



## IN MEMORIAM

Christopher Foote  
Professor of Chemistry, Emeritus  
Los Angeles  
1935 — 2005

Christopher Spencer Foote, the foremost authority on chemical reactions of singlet oxygen, passed away on June 13, 2005, at his home in Santa Monica, California, from complications of brain cancer. He was 70.

A UCLA faculty member for his entire career, Foote made the groundbreaking discovery of the role of singlet oxygen – an electronically excited form of the oxygen in the air – in reactions of organic molecules caused by sunlight and ultraviolet light. Christopher Foote's discovery, established by developing an independent chemical route to singlet oxygen, was made in 1964 while he was still an instructor at UCLA. This became the fundamental principle that led to a rich career exploring the interactions of singlet oxygen with a broad range of chemicals, ranging from DNA and other biological molecules to nanomaterials. His research led to important new findings about why molecular oxygen is both essential to life processes and is a major agent of biological damage.

Professor Foote's lifelong research established the enormous importance and double-edged-sword behavior of singlet oxygen and reactive oxygen species. He led a research team that showed these altered forms of oxygen that are generated by the influence of light can be used for beneficial chemical reactions and have many natural functions in living cells; at the same time, they are responsible for many types of biological damage, including DNA reactions leading to mutations.

Foote also influenced thousands of undergraduate students in the U.S. and other countries as co-author with William Brown of the widely used organic chemistry textbook, *Organic Chemistry*. The book, currently in its fourth edition, is now co-authored with William Brown and Brent Iverson.

Born June 5, 1935 in Hartford, Connecticut, Christopher Foote grew up in a family where intellectual rigor and music were highly valued. His father, William Foote, was the Managing Editor and columnist of the *Hartford Courant*; his mother was the former Dorothy Bennett, a descendant of Benjamin Silliman, the first professor of science at Yale.

Christopher graduated from Kingswood School in West Hartford, Connecticut, and earned a bachelor's degree in chemistry from Yale University in 1957. The following year he spent as a Fulbright Scholar at the University of Göttingen in Germany, in the laboratories of the eminent photochemist G. O. Schenk. Foote's long-standing interests in reactive oxygen species and notable facility with languages were nurtured in that period. Foote entered Harvard University in 1958 and received his Ph.D. in 1962 for work with Nobel Laureate Robert Burns Woodward on solvolytic reactions, a major research interest of that era. The same year, he joined the UCLA faculty.

During more than 40 years on the Westwood campus, Christopher was an honored researcher and dedicated teacher, mentoring and training hundreds of graduate students and postdoctoral fellows, while giving himself tirelessly to university service. His 43-year academic career established him as a world leader in the field of

physical organic chemistry. His earliest work focused on the effect of bond angle strain on the properties of organic molecules. He established a quantitative correlation between spectroscopic properties and reactivity well-known to chemists and named for him. Foote's main research interest was the generation and reactions of reactive oxygen species in chemistry and biology. He was renowned as an authority on reactive oxygen species, known to biologists as "ROS," including species such as singlet oxygen and superoxide – a form of oxygen with an excess electron. Foote produced more than 250 research papers that elegantly document discoveries on organic chemical reactions – many of which focus on how singlet oxygen, superoxide, and other forms of reactive oxygen influence biology, both as natural components of the immune system and as toxins.

Christopher Foote was a leader in clarifying the complex chemistry induced by these simple but reactive molecules. His recent work on DNA damage and on the photophysical properties of the fullerenes were among the most influential discoveries from his laboratories.

Christopher earned many prestigious awards for his achievements, most notably an Alfred P. Sloan Fellowship, a Guggenheim Fellowship, and the Leo Hendrik Baekeland Award of the American Chemical Society. In 1994, he received two of the American Chemical Society's highest honors: the Arthur C. Cope Scholar Award and the Tolman Medal of the Southern California Section of the American Chemical Society. His research was supported throughout his career by numerous grants from the National Science Foundation and National Institutes of Health. He was highly prized as consultant to prominent companies such as Procter & Gamble, Occidental, and Clorox due to his expertise on oxidation chemistry and biology.

Christopher was the chair of the Department of Chemistry from 1978 to 1981, providing leadership that led to the construction of the Molecular Sciences Building (completed in 1994), and served as a strong advocate in developing the department's commitment to hiring outstanding female scientists for faculty positions.

In service to the broader UCLA community, Foote served as a member and chair of the Committee on Academic Personnel and was a member of the corresponding statewide committee for the UC system. He also served as member of the Executive Committee of the College. In keeping with his strong interest in computer technology, he was the first chair of the university's Information Technology Planning Board, which helped to transform educational and administrative technology policy at UCLA. He was president of the American Society for Photobiology in 1988-89 and senior editor of the respected journal *Accounts of Chemical Research* from 1995 until his death. He also served as elected councilor for the American Association for the Advancement of Science.

With his wife Judith L. Smith, vice provost for undergraduate education at UCLA, Christopher was a patron of the Los Angeles Opera and the Da Camera Society as well as a benefactor of the L.A. Chamber Orchestra.

In addition to his wife, Christopher is survived by a sister, Mary Foote Rounsavall of Louisville, Kentucky; two sons, Jonathan Trumbull Foote of Menlo Park and Thomas Ward Foote of Topanga, who is married to Florence Riobé- Foote; and a grandson, Spencer André Foote. Christopher had two brothers, now deceased, William Jenkins Foote Jr. and Edward Jenkins Foote.

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