reviews

From CA to CAS Online: Databases in Chemistry, Second Edition

Hedda Schulz and *Ursula Georgy.* Springer–Verlag: New York, NY, 1994. xv + 311 pp. Figs. and tables. $59.00.

There's no getting around the fact that locating reliable and complete chemical information in today's online environment is an increasingly complex task, which requires more training and practice than most chemists are willing or able to undertake. Since the first edition of this book appeared in English in 1988, the field of chemical information retrieval has grown by leaps and bounds. While this growth quickly renders a published book obsolete, it also increases the need for an updated version.

An important point the authors make is that printed and online services are not necessarily equivalent, and that the latter does not replace the former. The two modes of retrieval are complementary, and using an online file effectively often requires that a searcher know the structure of the associated printed version, if there is one. The key element in any information quest—electronic or printed—is a clearly thought-out problem, which can then be applied to an appropriate databank. The techniques of defining the problem, selecting valid terms, and choosing the right resource allow one to use either printed or electronic tools, or both in tandem.

Unlike some other recent texts, *From CA to CAS Online* does not dismiss the formidable array of printed searching tools that many chemists know and prefer. In-depth descriptions of Chemical Abstracts Service's (CAS) publications–*Chemical Abstracts* and its assorted indexes, *CASSI*, the Registry Handbooks, the *Ring Systems Handbook*–are accompanied by useful and fully illustrated sample searches. These serve to point out how much thought must be put into a search in order to get reasonably comprehensive results, as opposed to a quick look-up.

The added power and accessibility of online searching has focused attention on this medium in recent years, and Schulz and Georgy provide a useful overview of the most useful chemical databases available via STN, starting with Registry and CA, and proceeding through patents, CASREACT, MARPAT, Chemical Industry Notes, Beilstein, and Gmelin. They conclude with a helpful chapter comparing access to major CAS files on six different host systems.

While the STN interface allows one to search quickly at a basic level, learning to search dozens of different databases *effectively* is impractical for a researcher who has more important things to worry about. This is where Schulz' book comes in handy. Any chemist who does regular online searching would benefit from having this book next to the terminal. It summarizes the "big picture" of chemical information-seeking in both printed CA and online on STN. Consulting it beforehand could save considerable time and money that might otherwise be wasted in a hasty or inexact search.

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American Chemical Enterprise: A Perspective on 100 Years of Innovation to Commemorate the Centennial of the Society of Chemical Industry (American Section)

Mary Ellen Bowden and John Kenly Smith. Chemical Heritage Foundation: Philadelphia, PA, 1994. 96 pp. Figs. and illus. 21.4 × 24.0 cm. $15.00 PB (Publication No. 14).

In 1881 in the rooms of the Chemical Society in London the Society of Chemical Industry (SCI) was inaugurated "to advance applied chemistry in all its branches," with Henry E. Roscoe, England's leading academic chemist as its first president. On May 2, 1894, Arthur McGeorge, an analytical chemist with offices in New York and Liverpool, invited seven New York members of the parent SCI to meet in order to organize the New York Section (the name would be changed to the American Section in 1919) of the SCI, the first section to be organized overseas. By the time that the section's petition was approved later in 1894 the section, with pharmacist Alfred H. Mason as its first president, had 310 members, more than 10 percent of the total SCI membership.

The new section, which quickly assumed a central position in the rise of chemical industries in the United States, soon became a center for the exchange of ideas on business and technical matters, and it established awards for individuals who were crucial to the success of the chemical enterprise. On October 6, 1906, at a banquet at Delmonico's restaurant in New York to celebrate the 50th anniversary of Sir William Henry Perkin's discovery of mauve (aniline purple), the first coal-tar dye, the New York Section instituted the Perkin Medal to be awarded annually in the spring to "that chemist residing in the United States who had accomplished the most valuable work in applied chemistry during his career."

A second annual award, the Grasselli Medal, was established in 1920 for the best paper presented to the section. It was succeeded in 1933 by the Chemical Industry Medal to be awarded each fall to "a person making a valuable application of chemical research to industry."

This commemorative centennial volume, profusely illustrated with photographs, drawings, and advertisements culled from archives and other sources, tells the story of the SCI's American Section and the concomitant growth of the chemical sciences and chemical process industries during the 20th century, largely through the achievements of the Perkin (1906–1994) and Chemical Industry (1933–1994) Medalists, whose names, along with those of the section's chairmen (1894–1994), also are listed at the end of the book (Only one woman, Edith M. Flanigen, who received the 1992 Perkin Medal for her development of catalysts, appears in these lists, which read like a "Who's Who" of the American chemical industry). The book's 10 chapters consider leading developments and the rise of entrepreneurship in electrochemicals, electrical inventions, mineral products, industrial gases, natural products, synthetic organic chemicals, chemical education, industrial research, petroleum, petrochemicals, nylon, synthetic rubber, plastics, pharmaceuticals, electronics, and the environment. The hundreds of persons whose discoveries are discussed include such luminaries as Acheson, Charles Martin Hall, Cottrell, Baekeland, Carothers, Remsen, Chandler, Langmuir, Whitney, Roger Adams, Othmer, Seaborg, Midgley, Marvel, Flory, Mark, Sarett, Tishier, and Djerassi. A one-page bibliog-

Reviewed in This Issue

raphy is provided but no index (not a serious handicap in view of the book's brevity). According to Harold A. Sorgenti, chairman of the section, who wrote the foreword, "this centennial record [was produced] in the hope that it may encourage creative young people of energy and imagination to take up the new demands being made on science, technology, and society." Thus, this attractive, well-written volume will be of interest not only to historians of chemistry, science, and technology; practicing chemists; and chemical educators but also to students.

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Titles of Interest

Computational Chemistry Using the PC, Second Edition

Donald W. Rogers. VCH: New York, NY, 1994. xiv + 247 pp. Figs. and tables. 16.3 × 24.3 cm. $65.00.

This book is an introduction to computational chemistry, molecular mechanics, and molecular orbital calculations using a personal microcomputer. It assumes no special computational skills or advanced mathematical training, except for previous knowledge of BASIC and college-level calculus.

The first part of the book provides a toolbox of computational methods ranging from matrix inversion to curve fitting. Later chapters are devoted to molecular orbital calculations, molecular mechanics, and molecular graphics. Short theoretical introductions precede each topic.

The book includes a disk incorporating programs and data for 50 classroom projects.

Physical Chemistry of Macromolecules: Basic Principles and Issues

S. F. Sun. Wiley: New York, NY, 1994. xviii + 469 pp. Figs. and tables. 16.4 × 24.3 cm. $59.95.

This book unites two closely related topics, biophysical chemistry and physical polymer chemistry, into a single course of study. The purpose of this merger is to offer a complete picture of the molecular structure, physical properties, and modern experimental techniques.

The book is divided into three sections. The first is concerned primarily with the core materials of polymer chemistry, while the second focuses on biophysical chemistry. The two, however, are closely interrelated to develop a complete and coherent view of the overall subject. The third section covers macromolecular structure and separation and is relatively independent of the first two. Each chapter provides the reader with a solid background in the most important materials for understanding the subject matter and its application.

Burger's Medicinal Chemistry and Drug Discovery. Volume 1, Principles and Practice, Fifth Edition

Manfred E. Wolff, Editor. Wiley: New York, NY, 1995. xi + 1064 pp. Figs. and tables. 18.6 × 25.9 cm. $195.00.

Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers, Sixth Edition

Council of Biology Editors. Cambridge University Press: New York, NY, 1994. xv + 825 pp. Tables. 15.9 × 23.6 cm. $34.95.

This book is a detailed manual that recommends general and scientific styles and formats for scientific papers, journal articles, books, and other forms of publication. In a departure from previous editions of the book, this edition covers all sciences, not just biology and the medical sciences.

The chapters on general style cover punctuation, spelling, prose style, capitalization, abbreviations, and the use of numbers, mathematical expressions, and statistics. The chapters devoted to scientific conventions are discipline-independent and range from the electromagnetic spectrum and subatomic articles to plants, animals (including the human being), and the earth and astronomical objects. Separate sections deal specifically with journal and book styles and formats, citations and references, and the preparation of tables, figures, and indexes. Electronic as well as traditional manuscript preparation is covered. The book recognizes both American and British preferences and in some cases recommends one usage over another.

Continuing Series

Patty's Industrial Hygiene and Toxicology. Volume 2F: Toxicology, with Cumulative Indexes, Fourth Edition

George D. Clayton and *Florence E. Clayton,* Editors. Wiley: New York, NY, 1994. xvi + 734 pp. Figs. and tables. 17.4 × 24.3 cm. $195.00.

The sixth book of *Volume 2* continues the detailed examination begun in *Part A* of the host of toxins common to the modern industrial workplace. Complete with a cumulative index to all six books of *Volume 2, Part F* includes a systematic, chapter-by-chapter analysis of these topics: organic sulfur compounds; diagnosis of occupational and environmental diseases; flame retardants; boron; the halogens; inorganic compounds of carbon, nitrogen, and oxygen; and glycols.