

Book Reviews*

Annual Reports in Organic Synthesis—1978. Edited by L. G. WADE and M. J. O'DONNELL, Academic Press, New York. 1979. xi + 363 pp. \$15.00 paperbound.

This is now a well-established series to which one can look forward with confidence as a useful adjunct to the literature on organic synthesis at a price not too high. The editors have surveyed 45 major journals for the year 1978, and have extracted from them reports of "useful synthetic advances" (i.e., "reactions and methods that are new, synthetically useful, and reasonably general"). The material is presented almost entirely in the form of equations, which include reagents and conditions, displayed for easy visual comprehension. Organization is as in previous volumes, by type of transformation (e.g., "oxidation") or structural type (e.g., protecting groups). There is no subject index, but the lack is not an objection, for the content is well designed for scanning and browsing. There is an author index, however. A minor annoyance is the lack of a glossary of abbreviations, for they are used profusely. Some, such as DMSO, will be obvious to all readers; others, such as LiDMP, may be unfamiliar to many readers. A single page in the next addition could remove this problem.

Topics in Current Chemistry. Numbers 81 and 82: Large Amplitude Motion in Molecules I and II. Edited by F. L. BOSCKE. Springer-Verlag, New York. 1979. No. 81: 180 pp. \$49.80. No. 82: 184 pp. \$44.80.

This is a hard-bound serial publication that appears at frequent but unspecified intervals. Number 81 contains two reviews: The Isometric Group of Nonrigid Molecules, by Frei, Bauder, and Günthard, and Structure of Molecules with Large Amplitude Motion as Determined from Electron-diffraction Studies in the Gas Phase, by Bastiansen, Kveseth, and Møllendal. Number 82 contains an author index to Nos. 26–82, in addition to two reviews: Low-frequency Vibrations in Small Ring Molecules, by Carreira, Lord, and Malloy, and A New Approach to the Hamiltonian of Nonrigid Molecules, by Sørensen.

Beilstein Dictionary: German-English. Compiled by the editorial staff of the Beilstein Institute. Springer-Verlag, 175 Fifth Ave., New York, N.Y. 10010. 1979. 64 pp. Free on request.

This convenient little book lists and defines only those German words commonly used in "Beilstein's Handbuch der Organischen Chemie" and confines definitions to the meanings of the words in a chemical context. Because it contains only what one needs, it is exceptionally easy to use, and it should be a godsend to those chemists whose German has faded or was never very strong. It should remove much of the intimidation that students often perceive when faced with the need to find something in Beilstein.

The publishers will send anyone a free copy on request, and will accept requests for multiple copies for distribution to classes.

Ultrastructural Pathology of Human Tumors. Volume 1. By T. DEMJANOV (Hahnemann Medical College). Eden Press (distributed in USA by Pergamon Press, Inc., New York). 1979. 212 pp. \$24.00.

This book is a review of the literature of 1977 and the first half of 1978 on diagnostic electron microscopy applied to human tumors.

Biochemistry of Plant Phenolics. (Volume 12 of Recent Advances in Phytochemistry). Edited by T. SWAIN, J. B. HARBORNE, and C. F. VAN SUMERE. Plenum Press, New York. 1979. ix + 651 pp. \$49.50.

This book is the proceedings of the first joint symposium of The Phytochemical Societies of Europe and North America, held in Belgium in 1977. It contains in typescript form the text of nineteen papers, some of which are accounts of original research, and some are reviews. The papers deal with biosynthesis, metabolism, plant physiology, and separation methods. The value of the book is increased by the presence of a subject index.

Tetrahedron Reports on Organic Chemistry. Volume 5. Administrative Editor: T. STEPHEN. Pergamon Press, New York. 1979. 10 articles numbered independently. \$55.00.

Between the covers of this volume are ten review articles reprinted from *Tetrahedron*: Reports No. 41 to 50. Those who subscribe to that journal will already have these reviews, but those who do not may find it convenient to have them collected together independent of the other content. There is, of course, no index, because the papers have been reprinted without providing integrated, consecutive numbering of the pages.

New Trends in Heterocyclic Chemistry. Edited by R. B. MITRA, N. R. AYYANGAR, V. N. GOGTE, R. M. ACHESON, and N. CROMWELL. Elsevier Scientific Publishing Co., New York and Amsterdam. 1979. xii + 407 pp. \$75.50.

This book is a Festschrift for Professor B. D. Tilak on the occasion of his 60th birthday. It consists of eighteen contributions which are summaries or reviews of recent research. The contributors form a thoroughly international group. The papers deal with heterocyclic chemistry of nitrogen, sulfur, and phosphorus, in ring sizes ranging from three to six, including polycyclic systems. They are a useful means of becoming aware of streams of heterocyclic research, and have special value for their extensive bibliographies. The volume concludes with a list of Professor Tilak's publications, classified by subject area, and a substantial subject index.

Ionization Constants of Organic Acids in Aqueous Solution. By E. P. SERJEANT and B. DEMPSEY. Pergamon Press, New York. 1979. xi + 989 pp. \$125.00.

This volume is No. 23 in the IUPAC Chemical Data Series, and appears under the auspices of the Commission on Equilibrium Data of The Analytical Chemistry Division. It is a supplement to the 1961 monograph "Dissociation Constants of Organic Acids in Aqueous Solution", by Kortum, Vogel, and Andrussow. It covers the literature from 1956 to 1970, and contains data on about 4500 acids. The content is in the same form as the earlier work: tables giving pK values, temperature, method used, an assessment of accuracy, and a key to the reference. The arrangement is in formula-index fashion, a change from the earlier work.

The book concludes with an index of compounds by name, using inverted style (e.g., "Acetamide, 2-nitro"). This index is actually a cumulative one, for it includes all the compounds listed in the 1961 work by Kortum et al. Since each compound is assigned a serial number, which is given in the index instead of a page number, there is no confusion about which book to which an entry belongs.

Sintering—New Developments. Edited by M. RISTIČ. Elsevier Scientific Publishing Co., New York and Amsterdam. 1979. x + 380 pp. \$83.00.

This is the proceedings of the 4th Round Table Conference on Sintering, held in 1977, and includes the texts of 47 papers. It is of importance to chemists concerned with materials science.

Quantum Electronics (Volume 15, Part A, of Methods of Experimental Physics). Edited by C. L. TANG. Academic Press, New York. 1979. xix + 379 pp. \$37.00.

This is a book about lasers, and is designed as a "guidebook for investigators and advanced students who wish to use laser-type devices and related techniques in their own specialties". In addition to an introductory chapter by the editor, the content consists of "Atomic and Ionic Gas Lasers" by W. B. Bridges, "Solid State Lasers" by M. J. Weber, "Semiconductor Diode Lasers" by H. Kressel, and "Dye Lasers" by O. G. Peterson.

Treatise on Materials Science and Technology. Volume 14. Metallurgy of Superconducting Materials. Edited by T. LUHMAN and D. DEW-HUGHES. Academic Press, New York. 1979. xxi + 457 pp. \$49.50.

This book begins with "Introduction to Superconducting Materials" by the editor, and ends with "Future Materials Development, with eight chapters in between dealing with such subjects as electron microscopy magnets, power transmission, and properties of alloys. The subject is of great significance for scientists and engineers involved

* Unsigned book reviews are by the Book Review Editor.

with high-energy physics, magnetohydrodynamics, and the development of improved methods of energy transmission. The emphasis is more on practical use than on theory.

Optical Properties of Inhomogeneous Materials. By W. G. EGAN and T. W. HILGEMAN. Academic Press, New York. 1979. xi + 235 pp. \$27.50.

This is a book written at the level of "undergraduate optics" about scattering of light from surfaces, and the applications of the phenomenon to such subjects as remote sensing (e.g., study of planetary surfaces), soil mechanics, aerial reconnaissance, paints and coatings, etc.

Epidemiology and Plant Disease Management. By J. C. ZADOKS and R. D. SCHEIN. Oxford University Press, New York. 1979. xiii + 423 pp. \$19.95 cloth, \$8.95 paperback.

This book is essentially concerned with plant pathology, but should be useful to chemists involved with pesticides and environmental pollution as it affects agriculture.

Water and Soil Repellents for Fabrics. By C. S. SODANO. Noyes Data Corp., Park Ridge, N.J. 1979. xii + 394 pp. \$39.00.

This is a review of the U.S. patent literature, since January 1970, about the title subject. The patents selected are mostly chemical and heavily concerned with polymers. The patents are discussed individually and much technical information, including equations, is given.

IUPAC Solubility Data Series. Editor-in-Chief: A. S. KERTES. **Volume 1: Helium and Neon.** Edited by H. L. CLEVER. **Volume 2: Krypton, Xenon, and Radon.** Edited by H. L. CLEVER. **Volume 3: Silver Azide, Cyanide, Cyanamides, Cyanate, Selenocyanate, and Thiocyanate.** Edited by M. SALOMON. Pergamon Press, New York. 1979. Vol. 1: xxi + 393 pp. \$100.00. Vol. 2: xx + 357 pp. \$100.00. Vol. 3: xix + 247 pp. \$100.00.

These three volumes are the start of an ambitious project, which is planned to encompass all published solubility data in an integrated, critically evaluated form. The approach differs from previous compilations of solubilities (or other numerical data), in the fact that the material has been searched thoroughly by a team of compilers, whose work has been followed by a team of evaluators, whose task was to separate reliable, consistent values out of the whole. These have then been used with a smoothing equation to generate tables of recommended values, accompanied by a graphic presentation. A section of text for each system considered (e.g., helium in water) explains the procedure followed and gives the reasons for selecting certain data and rejecting others. Following all this comes the experimental data from each source used, presented with all relevant information on methods used, conditions, source and purity of materials, etc. The user can thus make his own evaluations if he chooses.

Volume 1 gives solubilities of helium and neon gases in water, aqueous solutions, organic solvents, and even biological materials, such as abdominal muscle of rats. A separate section gives solubilities in other gases at high pressures, a subject that is important because mixtures containing helium often show "gas-gas immiscibility".

Volume 2 follows the same pattern, and the user has the fortunate choice of experimental data as reported, tables of smoother data, or tables of allowing comparison of the results from different investigators. With the gases included (krypton, xenon, and radon), solubilities in biological fluids are important and are included. In the case of radon, data for the isotopes ^{219}Rn and ^{220}Rn are also given.

Volume 3 may be said to cover the halides and pseudohalides of silver. All of these substances have rather low solubilities, which justifies a different treatment from more soluble substances; accordingly, equilibrium constants are emphasized, with care to identify their basis.

Access to the data in these volumes is obtainable either through the tables of contents, augmented by a bit of page-turning, or by an alphabetic subject index. The latter uses *Chemical Abstracts* names, even to inverted style, and is an annoying hindrance, even though cross-indexing to common names is provided. A nomenclature system designed for computer-assisted assembly of the multivolume *Chemical Abstracts* cumulative indexes is extreme overkill for miniscule indexes of about ten pages and a total of about 200 entries. Furthermore, the indexes in the three volumes are not self-consistent; in Vol. 1, the entry "dimethylsulfoxide" (sic!) refers the user to "methane, sulfinylbis", whereas in Vol. 3, the entry "dimethyl sulfoxide" gives the page ref-

erences with the cross-reference under the other name. In Vol. 1, salts are entered under such names as "sulfuric acid, sodium salt", with a cross reference under "sodium sulfate", whereas in Vol. 3, one finds everything under "sodium nitrate", without even a cross reference under "nitric acid, sodium salt". There is little doubt about which type of name the reader will intuitively look up first, as the editor of Vol. 3 clearly recognized, but inconsistency from one volume to the next is the worst of the alternatives.

These volumes are expensive, and the whole set when completed may amount to \$10,000. Costs are slightly reduced by the use of photoreproduced typescript, but this results in less information per page, and much white space. Size could be reduced further without significant loss of legibility. Nevertheless, the series has no real competition, and deals with a subject intensely relevant not only to chemistry, but to geophysics, pharmacology, and engineering. Major research libraries can hardly refuse to subscribe.

Nothing But Motion. Volume I. By DEWEY B. LARSON. North Pacific Publishers, Portland, Oregon. 1979. xvi + 292 pp. \$9.50.

This is a revised and enlarged edition of a 1959 work ("The Structure of the Physical Universe") that replaces conventional kinematics, relativity, and valence theory by two postulates defining the characteristics of motion, embedded in a web of heterodox concepts, called the Reciprocal System of Theory. Theoretical chemists will have to evaluate it for themselves.

Catalytic Hydrogenation in Organic Syntheses. By P. N. RYLANDER (Engelhard Minerals and Chemicals Corp.). Academic Press, New York. 1979. x + 325 pp. \$34.00.

This book is meant to bring up to date the author's earlier (1967) book, "Catalytic Hydrogenation over Platinum Metals", and to expand its scope to other catalysts. A compromise has been adopted between a pure supplement, building on the earlier work, and a comprehensively rewritten book incorporating all of the original. The important generalizations of the earlier work are included, without the detail of documentation originally given, and the newer material is presented as a continuation in detail. This seems to be a happy choice, for the new work can stand on its own, and usefulness is enhanced by retaining selected earlier references.

This book is arranged in fifteen chapters, all according to functional group being reduced, except for an opening chapter on catalysts, reactions, and conditions. The material is treated critically, with generalizations being given where useful, and exceptions being noted. The author writes for the chemist who is interested in carrying out a reaction, rather than one who is studying hydrogenation.

References, of which there are many, appear to run into or through 1977. There is a substantial subject index. The book appears to be very helpful in guiding one in a sometimes bewildering subject, and in showing one that the subject is not really so complex as it may have seemed.

Nomenclature of Organic Chemistry: Sections A, B, C, D, E, F, and H. Edited by J. RIGAUDY and S. P. KLESNEY. Pergamon Press, New York. 1979. xix + 559 pp. \$60.00.

For the first time nearly all the nomenclature for organic compounds is available in one volume. Chemists are generally impatient with bodies such as the IUPAC Commission on Nomenclature of Organic Chemistry, because they do not realize the care that must be taken in dealing with the complexities of the subject, in order to avoid ambiguity, inadequacy, or simple unacceptability to a particular group of users. When one realizes the high rate at which previously unsuspected structures, such as CH_5^+ , carboranes, ion-radicals, hexacoordinate organic sulfur compounds, etc., appear on the scene, it is easier to understand why the CNOC is hard pressed to keep the IUPAC recommendations abreast of the science.

The Sections in this volume have mostly appeared previously in various places, such as *Pure and Applied Chemistry*, the IUPAC Information Bulletin, or in book form. Section F, Natural Products and Related Compounds, which has not actually received final approval yet, appears for the first time. Because these sections are reproduced verbatim (except for the correction of material errors), type face varies from section to section, but the volume is nevertheless numbered consecutively.

The IUPAC nomenclature recommendations have evolved in the direction of simplicity, by eliminating alternatives that are seldom used, and by coordinating as much as feasible with the nomenclature used in "Beilstein's Handbuch der Organischen Chemie" and in

Chemical Abstracts. Differences remain, however, especially with the latter, owing to the different purposes for which the nomenclature systems are designed. Whereas *Chemical Abstracts* gives first consideration to the requirements of computer-assisted indexing, and has therefore developed a nomenclature that is an indexing code not necessarily meant to be used for other purposes, the IUPAC recommendations are meant for general-purpose use for communication from one chemist to another in the primary literature and in books. Chemists will feel more at home with IUPAC names, which are often more immediately communicative. For example, IUPAC recommends "triethylamine", where CA gives this symmetrical compound the unsymmetrical name "ethanamine, *N,N*-diethyl".

This book should obviously be in all chemical libraries, but individual research groups might well consider purchasing a group copy. Teachers of organic chemistry, and writers of books about it, would find a personal copy helpful. Being familiar with IUPAC nomenclature well enough to use it correctly is certainly a reasonable responsibility to expect of all chemists who write about chemistry. With this book, inaccessibility of the rules is no longer an excuse.

Vapor-Liquid Equilibrium Data Bibliography, Supplement II. By I. WICHTERLE, J. LINEK, and E. HÁLA (Czechoslovak Academy of Science). Elsevier Scientific Publishing Co., Amsterdam and New York. 1979. vii + 286 pp. \$61.00.

The original work of this title covered the literature from 1900 to 1972, and the first supplement carried the subject to 1975. The present supplement lists the literature from January 1976, through December 1978, plus a few references overlooked earlier. The content is photoreproduced computer output, arranged in formula-index fashion. So long as one can deal with formulas transcribed in such form as $AG\ N\ O_3$, one should have no difficulty finding a needed reference. Only the references are given (816 citations), and no data. There is a page of errata to the previous volumes.

Manual of Symbols and Terminology for Physicochemical Quantities and Units. 1979 Edition. Edited by D. H. WHIFFEN. Pergamon Press, New York and Oxford. 1979. 41 pp. \$7.50.

The recommendations of the IUPAC Commission on Symbols, Terminology, and Units provide the content of this soft-bound booklet. It supersedes the 1959 recommendations. It is obviously an important reference not only for physical chemists, but for chemists in most other branches. An appendix on the definition of activities and related quantities is included.

Colloid Chemistry. Second Edition. S. VOYUTSKY, Mir Publishers, Moscow. 1978. xii + 560 pp. \$8.50.

This is the second edition of an introductory text on colloid chemistry, written for advanced undergraduates and graduate students. The author distinguishes between true colloidal systems, containing physical aggregates of small molecules, and systems containing covalently bonded macromolecules; the text treats only systems of the former type. Major topics covered in the text include optical properties, diffusion and sedimentation, adsorption at various interfaces, preparation and stability effects, colloid viscosity, aerosols, solid and liquid dispersions, and surfactants. A short discussion of macromolecules finishes the volume.

This is largely a descriptive volume; while the author assumes a knowledge of calculus, formal mathematic treatments are not dominant. The author emphasizes qualitative interpretations of physical effects rather than unrestrained parameter fitting. The intent in the descriptive sections is to make the student aware of the full range of possible physical phenomena, rather than to show examples which fit particular theoretical constraints. For example, a short section on structural properties of colloid systems notes applications of thixotropy in oil drilling and oil painting, dilatancy, tactoids, Schiller's layers, swollen montmorillonite preparations, periodic structures formed by sols and lattices, and syneresis. Uses of colloids are extensively discussed in fields as diverse as agriculture, dam construction, and military technology. Use of the text as a course supplement will surely silence student complaints about excessive abstractness of the material. The historical notes which are integrated into the text are notably good. Many authors give a Whig history of their topic, mentioning only the correct ideas of the founders of the field. Voyutsky remarks upon the founders' errors, too, e.g., Graham's belief that the osmotic pressure of a colloid vanishes identically. The discussions of particular workers and their techniques might have been improved by including actual

journal and literature references. The volume is clearly written and well translated, presenting a comprehensive, heavily descriptive discussion of colloids.

George D. J. Phillies, *The University of Michigan*

The Principles of Interferometric Spectroscopy. By JOHN W. CHAMBERLAIN. John Wiley & Sons, Inc., New York. 1979. xii + 347 pp. \$50.00.

"The Principles of Interferometric Spectroscopy" is based on an incomplete manuscript by the late John Chamberlain; the volume was compiled and refined by G. W. Chantry and N. W. B. Stone. The volume gives a complete treatment, starting from first principles, of theoretical and practical aspects of interferometry techniques in spectroscopy. A good graduate student should be able to follow any section of the book; however, the amount of detail in the presentation makes this work more suitable as a definitive reference. A limpidly clear discursive style of writing renders comprehensible even the more mathematical sections of the text.

The first few chapters include a historical introduction, which emphasizes the 19th century efforts of Michelson, and summaries of key results from mathematics and from electromagnetic theory. The ideal two-beam interferometer is then discussed. Interferometric spectroscopy has been used both to measure the shape of isolated spectral lines and to determine the power spectrum; these topics are treated separately.

A chapter on the uses of two-sided interferograms to study sample dispersion is followed by remarks on practical measurements, types of background noise, and techniques for calculating the fast Fourier transform. As a whole, the work is not only a fine memorial but also a solidly useful text.

George D. J. Phillies, *The University of Michigan*

Topics in Current Physics. 15. Superionic Conductors. Edited by M. B. SALAMON, Springer-Verlag, New York. 1979. xii + 255 pp. \$29.80.

This volume reviews at an advanced level current progress in our understanding of superionic conductors. Superionic conductors are ionic crystals whose ionic conductivities, for at least some of their component ions, are as large as the ionic conductivity expected for a molten salt or electrolyte solution. A few superionic conductors have shown commercial promise; the class of compounds has attracted extensive study because of its unusual physical properties.

The editor has included in this volume both descriptions of experimental results and of theoretical efforts to synthesize them into a coherent whole. A superionic conductor may (very loosely) be thought of as a rigid lattice with an interpenetrating liquid-like phase of conducting ions; studies of these systems have drawn both on solid-state physics and on work on the properties of conventional liquids. Experimental results include those from EXAFS (J. B. Boyce and T. M. Hayes), neutron scattering (S. M. Shapiro and R. Reidinger), light scattering (M. J. Delaney and S. Ushioda), and magnetic resonance (P. M. Richards). Theoretical chapters on the lattice-gas model (H. U. Beyeler et al.), continuous ion motion models (T. Geisel), and the conducting/non-conducting transition as a phase transition (M. B. Salamon) are interspersed with the experimental work. Four hundred and thirty references are included in the text. An appendix lists an additional 44 recent papers, with titles, bringing the volume references up to date through mid-1979.

George D. J. Phillies, *The University of Michigan*

Gmelin Handbook of Inorganic Chemistry. Part 11: Carborane 3 (Supplement Series Volume 42). By I. VON WILUCKI (Gmelin-Institute). Edited by K. NIEDENZU and K. C. BUSCHBECK, Springer-Verlag, Berlin. 1978. iv + 207 pp. \$79.55.

This volume of Gmelin covers the literature from 1950 to the end of 1975. The review covers a very well-defined area of boron chemistry, the chemistry and properties of the three isomeric dicarba-closo-dodecaborane(12) cages. The reaction chemistry is exclusively C-substitution chemistry and the anions derived from these icosahedral molecules. There is no discussion of B-substitution chemistry. Since literature coverage is only through 1975, most of this material has been presented previously. However, the Gmelin presentation is well organized and comprehensively referenced. This author wishes that this series could be brought up to date more rapidly.

The old version of Part 11, printed in 1977, has been revised and reprinted in this 1978 version. I could find no errors in the present printing.

This volume is printed in German with English annotations in the margin and an English preface and table of contents. Apparently, future volumes will be printed in English entirely. More than 2000 individual compounds are cited, but the frequent use of tables makes the coverage concise. The tables are annotated and include physical properties such as melting points, NMR, IR, and a reference to a general preparative method. Undoubtedly, Gmelin can be relied on for accurate coverage of this area of chemistry. It is hoped that future volumes will fill in the voids in the present coverage, i.e., smaller carboranes, other heteroboranes, and B-substitution chemistry.

Ralph W. Rudolph, *The University of Michigan*

Inorganic Chemistry of the Main-Group Elements. Volume 5. Edited by C. C. ADDISON (University of Nottingham). The Chemical Society, London. 1978. x + 317 pp. \$68.

Volume 5 of this series of Specialist Periodical Reports covers the literature published between October 1975 and September 1976. This volume is shorter than the previous one with an increased emphasis on structure and reactivity as against purely physical properties. A space limitation led to the omission of some work. Selection was based on originality and novelty and the need to present a readable account. The volume is divided into eight chapters, one for each of the main groups. This series provides the chemist with a good access to the literature of the recent past. However, publication is not rapid enough to keep pace with the latest advances.

Ralph W. Rudolph, *The University of Michigan*

NMR. 16. ^{31}P and ^{13}C NMR of Transition Metal Phosphine Complexes. By P. S. PREGOSIN and R. W. KUNZ (ETH Zurich). Edited by P. DIEHL, E. FLUCK, and R. KOSFELD. Springer-Verlag, New York. 1979. iii + 156 pp. \$39.60.

Since the so-called Fourier transform spectrometer has been developed commercially so that ^{31}P NMR and ^{13}C NMR are readily available, the authors have presented a book dealing with what the coordination chemist can hope to achieve using these NMR methods.

The introduction deals with measurement techniques such as double resonance and Fourier transform NMR itself. Spin-lattice relaxation times and nuclear Overhauser effects are also dealt with. There are chapters dealing with the variety of coupling constants which can be observed and chemical shifts. Short discussions of the theoretical aspects of spin-spin coupling and chemical shifts are given. The application of these techniques to some problems of coordination chemistry such as structure is the topic of another chapter. The appendixes include more details regarding the theoretical considerations and tables of representative data. There are 259 references to the original literature. This book will be a practical aid to the coordination chemist interested in phosphorus-containing ligands.

Ralph W. Rudolph, *The University of Michigan*

Contraceptives of the Future: A Discussion. Organized by R. V. SHORT and D. T. BAIRD. The Royal Society, London. 1976. 224 pp. £5.40.

This collection of articles treats many aspects of implementation of existing contraceptive technology, and as such is of greatest interest in a sociological context rather than in a scientific one. Since it concentrates principally on existing technologies, a better title might be "Contraceptives of the Present"; in fact, only two articles deal with immunological approaches, or attempts at controlling fertility in the male, and no mention is given to the great progress made in research in basic mechanisms of fertilization over the past decade that might be used as a focus for the design of novel contraceptive agents. If this book has any appeal to chemists, it should be in the area of filling in some general knowledge about the limitations in our present approaches to contraception, both of a scientific and of a socio-political nature. It gives no clues as to the directions that a scientist might take to improve the problem; thus it should be of limited interest to most readers of this journal.

Bennett M. Shapiro, *University of Washington*

High Temperature Chemistry of Inorganic and Ceramic Materials. Edited by E. P. GLASSER and P. E. POTTER. The Chemical Society, London. 1977. 240 pp. \$22.00.

Of primary interest to workers in the ceramics, glass, steel, and nuclear industries, this small monograph will nonetheless be of interest to high temperature chemists generally. The book is the proceedings

of a conference organized by the Inorganic Chemicals Group of the Industrial Division of The Chemical Society and the Basic Science Section of the British Ceramic Society.

Among the high temperature (above 1000 K) topics treated are ceramic corrosion, stable colorants at high temperatures, phase equilibria in the CaO-MgO-TiO₂-SiO₂ system, phosphate-bonded refractories, sialons, and pyrolytic boron nitride. Extensive data are given in almost all papers.

A theoretical chapter is devoted to the application of thermochemical principles to the production of nuclear fuel materials.

The volume would be an especially desirable addition to a chemical engineering library and to those whose interest in high temperature chemistry is technologically oriented.

C. S. Sherer, *Shelton State Community College
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Automated Immunoanalysis. Part I. Clinical and Biochemical Analysis. Volume 7. Edited by ROBERT F. RITCHIE. Marcel Dekker, Inc., New York and Basel. 1978. 18 Contributors. Foreword by FRED S. ROSEN, Chief, Division of Immunology, Children's Hospital Medical Center, Boston.

This monograph is the first of a two-part series on the introduction of automation to immunonephelometry and to radioimmunoassay. Part I, the subject of this review, is devoted primarily to application of automation to light-scattering techniques and use of the nephelometer as the sensing device. In this volume there is an excellent concise fundamental review of light-scattering theory, and other worthwhile optical considerations of nephelometry are also presented. A discussion of features of available instrumentation is included which should be particularly helpful to those working on the more technical applied aspects of automated immunoanalysis. Sections on automated precipitin analysis, comparison of immunochemical techniques, and reference materials for plasma protein analysis are well organized, and there is a systematic presentation of various methods along with technical advice which immunologists should find very helpful.

Approximately one-half of the monograph is devoted to a description of specific automated immunoassays for albumin, immunoglobulins, serum IgA, IgM, transferrin, human low-density lipoproteins, complement consumption, haptens, and plasma fibrinogen chromatography. Most of these procedures are worthwhile examples of applications of automation to immunoanalysis and serve as models for persons seeking detailed guidance for establishing methods for research purposes or clinical work.

This publication combines a good balance between theoretical and applied aspects of the rapidly expanding field of automated immunoanalysis. The monograph will undoubtedly require revision and updating in the very near future. It is concise and systematically organized, and appropriate examples of automated immunoanalysis are presented.

George K. Summer, *University of North Carolina*

Chromatography of Synthetic and Biological Polymers. Volume 2. Hydrophobic, Ion-Exchange and Affinity Methods. Edited by ROGER EPTON. Wolverhampton Polytechnic. Halsted Press Division of John Wiley, New York. 1978. ix + 353 pp. \$47.50.

This book is the second of a two-volume series published for the Chemical Society Macromolecular Group, based on lectures given at a Chemical Society International Symposium held at the University of Birmingham, Birmingham, U.K., July 7-9, 1976. Volume 2 is devoted exclusively to chromatographic fractionation of proteins.

The editor's introduction provides referenced background material, particularly on the development of crosslinked dextrans, polyacrylamides, agarose, and other types of gel matrix.

The volume contains 29 chapters in three parts. Part 1, Hydrophobic Chromatography, contains five chapters, the first being a lengthy general discussion by Schmucl Shaltiel. The other four are shorter chapters which elaborate on specific techniques discussed in the first chapter.

Part 2, Ion-Exchange Chromatography, consists of five short chapters, all but one of which are devoted to use of ion-exchange systems in industrial scale fractionation of plasma proteins.

Part 3, Affinity Chromatography, comprises almost two-thirds of the volume in 19 chapters. The lead chapter, Theory and Practice of Affinity Chromatography by Pdraig O'Carra, is an excellent general discussion. Several chapters are devoted to design and synthesis of

affinity supports. Some specific enzyme purifications are also discussed, and several chapters are devoted to immunoaffinity methods.

The volume concludes with a rather brief subject index, which seems to cover the major subjects, but is far from complete. A major weakness is the lack of an author index.

This volume is highly recommended for anyone concerned with affinity chromatography methods, and is also worthwhile for its coverage of hydrophobic chromatography. Indeed, the two methods are often interrelated, and the close relationship is emphasized in many of the discussions. On the other hand, the volume could hardly be recommended for its brief and specialized section on ion-exchange methods. The section might better have been included in Volume 1. For what it covers, Volume 2 is a valuable addition to a library on protein purification methods.

Harry C. Winter, *The University of Michigan*

Zinc. By Subcommittee on Zinc, Committee on Medical and Biological Effects of Environmental Pollutants, Division of Medical Sciences, Assembly of Life Sciences, National Research Council. University Park Press, Baltimore, Md. 1979. x + 471 pp. 15 × 23 cm. \$21.00.

The very simple title of this book gives no indication of its varied content. The book was put together by a committee whose very name would imply that the emphasis would be on the biological effects of the element. However, it is surprising to find a coverage of a very broad range of topics other than the biological implications. In essence, almost anything of general interest concerning zinc is covered. The book starts out with the properties and uses of zinc and continues on to the natural and man-made sources of the element before going into the biological aspects. The latter areas include the effects on plants, aquatic and nonaquatic animals, and humans. The clinical aspects of zinc metabolism, with emphasis on the effects of deficiencies, and the toxicity of various forms of the element are covered. Methods for the analysis are covered with the observation that the variety of techniques and sampling procedures complicates comparison of results of different investigators. Finally a series of recommendations as to the courses of study which should be pursued are listed.

This is a very useful book for any reference library because it would be a very useful starting point for not only those interested in biological effects of zinc, but also for anyone interested in any aspect of the element. The bibliography consists of 1855 references, and such a compilation in itself should be useful.

Taft Y. Toribara, *University of Rochester School of Medicine and Dentistry*

Handbook of Environmental Engineering. Volume 1. Air and Noise Pollution Control. Edited by LAWRENCE K. WANG and NORMAN C. PEREIRA. The Humana Press, Clifton, N.J. 1979. xviii + 484 pp. 16 × 23.5 cm.

This book principally considers various aspects concerning the air. The noise pollution section is small and seems out of place, and the justification for its inclusion seems to be that it is considered a pollution of the atmosphere.

The contents of the book are most clearly described by the titles of the chapters, each of which is on a separate subject and written by a different author. The first chapter is entitled Introduction to Air Pollution, and a general coverage of the subject. The next five chapters each deal with a different means of cleaning the air, and the titles are: Fabric Filtration, Cyclones, Electrostatic Precipitation, Wet Scrubbing and Atmospheric Dilution. Chapter 7 on Ventilation and Air Conditioning deals with the treatment of the air in restricted areas for human use. Chapter 8 briefly covers a number of Other Pollution Control Techniques just as it is entitled. Chapters 9 and 10 are concerned with the problems of noise pollution.

The format of each of the chapters is much the same. The general introduction gives descriptive information of use to those interested in what the subject is all about. This is followed by a rather detailed mathematical treatment of the available theory or theories for those interested in more quantitative information. Also included is a discussion of the various applications of the techniques.

The two chapters on noise pollution occupy an understandably small portion of the book because of the rather recent efforts to do anything in the area on a national level. The problems are outlined, and the physics of the phenomena are described in quite some detail.

When considered from the standpoint of a handbook, this volume

would be a useful addition to a library. It would be a good starting place for those interested in the specific subjects covered. The last chapter on the control of noise pollution would be of interest to those even in a field such as music or other sound reproduction where the noise is produced for desirable purposes.

Taft Y. Toribara, *University of Rochester School of Medicine and Dentistry*

Principles of Protein Structure. By GEORG E. SCHULZ and R. HEINER SCHIRMER (Max-Planck-Institut für Medizinische Forschung, Heidelberg). Springer-Verlag, New York-Berlin-Heidelberg. 1979. x + 314 pp. \$29.80. (Also available in a paperback edition.)

This is an excellent book. It represents the first in a series edited by Dr. Charles R. Cantor. As such it sets a high standard for the series. The series is intended as textbooks for one-semester (or quarter) graduate courses. The present volume would serve this purpose admirably. I would also recommend it for upperclassmen who wish an introduction to protein structure. It is an extremely readable book in a subject area which could become tedious with excessive detail. These authors have avoided this pitfall. They have carefully chosen their examples and presented them in a fashion which I found always interesting. Anyone with an interest in proteins will find this volume worthwhile for their personal library.

In format the book devotes minimal consideration to primary (linear sequence) structure and proceeds to a consideration of what we know of the higher levels of protein structure (secondary, supersecondary, domains, tertiary, and quaternary), using an updated version of the Linderstrom-Lang description of structural organization.

The choice of subject matter reflects a scholarly familiarity with the literature on protein structure and a personal involvement with many of the subjects considered. The authors, in their preface, suggest those readers unfamiliar with protein structure (particularly three-dimensional representations) read Chapter 7 first. This is good advice. This chapter presents a well-organized review of the major techniques for communicating visual presentations of protein structure. Other chapters cover such subjects as covalent structure of proteins and the contribution to three-dimensional structure, patterns of protein folding, the prediction of secondary structure, kinetics, and thermodynamics of protein folding, protein evolution, protein-ligand interactions, and the structural basis of protein involvement in biochemical function. There is a short (10-page) appendix on the statistical mechanics of the helix-coil transition. Literature references (805) are well chosen and representative.

The book is well printed; proof-reading has been excellent. The index is adequate but did not include all the individual proteins discussed in the text.

In summary, this is an excellent book, highly recommended.

Darrell N. Ward, *The University of Texas System Cancer Center
M. D. Anderson Hospital and Tumor Institute*

Molecular Spectroscopy: Modern Research. Volume II. Edited by K. N. RAO. Academic Press, New York. 1976. xiv + 279 pp. \$29.50.

This book is a collection of articles based on papers that were presented at the 30th Annual Symposium on Molecular Structure and Spectroscopy at The Ohio State University. The book, which was prepared under the able editorship of K. N. Rao, covers a wide range of subjects. These subjects range from optimum methods of handling spectroscopic data to research involving special topics such as the Renner-Teller effect, "forbidden" rotational transitions, long-lived energetic products of chemical reactions, and diffuse interstellar lines.

One chapter by Rao and Pugh is devoted to the general subject of intensities of infrared spectra and includes not only a valuable bibliography but also a set of tables summarizing our present knowledge of the line and band intensities in the spectra of various molecules. These tables are extremely valuable in that the data for all molecules are stated in terms of a single well defined set of units. In the original literature authors have used various units of their own choice, sometimes with poor definition!

Another extremely important chapter deals with millimeter- and submillimeter-wave spectroscopy. In the first part of this chapter De Lucia gives a survey and summary of recent work at Duke University

and elsewhere, where the work has usually involved the use of crystals to produce harmonics of klystron oscillators operating at frequencies in the microwave region. The second part of this chapter by Krupnov and Burenin of the Radiophysical Research Institute at Gorky in the USSR gives a report on research that has been heretofore almost unknown in the west. The work reported involves the use of backward-wave oscillators operating in the submillimeter region and the employment of acoustic detectors, which have been developed for spectroscopic purposes. From the standpoint of one who has been out of microwave work for a number of years, I personally find the results reported truly amazing!

All the articles in the book represent the work of recognized specialists in molecular spectroscopy. It will be a valuable library acquisition for any institution engaged in research in molecular spectroscopy. The active molecular spectroscopist may well like to have a copy for his personal bookshelf!

Dudley Williams, *Kansas State University*

Chemistry of Tumor-Associated Antigens (*Scand. J. Immunol. Suppl.*, No. 6). Edited by E. RUOSLAHTI and E. ENGVALL (City of Hope National Medical Center). Blackwell Scientific Publications, Oxford, England (U.S. distributor—University Park Press, Baltimore). 1978. v + 140 pp. \$24.75.

Compiled in late 1977, this book provides a succinct review of several of the major tumor-associated antigens. In particular, alpha-fetoprotein, carcinoembryonic antigen (and related proteins), nonhistone chromatin proteins, viral and transplantation related antigens, glycolipids, and placental proteins are considered. Throughout, the emphasis is upon the purification and the bio- and immunochemical characterization of the antigens; reference to the clinical aspects of these substances is pertinent but brief. Figures and photographs appropriately supplement the text in most of the chapters. Extensive bibliographies of each topic, including references through 1977, add considerably to the usefulness of the volume. While some carcinoembryonic proteins (e.g., pancreatic and ovarian tumor antigens) are not covered, most researchers with an interest in the immunodiagnosis of cancer will find this book a necessary part of their working library.

John C. H. Steele, Jr., *University of Florida*

Mechanics and Energetics of Biological Transport (*Molecular Biology, Biochemistry, and Biophysics Series, Volume 29*). By E. HEINZ (Cornell University). Springer-Verlag, New York. 1978. xv + 159 pp. \$27.00.

This work is concerned primarily with the energetics of membrane transport systems. Given the current lack of understanding of actual transport mechanisms, much use is made of simplified model systems, e.g., the membrane pore and the mobile intramembranous carrier. The mechanistic and energetic principles of free diffusion, facilitated diffusion, and active transport are developed through two treatments. The first, and more extensive, approach is based upon the law of mass action and the activities of the transported molecules; this is complemented by a reconsideration of each model in terms of the thermodynamics of irreversible processes and the electrochemical potentials of the molecular species. Some familiarity with these concepts is required, for they are introduced rapidly and sketchily before being used extensively; otherwise more effort is expended in understanding the thermodynamic derivations than in following the author's development of the model systems and his comparison of the two approaches and their interrelationships. A short bibliography concludes the book; purposefully, references are included only to supplement a topic and are therefore not complete.

John C. H. Steele, Jr., *University of Florida*

Developments in Polymerisation—1. Edited by R. N. HAWARD (University of Birmingham, UK). Applied Science Publishers, Ltd., Barking Essex, England. 1979. ix + 202 pp. \$42.00.

This book is the first volume of a series now planned to consist of at least one additional book. The aim of the present work is to review mechanistic aspects of polymerization and concentrates on ionic methods.

Four chapters are included in this volume, each of which are essentially short reviews of recent developments, each with sufficient background to place these developments in perspective. Chapter 1, "Anionic Polymerisation", contributed by D. H. Richards, concen-

trates, appropriately, on lithium methods and dwells heavily on kinetic aspects of these living polymer systems. Short descriptive sections on block and graft polymers are included.

Chapter 2, "The Cationic Polymerisation of Vinyl Monomers", by D. J. Dunn, is an excellent review of the area, containing much valuable information on methods and mechanism. The chapter does a superb job of incorporating the results from stable ion work and NMR characterization of ions from Olah's and Kennedy's labs into the general picture of cationic polymerization.

Chapter 3, "Recent Advances in the Polymerisation of Conjugated Dienes", by W. C. Cooper, is devoted to diene polymerization and does not restrict itself to a single method. It is a curious addition to this volume on ionic methods, since the strong point of this chapter is the description of coordination polymerization. Despite looking a bit out of place, the chapter reviews the area nicely, including a strong section on alkyl lithium initiation as well. Free radical methods, although widely employed, are treated rather briefly.

N. C. Billingham contributed the final chapter on ring-opening polymerization. A review of this title could well be concerned with polymerization by olefin metathesis methods but, instead, is concerned with anionic and cationic ring opening of (mainly) oxygen heterocycles. This is the most descriptive of the four chapters and deals extensively with methods and properties.

This volume contains four well-written reviews, with literature coverage through 1977. The connection between the four contributions, however, is tenuous, and a number of topics are omitted. For this series to be comprehensive, Volume 2 must then deal with free radical, condensation, and most aspects of Ziegler-Natta methods. If such broad coverage can be accomplished the volumes will be a valuable addition to the literature, particularly as course supplement material. Specialists interested in individual topics will also find these reviews to be valuable summaries of the field.

L. M. Stephenson, *University of Southern California*

Inorganic Compounds with Unusual Properties—II (*Advances in Chemistry Series No. 173*). Edited by R. B. KING (University of Georgia). The American Chemical Society, Washington, D.C. 1978. xii + 418 pp. \$43.50.

This collection of 31 papers originated from a symposium held at Athens, Georgia, during February 1978. The stated theme of the meeting is Molecular Catalysis and the Conversion, Production, and Storage of Energy with Inorganic, Coordination, and Organometallic Compounds. This is a sequel to the first "Inorganic Compounds with Unusual Properties" published in the ACS Advances in Chemistry Series No. 150 (1976).

A common problem with this kind of book is lack of coverage in depth of its many topics. Individual contributors necessarily report their special research interests and findings. Three topics, however, are covered in considerable detail here: catalytic hydrogenations, the water gas shift reaction, and photochemical energy storage.

Highlights include contributions from P. C. Ford, R. B. King, and the Darenshourgs on water gas shift catalysis, R. Pettit on the use of CO/H₂O in lieu of H₂ in catalytic reductions, and C. P. Casey on the mechanism of CO reductions. F. K. Fong, H. B. Gray, D. G. Whitten, and others present intriguing results on photochemical energy storage systems.

Other catalytic topics include several selective hydrogenations, asymmetric hydrosilylation, oxidations, deoxygenation and desulfurization, hydrocarbon rearrangements, C-H activation, and oxidative coupling. Single papers also deal with diporphyrins, LaNi_{5-x}Al_x hydrides, redox enzymes, metal tetrathiolenes, zeolites, as well as metal-metal triple bond reactions.

This book will be useful to inorganic and organometallic chemists as a guide to current research efforts in homogeneous catalysis and inorganic photochemistry. A consideration, however, is that much of the book's material is already duplicated in literature publications of the individual authors.

Edward H. Wong, *University of New Hampshire*

Surface and Colloid Science, Volume II. Experimental Methods. Edited by R. J. GOOD (State University of New York at Buffalo) and R. R. STROMBERG (Bureau of Medical Devices, Food and Drug Administration). Plenum Press, New York. 1979. xi + 348 pp. \$35.00.

The emphasis in this volume is on a critical evaluation of experimental methods by individuals who are authorities on the topics selected. As a result, the volume is especially helpful to scientists con-

cerned about the potential as well as the weakness of experimental techniques in the characterization of surfaces and colloid systems. In addition to the presentation of the theory of the experiment, the theory of the phenomenon is discussed.

The volume is divided into seven chapters; the first by Robert J. Good and the second by A. W. Neumann and R. J. Good deal with contact angles and the free surface energy of solids and techniques for measuring contact angles. The effect of flatness, surface free energy, heterogeneity, and roughness on the contact angle are reviewed as well as the thermodynamic theory of equilibrium contact angles on ideal solids, and the hysteresis of contact angles on nonideal surfaces and dynamic effects. A variety of experimental methods for measuring contact angles are described including those using a flat plate, capillary tube, elongated solids, or powders. In addition the critical problem of preparing liquids and solid surfaces is addressed.

The pendant drop method for measuring liquid boundary tension is reviewed by Durga S. Amburani and Tomlinson Fort, Jr. Previous research, theory, and the apparatus are presented as well as a description of the calculation of boundary tension and error analysis.

The electrophoresis of particles in suspension is discussed by Arthur M. James. The electric double layer, migration of particles in an electric field, zeta potentials, and charge densities are reviewed, and the principles of experimental methods, equipment, and precautions in determining electrophoretic mobility are presented.

Methods for producing ultrahigh vacuums and the measurements of ultralow pressures are reviewed by J. P. Hobson, and methods for cleaning surfaces are surveyed. The fundamentals and application of electron probe analysis are reviewed by Gudrun A. Hutchins with respect to characterization of the bulk and surface of solids. The last chapter by Anthony M. Schwartz summarizes the area of research techniques in detergency including practical studies of detergency and studies treating detergency as a physicochemical phenomenon.

This volume is highly recommended for scientists involved in experimental measurements of the topics covered.

Robert G. Craig, *School of Dentistry, University of Michigan*

Adhesion of Solids. By B. V. DERYAGIN, N. A. KRATOVA (Institute of Chemical Physics, Academy of Sciences, USSR), and V. P. SMILGA (Kurchatov Institute of Atomic Energy). Translated by ROBERT K. JOHNSTON. Consultants Bureau, Division of Plenum Publishing Corp., New York. 1978. xvi + 457 pp. \$49.50.

This monograph describes the work of B. V. Deryagin and co-workers in the field of adhesion at the solid-solid interface and the development of their electronic theory of adhesion. It is pointed out that the energy of chemical bonding is much greater than that of van der Waals bonding and greater adhesion is achieved with the former. They also emphasize that if a chemical reaction occurs at the interface generally an electric double layer results; finally they state that the more pronounced the donor-acceptance nature of this bond, the greater will be the electrostatic component. If the chemical bond is covalent, the electroadhesion phenomena are of little consequence.

This work presents the electronic theory of adhesion as well as experimental techniques and results that support the theory. The monograph is of particular value to researchers in the field of surface chemistry, adhesion, and engineering, especially if they have an interest in surface adhesion, xerography, semiconductors, and corrosion.

The role of electrical phenomena in the fracture of solid-solid interfaces is examined according to theory and experiment. The following factors are considered with respect to electroadhesion and electrocohesion in the fracture of adhesive contacts: (1) gas discharge, (2) emission of fast electrons, and (3) residual surface charge. The effect of ionizing radiation and the chemical nature of the surfaces on adhesion are also discussed.

The theory of the electrostatic component of adhesion is presented as are the effect of electroadhesion on semiconductors, the adhesion of dielectrics, the sticking of polymers, the adhesion of convex solids, and the influence of adhesion on friction.

Robert G. Craig

School of Dentistry, University of Michigan

Recent Developments in Chromatography and Electrophoresis. Chromatography Symposia. Volume 1. Edited by ALBERTO FRIG-

ERIO (Mario Negri Institute for Pharmacological Research, Milan) and LEÏKA RENOZ (Belgian Society for Pharmaceutical Sciences). Elsevier Scientific Publishing Co., New York. 1979. ix + 357 pp. \$53.25.

This volume is an edited record of the Proceedings of the 9th International Symposium on Chromatography and Electrophoresis held in Riva del Garda, Italy, in May 1978. It contains 34 articles of various types on a wide range of topics. Some are classical reviews, some are narrow reports of specific findings, and some are both.

Some of the more general review articles are devoted to isoelectric focusing, combined liquid chromatography-mass spectrometry, and flow programming in gas chromatography. One of the more narrow treatments of general interest is a study of the role of water in liquid-solid chromatography on commercial silica gels. In general, the other articles are descriptions of chromatographic methods applied to specific problems in biochemistry or the pharmaceutical industry.

The individual articles appear to be well written and edited. Copious references and good background discussions are normal, even in the more narrow papers. It is a pity that more thought was not given to overall organization. This volume appears to be Volume 1 of a projected series of symposia proceedings. It would help if future volumes were divided into review articles and specific papers. For example, several papers in this volume are reports on isoelectric focusing. These should be placed after the excellent review article on the subject and perhaps designated as applications of the technique. The present random distribution is more like a journal than a book. In fact, one wonders whether the articles published in this book would not be better published in the normal periodical literature and whether this specific book does not reflect the excessive zeal of a publisher rather than a normal desire to report scientific results.

The book will be a reasonable addition to libraries which desire to maintain a good section on chromatography. However, individuals would be well advised to consult a table of contents of someone else's copy before purchasing the book.

James M. Bobbitt, *University of Connecticut*

Colloid Science. Volume 3. Senior Reporter: D. H. EVERETT (University of Bristol). The Chemical Society, Burlington House, London. 1979. ix + 337 pp. \$48.50.

This volume is a continuation of a series of Specialist Periodical Reports on Colloid Science. The stated goal of this work is to provide a critical assessment of recent research in the field, utilizing a wide range of sources and including whatever background material is deemed necessary. The time period for the research covered in this volume is approximately 1974 to 1977. The seven reports cover the following topics: Chapter 1, Adsorption at the Gas/Solid Interface; Chapter 2, Adsorption at the Solid/Liquid Interface: Non-electrolyte Systems; Chapter 3, Insoluble Monolayers-Dynamic Aspects; Chapter 4, Emulsions; Chapter 5, Micellization in Aqueous Solution; Chapter 6, Structure and Reactivity in Micellar Aggregates; and Chapter 7, Spectroscopic Measurements at the Gas/Solid Interface.

The depth and breadth of coverage of different topics vary, as might be expected, from author to author. Chapters 1, 2, and 7 (on interfaces) are thorough and properly detailed. Proper emphasis is placed on the more recent literature up to 1977. The background material that is covered is related to the topics being discussed. The chapters on monolayers and emulsions are clear, concise, and contain sufficient introductory material. Although informative, Chapter 5, on Micellization in Aqueous Solutions, tends to dwell on the author's own work. Most of the references (>80%) are dated prior to 1974. In addition, the micellization of anionic and cationic surfactants is neglected. Chapter 6 is clearly written and adequately referenced. The format is somewhat analogous to that of Fendler and Fendler's book, "Catalysis in Micellar and Macromolecular Systems". This provides a nice degree of continuity in covering the literature on this aspect of micelles.

As a whole the reports provide a good overview of the recent literature on each topic. References are generally adequate and a useful author index is included as well. Critical analysis of the presented material tends to be minimal. Books of this nature are particularly useful for researchers or advanced students who are "current" in one narrow area of a science but who need to be updated in the relevant research of related fields.

Daniel W. Armstrong, *Georgetown University*