



## Leo Armand Paquette

1934–2019

One of the most prolific organic chemists of our time died at his home in Columbus, Ohio, on January 21, 2019. Leo A. Paquette was born on July 15, 1934. He was a member of the Editorial Board of *Organic Syntheses* from 1984–1991 and served as the editor of volume 69. His death followed a long struggle with Parkinson's disease.

Leo was born in Worcester, Massachusetts to Armand and Clarice Paquette. His family had roots in Quebec province in Canada from which Leo's grandfather, Alfred Paquette (born December 28, 1879), emigrated to work on the railroads, and later, in the brickyards of Worcester. Leo's father (Armand) was born in Worcester on November 30, 1907. Armand was a laborer in the tanning industry and had a hobby of raising homing pigeons. One consequence of Leo's lineage is that he became fluent in French at a young age. The Paquette's were devoted Catholics and thus, when Leo reached the age of 18, he enrolled at Holy Cross College where he met his wife Estelle at a football game. Estelle says that Holy Cross lost that game, but it appears Leo turned out the winner on that day.

Leo completed his BS in 1956 and moved to MIT where he received his PhD in 1959 working in the laboratories of Norman A. Nelson. Leo then moved with his young family (Estelle and two children) to Kalamazoo, Michigan, to join The UpJohn Company as a research associate. He was quickly given free rein to pursue his developing interests. Mel Newman was a consultant for UpJohn at that time and he asked Leo to give a seminar at The Ohio State University. This resulted in a job offer and Leo joined the faculty at OSU in 1963. He quickly rose to the rank of professor (1969) and stayed at OSU for the remainder of his career.

Leo led a large and internationally recognized research group whose contributions spanned a remarkable number of fields within organic chemistry. Early contributions were in the field of heterocyclic chemistry including the properties of heterocyclic analogs of cyclooctatetraene and other compounds related to the larger field of aromaticity. His group also contributed to the fields of synthetic methodology including organosulfur chemistry, organosilicon chemistry, and synthetic photochemistry. I am particularly fond of his combination of domino Diels-Alder reactions and photochemistry to prepare the compact unsaturated hydrocarbon triquinacene. This was one of many structurally and theoretically interesting molecules prepared and studied in the Paquette laboratories.

The Paquette group also completed many syntheses of natural products including a remarkable selection of terpenoids. These often featured deep-seated molecular rearrangements as key steps. Leo is probably best known for the first synthesis of dodecahedrane (a dimer of triquinacene) completed in 1982. This synthesis also started with a domino Diels-Alder reaction and was effective enough to allow the preparation of dodecahedrane derivatives in large enough quantities to study their properties. Leo and his students were responsible for well over 1,000 papers and approximately 200 undergraduate, graduate, and postdoctoral students received their training in the laboratories of "Doc," as Leo was affectionately called by many of his students.

Leo was a dedicated and versatile teacher. He taught almost all of the undergraduate and graduate organic chemistry lecture and laboratory classes offered at OSU over the course of his career. Leo had a reputation for being exacting and demanding. His structures were neatly and crisply drawn and he covered a remarkable amount of material in the allotted time. Leo made efficient use of his time teaching. Early in his career, after teaching a graduate course in heterocyclic chemistry, Leo compiled his lecture materials into a book published as "Modern Heterocyclic Chemistry." Although this book was published over 50 years ago (1968), it still serves as a marvelous introduction to the topic.

Leo's love of stereochemistry was also apparent in his teaching and other pursuits. I first met Leo when I interviewed for a faculty position at OSU in 1977. He had just completed a lecture to first-year graduate students when I entered his office. Three structures were drawn on the blackboard and Leo asked me to explain their relationship. They were three different views of the sesquiterpene ishwarane. Thank goodness I passed the test. I also recall Leo taking two pens, one in each hand, and quickly writing a sentence of anyone's choosing as a pair of non-superimposable mirror images, his hands moving quickly away from one another as he completed the task. His facility with three-dimensional structures was remarkable. When I visited Leo a few months before his death, he was writing lectures in his head and visualizing them on the ceiling!

Leo received much recognition and many awards throughout his career. A few of these are listed below. At OSU Leo was appointed the title of OSU Distinguished University Professor (1987) and was awarded the OSU Sullivant Medal in 1990. Leo was recognized in the Ohio chemical community with the Cleveland (1971 Morley Medal) and Columbus (1979) ACS section awards. Leo was recognized nationally by the ACS as recipient of the Award for Creative Work in Synthetic Organic Chemistry (1984), an Arthur C. Cope Scholar Award (1987), and the Ernest Guenther Award (1992). In addition, he was elected to the National Academy of Science in 1984, became a Fellow of the Japanese Society for Promotion of Science (1991), and received an honorary doctorate from his alma mater Holy Cross College in 1984. Internationally, Leo was named a Guggenheim Fellow (1976), Humboldt Fellow (1989), and Fellow of the Japanese Society for Promotion of Science (1991). He also served as a Visiting Professor at universities in the USA and abroad including Groningen University (1975), and the Universities of Heidelberg (1984), Paris (1985), and Freiberg (1989).

Leo served the chemical community through involvement with numerous publications. He was the author of many books and reviews. His writing and organizational skills were valuable as he served on editorial boards including the *Journal of Organic Chemistry* (1972–1976), *Chemical Reviews* (1976–1978), and the *Journal of the American Chemical Society* (1987–1990). In addition to his service to *Organic Syntheses* (his students checked 29 procedures during his service on the editorial board), Leo was on the board of editors of *Organic Reactions* from 1979–1999. He served as editor-in-chief from 1988–1999, and during his tenure, 39 chapters were published in

volumes 38–55. Leo was also the founding editor of the Encyclopedia of Reagents for Organic Synthesis (EROS) and later the electronic version of this reference book (eEROS).

Leo had interests outside of chemistry. He was an avid baseball fan and loved the Boston Red Sox. His research group usually entered a team in the OSU Chemistry Department Summer League. The team was named “Armand's Army” and Leo was the pitcher. Leo regularly played poker with friends and he loved outdoor activities, taking frequent ski vacations with family. Leo and Estelle had a rustic second home in the Hocking Hills near Columbus where they frequently hosted students and friends. It was a place where Leo could spend his excess energy cutting trees and working the land.

Leo was truly one of the giants in our field of organic chemistry. His legacy will live on at OSU through the annual Paquette Legacy Symposium and Paquette Workshops in Organic Synthesis. A laboratory wing in the new chemistry building (CBEC) has been named in his honor and a Professorship is being established in his name. Leo will be missed and remembered by his students, colleagues and friends.

Leo is survived by his wife Estelle, who provided much of his healthcare during his last years of life, and his five children (Ron, Donna, Susan, Linda, and Lisa) and their families.

David J. Hart