Additions and Corrections

Imaging of Exposed Headgroups and Tailgroups of Phospholipid Membranes by Mass Spectrometry [*J. Am. Chem. Soc.* **1999**, *121*, 4716−4717]. M. L. PACHOLSKI, D. M. CANNON, JR., A. G. EWING,* AND NICHOLAS WINOGRAD*

The following Supporting Information paragraph should be added.

Supporting Information Available: Figure showing additional SIMS spectra (PDF). This material is available free of charge via the Internet at http://pubs.acs.org.

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Book Reviews

Introduction to Ionomers. By Adi Eisenberg and Joon-Seop Kim (McGill University). Wiley-Interscience: New York. 1998. xxi + 327 pp. $99.95. ISBN 0-471-24678-6.

Introduction to Ionomers updates the most important single text in the ionomer field, *Ion-Containing Polymers*, which was written by Eisenberg and King in 1977. Given the explosion in the field over the last 20+ years, the authors are to be commended for restricting the length to basically the same value as in the previous tome. The authors very clearly state in the Introduction that they were very careful in selecting topics, and this reviewer's opinion is that they have done an excellent job. The book covers all major and important topics in ionomers, and the references are current and diverse.

Most commercial ionomers have semicrystalline morphologies; however, this text emphasizes amorphous morphologies. The authors correctly chose to focus on the latter because so much more is known about amorphous systems. Ionomers are difficult systems to study even without crystallinity, and interpretation of results for solid ionomers is extremely difficult with the confounding crystalline morphology. An entire chapter is devoted to semicrystalline materials, so these materials are certainly discussed at some length. Other types of materials discussed at length include ionomers with regular architectures, and ionomer blends.

My only disappointment with this text is the rather short section on applications (5 pages). The authors would have been well-served to expand this section significantly; particularly useful would have been a discussion of why ionomers are used in certain applications versus other less-costly materials. This criticism is meant to be minor and should not discourage anyone from reading this book.

This monograph is directed toward practicing scientists involved in making, selling or studying ionomers. The academic background required to understand this text is appropriate; an undergraduate scientific education coupled with some general polymer knowledge is assumed. This book is appropriate for the most experienced researcher as well as the newcomer: a careful reading of this book provides a complete description of ionomers for the newcomer and also brings both parties up-to-date with the current state of the field.

Brian Grady, *University of Oklahoma*

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Inorganic Syntheses. Volume 32. Continuing Advances in Ligand Design and Synthesis. Edited by Marcetta Y. Darensbourg (Texas A&M University). John Wiley & Sons, Inc.: New York. 1998. xxiii + 331 pp. $80.00. ISBN 0-471-24921-1.

As hailed in its Preface, this volume of five principal chapters and an addendum endeavors to report appropriately chosen collections of advances in ligand synthesis and some ensuing relevant complexes. Chapter One, for example, reviews a multitude of sulfonated water-soluble tertiary arylphosphines, principally of mono- and bidentate nature and of variable steric capacity. Other water-soluble ligands of note reported are some chiral phosphines and 1,3,5-triaza-7-phosphaadamantane, which can hydrogen-bond through the aza groups; since water-based organometallic chemistry is generally becoming more and more credible, and desirable, this chapter will be of undoubted utility in research laboratories everywhere, probably for many years to come.

Chapter Two tackles the field of biomimetic chelating ligands. An entire volume could probably be devoted to this field alone, so one must accept that choices had to be made as to what to include. (Excluded, for example, are porphyrinate derivatives, which would certainly have been relevant here, but were perhaps of too broad a scope, but which could be considered for mention in a later volume of this series.) The ligands selected are restricted to mimics of amino acid residues such as histidine, cysteine, methionine, and certain combinations of these. The chapter thus collects the large-scale syntheses of the tris-pyridyl(alkyl)amines, sterically hindered tris-pyrazolylborates and poly- and tris-pyrazolylalkanes, poly[(methylthio)methyl]borates, *N*-substituted triazacyclononanes, and polydentate alkyl thiolates currently used in all the leading synthetic bioinorganic research laboratories. The value of this chapter, then, really cannot be overestimated. Of special interest is the scope for "mixed-ligand" systems in one chelating molecule, as seen with the appended pyridylmethyl (to 1,4,7-triazacyclononane) and the appended thiolates (to the 1,5-diazacyclooctane system, for example). The synthesis of isobutylene sulfide, adapted from an old report, therefore adds a subtle, but significant, relevance to this brief section on appended systems. (On the subject of thiolates, it could be argued that the synthesis of uni- and polydentate aromatic thiolates should have been included in this chapter, since such ligands have appeared in various significant model studies of iron-, nickel-, zinc-, and mercury-containing enzymes over the last 15 years or so.) Other significant contributions here are the synthesis of binucleating aza-crown ligands and sterically hindered anilides, each of which has been featured prominently in the literature of recent years with novel transition-metal complexes of potential catalytic relevance. One might, therefore, argue that the appearance of these ligands now is actually overdue.

Chapter Three is an excellent collection of classical transition-metal complexes, especially of the heavier and noble metals, such as cisplatin, and the acetylacetonate (acac) thallium and gold complexes. As such, this chapter provides inroads into the synthesis of some complexes perhaps suitable for a senior level inorganic chemistry laboratory course. Many complexes of further synthetic utility, such as the tris-tetrahydrofuran complexes of the molybdenum(III) halides, as well as several terpyridine-ruthenium complexes, are important inclusions from the perspective of the synthetically oriented graduate student, who might find considerable potential for novel complexes starting from these precursors.

The area of cluster chemistry, in Chapter Four, is dominated by a

section of heteropolytungstate syntheses. While oxo ligands themselves do not qualify technically with the mandate of ligand syntheses suggested in the Preface, the growing interest in the heteropolytungstate complexes reported for the study of oxidation catalysis renders these species quite significant enough to merit inclusion. Furthermore, the syntheses provided here will undoubtedly help maintain the growth of interest in these complexes as oxidation catalysts, and possibly for other applications. This chapter also highlights the syntheses of synthetically useful undecacarbonyl $[M_3(CO)_{11}]^{2-}$ homo- and heteroclusters (M = Ru, Os), as well as other carbonyl-predicated clusters of significance to homogeneous catalysis, containing the metals Rh, Ru, and Pt. Again, the carbonyl ligands are hardly novel, but the reports of the complexes here should be of considerable utility in research laboratories where cluster synthesis and catalysis are the foci.

Chapter Five is a short, but useful, review of main group and transition-metal hydrides (with principally carbonyl and phosphine ancillary ligands) of relevance, naturally, to further synthetic endeavor. One typical example is an air-stable hydrido-manganese carbonyl diphosphine, with labile hydride, which offers a possible starting point for novel complexes, clusters, and potential catalysts.

In summary, the editor has compiled a good number of useful ligand syntheses into a single volume to render a very useful reference text, likely to have a steady impact on the synthetic endeavors of inorganic chemists in the fields of laboratory instruction, catalysis, cluster chemistry, and bioinorganic chemistry well into the foreseeable future.

Stephen Fox, *Northeast Louisiana Univeristy*

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Applications of Anionic Polymerization Research. ACS Symposium Series 696. Developed from a symposium sponsored by the Division of Polymer Chemistry at the 212th National Meeting of the American Chemical Society. Orlando, Florida, August 25−29, 1996. Edited by Roderic P. Quirk (University of Akron). American Chemical Society: Washington, DC. 1998. xii + 332 pp. $125.00. ISBN 0-8412-3565-1.

This volume is based on an international symposium on anionic polymerization held during the Orlando ACS meeting in the fall of 1996. The aim of the symposium and the present book was, according to the editor, "to describe the usefulness of anionic polymerization research and emphasize the industrial research perspective on anionic processes for the preparation of polymeric materials". This application-oriented perspective is reflected in the affiliations of the close to 100 contributors to the volume. Out of the 22 chapters, only four (including the general introduction) have no contributor affiliated with industry. More remarkable even is the large number of contributions (12) coming in their entirety from corporate research. This option to provide an industrial viewpoint on anionic polymerization reactions and processes is, in my opinion, the most interesting and the most successful aspect of this book. It complements nicely other recent or older books available on the subject whose focus is more academically oriented.

The volume is structured in seven sections, whose lengths vary from two to five chapters. The general organization of the book, in particular the logic behind the assignment of some chapters to specific sections, is not entirely clear to me, but this minor point does not prevent a rapid identification of topics of interest, as for the most part titles of individual chapters are both factual and informative. A very adequate and detailed subject index is included at the end.

After an introductory section on the basic principles of anionic polymerization and a review on existing industrial applications, a section entitled "Fundamentals and Polymerization Processes" includes an experimental study on the aggregation behavior of polymeric lithium species in nonpolar solvents, a description of a technique to monitor anionic polymerization using UV spectrophotometry, and two chapters dealing with new initiators for diene polymerization. This section looks a little bit unfocused at first sight, but the individual contributions are strong enough to make its reading both interesting and enjoyable. Two sections are then entirely devoted to the synthesis of macromolecular architectures (block copolymers and star polymers), and two other consecutive sections are devoted to the polymerization of specific monomer structures (diene polymers and polymerization of polar and inorganic monomers). A last section (and, in my view, one of the most interesting) is entitled prudently "Other Applications of Controlled Anionic Polymerization" and includes two chapters dealing with macromonomers and photolithographic resists. The only real weakness in this book is the scarcity of experimental details in most chapters, in particular for the synthetic contributions. It is hoped that full papers will appear with a more comprehensive coverage of experimental points, but a rapid look at the 1996−99 literature based on the names of the contributors to the present volume does not look very promising.

Despite its cost, I found this book is of great scientific and technological interest. It will definitely constitute a useful addition to the library of chemists and chemical engineers interested in anionic polymerization and/or industrial polymerization processes.

Jacques Penelle, *University of Massachusetts at Amherst*

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Second Supplements to the 2nd Edition of Rodd's Chemistry of Carbon Compounds. Vol. IV. Heterocyclic Compounds. Part F. Six-membered Heterocyclic Compounds with a Single Hetero-Atom in the Ring: Pyridine, Quinoline, Isoquinoline and Their Derivatives. Part G. Six-membered Heterocyclic Compounds with (a) a Single Hetero-Atom in the Ring (contd): Polycyclic Fused Ring Compounds, (b) an Atom of Phosphorus, Arsenic, Antimony or Bismuth. Alkaloids with a Six-membered Heterocyclic Ring. Part H. Six-membered Fused-Ring Heterocyclic Compounds with a Single Nitrogen Atom in the Ring (contd): Monocyclic Ring Compounds with Two Hetero-Atoms in the Ring from Group VI B, or One Each from Groups V and VI B. Alkaloids (contd). Edited by M. Sainsbury. Elsevier: New York. 1998. Parts F/G: 650 pp; $402.50; ISBN 0-444-82979-2. Parts G/H: 620 pp; $379.50; ISBN 0-444-82943-1.

These new volumes of "Rodd" continue to be a major service to organic chemistry, since they collect a very great deal of specialized heterocyclic chemistry into a relatively small volume by today's standards. The chapters are uniformly well written and remarkably free from errors, both in the text and in the structures. It is very pleasing to see that the text discusses structures that are usually on the same page, and does so with admirable clarity. On the negative side, the titles of these books are becoming increasingly cumbersome, and it seems unnecessary to separate sections that are continuations of one another. While the price of the books makes individual ownership virtually impossible, they should be a standard component of any good organic chemical library.

Philip D. Magnus, *University of Texas*

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