Editorial*

R N Mukherjee, Associate Editor

In its January issue, *Resonance* features Richard Stephen Berry (09 April 1931–26 July 2020)—‘one of the most influential chemists of his generation’ [*University of Chicago News* (29 July 2020)].

Stephen Berry was an American professor of physical chemistry. He completed his schooling at Denver in 1948 and received all of his higher education at Harvard—a bachelor of arts in 1952, a master’s degree in 1954, and a PhD in 1956.

After receiving his PhD, Berry’s first academic appointment was as a chemistry instructor at Harvard. He held that position for 18 months. In 1957, he moved to the University of Michigan as a chemistry instructor and started teaching. In 1960, he moved to Yale University as an assistant professor of chemistry. In 1964, he moved to the University of Chicago as an associate professor of chemistry, where he remained for the rest of his life. He was promoted to professor of chemistry in 1967. He was then awarded the James Franck Distinguished Service Professorship in 1989 and held appointments at the James Franck Institute and the School of Public Policy Studies.

Stephen Berry’s interest in the spectroscopy of molecules persisted throughout his career. Berry made invaluable theoretical and experimental contributions to the understanding of fluxional molecules, the determination of electron affinities, the spectroscopic signatures of transient species, electron-impact spectroscopy, photoelectron spectroscopy, and Penning ionization spectroscopy. Berry’s experimental and theoretical research has had a major influence on many fields of modern chemistry.

During his tenure as an instructor at the University of Michigan, he reported the first observation of the important reactive interme-

Email: rnm@iitk.ac.in

*Vol.27, No.1, DOI: <https://doi.org/10.1007/s12045-022-1288-3>

diate benzyne and the first theoretical description of the properties of non-rigid molecules and their rearrangement via the mechanism now known as the Berry pseudorotation. The International Union of Pure and Applied Chemistry defines pseudorotation as a “stereo-isomerization resulting in a structure that appears to have been produced by rotation of the entire initial molecule, the result of which is a structure that is superposable on the initial one unless different positions are distinguished by isotopic labeling.” The dynamics of the Berry pseudorotation in the non-rigid trigonal bipyramidal PF_5 molecule, monitored by NMR spectroscopy, was rationalized with the axial and equatorial Fs undergoing exchange on a timescale much faster than the NMR timescale. This was Stephen Berry’s first excursion into the world of intramolecular dynamics in large molecules.

The quality of Berry’s scientific contributions was recognized widely. In addition to the election to several national and international academy fellowships, he was awarded many prestigious medals, and honored with named professorships. Stephen Berry’s 70th birthday was honored with the publication of a special issue of the *Journal of Physical Chemistry A* [Vol.106, No.45, pp.10733–10734, 2002].

Because of the scope of his research and the results thereof, Stephen Berry is renowned as the most influential chemist of his generation. His work has had and continues to have a great influence on the development of chemistry and related areas of science.

I hope the exposure to Stephen Berry’s career brings added inspiration to the readers interested or engaged in teaching and research. The scientific career and selected work of Stephen Berry is documented in two articles in this issue. A brief chronological account is presented in the Article-in-a-Box and a brief introduction followed by reproduction of his original contribution on five-coordinate fluxional molecules, chosen for this issue, in the classic article (*J. Chem. Phys.*, Vol.32, pp.933–938, 1960).

EDITORIAL

I hope the authors enjoy reading these two articles on R Stephen Berry. The issue also carries several articles on a wide variety of subjects of topical interest.

Finally, I sincerely appreciate the hard-work put in by R Pushpavathi and Geetha Sugumaran to bring out this issue on time and wish all the readers a very happy new year!