Heterocyclic Chemistry at a Glance

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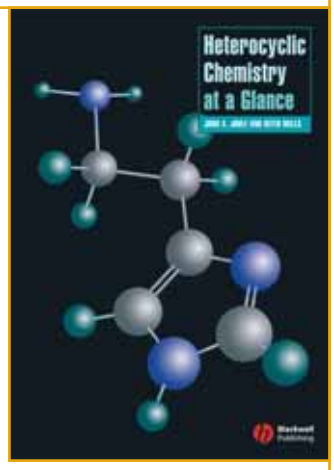
reviewed by David StC. Black



Heterocyclic Chemistry at a Glance is another book from the "at-a-glance" series, and is designed to provide an introduction to heterocyclic chemistry. It assumes a basic knowledge of organic chemistry and is suitable for a third-year-level course in a typical British-style undergraduate chemistry program. It covers the most important aspects and principles of heterocyclic chemistry, and explains the importance of this area of chemistry.

The material is described in 18 fairly brief sections; however, each section provides citations to more detailed explanations in *Heterocyclic Chemistry*, also by the authors. The first three sections cover aspects of nomenclature, structure, and common reaction types. Sections 4 through 12 cover the various heterocyclic ring systems, dealing with pyridines, quinolines and isoquinolines, diazines, pyryliums and benzopyryliums, pyrroles, indoles, furans and thiophenes, 1,3-azoles and 1,2-azoles, and purines. This layout reflects the fact that six-membered ring systems with one heteroatom are followed by those with two (the diazines), then five-membered ring systems with one heteroatom are followed by those with two (the 1,3- and 1,2-azoles), and finally the purines have two heteroatoms in each of a six- and five-membered ring. Section 13 describes the higher azoles and azines, where there are more than two heteroatoms. Heterocyclic systems incorporating a bridgehead nitrogen (indolizines, azaindolizines, and heteropyrrolizines) are described in section 14.

While the book is mainly about aromatic heterocycles, section 15 makes the point that there are many nonaromatic heterocyclic ring systems that are quite interesting, but whose chemistry is unexceptional when compared with that of related alicyclic compounds. In section 16 there is a shift to a consideration of palladium catalyzed reactions in heterocyclic chemistry. Although this material might seem out of place, the discussion makes sense here because of the ubiquity of such reactions, and also because of their very special utility for heterocyclic compounds, where many of the classical reactions that work for alicyclic compounds fail.

The last two sections, 17 and 18, are interesting for their descriptions of heterocycles in biochemistry and medicine, respectively. These chapters indicate the importance of heterocyclic chemistry in the life cycle, and why most chemistry graduates who go into industry end up working with heterocyclic compounds.

It is important to teach heterocyclic chemistry at the undergraduate level for chemistry majors and students who gravitate towards biology, but these students do not need to cover the subject in depth. This book provides an excellent overview of the subject in accessible language that avoids unnecessary detail. In addition, the examples, schemes, equations, and structures are well chosen. The book clearly explains typical reaction conditions; it does not include specific experimental detail or references. This is an ideal textbook for any undergraduate course on heterocyclic chemistry.

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[Catalan translation of IUPAC "Orange Book," *Compendium of Analytical Nomenclature* (definitive rules 1997), 3rd edition. Prepared for publication by J. Inczedy, T. Lengyel, and A.M. Ure. Blackwell Science, 1998, ISBN 0-86542-6155.]