



Preface

This issue of the *International Journal of Mass Spectrometry* celebrates numerous contributions of Robert C. Dunbar to the field of gas-phase ion chemistry on the occasion of his 60th birthday. It is with great pride that we have assembled many of Rob's former students, friends, and colleagues to help us in recognizing this happy occasion. Rob has been a major contributor to the art and science of ion chemistry for many years, so his accomplishments are a pleasure to recount.

Robert Copeland Dunbar was born in Boston, MA, on June 26, 1943. He received a B.A. degree in Chemistry from Harvard University and a Ph.D. in Chemical Physics from Stanford University. His thesis, titled "Ion Cyclotron Resonance Studies of Ion-Molecule Interactions," was completed under the direction of Professor John D. Baldeschwieler.

About 1970, Baldeschwieler was making a sales pitch for a new Varian ion cyclotron resonance (ICR) mass spectrometer around the country. George Olah, who was the chairman of the Chemistry Department of Case Western Reserve University at the time, became very excited by the prospects elucidated for this instrument. Olah bought one and asked his graduate student to make it work. When that failed miserably, the Case Western Reserve University Department had the good sense to hire Rob as an Assistant Professor to make good use of the ICR spectrometer. Rob did just that. Indeed, the same Varian ICR spectrometer with a 1.4 T electromagnet was collecting data up until the late nineties when the relocation of Dunbar's lab forced the instrument to be abandoned. Presently, Rob is a Professor of Chemistry at Case Western Reserve University, a position he has held for more

than 25 years. This should continue as he shows no signs of any retirement plans.

Many know Rob from his contributions to photo-dissociation of trapped ions, a subject on which he has published more than a hundred papers. Ion-molecule reactions were always on the top of Rob's list of interests, too. He published many elegant examples of organic and organometallic reactions in the gas phase. More recently, Rob has focused on ion-molecule association reactions. Having realized that the low-pressure ICR conditions closely resemble those of interstellar space, he was able to accurately model various aspects of "space" chemistry. This drew interest from the astronomy community and led to a number of interesting collaborative efforts. Rob also was able to interrelate radiative association kinetics to binding energy, leading to a novel and accurate technique for ion-neutral binding energy determinations. A notable achievement in recent years is his work with Terry McMahon on the first explanation of the phenomenon of thermal radiation ion dissociation, which they dubbed "Zero-Pressure Thermal Radiation Induced Dissociation (ZTRID)." The method led directly to the development of the so-called black-body infrared dissociation (BIRD) technique, as it is commonly referred to now.

In the lab, Rob is the best research advisor a graduate student could possibly wish for. I (VR) remember the first encounter with Rob after I joined his research group. He told me, "You need three things: a desk, a key, and inspiration." Independence is something that Rob was trying to develop in his doctoral students. On the other hand, if there was a problem or just a question about anything in the lab, Rob was there to help

24 h a day, 7 days a week. He knew every part of his instruments (some of them built by him) down to the last tiny transistor. He could troubleshoot and fix anything in the lab, from machining an ICR part to charging a superconducting ICR magnet. This is the level of expertise I will be trying to reach for many years to come! He was also a patient mentor of undergraduates, as I (PBA) was when I first met Rob. I remember wondering whether I could ever accomplish anything of note in the laboratory, only to have Rob provide gentle encouragement. Indeed, my first paper was published with Rob as coauthor, back in 1977. Some 20 years later, we found the opportunity to coauthor another manuscript and I hope it's not another 20 before we do so again. From both of us, thank you, Rob.

Perhaps feeling that being an excellent experimentalist was not enough, Rob took interest in theoretical modeling and calculations. I (PBA) remember when Robinson and Holbrook's classic book on Unimolecular Reactions first appeared, Rob organized a series of group meetings in which we covered all the fundamentals and broke them down to the basics. As a lowly undergraduate, I hadn't a clue what everybody was talking about at first, but I'm sure insight gradually appeared and it's clear that this exposure enabled me to appreciate statistical theory much more readily in the intervening years. Lately, Rob has extended his theoretical expertise further by publishing a dozen or so *ab initio* computational studies on ion-neutral binding.

Rob's interests extend far beyond science. He is a classic example of an old-fashioned university

professor who knows several languages, takes interest in literature, art, and music, and can engage in a conversation on virtually any subject. Rob plays the piano very well and recently has started to take piano lessons to bring his level up several notches. I (VR) enjoy tremendously playing chamber music with him at every opportunity. That is something that I always look forward to and hope to make a continuing tradition. Rob also actively participates in the cultural life of the community. Currently, he serves on the Board of Directors of the Lyric Opera of Cleveland.

Rob is an avid hiker and skier, and shares his skiing passion with his wife, Mary, and their two sons. He is well known for his passion for science, his demand to get things right and understandable, and his wry and quiet sense of humor. Happy birthday, Rob. May your days continue to be filled with your infectious enthusiasm for life.

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