

**“Organic Chemistry”** fourth edition by John McMurry (1996).  
Polish translation by H. Koroniak, W. Boczoń and J. Milecki,  
Wydawnictwo Naukowe PWN, Warszawa 2000.

There is still need for good and actual books on organic chemistry written in Polish, which are basically assigned for undergraduate students. Here, we have just got such a book on modern organic chemistry by John McMurry, translated into Polish by scientists from the Adam Mickiewicz University in Poznań and edited by the Polish Scientific Publishers (PWN). It consists of two volumes containing 31 chapters in which the material of modern organic chemistry is excellently and comprehensively presented in a rather simple manner, easy to adopt. First chapters describe the fundamental things the students must know such as: the nature of chemical bonding (with the application of molecular orbital theory presented in a concise way), basic classification of organic reactions and their mechanisms, classification and nomenclature of organic compounds, and stereochemistry. Next chapters describe the modern methods of analysis, such as mass spectrometry, IR, NMR (both  $^1\text{H}$  and  $^{13}\text{C}$ ), and UV spectroscopy. Then all classes of organic compounds and reactions are thoroughly described. What is very important to mention is that a large part of this book is dedicated to biomolecules: carbohydrates, aminoacids, peptides, proteins, lipids, and nucleic acids (chapters 26–29). The chemistry of important biological processes is presented in chapter 30. Excellent presentation of the pericyclic reactions is connected with the frontier orbital theory (chapter 31), which explains elegantly such processes. This part of modern organic chemistry can hardly be found in other student textbooks. This is not, however, all. In the end of each chapter there is a part entitled “solving problems”; author describes there the most typical exercises (connected with material from the particular chapter) for solving by students. It, surely, helps very much in getting the experience in organic chemistry. There are also separate short paragraphs – so-called “curiosities” (31 of them, 1–2 pages each), describing in very interesting manner the connection between organic chemistry and life. For example the curiosity about ethanol (p. 668–9) presents how this alcohol is produced (by fermentation of sugars, or hydration of ethylene), what influence it has on the immunological system, and how big are the doses which may cause serious illness or even death of human beings. However, in this “curiosity” the mistake (by author or translators?) in lethal doses of ethanol has to be noted. Surely, the dose 0.6‰ (as written in the book) is not very dangerous, probably the author (or translators) meant 0.6%.

Excellent typography of this book must be emphasized. Very good graphics (including three-dimensional ones, which can be viewed by special stereoscopic glasses, provided with the book) surely help very much to get acquainted with the problems of stereochemistry. I really strongly recommend this book for students. Certainly, it should be the major tool in learning organic chemistry by ungraduate (and to some extent also graduate) students.

Some mistakes found in the text are:

1. the misleading of units on p. 16 (the energy should be 436 kJ/mol not 436 kcal/mol);
2. the phrase on p. 74: “*because of their (alkene alkyne, arene) structural similarities, these compounds behave also similarly*” is not correct; such classes of compounds are very different;
3. the statement on p. 683 “*glucose reacts with methyl iodide in the presence of  $\text{Ag}_2\text{O}$  affording pentaether in 85% yield*” gives a correct information about the nature of the process but describes the product incorrectly. It is not pentaether of glucose, but tetramethyl ether of methyl glucoside (chemically, the latter is protected hemiacetal);
4. the explanation on p. 1027 of the  $\alpha$ - or  $\beta$ - configurations at the anomeric center of glycopyranosides is not precise. These configurations result from the stereoelectronic effects (the anomeric effect should be described in this section).

Some comments are necessary: Mechanism of the phase transfer catalysis (PTC) on p. 961 does not precisely correspond to the actual state of knowledge. The material describing the Michael-type additions (§ 19.17 p. 752) should be extended by the concept of hard/soft nucleophiles and electrophiles. It would help for example to understand why organocuprates add in a 1,4-manner and not 1,2-mode. The advanced versions of the aldol condensation (the directed Mukaiyama or Heathcock approaches) should be presented together with the classical ones (in § 23.1 and 23.2). Also, some basic aspects of the modern radical chemistry should be presented.

Once again, I strongly recommend this book for learning modern organic chemistry by students. If they acquire the material from this "*Organic Chemistry*", they will be able not only to know this part of science, but (may be) also to formulate and solve their own problems.

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