Richard F. Porter

February 8, 1928 — September 1, 1991

Richard F. Porter, our friend and colleague, died in Ithaca on September 1, 1991.

Richard F. Porter was born in Fargo, North Dakota on February 8, 1928. He attended Marquette University, in Milwaukee, graduating with a Bachelor of Science degree in 1951. He received his Ph.D. degree from the University of California, Berkeley, in 1954, having worked under the direction of Professor Leo Brewer. His thesis research was on thermodynamic and spectroscopic properties of high-temperature gas-phase species. Dr. Porter then spent the year 1954-55 as a Postdoctoral Research Associate in the Physics Department of the University of Chicago under the tutelage of Professor Mark Inghram. It was at Chicago, working with Inghram and William Chupka, that Dick began his lifelong association with mass spectrometry, which he applied at first in further studies of the high-temperature gas phase of refractory materials. He joined the Chemistry faculty at Cornell as an Instructor in 1955 and spent the rest of his career with us.

Recognition by his peers came early for Dick. From 1960 to 1964 he was an Alfred P. Sloan Fellow, and in 1964, the year of his promotion to Full Professor at Cornell, he was named a John Simon Guggenheim Fellow. He spent half that year on leave at the laboratories of the National Research Council of Canada, in Ottawa, where he was associated with C.C. Costain (with whom he collaborated on a study by microwave spectroscopy of a cyclic molecule of boron, oxygen, and hydrogen) and with the world-renowned spectroscopist and future Nobel laureate, Gerhard Herzberg. The rest of that year he served as a Visiting Professor at the University of Florida. In the academic year 1970-71, Dick was a NATO Senior Postdoctoral Fellow at the University of Freiburg. He had an appointment as Visiting Collaborator at the Brookhaven National Laboratory (1978-82), where he was associated with the group of L. Friedman, and in 1985 he was appointed Visiting Scientist at the laboratories of the Exxon Research and Engineering Corporation, where he collaborated with a research group headed by his former graduate student, Andrew Kaldor. Dick maintained close contact with both laboratories over the years. He was also a Consultant at the Corning Glass Company.

While Dick was an excellent experimentalist who used the most sophisticated techniques, his primary research goal was the exploration of the basic characteristics of matter. His interests focused on mass spectrometric, electron-diffraction, and spectroscopic studies of gaseous systems at high temperatures. These included thermodynamic studies of vaporization, high-temperature boron chemistry, the photochemistry of boron compounds, and ion-

molecule reactions. His work spanned a broad range of science, as evidenced by his bibliography, which lists 144 articles in 35 different periodicals.

Dick was also a scientific catalyst for others. He co-authored papers with colleagues in the Department of Chemistry and in Cornell's College of Engineering, as well as with faculty members at other universities and with scientists at the laboratories he visited. With Professor Arthur Ruoff of the Department of Materials Science and Engineering in our College of Engineering, he studied the properties of solid ammonia and the ammonium halides under very high pressures, in a search for the onset of metallization. Dick was one of the original members of Cornell's Materials Science Center.

In much of Dick's most recent research he used a new technique he developed, "neutralized ion beam spectroscopy", to prepare and study unstable radicals and metastable states. In this way he undertook very beautiful spectroscopic studies of some of the metastable states of triatomic hydrogen and deuterium. First he produced the singly positively charged triatomic species by the reaction of the diatomic molecule ion with the ordinary neutral diatomic in an ion-molecule reaction, and then allowed the charged triatomic to be neutralized by near-resonant electron transfer from alkali metal atoms. It was from the latter step that the technique derives its name. Before he became too ill to travel, Dick had been planning to spend nine months as a Visiting Scientist at the Institute for Molecular Science in Okazaki, Japan, but, sadly, he was unable to pursue those plans.

Dick was a dedicated and enthusiastic teacher and adviser of undergraduates. As late as July of 1991 he had been looking forward to meeting his class at the end of August, but that was not to be. He was a friend as well as mentor to his graduate students and postdoctoral associates, many of whom will feel the loss all the more keenly because of the close relationships he had established with them. He was a stalwart participant in the Chemistry poker game, where he displayed skills equal to and not altogether different from those he showed in the laboratory. There, too, he is sorely missed.

Professor Porter's first wife, Dolores, whom he had married in 1955, died in 1978 while they were on leave in Brookhaven. They had two children, Patricia and Thomas. In 1983, he married Marjorie Louise Haupin, then an Administrative Supervisor at the Johnson Art Museum, and who, together with his two children, survives him.

In his life as in his science, Dick was a person of absolute integrity. He was modest, straightforward, generous, and kind — a loved and valued colleague and friend.

S.H. Bauer, W.D. Cooke, B. Widom