reviews

Polymer Chemistry: An Introduction, 3rd ed.

Raymond B. Seymour and *Charles E. Carraher, Jr.* Marcel Dekker: New York, 1992. Figs. and tables. xxii + 633 pp. 17.5 × 25.1 cm. $55.00.

When Ray Seymour, Distinguished Professor of Polymer Science at the University of Southern Mississippi, died on November 15, 1991, he left a number of books and articles in press. One of the most important of these is the latest edition, updated through 1990, of a book that first appeared in 1981 and rapidly became a standard polymer chemistry textbook. With the imprimatur of recently deceased Herman F. Mark, the grand old man of American polymer chemistry, who wrote the foreword, and designated as Volume 12 in Dekker's Undergraduate Chemistry series, it is a concise, readable, complete, well-balanced, one-semester or one- or two-quarter textbook that presents the subject as a unified, cohesive area of study including inorganic, synthetic, and natural macromolecules. It includes all the major and optional topics recommended in the syllabus adopted by the American Chemical Society's Joint Polymer Education Committee.

Each chapter is essentially self-contained and includes a summary, glossary, exercises "to encourage thinking, rationalization, and integration" (with solutions at the back of the book), and a bibliography. Information from traditional undergraduate chemistry courses is interrelated with information on polymers, and industrial practices and testing procedures are integrated with the theoretical treatment, thus effectively bridging the gap between "the real world" and the classroom.

The new edition contains new sections on high-temperature superconductors, enzymes, comparative natural–synthetic macromolecular structure, geotextiles, solid waste, room-temperature vulcanizing agents, reactivities of end groups, transfer and retention of oxygen, polymer degradation, and kinetics of biopolymer catalysts. Sections on polymer characterization have been updated, and descriptions of newer surface determination techniques have been added. In contrast to the last edition (1988), which was photographed from typed camera-ready copy, this edition has been typeset, making it more attractive and legible.

In addition to its value as an exemplary introductory text, this volume is unique in likewise being useful for advanced courses and for scholars and practicing scientists. For example, in my own writing, on numerous occasions I have consulted its many reference tables, such as the comprehensive 34-page list of polymer products, trade or brand names, and manufacturers. Thus, I recommend the book not only to students and instructors but also to biologists, environmental scientists, engineers, and technologists concerned with plastics, fibers, elastomers, coatings, adhesives, biopolymers, or other macromolecules.

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Titles of Interest

Metric for Me! A Layperson's Guide to the Metric System for Everyday Use with Exercises, Problems, and Estimations

Robert W. Schoemaker. Blackhaw Metric Supply: P. O. B. 543, South Beloit, IL 61080, 1993. x + 53 pp. Illustrations. 21.7 × 28.1 cm. $15.00 PB.

Chirotechnology: Industrial Synthesis of Optically Active Compounds

Roger A. Sheldon. Marcel Dekker: New York, NY, 1993. xvii + 423 pp. Figs. and tables. 16.1 × 23.6 cm. $145.00.

This book provides an introduction to the phenomenon of chirality and its importance in conjunction with biological activity and offers an examination of practical, industrially relevant methods for the synthesis of optically active compounds.

Furnishing hands-on guidelines for the development of economically viable synthetic compounds, the book explains optical isomerism and stereochemistry. It gives a general overview of various methods of synthesis, supplies detailed explications of specific techniques, including fermentation, crystallization, the chirality pool, enzymatic methods, and catalytic asymmetric synthesis, illustrates and compares approaches with examples taken directly from industry, such as the synthesis of pharmaceuticals, agrochemicals, flavors, and fragrances, and clarifies the importance of determining which approach to use for the synthesis of particular molecules.

Analog and Computer Electronics for Scientists, 4th ed.

Basil H. Vassos and *Galen W. Ewing.* Wiley: New York, NY, 1993. xiv + 473 pp. Figs. and tables. 16.5 × 23.4 cm.

The latest edition of this work on practical electronics for today's laboratory scientists has been revised, updated, and reorganized to reflect new discoveries in the field. It features greatly expanded coverage of microcomputers, reflecting their status as the ultimate electronic components and their growing importance in lab work. The introduction to the microcomputer as an electronic device includes coverage of essential topics such as computer terms, architecture, buses, the Central Processor Unit (CPU), memory, Read-Only Memory (ROM), and error detection.

This edition has been renamed to reflect the book's change in emphasis from digital to computer electronics. It provides a grounding in computer peripherals from keyboards, hard disks, and various forms of mass storage to displays, scanners, printers, and advanced laser printers.

Readers will gain a working knowledge of data communications, including fiber optics technology and lab interfacing, as well as computer networks and local area networks, network structures and topologies, data links, and information management systems. The troubleshooting section includes coverage on how to test and upgrade computers and how to deal with destructive viruses.

SCOPE 50, Radioecology after Chernobyl: Biogeochemical Pathways Artificial Radionuclides

Sir Frederick Warner and *Roy M. Harrison,* Editors. Wiley: New York, NY, 1993. xxxii + 367 pp. Figs. and tables. 15.9 × 23.6 cm. $180.00.

This volume presents the consensus among leading members of the international scientific community concerning the most significant sources and environmental pathways of man-made radionuclides, at a level comprehensible to the scientist without specialized knowledge of the field. The magnitude and importance of radionuclide releases from the nuclear fuel cycle from accidents (e.g., Windscale, Chernobyl, and Kyshtym) and other sources are put into perspective, and the effects of radioactivity from such sources upon non-human biota are assessed. Knowledge of environmental processes and geochemical cycling, which may be gained from the use of radionuclides as tracers, is discussed. The findings of the book are based on the research efforts of many scientists, from some 14 nations, following a series of workshops held in various European countries over a three-year period.

Solid State Chemistry: Synthesis, Structure, and Properties of Selected Oxides and Sulfides

Aaron Wold and *Kirby Dwight.* Routledge, Chapman & Hall: New York, NY, 1993. xi + 245 pp. Figs. and tables. 15.4 × 22.9 cm. $32.95 PB.

This book on solid state chemistry places emphasis on the importance of careful synthesis and characterization in understand-