

Preface to the English Edition

This book is an attempt to amalgamate physical, mechanistic and synthetic organic chemistry. It is written by a synthetic organic chemist who happens to also think deeply about mechanism and understands the importance of knowing structure and reactivity to synthetic organic chemistry. I helped get the 1st German edition of this book translated into English, for two reasons. First, Reinhard Bruckner has been a friend of mine for over twenty years, ever since we were postdocs in the Wender group in the mid-80s. He was a study in Teutonic determination and efficiency, and I, and a few other Americans, and one Frenchman in particular, have been trying to cure him of that, with some success, I might add, though he remains an extremely dedicated and hard-working educator and scientist. That's a good thing. Second, I especially liked the project because I liked the book, and I thought Reinhard's way of dealing with synthesis and mechanism together was an approach sufficiently different that it might be the "whack on the side of the head" that could be useful in generating new thought patterns in students of organic chemistry.

Well, I was actually a bit surprised to be invited to work on the English translation of the 3rd German edition of the book. I was even more surprised when the publisher gave me editorial license, meaning I could actually remove and add things to the work. This potentially gives the English edition a life of its own. So besides removing as many "alreadys" (schon, in German) as humanly possible and shortening sentences to two lines from the typical German length of ten or so, I was able to add things, including, among others, a word of caution about the reactivity/selectivity principle. Speaking of long sentences...

Will the English-speaking world find the book useful? Time will tell. I see this book as being most appropriate as an organic capstone course text, preparing those who want to go to graduate school or are just starting graduate school, as it makes use not only of strictly organic chemistry knowledge, but of physical and inorganic chemistry as well. I could dream of this becoming the Sykes of the 21st century, but to make that a reality will require a great deal of work. To that end, constructive criticism is necessary. As you read this book, can you tell me what should be added or omitted, mindful of the fact that it should not get any longer and will likely present concepts with the same general format? Most importantly, is it easy and interesting to read? I did not do all I could have done to "spice up" the text, but I was very tempted. I could easily do more. In any case, if you have suggestions, please send them to me at harmatam@missouri.edu; and put the phrase *Bruckner Book* in the subject line. I can't say I will answer, but feedback given in the spirit of the best that our community has to offer will do nothing but good.

One omission that might be considered flagrant is the lack of problems. Time precluded our constructing a problem set with answers. (However, if you are inclined to do one, contact the publisher!) In the meantime, the web is bulging with organic chemistry problems, and it may be redundant to construct a book when so much is out there waiting to be harvested. One website in particular is noteworthy with regard to the variety and quality of advanced organic chemistry problems and that is the one by Dave Evans at Harvard. With the help of students and colleagues, Dave put together a site called *Challenging Problems in Chemistry and Chem-*

ical Biology (<http://www2.lsddiv.harvard.edu/labs/evans/problems/index.cgi>) and it is a good place to start practicing advanced organic chemistry.

Students! There are a number of things I want to say to you. Don't just read this book, study it. Read novels, study chemistry. This book is typeset with fairly wide margins. Use those margins! Draw structures there. Write down questions. Write down answers, theories, conjectures. We did not supply you with problem sets. Create them. Ask your instructors for help. Or go off on your own. Hone your skills by using resources to search out answers to questions. Searching the literature is not any easier than it used to be, in spite of the space age databases that exist. Developing the skills to find answers to chemical questions can save time and money, always a good thing, especially to those whose money you are spending. You will learn this soon enough if you haven't already done so.

Although this book is being published by Springer, it was initially taken on by Spektrum. I want to thank Ms. Bettina Saglio and Ms. Merlet Behncke-Braunbeck of Spektrum for all of their efforts. I was able to visit with them in Heidelberg and found working with these two lovely people to be a real joy. They gave me a very long leash and I appreciate it! My experience with Springer has just begun. May it be as pleasant and productive.

My work on this book began in earnest in Germany in the spring and summer of 2008. The Alexander von Humboldt Foundation saw fit to "reinvite" me back to Germany for a three month stay. I am grateful for the opportunity and would like to thank Ms. Caecilia Nauderer, who was my liaison at the Humboldt Foundation, for her assistance. It is an honor to serve as a part of the "Atlantik-Brücke", helping, if in only a small way, to build and maintain strong and positive relations between the United States and Germany. I was hosted by my friend and colleague Peter R. Schreiner at the University of Giessen. Thank you, Peter, for your hospitality. But beware: I will return!

Of course, my family must tolerate or endure, as the case may be, my "projects"! Thank you Judy, Gail, Diana and Alexander for your support!

Finally, I must note that ventures of this type are very time consuming. They represent "synergistic activities" and "broader impacts" that would not be possible without my having some funding for a research program of my own. The Petroleum Research Fund and the National Institutes of Health deserve some recognition in this context, but it is by far the National Science Foundation that has allowed me the greatest opportunity to build a research program of which I can be proud. To them and the anonymous reviewers who have supported me, I offer my most sincere thanks.

Learning and creating organic chemistry are joys that only a few are privileged to experience. May your travels into this delightful world be blessed with the thrills of discovery and creativity.

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