Chem. Soc., **98**, 6064 (1976)]. By PAUL K. HANSMA, WILLIAM C. KASKA,* and R. M. LAINE, Department of Physics and Department of Chemistry, University of California, Santa Barbara, California 93106.

On page 6065, first column, line 17 should read: "... background subtraction shows that only the higher energy peak at 1935 ± 10 cm^{-1} appears at low rhodium coverages; the lower energy peak at 1730 ± 10 cm^{-1} appears only at higher rhodium coverages."

Orbitally Dependent Exchange in Two Sulfur-Bridged Binuclear Iron(II) Complexes. Magnetic Exchange in Transition Metal Complexes. 11 [*J. Am. Chem. Soc.*, **98**, 6958 (1976)]. By A. P. GINSBERG,* M. E. LINES,* K. D. KARLIN, S. J. LIPPARD,* and F. J. DISALVO, Bell Laboratories, Murray Hill, New Jersey 07974, and Department of Chemistry, Columbia University, New York, New York 10027.

Equation 28 should read:

$$\chi_A' = \tfrac{1}{6}(\chi_x^{dim} + \chi_y^{dim} + \chi_z^{dim}) \qquad (28)$$

The omitted factor of ½ in the printed equation was *not* omitted in our calculations; nothing else in the paper is affected by the omission.

Book Reviews*

Chemotherapy. Volumes 2 and 3. Edited by J. D. WILLIAMS and A. M. GEDDES. Plenum Press, New York, N.Y. 1976. Volume 2: xiv + 442 pp. $35.00; Volume 3: xiv + 442 pp. $35.00.

These two volumes are part of the Proceedings of the 9th International Congress of Chemotherapy held in London in July 1975. Volume 2 is subtitled "Laboratory Aspects of Infections"; Volume 3 is subtitled "Special Problems in Chemotherapy". Each contains a large number of papers on original research, reproduced from the authors' typescripts. The papers are somewhat abbreviated in comparison to journal papers, most of them falling into the range 5 to 10 pages. There are no indexes.

Fine Particles: Aerosol Generation, Measurement, Sampling, and Analysis. Edited by B. Y. H. LIU. Academic Press, New York, N.Y. 1976. xiii + 837 pp. $34.50.

A symposium on the title subject was held in May 1975. This volume contains the technical papers presented, plus several others, for a total of 34. Some are reviews, and others are reports of original research, including experimental details. There are many figures, both graphic and photographic; some of the latter bear a remarkable resemblance to views of the Martian surface recently transmitted! The subject of the symposium is of obvious importance and timeliness. The usefulness of the volume is enhanced by the subject and author indexes included.

Organic Synthesis: Plenary Lectures. Edited by A. BRUYLANTS, L. GHOSEZ, and H. G. VIEHE. Butterworths, London. 1976. 271 pp. $35.00.

The first IUPAC International Conference on Organic Synthesis was held at the University of Louvain in 1974. The thirteen plenary lectures are reproduced in this volume; all are in English. The general flavor is that of methods and reagents, rather than spectacular individual syntheses. Some representative titles are: The Cyclopropanation of Silyl Enol Ethers; The Effect of Pressure on the Electronic States of Organic Solids; Singlet Oxygen; Industrial Synthesis of Terpene Compounds. The papers thus promise to have longer usefulness than those of many conferences. It is unfortunate that this potential usefulness is impaired by the lack of an index. For some reason not explained, the pagination begins with p 315, although the book is complete unto itself.

Fluorine Chemistry Reviews. Volume 7. Edited by PAUL TARRANT (University of Florida). Marcel Dekker, Inc., New York, N.Y. 1974. viii + 243 pp. $24.50.

Three Russian scientists have teamed to contribute two critical reviews which admirably fulfill the series objective of providing coverage of current research in fluorine chemistry. Two concise chapters are devoted to the chemistry of highly fluorinated aromatic and heteroaromatic compounds.

L. S. Kobrina has written Chapter One entitled, "Nucleophilic Substitution in Polyfluoroaromatic Compounds". This authoritative account is arranged according to the number of fluorine atoms in the system and discussed with emphasis on substituent effects on reactivity and orientation of nucleophilic aromatic substitution. A succinct section on solvent effects is included (189 references, 115 pp).

Chapter Two, "Preparation and Reactions of Polyfluorinated Aromatic Heterocycles", by G. G. Yakobson, T. D. Petrova, and L. S. Kobrina, is divided into two parts. Methods for preparing fluorinated aromatic heterocycles containing sulfur, oxygen, or nitrogen are thoroughly discussed while a close watch is kept on the fate of the ring system. The reactions of these systems are condensed in a well-written section highlighted by nucleophilic aromatic substitution and photochemical and thermal reactions (285 references, 110 pp).

Literature coverage is complete through 1970 with pertinent references from 1971 and 1972 added without discussion. A good author index and a short subject index are included.

Fluorine specialists will surely welcome this volume, and many others will find interest in the sections on nucleophilic aromatic substitution.

Timothy B. Patrick, *Southern Illinois University at Edwardsville*

Biophysics and Other Topics. Selected Papers by AHARON KATZIR-KATCHALSKY. Academic Press, New York, N.Y. 1976. xxviii + 579 pp. $34.50.

This book is a pleasure to read, in large measure because, as Herman Mark says in his foreword, "All work of Aharon has *style*."

A collection of papers from 1951 to 1973, but heavily weighted with more recent work, it is sorted into six categories, roughly: (1) polyelectrolytes—thermodynamic properties, interactions, cooperative transitions; (2) mechanochemistry, hysteresis, and memory; (3) irreversible thermodynamics, theory of membrane processes, and network thermodynamics; (4) amino acids, polypeptides, prebiotic synthesis; (5) surface activity of polyelectrolytes; (6) science and humanities.

Most are review articles, written in lucid style with consideration for the reader from a different discipline, in most cases quite suitable as teaching material on the advanced graduate level, or as introductions to the various subjects covered, for the nonspecialist. There is a certain amount of repetitiveness, where the same ideas are presented in two or more papers written toward different audiences or in different contexts; in most cases this adds to the usefulness of the book.

One of the hallmarks of Aharon Katchalsky's style is the manner in which he introduces the reader to his subject, placing it in perspective against the cosmic questions of life and molecular mechanisms, toward which much of this work is pointed.

Indeed, in reading this book, one becomes infected with the author's drive to know, to understand, because even in detail one is constantly aware of where one is trying to go.

A good anthology is more than a collection; it is greater than the

* Unsigned book reviews are by the Book Review Editor.

sum of its parts. By that test, this volume had to be published, for in Aharon Katchalsky's life work, a theme repeats itself: the great synthetic leap, the tying together of the notions in one field with distant problems, to which they provide a surprising new insight, or a method of attack.

For example, the Carnot cycle, generalized, becomes a framework for making fundamental statements about mechanochemical systems, providing in turn a theory with implications for the contractility problem of the biologist; or the idea of using the thoroughly developed methods of electrical impedance network analysis in solving complex thermodynamic systems, recognizing the extensive isomorphism between the mathematics governing the two phenomena; or, yet, the fascinating analysis of biological memory in light of the characteristics of hysteresis elements.

It is in this sense, also, that the title of the book, "Biophysics—and Other Topics," is appropriate. There is, after all, little of the characteristic subject matter of physics here, and yet what unifies this collection of articles is the approach to biological problems via the construction of mathematical and conceptual bridges of great span, to permit analysis of a subject on a level far removed from the level at which observations are made. It could be said that this power of abstraction is the specialty of the physicist, and when applied to biological questions, is biophysics.

Lastly, what comes through in the final section is that Aharon Katchalsky was a great humanitarian as well, and that this quality was not something separate from his scientific thought, but very much a part of it.

Walter Scheider
Institute of Science & Technology, University of Michigan

NMR: Basic Principles and Progress. Volume 10. van der Waals Forces and Shielding Effects. By F. H. A. RUMMENS (University of Regina). Springer-Verlag, New York, N.Y. 1975. 118 pp. $23.80.

Solvent shifts in NMR are usually regarded as a nuisance. They result from a mélange of physical interactions that are difficult to separate experimentally and virtually impossible to calculate theoretically except through the use of grossly simplifying assumptions. Progress in understanding perhaps the most troublesome contribution to the solvent shift, that due to van der Waals forces, is discussed systematically and in great detail in this volume. Even when it is separated experimentally, however, the van der Waals shift contains little if any useful chemical information. Consequently, a detailed study such as this is strictly of academic interest to NMR specialists.

Rummens' review has an exceedingly critical and opinionated flavor that is freely acknowledged: "The reader may find the treatment of certain theories and of certain results subjective and biased; he may find the statements speculative, contrived, opinionated or even downright erroneous." All this is certainly true. For example, factor analysis, which attempts to supply an objective basis for determining the minimum number of significant physical interactions necessary to explain an observed pattern of solvent shifts, is dismissed as unsound in general terms that are obviously prejudicial and, in this reviewer's opinion, largely unwarranted.

Nevertheless, the review is based on evident scholarship; its critical dismantling of previous work provides a healthy evaluation of theories that are not only fashioned from models of questionable validity, but are also difficult to test experimentally. The author's iconoclasm and scholarly bias are not unacceptable, since they are directed solely to an esoteric audience that should be quite capable of filtering fact from opinion in this field.

Robert R. Sharp, *University of Michigan*

Chemistry of the Atmosphere. By MURRAY J. MCEWAN and LEON F. PHILLIPS. John Wiley & Sons, Inc., New York, N.Y. 1975. 300 pp. $29.50.

Atmospheric chemistry is a fairly new applied discipline, and as such it suffers from a lack of definition, even of a core of material from which various subdisciplines are derived. Nevertheless, it is a field in which a number of chemists are both practitioners and teachers. This book is "intended as an introduction to atmospheric chemistry for those with a background in chemical physics". In practice it is an assembly of topics in atmospheric chemistry of particular interest and relevance to the author's work in gas-phase chemical kinetics. Some of the areas which many consider as the core of atmospheric chemistry such as the application of geochemical cycles, the chemistry of aerosols, and the applicability (or not) of thermodynamic equilibrium, are not treated at all. In fact, the only reference to the widely read classic text of Junge's "Air Chemistry and Radioactivity" is on p 218 in an inadequate chapter on air pollution.

On the positive side, atmospheric photochemistry and the study of upper atmospheric chemistry, frequently termed aeronomy, are well covered. In these areas current and previous research is explained in detail up to the present (circa 1973). One drawback of going into such detail is that the state of the art dates very rapidly under the influence of new theories and measurements; also a molecule by molecule description is useful as a reference, but difficult to use as a text.

For a physical chemist requiring a background in aeronomy, this book is very useful and well referenced. There remains a need for a text for a senior/graduate level course in atmospheric chemistry. This book cannot be recommended as filling that need.

D. H. Stedman, *University of Michigan*

Chemotherapy, Cancer Chemotherapy I. Volume 7. Edited by K. HELLMANN and T. A. CONNORS, Westminster Hospital and Chester Beatty Research Institute. Plenum Press, New York and London. 1976. xii + 364 pp. $35.00.

This book is a collection of 45 distinct research reports on the progress in Cancer Chemotherapy, discussed at the Ninth Meeting of the International Society of Chemotherapy, held in London, July 1975.

The papers included in this book were selected from 1000 papers read at the Congress, with the attempt to include the most significant aspects of current research in chemotherapy. The reports are written in a clear and easy-to-read language, supplemented with the necessary illustrations and well-presented supporting data.

Pharmacologists and immunotherapists, actively involved in the field of chemotherapy, would find this book very informative and up to date on what is being considered and tried in this field, and the results obtained in such studies. Clinicians would also benefit from this collection of research work.

Antowan D. Tadros, *Parke, Davis & Company*

P.D. and the Bartlett Group at Harvard 1934–1974. The Bartlett Book Fund, c/o J. M. McBride, Department of Chemistry, Yale University, New Haven, Conn. 1975. ix + 391 pp. $10.00.

On August 14–16, 1975, a group of former students and postdoctoral colleagues of Paul D. Bartlett gathered for a symposium in his honor and, for the occasion, produced this volume. It is not the usual festschrift of scientific papers in fields to which Bartlett has contributed. While it does contain biographical material, a bibliography of Bartlett's publications, and appraisals of his major scientific accomplishments, its heart is a series of some 150 short essays by former students and colleagues discussing their experiences and what life was like in the "Bartlett Group" at times covering the forty years 1934–74.

As such, it is much more than an exercise in nostalgia. It should make fascinating and delightful reading to anyone who has an interest in the development of physical organic chemistry in what may well have been its golden years, or who wants a view of what an effective and productive research group is really like.

Two messages come through loud and clear. First, Bartlett has not only been an outstanding scientist in his own right, but he has had the unique ability to transmit his outlook and dedication to those who worked with him. Since these include an impressive number of the present leaders in the area of physical organic chemistry, it is easy to see why his influence has been so enormous. Second, in a group such as his, chemistry can be not only a demanding and rewarding discipline, it can be exciting and, to use a word which appears repeatedly in the text, fun as well.

Cheves Walling, *University of Utah*