



Carlos Oakley Miller, 89

Feb. 19, 1923—Aug. 18, 2012

BLOOMINGTON—Emeritus Professor of Biology Carlos O. Miller passed away on Saturday, August 18th, 2012, at the IU Health Hospice House in Bloomington, Indiana, following a severe stroke. Carlos was born February 19, 1923, in Jackson, Ohio, to Marcella Leach Miller. He was raised by his mother and stepfather, William Howard May. He is survived by his half sister, Dorothy Basham, of South Webster, Ohio; half brothers, William Calvin May, of Livonia, Michigan; and Jerry May, of Westerly, Rhode Island. He was preceded in death by his half sister, Joann Pettit, and his brother, Gerald Miller, whose wife, Imogene, survives.

Carlos attended Ohio State University where he received his undergraduate, master's and Ph.D. His college education was interrupted from 1943 to 1946 while he served in the United States Army as a meteorologist. During the time of his military service, he took training at Denison University and Harvard University in the fields of mathematics, physics, electronics and meteorology.

After his return to Ohio State University following the war, he switched his major from electrical engineering to plant physiology, graduating *cum laude*, and staying on to complete his Ph.D. in 1951. For his Ph.D. thesis, he studied how light and various organic and inorganic compounds affected the growth of plant cells.

After receiving a Ph.D. in 1951, Carlos joined Folke Skoog's laboratory at the University of Wisconsin to continue work on the growth of plant cells. One of his projects was to identify the factor(s) in an extract of yeast that caused plant cells to vigorously divide. With great perseverance and a knack for chemistry, Carlos purified enough of the factor to determine its chemical structure. He and his colleagues submitted a landmark paper in 1955 on the discovery of a new hormone they named kinetin that stimulated plant cells to divide. Carlos also discovered that this hormone could be used to coax plant cells to grow back into whole plants from just a single cell. This technology is now a cornerstone of the plant biotechnology industry.

Carlos moved to Indiana University in 1957, where he accepted a position as Assistant Professor of Botany. At IU, Carlos pursued the identification of an endogenous plant hormone that had the same growth stimulating effects as kinetin. After years of grinding large batches of developing corn kernels as a starting source of the hormone, Carlos purified and identified the natural hormone, which he named zeatin after the scientific name of corn, *Zea mays*. To have discovered one form of a new class of hormones is more than most scientists can hope to achieve in their career; to have discovered two forms is remarkable. More on Carlos' discoveries of kinetin and zeatin can be found on pages 8 and 9 of the Winter 2006 issue of *The College* (<http://college.indiana.edu/alumni/office/mag.shtml>) and in a scientific journal (<http://www.plantphysiol.org/content/138/3/1177>).

After these discoveries, Carlos continued to be highly productive. He devoted much of the remainder of his career to understanding the biochemical mechanisms through which cytokinins exert their many effects on plant growth and development. Although he officially "retired" in 1987, he continued to conduct research on plant physiology until the time of his death.

Carlos viewed doing science as a privilege that society had granted him, and he wished that others would have the opportunity to share in that privilege. Accordingly, in 1999 Carlos endowed and established the Carlos O. Miller Chair in Plant Growth and Development and in 2007, endowed and established the Carlos O. Miller Graduate Fellowship in Plant Developmental Biology, both at Indiana University. He was also a loyal supporter of WonderLab.

Doing science was a labor of love for Carlos; even at age 89, he continued to arrive in the lab early in the morning seven days a week because he was always excited to start the next experiment. He loved to talk science, always with a smile on his face that couldn't help but brighten your day. He will be dearly missed by his friends and colleagues. Following Carlos' wishes, there will not be a funeral. A memorial to celebrate Carlos' life will be held at later date. Memorial donations may be made to IUF/Carlos Miller Fellowship, with "In memory of Carlos O. Miller" added to the memo section of the check. Donations should be mailed to: IU Foundation – Bloomington, PO Box 6460, Indianapolis, IN 42206-6460.