

Book Reviews

Heterocyclic Chemistry at a Glance. By John A. Joule and Keith Mills. Blackwell Publishing, Oxford, U.K. 2007. vii + 150 pp. 21 × 19.5 cm. ISBN 9781405139182. £17.99.

This book is the most recent issue in the “at a glance” series from Blackwell Publishing. It presents the structure, reactivity, synthesis, and application of aromatic heterocyclic compounds by structural class, arranged into 18 chapters. A list of abbreviations used and an index are also provided. The book is presented as an encapsulation of everything that the nonspecialist or beginning student would need to know regarding heterocyclic chemistry. The structure of this book matches that of the 589-page textbook *Heterocyclic Chemistry* (Joule and Mills, 2000, published by Blackwell Science).

Chapters 1–3 present the basic concepts of heterocyclic chemistry: nomenclature, an overview of chemistry and structure, and common reactions in heterocyclic chemistry. A chart of common heterocyclic systems (with names) along with a very brief overview of the Hantzsch–Widman nomenclature system for fused heterocycles is presented. Molecular orbital contributions to aromatic structure, canonical forms, dipole, and resonance structures are described. Very brief descriptions of electrophilic substitution, nucleophilic substitution, metalation, and pericyclic reactions are included.

Chapters 4–7 present pyridines and pyridazines along with their benzo-fused analogues. Emphasis is on pK_a , reactivity, and synthesis of each major category of heterocyclic system in these groups. Where appropriate, abbreviated mechanisms are presented.

Chapters 8–12 present five-membered heterocycles with one or two heteroatoms and their benzo-fused analogues, including purines. The reactions and synthesis of these systems follow the outline established in *Heterocyclic Chemistry*. Reference to pK_a values is made when appropriate. The purine chapter is equally partitioned between chemical and biochemical topics.

Chapters 13–15 cover five- and six-membered heterocycles with more than two heteroatoms, heterocycles with bridgehead

nitrogen, and nonaromatic heterocycles. Nomenclature, pK_a values, and synthetic utility represent the majority of the content of these chapters.

Chapters 16–18 provide coverage of specialized topics that span all classes of heterocycles: palladium in heterocyclic synthesis, heterocycles in biochemistry, and heterocycles in medicine. The utility of palladium in heterocyclic synthesis is well described, and the major classes of coupling reactions are effectively presented. The biochemistry and medicinal chemistry of heterocycles chapters are largely encyclopedic.

Overall, the presentation is succinct and clean. Although this fits well with the stated goals, this reviewer would have preferred references to the primary literature or minimally to major compendia. The authors do stress that the goal of this book is not to provide guidance to the practicing heterocyclic chemist and refer the reader to their more fully elaborated text *Heterocyclic Chemistry*. Noticeably absent is any reference to the Katritzky, Taylor, Elderfield, or Science of Synthesis series describing heterocyclic chemistry. This book delivers on its stated purpose to present the concepts of heterocyclic chemistry to the nonspecialist and will likely find good application in the hands of molecular modelers, pharmacologists, and undergraduates. Because of the lack of references and because of minimal depth, this book is not recommended for a graduate level course or to the experienced chemist or medicinal chemist. Joule and Mills’ full text cited above is a much better value for these audiences.

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