

Cliff Long (1931 - 2002)

Bowling Green State University / College of Arts and Sciences / Mathematics & Statistics / Faculty & Staff / Retired & Former Faculty / Cliff Long (1931 - 2002)

Cliff Long passed away peacefully at home Tuesday Aug 6, 2002 after a 7 year bout with multiple myeloma.

He was born Clifford Allan Long on the south side of Chicago on April 10th, 1931, son of Peter Allan and Marguerite Mildred Miller Long, both originally of Ontario, Canada. Cliff's father was a carpenter, from whom he learned a love of wood and many useful skills which would serve him well his entire life. His mother was a church-goer who took him and his brother to Gresham Methodist Church.

The Great Depression was in full swing at the time of Cliff's birth and there were some lean years until the war effort associated with World War II provided work for his father in the defense plants. The Depression affected Cliff deeply, as it did many of his generation. During those years Cliff and his mother and brother would go to Canada to spend the summer, to help on the farm and to reduce the burden on his struggling father. Cliff learned many skills related to farming and mechanics from this experience, skills which he honed over the course of his life.

Following high school graduation Cliff was offered a half-time scholarship at the University of Chicago, but couldn't afford to attend. Instead, he took a position as an order checker at Armour Inc., at the stockyards. Cliff began attending Wilson Junior College and then left the stockyards for the University of Illinois (Navy Pier). He studied mathematics, and was a member of the gymnastics team, with a specialty in the flying rings. After a few years at Navy Pier, Cliff moved to the Champaign-Urbana campus and became involved at McKinley Memorial Presbyterian Church. It was there that he met his wife, Patricia Marilyn (Lyn) Cline. They were married on September 7th, 1957.

Cliff obtained his bachelor's degree, a master's degree, and finally a doctorate in mathematics from the University of Illinois under Pierce Ketchum. Cliff began teaching mathematics at Bowling Green State University in 1959, and he taught there for the next 35 years —serving on Faculty Senate for 20 of those years.

Cliff was well respected in the mathematics community and was published in many journals, including several recently with his son Andy. He was very active in the Mathematical Association of America, serving in many leadership capacities. He was on the Board of Governors of the MAA 1988-91, received the MAA Meritorious Service Award in 1994, was Chairman of the MAA Ohio Section 1980-81, Program Committee Chair 1978-79, and handled local arrangements for several Ohio Section meetings at BGSU.

He witnessed the infancy of the computer at the University of Illinois, and followed it through its adolescence while at BGSU, including serving for many years on the University Computing Council, guiding the integration of computers into everyday university life. He was one of many who helped computing reach a certain level of maturity in our time, when the computer seems but a simple and useful appliance in so many homes. He had a special interest in computer graphics, and the visualization

of mathematical ideas. He started doing computer graphics when it was really difficult to do. It now seems so easy, but he started doing 3-d computer graphics on a line printer in the 60s. He even had a small computer-controlled milling machine in his office to generate models of 3-d surfaces. It was built by one of his students.

Cliff had an early interest in computer aided design, which is now the basis of most modern industrial design, replacing the drafting table of the past. He was involved with a colleague, Vic Norton, in early work at Ford Motor Company with Ed Moylan on Bezier curves and surfaces. That seemed to drive most of his work of the next 30 years. He even taught his milling machine to sign his name to his works with Bezier curves. These curves are used everyday in modern Postscript laser printers.

Bezier curves are closely related to his interest in linear algebra and its teaching. He was in the linear algebra reform movement before there was such a thing. He and colleagues (but mostly him) started teaching a linear algebra course in the 70s which had as its goal the singular value decomposition (SVD) and an emphasis on applications previously found only in numerical analysis courses. This followed the work of Gilbert Strang of MIT which has changed the course of linear algebra instruction. He was joined in this work by his son Andy. His Mathematics Magazine article on using a digitized model of a bust of Abe Lincoln (which he digitized by hand) to demonstrate the SVD is continually cited by most modern authors on the subject.

Cliff was also a very early pioneer in the calculus reform movement and the introduction of technology in teaching mathematics. In 1970 he and David Krabill taught a calculus course using Fortran based on the CRICISAM project. In later years he adapted as newer technologies emerged for this effort which is now so widespread. He had to push the technology, which meant building a portable cart himself with monitor and Apple II computer to wheel into a classroom, producing super-8 movies, slide sets, milled models, and even a View-master reel of quadric surfaces. All this to try to teach mathematics through visualization.

One aspect of the visualization of mathematical ideas that many people appreciated was his sculpting: Cliff expressed his mathematical interests in art works which he carved from wood and stone. Even those petrified of mathematics enjoyed seeing and touching his mathematical sculptures.

In spite of his many accomplishments in the subject matter of mathematics, Cliff was most committed to serving students through his teaching. Over the years many students paid their respects to him in various ways: some became mathematicians, some sent Christmas cards and occasional letters, and some would return from time to time to check in on their professor. This mutual respect is also evident in his selection by students for the Kappa Mu Epsilon mathematics honorary "Excellence in Teaching Mathematics Award" in 1970 and 1980.

The last seven years of Cliff's life were afflicted by Multiple Myeloma, a cancer of the blood currently considered terminal; but he lived each day with dignity and with the assurance of the love and support of his friends and family. He felt himself extremely lucky to enjoy the support of those friends whom he considered family: the love and respect he shared with friends throughout his life returned to him in his hours of need, during which he was showered with help and care. He knew how blessed he was, but

would have been reluctant to recognize how faithfully he had earned the support he received. Friends and family were his focus and greatest treasure.

He is survived by his wife Lyn, and children: Steven, Andrew, Thaddeus, and Melinda (Gedeon) and their families.

The family requests that memorials be sent to Cliff & Lyn Long Scholarship Fund (Fund #30-000498; mail to: BGSU Foundation, Mileti Alumni Center, BGSU, Bowling Green OH 43403; , or Presbyterian Church Foundation - Cliff & Lyn Long Local Benevolence Fund.