

## **In Memorium**

### **John Thomas Yates, Jr.**

August 3, 1935 - September 26, 2015

John T. Yates, Jr., Professor of Chemistry at the University of Virginia, member of the US National Academy of Sciences, and a pioneer of modern surface science, passed away at his home on Saturday morning September 26, 2015, from a recurring glioblastoma. John was both courageous, pragmatic and forthright about his diagnosis right to the end. His wife, Kerin, related that John, upon learning of his diagnosis, said that he had had a great life and was not going to 'let the last 1.25%' define him. It did not. He had a wonderful family and a stellar career.

Born in Winchester, Virginia on August 3, 1935, he received his B.S. degree in chemistry from Juniata College in Huntingdon, Pennsylvania in 1956, and his Ph.D. in physical chemistry from the Massachusetts Institute of Technology in 1960 -- working with Professor Carl W. Garland. Following three years as an Assistant Professor at Antioch College in Yellow Springs, Ohio, he joined the National Bureau of Standards, Gaithersburg, Maryland (now the National Institute of Standards and Technology), first as an NRC Postdoctoral Research Fellow and then, from 1965 until 1982, as a member of its scientific staff. He was a Senior Visiting Scholar at the University of East Anglia, Norwich, UK in 1970-71, and the Sherman Fairchild Distinguished Scholar at the California Institute of Technology in 1977-78. He joined the University of Pittsburgh in 1982 as the first R.K. Mellon Professor of Chemistry, and as the Founding Director of the University of Pittsburgh Surface Science Center. In 1994 he received a joint appointment in the Department of Physics. In 2006, he retired from the University of Pittsburgh and moved to the University of Virginia as Professor and Shannon Research Fellow.

Throughout his career, his research was in the fields of surface chemistry and physics, including interests in the structure and spectroscopy of surface species, the dynamics of surface processes, and the development of new methods for research in surface chemistry. When he moved to the University of Virginia, he also became professionally active in the field of astrochemistry. He was an accomplished amateur astronomer and woodworker. He had a passionate lifelong interest in clocks, accuracy in timekeeping, and precision instrumentation, both antique and modern. To his core, he was "a measurer" with accuracy and precision. His colleagues and competitors alike knew that they could always trust, without question, the measured quantities in his published works.

John Yates was an exceptional scientist and gifted communicator. He had a knack for making complex problems seem simple after he studied them in depth and communicated his results so beautifully, typically with his own meticulously hand-drawn diagrams. He published more than 750 scientific papers on surface chemistry and physics, and is among the 100 most-cited chemists in the world. His professional accomplishments have been recognized by many prestigious awards and honors, including: Silver Medal - U.S. Department of Commerce (1973); Sherman Fairchild Distinguished Scholar - Caltech (1977-78); Stratton Award for Distinguished Research - NBS (1978); Gold Medal, U.S. Department of Commerce's Highest Award (1981); Kendall Award for Colloid or Surface Chemistry of the American Chemical Society (1987); Inaugural President's Distinguished Research Award - University of Pittsburgh (1989); E.W. Morley Medal of the Cleveland ACS (1990); Fellow of the American Physical Society (1992); Medard Welch Award - American Vacuum Society's highest technical award (1994); Fellow of the American Vacuum Society (1994); Alexander von Humboldt Senior Research Award (1994); Member of

the National Academy of Sciences (1996); Pittsburgh-Cleveland Catalysis Society Award (1998); Pittsburgh Award of the Pittsburgh ACS (1998); Arthur W. Adamson Award for Distinguished Service in the Advancement of Surface Chemistry of the ACS (1999); J.W. Linnett Visiting Professorship - Cambridge University (2000); Outstanding Alumnus of Juniata College (2000); G.N. Lewis Lecturer, University of California-Berkeley (2002); Japan Society for the Promotion of Science Fellowship (2002); Gwathmey Visiting Professor, University of Virginia (2002-03); Fellow of The Institute of Physics (2004); and the Peter Debye Award in Physical Chemistry of the ACS (2007); Theodore Madey Award of the AVS (2011); Gerhard Ertl Lecturer Award for Surface Chemistry and Catalysis (2013).

Professor Yates was a kind, patient, trusted and generous mentor and advisor to the more than 1000 students, postdocs and collaborators with whom he interacted. He was an inspirational undergraduate and graduate teacher and mentor. He demonstrated and conveyed an excitement about science, the wonders of scientific discovery, and a love of learning that encouraged and helped many to pursue scientific careers. In addition, he developed strong professional relationships with a number of surface science research programs in academic, government, and industrial research laboratories throughout the world. He served on the editorial boards of six scientific journals and two book series in surface science and catalysis. He was Associate Editor of the ACS journal, *Langmuir*. He also served on the Advisory Board of *Chemical & Engineering News* and on the International Advisory Board of *Chemistry World*.

Yates was generous in his service of scientific societies such as the American Vacuum Society, the American Physical Society, and the American Chemical Society, including past service as a member of the AVS Board of Directors, AVS Trustee Chair, and twice as the AVS Surface Science Division Chair. He was the past chairman of the APS Division of Chemical Physics, and the ACS Division of Colloid and Surface Chemistry. He organized many symposia for ACS and APS national meetings, and was Chairman of three Gordon Research Conferences. He co-edited two books, *Vibrational Spectroscopy of Molecules on Surfaces*, Plenum, 1987 and *Chemical Perspectives of Microelectronic Materials*, Materials Research Society, 1989. He co-authored a book entitled, *The Surface Scientists Guide to Organometallic Chemistry*, ACS, 1987. He also co-authored a textbook, *Molecular Physical Chemistry for Engineers*, University Science Books, published in 2007. His book, *Experimental Innovations in Surface Science*, was originally published by Springer-Verlag and The American Institute of Physics in 1998; a second edition, his last major project, was published in 2015.

John is survived by Kerin – his wife of 57 years, his sons Geoffrey (Michelle), and Nathan (Jan), and six grandchildren, Andrew, Steven, Caitlin, Lauren, Hannah and Sara. His passing is a loss for his family and for science, but he has left a lasting legacy in his published work, and in the generations of scientists he mentored.

John N. Russell, Jr., Ph.D.

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*(former graduate students)*