

each chapter describes relevant techniques in a highly conceptual style. Moreover, representative analytical data are shown (i.e., mass spectral results, HPLC data, etc.) in several of the chapters together with a discussion of the interpretation. This style of authorship makes the text ideal for both newcomers to the field and seasoned practitioners who might be interested in methods their peers are using. This is precisely the goal of the book as stated in the preface written by the two editors.

Through the course of the book's 12 chapters, many subjects are presented, but the focus is non-peptide synthesis. At least four of the chapters focus on solid-phase synthetic procedures. This includes some discussion about resin capture and solid-supported reagents. There are also several chapters describing solution-phase techniques, including the preparation of peptides, peptide mimetics, multicomponent condensation reactions, and polyfunctionalized core molecules. The final chapter of the book provides an overview of techniques associated with using biological systems to create and assay libraries. Although these techniques are not typically practiced by chemists, the chapter does describe phage display and related methods for peptide library generation and screening which are biological complements to the chemistry parts.

This book is well-done and timely. The style is useful, and it represents a broad collection of practical experience and ideas. The chapters are well-referenced, and there is an appropriate index. At a cost of approximately 25¢ per page, it is a good investment for anyone working in the area, or planning to do so. Moreover, because of the style and content, it might be a very appropriate text for a graduate special topics course.

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Second Supplements to the Second Edition of Rodd's Chemistry of Carbon Compounds. Volume IV: Heterocyclic Compounds. Part A: Three-, Four- and Five-Membered Monoheterocyclic Compounds. Edited by M. Sainsbury. Elsevier, Amsterdam. 1997. xxvi + 704 pp. 15.5 × 23 cm. ISBN-0-444-827366. \$457.00.

This second supplement volume to the second edition of *Rodd's Chemistry of Carbon Compounds* updates reviews of three-, four-, and five-membered heterocycles published in a first supplement in 1984. These topics were covered, both in the second edition and in its first supplement, in six chapters written by a single author, R. Livingstone. The chapter headings in the second supplement follow the same format employed in the second edition and first supplement, except that Chapter 1 (which covered three- and four-membered monoheterocyclic compounds) has been subdivided into seven

different subchapters (Chapters 1a–1g) each written by a different author. In his preface, the editor (M. Sainsbury) justifies the decision to subdivide Chapter 1 with the following statement: "In this way individual authors were able to concentrate upon single areas and even out what would have otherwise been too demanding a task for an individual author." The new subchapters in the second supplement thus become Chapter 1a, Oxiranes, Thiiranes and Seleniranes (by J. Kamal); Chapter 1b, Azirines and Aziridines (by D. E. Ewing); Chapter 1c, Three-Membered Rings with Two Heteroatoms (by E. Schmitz); Chapter 1d, Four-Membered Rings with One Oxygen, Sulfur or Selenium Atom (by E. Block and R. J. Linderman); Chapter 1e, Four-Membered Rings Containing a Single Nitrogen Atom (by T. Javed); Chapter 1f, Four-Membered Rings Containing a Single Heteroatom other than Oxygen, Sulfur, Selenium, Tellurium or Nitrogen (by D. W. Allen); and Chapter 1g, Four-Membered Rings Containing Two or Three Heteroatoms (by A. T. Hewson). Progress in the synthesis and reactions of furans, benzofurans, isobenzofurans, and their reduced forms is reviewed in Chapter 2 by T. D. Hurst, and advances in the chemistry of thiophenes, hydrothiophenes, benzothiophenes, and related compounds are detailed in Chapter 3 by K. J. Hale and S. Manaviazar. Chapter 4 (by A. V. Patel and T. A. Crabb) covers advances in the synthesis and reactions of pyrroles, pyrrolines, and pyrrolidines. Progress in the synthesis and reactions of indoles, isindoles, reduced derivatives, and carbazoles is reviewed by J. A. Joule in Chapter 5. The final chapter of Part A (by M. Scobie) reviews the chemistry and properties of five-membered heterocycles containing a single heteroatom other than oxygen, nitrogen, or sulfur, namely, boron, silicon, germanium, tin, phosphorus, arsenic, antimony, bismuth, selenium, tellurium, and a few miscellaneous elements (such as magnesium and zirconium). Each chapter is a concise, readable, and informative review. Key literature citations and important reviews are provided to guide the reader to additional information on each topic. A comprehensive subject index for the entire volume is included.

Organic and medicinal chemists interested in the properties, synthesis, and reactions of heterocyclic compounds should derive considerable benefit from consulting this volume. Library access to this supplement together with the complete series of *Rodd's Chemistry of Carbon Compounds* is highly recommended.

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Second Supplements to the Second Edition of Rodd's Chemistry of Carbon Compounds. Volume IV: Heterocyclic Compounds. Part B: Five-Membered Monoheterocyclic Compounds: Alka-

loids, Dyes, Pigments. Edited by M. Sainsbury. Elsevier, Amsterdam. 1997. xvi + 509 pp. 15.5 × 23 cm. ISBN-0-444-827587. \$324.25.

This second supplement volume to the second edition of *Rodd's Chemistry of Carbon Compounds* completes the update of five-membered monoheterocyclic compounds, published in a first supplement in 1985, and reviews alkaloids, dyes, and pigments. The original chapter numbering used in the second edition and its first supplement for volume IV, Part B, is maintained in the second supplement. The chemistry of pyrrolidine alkaloids is reviewed in the initial chapter (Chapter 7) by D. J. Robins, who also authored the following chapter on pyrrolizidine alkaloids. Subsequent chapters treating classes of five-membered ring-containing alkaloids include The Indole Alkaloids (by G. W. Gribble), Alkaloids of the Amaryllidaceae Family (by J. R. Lewis), and The Tropane Alkaloids (by G. Fodor). Pyrrole pigments containing the porphyrin nucleus are reviewed in Chapter 12 by K. M. Smith. The next chapter covering azaporphyrins, benzoporphyrins, benzoazaporphyrins, phthalocyanines, and related structures was not supplemented since these subjects were covered in Chapters 12 and 15. The redox chemistry of indigo group of pigments was reviewed in Chapter 14 by the editor, M. Sainsbury, a prominent author of chapters in the first supplement. The chapter on cyanine dyes and related pigments, coauthored by G. Bach and S. Dahne, completes the volume. Each chapter provides a thorough, well-written review with key literature citations provided throughout the text. References to reviews that have appeared since the publication to the first supplement appear in the introduction to each chapter, and an extensive subject index can be found at the back of the volume.

Organic and natural product chemists interested in the structure, properties, and synthesis of alkaloids should find considerable use for this volume. Institutional library acquisition of this, and all other volumes of the series of *Rodd's Chemistry of Carbon Compounds*, is highly recommended.

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**Second Supplements to the Second Edition of
Rodd's Chemistry of Carbon Compounds. Volume**

IV: Heterocyclic Compounds. Part E: Six-Membered Monoheterocyclic Compounds with a Hetero Atom from Groups IV, VI or VII of the Periodic Table. Edited by M. Sainsbury. Elsevier, Amsterdam. 1997. xiv + 692 pp. 15.5 × 23 cm. ISBN-0-444-827536. \$447.75.

This entire volume of *Rodd's Chemistry of Carbon Compounds* has been written by R. Livingstone from the University of Huddersfield in the U.K. It highlights progress in the pyrans and thiapyrans that has occurred since publication of this author's major contribution to the first supplement published in 1990. As in earlier volumes, coverage of selenopyrans, telluropyrans, and six-membered heterocycles containing silicon, germanium, and tin is also updated in this second supplement. The book is dominated by the chapter on pyran and its analogues, which consumes 546 pages. In his introductory paragraph to this chapter, Professor Livingstone notes that interest in pyrans, coumarins, chromans, and related compounds has largely shifted away from them as natural products to the synthesis of derivatives having potential utility as pharmaceuticals, herbicides, fungicides, or insecticides. The concluding chapter is largely devoted to advances in the chemistry of thiapyrans and their benzo analogues. Short sections on selenopyrans, telluropyrans, silabenzene, and six-membered germanium and tin heterocycles complete the chapter. A comprehensive subject index can be found at the end of the volume. Each chapter details available chemistry for the specific class of heterocycle and provides guidance to original literature sources. The continuity between this second supplement, the first supplement, and the second edition is particularly outstanding in this volume.

This supplement, along with the complete series of *Rodd's Chemistry of Carbon Compounds*, is recommended for institutional library acquisition; it provides an excellent collected source of information for broad areas of organic chemistry.

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