Eugene E. van Tamelen (1925–2009)

Internationally known organic chemist Eugene E. van Tamelen, Emeritus Stanford University Professor, died on December 12 of cancer at the age of 84. He is survived by his wife Mary, former mayor of Los Altos Hills, CA (USA), daughters Jane van Tamelen of Venice, CA and Carey Haughy of Columbia, CA, son Peter of Corvallis, OR, and five grandchildren.

Gene van Tamelen will be remembered as one of the most creative chemists of his time. Best known for the biologically inspired syntheses of complex natural compounds, van Tamelen managed to connect organic chemistry with inorganic, physical, and biological chemistry. He was a member of the National Academy of Sciences, and was named one of the 20th century's best scientists by England's International Biographical Centre.

Gene van Tamelen was born in 1925 in Zeeland, a small western Michigan town in Dutch America's heartland. He thought he inherited his gift for spatial thinking and a love of the applied arts from woodworker ancestors. He enrolled at Hope College in nearby Holland, Michigan, initially to become a car designer, but when he took organic chemistry and experienced three-dimensional space at the molecular level, he became an organic chemist.

He graduated from Hope College in 1947, received a PhD from Harvard University in 1950, and joined the University of Wisconsin's chemistry faculty that year. He quickly rose to full professor and became Homer Adkins Professor of Chemistry there before moving to Stanford University in 1962. Together with Professor William S. Johnson, who recruited him, and Professor Carl Djerassi, he formed the nucleus of a powerful organic chemistry group, which transformed chemistry at Stanford into one of the world's most highly rated departments. He chaired Stanford's chemistry department for several terms. In 1967, he was appointed Professor Extraordinarious at University of Groningen by Queen Juliana of the Netherlands.

He published over two hundred papers in leading scientific journals, and his numerous honors include two honorary doctorates and the Award in Pure Chemistry (1961), the Leo Hendrik Baekeland Award (1975), and the Award for Synthetic Organic Chemistry (1970) from the American Chemical Society.

At Wisconsin and Stanford he supervised the research of more than two hundred doctoral students and postdoctoral fellows, many of whom also had distinguished academic careers. During the 1960s and early 1970s, Gene van Tamelen published a series of spectacular biomimetic syntheses of complex alkaloids, including the hallucinogenic alkaloid yohimbine and the antimitotic colchicine. Another very complex example is ajmaline, which contains six connected rings and nine asymmetric centers.

A different and remarkable synthesis was the preparation of Dewar benzene, an isomer of benzene, which had previously been considered to be a theoretical structure without existence in reality. He was also the first to recognize that squalene oxide is a key intermediate in the biochemical pathway leading to cholesterol and steroid hormones. From then on, one of his major research efforts was aimed at understanding and mimicking this remarkable cyclization of linear squalene oxide to polycyclic steroids. Examples of the results of these studies are the synthesis of dihydrolanosterol by chemical epoxide cyclization (1970) and of progesterone and related steroids (1983). Finally, he initiated work on nitrogen fixation in the early 1960s. He managed to reduce molecular nitrogen to ammonia at ambient temperature and pressure using titanocene as catalyst. The idea was again to mimic nature, where bacteria do reduce nitrogen at such conditions, which is in sharp contrast to the Haber–Bosch process that requires both high temperatures and pressures. The work was ahead of its time, and only now are researchers coming up with procedures that start to remind us of those found in nature.

Attracted by van Tamelen's spectacular synthetic work, I came to Stanford as a postdoctoral fellow in 1967. He was an unusual and extraordinary research leader, very sharp, always able to see things from a new direction, and he had a very fine sense of humor. He worked intuitively, with distinct and far-reaching goals, so that he left much of the practical details to the students and also gave them much freedom to develop their own ideas. This strategy can be very hard on the co-workers, but it gives them an extraordinary opportunity to develop as scientists. I had in a way been looking forward to the strictly directed type of research, which we Swedes thought was the rule in the USA; I am very grateful that I was instead allowed to work with a totally different type of research director.

Gene had an extraordinary talented group at the time. He suggested that I should work on two different projects, cyclization of squalene oxide, where I worked mainly with Barry Sharpless, then a very advanced graduate student, and on nitrogen fixation together with Gernot Boche among others, who later became professor at Marburg University in his native Germany. In this project we also had close contact with Henry Taube. Looking back, I had a very productive year with Gene van Tamelen. Not only did I get a number of publications in *J. Am. Chem. Soc.* but I learnt to try to think big and to believe in these ideas. I also learnt organo-

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metallic chemistry at a time when many considered this field a branch of magic rather than of chemistry. Thanks to not only van Tamelen himself and his co-workers, but also to Henry Taube's deep insight in the field and a very stimulating course given by Jim Collman, it became clear to me that it was a in fact a perfectly rational branch of chemistry. This allowed me to introduce modern organometallic chemistry to Sweden in the late 1960s.

Coming back to Stanford in 1977, I was sad to realize that Gene was no longer as engaged in chemistry as before, and later he left chemistry altogether. It seems tragic that a chemist of Gene van Tamelen's standing should leave chemistry prematurely, as I am sure that his creative and independent way of thinking still had much to contribute to the field. However, because he had then accomplished very much, it is possible that he felt that he had done enough and wanted to pursue other interests.

I am grateful for having known Gene quite closely and I very much enjoyed the time I spent with him during the Nobel festivities 2001, where he was a guest of Barry Sharpless. Our last meeting was in Stockholm 2007, when my wife and I spent a very pleasant day with him and Mary while they visited Stockholm as part of a Baltic cruise. We will miss Gene and are very sorry that we delayed our next visit to Stanford too long.

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