lix"* (19 pp.): Tom Hager examines one of Pauling's relatively rare failures: his mistakes in method and approach in the race for the structure of DNA. "The Genesis of the Molecular Clock"* (8 pp.): Gregory J. Morgan examines how Pauling and Emile Zuckerkandl developed the new field of molecular evolution. "Orthomolecular Medicine Defined" (7 pp.): Pauling introduces the word "orthomolecular", meaning "the right molecules in the right amounts". "There Will Always Be Something Interesting"* (7 pp.): Neil A. Campbell interviews Pauling, then aged 80, about things that, in retrospect, seemed most important to him.

Part III. "Linus Pauling, The Peace Work"

"An Episode That Changed My Life"* (3 pp.): Pauling relates how his wife convinced him to become knowledgeable about the nature of war and the need for peace, which caused him to devote at least half his time to world peace and world problems. "The Ultimate Decision"* (6 pp.): Pauling summarizes his advocacy of world government, civilian control of nuclear weapons, and international oversight of the development of new weaponry. "Meet the Press" (7 pp.): transcript of the May 18, 1958 program of the public affairs TV show on which Pauling was severely cross-examined, showing how negatively his efforts on behalf of peace were viewed by the press. "Science and Peace, Nobel Lecture 1963" (15 pp.): Pauling summarizes his thoughts after 15 years of working for peace. "Man: An Irrational Animal"* (4 pp.): Pauling argues that a one-world government based on scientific reasoning is the way to avoid a worldwide nuclear catastrophe. "A World in Which Every Human Being Can Live a Good Life"* (1 page, the shortest piece): Pauling proposes seven ways "for all nations and all people to cooperate in building a world free of war and militarism, a world based on rationality and ethics".

Part IV. "Linus Pauling, Facets" (28 pp.)

This section, well adapted for browsing, consists of 42 quotations, many amusing and humorous, mostly by Pauling, ranging from a single sentence to more than a page in length. They provide insights into his character and personality and complete the portrait provided by the earlier pieces.

This attractive book includes 84 photographs from Pauling's earliest youth to his older years, many of which we had not seen previously. It also contains drawings and reproductions of original manuscripts and typescripts by Pauling. A 9-page "Selected Bibliography" lists 101 of Pauling's more than 1100 articles (1920–1994), 13 of Pauling's 16 books, and 20 articles and books about Pauling, while a 7-page (double-column) index makes it user-friendly.

Mead and Hager have selected the primary and secondary materials for quality and comprehensiveness to produce "an almost cubistic view from many angles—personal and critical, contemporary and historical, first-person and third-person—of one of the central scientists in twentieth-century history." In our opinion Pauling's fellow Oregonians have succeeded in achieving their goal. We think that Pauling, who viewed himself as "a multi-faceted crystal with many dimensions", would be pleased with the book.

This collection portrays the life and legacy of the most famous chemist of our time as an ambitious, complex, conflicted human being who spoke his own mind and lived a long and fruitful life on his own terms. It shows the complexities and inconsistencies of a creative, brilliant, and outspoken human being who was neither saint nor sinner.

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Information Retrieval. SciFinder® and SciFinder® Scholar. By *Damon D. Ridley*. John Wiley & Sons, New York 2002. 252 pp., paperback $ 45.00.—ISBN 0-470-84351-9

In the last years of the 20th century *Chemical Abstracts* became available on the PC desktops of many scientists. SciFinder® in industry and SciFinder® Scholar in academic institutions made it very easy to process queries, even including structures. The user interface is intuitive and accepts search strings in natural language.

So why a book about such an apparently easy thing?

The system will give back answers to nearly all questions, just because the underlying databases are so comprehensive. But how to get the right references or substances, and how to catch them all?

Damon Ridley's message is to apply scientific method in information retrieval in order to receive all the information needed for high-quality scientific research. He also states that to work with SciFinder can be creative and even fun. The author is well-known as the writer of many publications about chemical information, and he is also an active chemistry researcher at the University of Sidney.

The book does not compete with the manual, which may be downloaded from the CAS server. It rather concentrates on background information and tips for searching. This keeps it refreshingly short (181 pp. + 52 pp. of appendices and index). Each of the six chapters starts with an introduction to the specific subject followed by comprehensible practical examples. Additionally, there is always a summary and an extensive section containing exercises. The solutions to these can be accessed through the Internet. Many tables and illustrations contribute to the clear layout.

A broad spectrum of different sources, such as bibliographies, patents, substances, structures, reactions, and more is available within the search interface of SciFinder (which throughout this review means both SciFinder® and SciFinder® Scholar). Chapter 1 explains the contents, structure, and indexing of these databases. The search interface of SciFinder is able to handle natural language questions. This unique key feature is a mystery to many users. Chapter 2 demonstrates how the search strings are translated into several sets of candidates (combinations of concepts) by the system. The user may choose between these candidates. Hints for selecting an appropriate search strategy are given.

There are many ways to find substances in SciFinder. Chapter 3 presents the variations. The differences between the alternative paths are carefully outlined here. Chapter 4 offers an insight into the

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additional options such as biological sequence searching, a field where SciFinder® and SciFinder® Scholar differ. Specific clues on how to search for polymers, salts, mixtures, biomolecules, etc. are given in the appendix and in Chapter 5.

There are different price models for SciFinder. However, for most users it does not matter how long they are logged onto the system and how many records are displayed. This gives cause for strategies recommended by the author based on analysis and refinement of preliminary search results. The various tools for this approach of trial and revision, including histogram statistics on answer sets, are outlined in Chapter 4. In the introduction to Chapter 6 the author remarks "There are a very large number of ways to describe, and hence also to find, information on reactions!" To cope with this, a set of five crucial questions is given. Depending on the answers, different search strategies should be applied. Despite the "intelligent" support mechanism acting in the background of SciFinder, a clear definition of a query is essential. Without that, in substructure searching for example, one might even exceed the limits of the system. The tables and examples in the appendix form a straightforward source of background information.

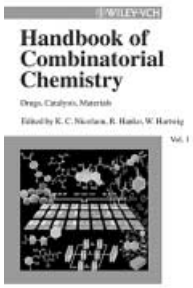
Likely users of the book range from students, who will thus understand the differences between Internet search engines and a highly specialized tool like SciFinder, to scientists who need a solid base of information for their research, and to experienced STN specialists who wish to transfer their search strategies to this new and possibly unfamiliar approach to information retrieval.

Everyone working with SciFinder® or SciFinder® Scholar should have a copy of this very helpful book on his or her desk. Even occasional browsing and looking up can improve the skills in information retrieval considerably.

Simon Geiger
University Library
University of Basel (Switzerland)

Handbook of Combinatorial Chemistry. Vols. 1+2. By *Kyriacos C. Nicolaou, R. Hanko* and *W. Hartwig.* Wiley-VCH, Weinheim 2002. 1114 pp., hardcover € 389.00.—ISBN 3-527-30509-2

The rise of combinatorial chemistry as a powerful tool in all aspects of preparative chemistry has led to the publication of a considerable number of textbooks, including several very good ones (for a comparative review of books on this subject see S. Bräse et al., *Angew. Chem. Int. Ed.* **2001**, *40*, 255–257). For the work reviewed here the editors have recruited a competent team of authors from industry and academia to write a compendium, which in 35 chapters and 1100 pages aims to give a comprehensive overview of all aspects of combinatorial chemistry, ranging from the life sciences to the materials sciences. They have achieved this goal masterfully.



In the first part of the handbook, the fundamental concepts and methods of combinatorial chemistry in solution and on a solid phase are outlined in six excellent chapters. Chapters that are especially outstanding in their information content are those about support materials (R. Haag et al.), encoding techniques (T. Krämer et al.), linkers (S. Bräse and S. Dahmen), and automation (M. Bauser and H. Stakemeier).

In the second part of Volume 1 (383 pp.), different reaction types applied in combinatorial chemistry, either in solution or on a solid phase, are reviewed in 14 chapters (e.g., radical reactions, nucleophilic substitution, addition, etc). In this section the quality of the individual chapters varies considerably. While some reaction types are presented superficially through a mere selection of notable literature examples, others are discussed in too much detail, which is inconsistent with the general idea of the handbook. A proof that it is indeed possible to find an optimal compromise is seen in Chapter 13 dealing with the chemistry of the carbonyl group (T. Wünberg). There the reader finds a competent and critical description of the subject, together with useful tables giving the most widely used reaction conditions for several bond-forming reactions, classified according to substrate types.

Volume 2 begins with chapters about the application of combinatorial chemistry in the library synthesis of natural products, heterocycles, and oligosaccharides, complemented by a well-written account of multicomponent reactions.

The following section, dealing with the molecular design of combinatorial libraries, is another good reason to purchase this book, as this important aspect has been widely neglected by most books on combinatorial chemistry so far. In particular Chapter 25 about design criteria (J. Pernerstorfer) contains a clearly understandable and informative introduction to diversity criteria, drug-likeness, and unwanted reactivities in drug libraries. A highly interesting case study of the use of combinatorial chemistry in the pharmaceutical industry is given by Hinzen et al. in Chapter 28, which describes the development of an erythropoietin sensitizer.

The last section of the book (250 pp.) describes the contributions of combinatorial chemistry in process development, in the discovery of new homogeneous and heterogeneous catalysts, and in materials science. Although the individual chapters contain much detail and a lot of expertise (the majority of these chapters are authored by H. W. Weinberg and co-workers from Symyx), the considerable amount of repetition between chapters is unnecessary and annoying. Finally the book ends with a good overview of combinatorial biosynthesis and the biological production of DNA, RNA, and peptide libraries.

The favorable overall impression of this handbook proves that the editors have succeeded in guiding the many authors from different backgrounds to write a largely coherent and readable standard work on combinatorial chemistry, which fulfills the promises given in its title. With regard to the contents, our only regret is that no chapter about analytical methods and monitoring of solid-phase reactions has been included in the book. The literature has been covered through 2000, in some instances

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