed them. No subject index.

Biological Activities of Polymers. Edited by C. E. Carraher, Jr., and C. G. Gebelein. American Chemical Society, Washington, D.C. 1982. 293 pp. \$31.95.

Presenting contemporary research on the broad range of biologically active polymers, this 21-chapter book focuses on nonmedical applications, drug-related activity in medical applications, and anticancer applications.

Secondary Ion Mass Spectrometry SIMS. Volume III. Edited by A. Benninghoven, J. Giber, J. Laszlo, M. Riedel, and H. W. Werner. Springer-Verlag, Berlin, Heidelberg, and New York. 1982. 444 pp. \$37.00.

Proceedings of the Third International Conference, Held in Budapest in 1981, containing the texts of 12 invited and a large number of contributed papers covering instrumentation, quantification, and application to surface studies and ion microscopy (no subject index).

Vibrations at Surfaces. Edited by R. R. Caudano, J.-M. Gilles, and A. A. Lucas. Plenum Publishing Corp., New York. 1982. 585 pp. \$69.50.

Proceedings of the second international conference on the subject held in Belgium in 1980, largely concerned with Raman spectroscopy of adsorbed molecules.

Proceedings of the International Symposium on Quantum Biology and Quantum Pharmacology. Edited by P.-O. Löwdin and J. R. Sabin. John Wiley & Sons, New York. 1982. 484 pp.

Contains the papers given at a symposium held in Florida in 1981.

Physics of Solid Surfaces. Edited by M. Laznicka. Elsevier Publishing Co., Amsterdam and New York. 1982. 300 pp. \$66.00.

Contains 18 invited papers and 16 short communications from a symposium held in Czechoslovakia in 1980 devoted to theoretical and experimental studies of the electronic, crystallographic, and compositional structure of surfaces.

Modified Cellulose. Edited by R. M. Rowell and R. A. Young. Academic Press Inc., New York. 1978. 361 pp. \$23.00.

Proceedings of a symposium held at the 174th National ACS Meeting in Chicago, 1977. Contains the text of research papers and general addresses and a subject index.

Analytical Isotachophoresis. Edited by F. M. Everaets, F. E. P. Mikkers and T. P. E. M. Verheggen. Elsevier Scientific Publishing Co., Amsterdam and New York. 1981. 246 pp. \$58.50.

Proceedings of the 2nd International Symposium, held in The Netherlands in 1980. Contains the texts of 29 papers and author and subject indexes.

Coordination Chemistry. Volume 20. Edited by D. Banerjee. Pergamon Press, Inc., Oxford and New York. 1980. 275 pp.

Contains 26 invited lectures given at the 20th International Conference on Coordination Chemistry, held in December 1979. The papers are reproduced directly from the authors' typescripts; there is no index.

Advances in Solution Chemistry. Edited by I. Bertini, L. Lunazzi, and A. Dei. Plenum Publishing Corp., New York and London. 1981. 387 pp.

The proceedings of the 5th International Symposium in Solute-Solute-Solvent Interactions, held in 1980. It contains 26 contributed papers but not the plenary lectures.

Affinity Chromatography and Related Techniques/Theoretical Aspects/Industrial and Biomedical Applications. Edited by T. C. J. Gribnau, J. Visser, and R. J. F. Nivard. Elsevier Scientific Publishing Co., Amsterdam and New York. 1981. xviii + 584 pp. \$83.00.

Proceedings of the 4th International Symposium, held in The Netherlands in 1981, devoted to theoretical aspects and industrial and biomedical applications. Contains 45 papers, a list of titles of poster presentations, and a subject index.

Recent Developments in Mass Spectrometry in Biochemistry, Medicine and Environmental Research. Volume 7. Edited by A. Frigerio. Elsevier

Scientific Publishing Co., Amsterdam and New York. 1981. ix + 360 pp. \$72.25.

Proceedings of the 7th International Symposium, held in Milan in 1980, containing both plenary lectures and research papers. No subject index.

Quantum Chemistry in Biomedical Sciences. Edited by H. Weinstein and J. P. Green. The New York Academy of Sciences, New York. 1981. 367 pp. \$106.00, paperback.

Proceedings of a conference held in New York in 1980, consisting of 32 papers with the ensuing discussions, dealing with drying design, theoretical treatment of drug-receptor and enzyme-substrate interactions, solvent structure, conformation, and macromolecules.

Biomolecular Stereodynamics. Volumes I and II. Edited by R. H. Sarma. Adenine Press, New York. 1981. Volume I, 472 pp. Volume II, 501 pp. \$85.00 per volume; \$170.00 per set.

Proceedings of the Second SUNYA Conversation, held in April 1981. Volume I consists of 26 papers dealing with RNA and DNA; Volume II consists of 25 papers dealing with protein structure, dynamics, and interactions. The books are typeset and there is a subject index.

Numerical Methods in the Study of Critical Phenomena. Edited by J. Della Dora, J. Demongeot, and B. Lacolle. Springer-Verlag, Berlin, Heidelberg, and New York. 1981. 267 pp. \$27.50.

Proceedings of a Colloquium held in France in 1980, consisting of lectures on mathematical methods, applications in chemistry, biology, and physics, and nonphysical applications of statistical mechanics.

Energy and Chemistry. Edited by R. Thompson. Whitstable Litho, Ltd., Whitstable, Kent. 1982. 359 pp. £11.50.

Proceedings of a symposium held at the University of Surrey in 1981, consisting of the texts of 14 addresses on such subjects as alternative fuels, energy storage, nuclear energy, chemical feedstocks, and environmental hazards.

The Physics and Chemistry of Low-Dimensional Solids. Edited by L. Alcázar. D. Reidel Publishing Co., Dordrecht, Holland/Boston, U.S.A. 1980. x + 436 pp. \$50.00.

Proceedings of the NATO Advanced Study Institute held in Portugal in 1979, containing 27 papers on theory, synthetic chemistry, and techniques, with special emphasis on electronically conducting organic polymers.

Third Symposium on Biotechnology in Energy Production and Conservation. Edited by C. D. Scott. John Wiley & Sons, Inc., New York. 1982. 666 pp. \$60.00.

Proceedings of a symposium held in May 1981, containing 54 papers largely dealing with chemical conversion of biological material, particularly vegetable matter and sewage.

Preparation and Characterization of Materials. Edited by J. M. Honig and C. N. R. Rao. Academic Press, Inc., New York. 1982. 609 pp. \$42.50.

Proceedings of a "workshop" held in India in 1981, concerned with crystal growth, characterization techniques, layered materials, metal oxides, glasses, and ceramics.

Chlorinated Dioxins and Related Compounds/Impact on the Environment. Edited by O. Huntzinger, R. W. Frei, E. Merian, and F. Pocchiari. Pergamon Press, Inc., New York, Oxford, Toronto, and Sydney. 1982. 658 pp. \$75.00.

Proceedings of a "workshop" held in Rome in 1980, concerned with chemical, industrial, environmental, and biological aspects.

Chemistry and Geochemistry of Solutions at High Temperatures and Pressures. Physics and Chemistry of the Earth. Volumes 13 and 14. Edited by D. T. Rickard and F. E. Wickman. Pergamon Press, Oxford, New York, Toronto, Sydney, Paris, and Frankfurt. 1982. 564 pp. \$170.00.

Proceedings of a Nobel Symposium held in 1979 in honor of J. J. Berzelius, containing the full texts of the papers together with the ensuing discussions and both author and subject indexes.

Inflammatory Diseases and Copper. Edited by J. R. J. Sorenson. The Humana Press, Inc., Clifton, NJ. 1982. 642 pp. \$69.50 USA; \$79.50 elsewhere.

Proceedings of a conference held at the University of Arkansas in 1981, organized to present physiological and biochemical aspects of the role of copper complexes in arthritis and related diseases.