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Supplementary Material Available: Detailed spectral and analytical data, and copies of the original spectra (^1H and ^2H NMR) for the mixture **18/19** in the labeled and unlabeled series (8 pages). Ordering information is given on any current masthead page.

Additions and Corrections

Triplet Exciplex Formation in the External Heavy-Atom Effect [*J. Am. Chem. Soc.* **1982**, *104*, 1107]. MARIA C. TAMARGO and DWAIN O. COWAN*

The correct order of magnitude for all the entries in Table I: Summary of the First Order Decay Data should be 10^2 rather than 10^3 , as shown. The text and the figure contain the correct numbers.

Structures and Stabilities of α -Hetero-Substituted Organolithium and Organosodium Compounds. Energetic Unimportance of Second Row d-Orbital Effects [*J. Am. Chem. Soc.* **1984**, *106*, 6467–6475]. PAUL VON RAGUÉ SCHLEYER,* TIMOTHY CLARK, ALEXANDER J. KOS, GÜNTHER W. SPITZNAGEL, CORNELIA ROHDE, DORIT ARAD, K. N. HOUK,* and NELSON G. RONDAN

The stabilization energy for X = PH_2 in Table II at 3-21+-G//3-21+G (third column) should be -19.9 instead of +15.9 kcal/mol.

In addition we neglected to mention that Professor F. Bernardi had informed us of his agreement with our conclusions (p 6474) that energetic effects of second-row substituents on the stabilization of carbanions is insignificant.

Chain-Folding Initiation Structures in Ribonuclease A: Conformational Analysis of *trans*-Ac-Asn-Pro-Tyr-NHMe and *trans*-Ac-Tyr-Pro-Asn-NHMe in Water and in the Solid State [*J. Am. Chem. Soc.* **1984**, *106*, 7946]. G. T. MONTELIONE, E. ARNOLD, Y. C. MEINWALD, E. R. STIMSON, J. B. DENTON, S.-G. HUANG, J. CLARDY, and H. A. SCHERAGA*

Page 7954: Footnote *b* of Table IV should read: k_{ex} is given by eq 1 and $T_{1,\text{mag}}$ by eq 4. k_{ex} is in s^{-1} and $T_{1,\text{mag}}$ is in s.

Chain-Folding Initiation Structures in Ribonuclease A: Conformational Free Energy Calculations on Ac-Asn-Pro-Tyr-NHMe, Ac-Tyr-Pro-Asn-NHMe, and Related Peptides [*J. Am. Chem. Soc.* **1984**, *106*, 7959]. M. OKA, G. T. MONTELIONE, and H. A. SCHERAGA*

Page 7968: The first line of the legend of Figure 5 should read: Minimum-energy conformations of Ac-Tyr-Pro-Ala-NHMe. (A)

Book Reviews

Dairy Chemistry and Physics. By Pieter Walstra (Agricultural University, Wageningen) and Robert Jenness (University of Minnesota). John Wiley & Sons, Inc.: New York. 1984. xviii + 467 pp. \$59.95.

The authors have succeeded uncommonly well in producing "a reasonably complete and integrated picture of the chemistry and physics of milk". The book includes the usual chapters on composition of milk and the chemistry of milk carbohydrates, lipids, and proteins that one expects in a dairy chemistry text. But there are also chapters on milk secretion, the effect of heating on milk, physical properties of milk, colloidal and surface phenomena, interaction of milk with air bubbles, rheological properties, and properties of concentrated milk. H. T. Badings has contributed a chapter on flavors and off-flavors of milk. The book is not a comprehensive review but refers to key papers and reviews of various subjects at the end of each chapter. The chemistry and physics of dairy products other than milk are not treated directly.

The text is clear, the organization is well conceived, and the depth of treatment of each topic is consistent and appropriate for a college-level text. It will also be a very useful reference to those involved in the chemistry of milk and dairy products.

Earl G. Hammond, Iowa State University

Handbook of Chemical Microscopy. Volume One. Fourth Edition. By Clyde W. Mason (Cornell University). Wiley-Interscience Publishers: New York. 1983. XV + 505 pp. \$75.00.

For those not familiar with the Third Edition, the Fourth Edition contains the following chapters. Chapters One and Two discuss the optical system of the microscope and the use of the microscope in the chemical laboratory. Chapters Three and Four describe the illumination of transparent and opaque objects. Chapter Five describes methods of preparing materials for microscopic study. Chapter Six discusses special methods for interpreting physical properties. Chapters Seven, Eight, and Nine deal with the topics ultramicroscopy, photomicrography, and electronmicroscopy. Chapters Ten and Eleven describe the study of

isotropic and anisotropic materials and the determination of the refractive indices of solids and liquids with use of the polarized light microscope. Chapter Twelve describes the optical properties of aggregates and crystals, Chapter Thirteen the preparation of crystals for study, Chapter Fourteen microscopic measurements, Chapter Fifteen particle size determinations, and Chapter Sixteen the quantitative analysis of heterogeneous mixtures. The new chapter, Chapter Seventeen, contains a brief summary of microscopic qualitative chemical analysis.

The Michel-Levy Color Chart included with the Fourth Edition is a color photograph representation and for the most part is an improvement over that found in the Third Edition. The reader should note that in the fourth order of this chart (the far right hand side of the chart), the color representation does not appear to be true.

In summary then, if you are an experienced microscopist who perhaps owns prior editions of Chemical Microscopy and wants to add to his or her library collection, this volume will not represent a significant addition. If, on the other hand, you are a beginner, a student who wants a solid, for the most part well written, tid-bit crammed but dated guide to chemical microscopy, then you will want the Fourth Edition of the classic!

W. W. McGee, University of Central Florida

Polymer Monographs. Volume 8. Poly(tetrahydrofuran). By P. Dreyfuss (The University of Akron). Series edited by M. B. Huglin (University of Salford). Gordon and Breach Science Publishers: New York. 1982. xiii + 306 pp. \$59.50.

This is the eighth volume of the series of short "Polymer Monographs" each dealing with one specific polymer. These monographs, according to the editor's statement "cover equally basic scientific information on a polymer and information pertinent to its practical utilization". The following volumes have been published: "Poly(1-butene)", "Polypropylene", "Poly(vinyl chloride)", "Poly(vinyl alcohol)", "Poly(vinylidene chloride)", "Poly(*N*-vinyl carbazole)", "Heparin (and related polysaccharides)", and "Polytetrahydrofuran (PolyTHF)".

This last volume includes 8 chapters (number of pages given in brackets): The Monomer (10), Polymerization (50), Kinetics of Polymerization and Copolymerization (55), Solution Properties (20), Bulk Properties and Some Applications (35), Industrial Applications: Polyurethane and Polyester Thermoplastic Elastomers (50), Other Block, Star and Graft Copolymers (45). The subject index includes ca. 500 entries; in the author index ca. 120 names are listed; 620 references are given. Thus, the syntheses, polymerization, and copolymerization reactions take half of the volume, the other half being devoted to the properties and applications of polyTHF. The most important information is compiled in 60 well-organized tables. Some of the tables (e.g., on polymerizability of THF-ring containing monomers) consist of several pages. The coverage of the chemical half of the book is thorough and reasonably extensive. Some of the details of the polymerization mechanisms are rightly omitted, but all of the major information is given and logically arranged. Many chapters take up subjects not before treated, except the previous review papers published by the present author together with M. P. Dreyfuss: in 1967, 1970, and (in part) in 1976. The present volume is, however, the most comprehensive and authoritative.

It is not clear why the editors write on one hand polypropylene and on the other poly(tetrahydrofuran).

Stanislaw Penczek, *Polish Academy of Sciences, Łódź*

Liquid Chromatography in Environmental Analysis. Edited by James F. Lawrence (Health and Welfare, Canada). Humana Press: Clifton, New Jersey, 1984. xiv + 374 pp. \$55.00.

This volume of the series "Contemporary Instrumentation and Analysis" provides the researcher with an extensive overview of the various HPLC techniques available for both cleanup and analysis of environmental samples. The eight chapters cover the following subjects: 1. Quality Assurance in Environmental Trace Analysis; 2. Polycyclic Aromatic Hydrocarbons (PAH); 3. Pesticide Residues; 4. Surfactants and Related Compounds; 5. Trace Metals; 6. Anions by Ion Chromatography; 7. Sample Injection and Column Switching; 8. HPLC as a Cleanup Technique.

Chapter 1, while not specific to the operation of the HPLC, provides a cohesive and well-organized view of the importance of quality assurance in the environmental laboratory. The nonspecificity enhances the value of this chapter, as the principles elucidated are valuable for any analytical application.

This chapter addresses both the "typical" quality assurance topics such as instrumentation, analytical methodology, and documentation and the humanistic aspects of quality assurance such as feedback to the analyst, evaluation of data, and the roles of management in an effective quality assurance program.

The balance of the chapters fall into two distinct groups: those specific to the HPLC application of the analysis of certain functional classes (PAH, pesticides, surfactants, trace metals, anions), and those that are general instrument methodologies (injection and column switching, HPLC as a cleanup technique).

The application chapters are rich in specific examples of the analysis type covered and in references to the current literature.

In many cases such as PAH, pesticides, and surfactants, HPLC may be one of several possible methodologies for a particular analyte. This work should provide the researcher with information necessary to choose the best approach to the analysis.

Paul Epstein, *Clayton Environmental Consultants, Inc.*

Springer Series in Chemical Physics. Volume 36. Secondary Ion Mass Spectrometry SIMS IV. Edited by A. Benninghoven (University of Munster), J. Okano and R. Shimizu (Osaka University), and H. W. Werner (Philips Research Laboratories, Eindhoven). Springer-Verlag: Berlin and New York, 1984. xv + 503 pp. \$38.50.

This volume comprises the proceedings of the Fourth International Conference on Secondary Ion Mass Spectrometry held in November 1983 in Osaka, Japan. Some 130 papers deal in depth with fundamental aspects, quantification, instrumentation, combinations of SIMS with

other techniques, semiconductor analysis and depth profiling, organic desorption, and general applications. The individual papers are generally quite well done and complete with specific information, figures, and references. Related mass spectrometric techniques such as fast-atom bombardment, laser microprobes, and multiphoton ionization of sputtered neutrals are also described. The titles of the papers are sufficiently selective and informative to serve as a subject index for the volume. Most of the recognized experts in the field are represented, including numerous papers in good English from Japanese, Chinese, and European authors. The overall volume shows a good balance between theoretical, experimental, instrumental, and applied studies. The book is recommended highly to the specialist in mass spectrometry or surface science as an up-to-date description of the current capabilities and uses of SIMS.

R. S. Houk, *Iowa State University*

Handbook of Natural Toxins. Volume 1. Plant and Fungal Toxins. Edited by R. F. Keeler and A. T. Tu. Marcel Dekker Inc.: New York, 1983. XVII + 944 pp. \$145.00.

Plants are preyed upon by animals, insects, fungi, and bacteria, and their physical space is crowded by competing plants. Plants in response synthesize a bewildering variety of substances that poison insects, prevent fungal spores from germinating, discourage animal browsers, and inhibit competing plants. The predators, in turn, have developed ingenious ways to cope. Insects, for example, develop enzymes that detoxify the poisons (to them) of one or a few species of plants. These plants become their restricted food. Herbivores, in contrast, have developed a much larger range of detoxifying mechanisms in their organs and thus are able to consume a much wider range of plants.

This book is the first of a five-volume series on natural toxins that will include the toxins of insects, bacteria, reptiles, and marine species. This volume is devoted to the plant and fungal toxins. The word *toxin*, being arbitrary, requires defining in terms of what is being poisoned or inhibited, because a plant substance innocuous to one consumer may be lethal to another. The literature on the subject, however, does reflect a bias toward defining toxicity in terms of humans and domesticated animals.

The book is divided into eight principal sections: Toxins that (1) affect cardiovascular or pulmonary systems, (2) are tetratogenic, (3) are carcinogenic, (4) induce photosensitivity, (5) induce psychic or neurotoxicity, (6) induce gastrointestinal or hepatic effects, (7) are part of species-species interactions, (8) are useful in human medicine and dentistry.

Each section effectively balances the disciplines of this multidiscipline subject. The botany and distribution of the plants is given. Toxicity of whole plants and fungi, as well as that of the active chemicals, is described both in laboratory animals under experimental conditions and in what veterinarians find in the field. The chemistry describes isolation techniques, identifying properties of active compounds and, frequently, methods of laboratory synthesis. Biosynthetic pathways are given, if known.

Although the book is intended as a reference work, the chapters are written in clear, readable language; chemists will find the biological sections understandable and the biologists will find the chemistry presented in a manner pertinent to their interests. The text includes key tables, charts, and specific data—to the extent, readers will find most of the information they want without having to look up the original references. The book will appeal to a wide variety of specialists, from agricultural specialists to food scientists to practicing physicians.

The book is particularly timely because of some of the directions that research is taking in this field. John M. Kingsbury, author of a chapter on evolution and ecology of plant toxins, makes the plea that researchers should start to examine the entire relationships of plant-toxic substance-consumers. He notes, for example, that domestic animals have been bred with no thought to their ability to detoxify plant and fungal toxins. Plant breeders now are starting to breed commercial plants to produce natural toxins that deter insects, but these same substances may be harmful to vulnerable farm animals as well as human consumers. Clearly, the practitioners of the involved disciplines need to integrate their research. This reference work becomes an excellent aid to that integration.

Ross H. Hall, *McMaster University*