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PREFACE

Divalent carbon species (carbenes) have been a well appreciated part of organic chemistry for many years. However, their study in recent years has quickened reflecting a renewed interest in their behavior. I think this symposium reflects the excitement currently felt by workers in this area. Much of the recent progress in carbene chemistry can be traced to advances in instrumental techniques. The use of lasers in gas phase optical spectroscopy has produced breathtaking high resolution spectra of methylene. Nanosecond and picosecond lasers have enabled the direct detection of carbenes in solution and produced absolute reaction rate constants. Carbene reactions once thought to be elementary processes have been shown to have rich subtleties and complexities. Many of these interpretations are still somewhat controversial. The reader will find different views of the reaction of carbenes with alcohols and olefins expressed in this symposium.

This preface is not meant to slight traditional chemical analysis of carbene reactions. By far and away most of our knowledge of carbenes has come from straightforward organic chemistry. It would be impossible to interpret laser flash photolysis data without recourse to product studies. It is my prejudice that in case of a conflict between spectroscopic and chemical evidence the latter is generally to be believed. There are many fine examples of the organic chemistry approach to carbenes in the symposium.

It is getting increasingly more difficult to ignore the contributions of theoreticians to carbene chemistry. As they are quick to point out they anticipated the geometry and singlet triplet splitting of methylene correctly. I am pleased that new theoretical work will appear in the symposium.

Finally, I would like to express my appreciation to my students at Ohio State, Robert Barcus, Linda Hadel, Vince Maloney, Jan Ruzicka, Tom Savino, V. P. Senthilnathan, Brad Wright and José Zayas, and to my colleagues in Ottawa, J. C. Scaiano and David Griller for greatly adding to my enjoyment of the study of carbenes. I also wish to thank the contributors to the symposium for their excellent manuscripts and patience in awaiting publication.

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