

Ellen Shirley Schwartz, PhD, passed away on May 8, 2016 at home in Ann Arbor MI from complications of Alzheimer's disease. Shirley was born on August 26, 1935 in Detroit to Jessie Grace Galbraith Eckwall and Emil Victor (Eck) Eckwall, Shirley grew up in Pleasant Ridge Michigan with her sister, Sally. The Eckwalls were active in sports and spent summers by the lake at their family cottage near Gaylord, Michigan.

Shirley was very smart (high school IQ of 144), and earned almost all A's in her classes. She graduated from Lincoln High School in Ferndale, MI in June 1953, went to summer school in the Sorbonne (U. of Paris, France), and a summer of Spanish language study and trip to Mexico with a class from U. of Illinois.

Shirley attended the University of Michigan in Ann Arbor where she started as a language major, then switched to chemistry and graduated with a Bachelor of Science in Chemistry in February 1957. She spoke French, German, Spanish, and some Swedish, translated a few articles from Russian into English, and later learned and spoke Japanese when working at General Motors.

Shirley met the love of her life, Ron Schwartz, while they both were at U of M in the fall of 1956 when Shirley missed a landing while doing back flips on a trampoline and Ron prevented her from falling off. She and Ronald Schwartz, were married on August 25, 1957

She enjoyed music, whether she was dancing or playing. She learned the clarinet in grade school, and block flutes (soprano, alto and tenor) as an adult, performing block flute duets with Ron.

Shirley spent one semester at the U. of Connecticut at Storrs, CT, in 1958. She earned a Master of Science in Biochemistry at Wayne State U. in 1962 with advisor Wendell H. Powers and published " A Survey of the Quality and Distribution of Biochemical Literature" , followed by a PhD in Biochemistry at Wayne State U. with Professor Wilfried Heller in 1970. Her PhD thesis was 'Refractive Index Investigations of Polymers and Proteins'. Shirley did a post doctorate study with Dr. Harry Fischer, PhD, Director of Radiology at Wayne County General Hospital (Eloise) and published "Adhesion of Barium Sulfate to Colon Tissue". She also developed techniques to grow nerves in chicken embryos while at Wayne State University.

Shirley taught Biology and Chemistry part time at Oakland Community College, then taught full time at Detroit Institute of Technology. While there, she took courses in mathematics, engineering drawing, and computer programming. When DIT closed she was employed by BASF Wyandotte. Later, she was employed by General Motors Research at the GM Technical Center in Warren, Michigan for 18.5 years.

Shirley traveled to Germany to consult with BASF home office scientists, and gave talks about lubrication subjects in the Netherlands, Toronto, Canada, Fort McMurray, Canada and others places.

She wrote several chapters in Lubrication Engineers Handbooks, many articles titled 'Love Letters to Lubrication Engineers' in Lubrication Engineering magazines between 1989 and 2003. In 1993, forty five of these articles were published in a book with artistic illustrations by her son, Steve. She wrote and published articles in English and French.

Shirley had over 20 patents and 173 papers and essays. At BASF Wyandotte she developed and patented successful water based hydraulic fluid that was used in production during the 1970's oil shortage, and at General Motors she and others developed and patented the oil change monitor used in GM cars for which Shirley received the Kettering award.

She was a member of Mensa, American Chemical Society, an officer in the Society of Tribologists and Lubrication Engineers, a 'Fellow' in the Society of Automotive Engineers, Phi Beta Kappa, Sigma Xi, Michigan Women's Hall of fame, the National Academy of Engineering, Wayne State U. Distinguished Alumni Award, Engineering Society of Detroit Gold Award, Society of Women Engineers Achievement Award, several awards for writing, a Navigator in the United States Power Squadrons (a boating education organization). She was the secretary of the Warren Human Rights Council during the civil rights movement of the 1960s.

Shirley had a lifelong love of athletics that included; U. of Mich. Women's Water Ballet, canoeing, sailing, skiing, champion swimmer and diver, Senior National level competitor in Table Tennis, US Open competitor in senior women's Volleyball, and won some senior women's tennis trophies. Shirley was often known to challenge anyone to a swimming race feet first and never lost, usually because no one else could do it.

Joe Colucci, Shirley's department head at GM, wrote "Shirley was a remarkable person. Her great personality showed through every day no matter who she was with. She was vibrant, enthusiastic, friendly, and compassionate besides being a world famous scientist, as evidenced by her many achievements. It was my honor to have worked with Shirley and to have had the opportunity to provide as little supervision as possible. I gave Shirley many projects to work on, and I got out of the way and let her do them, which she successfully did."

Granddaughter Jessica wrote, "Grandma loved telling stories, particularly the ones highlighting being a woman engineer back when women often weren't engineers. Being an engineer, inventor, competitive table tennis and volleyball player, and being multi-lingual to boot, certainly led to Shirley having an exciting life. Her grandchildren (or "kiddiewinks" as she used to call us) still chuckle over some of the stories she told of what it was like to be a woman engineer in the early 70s and how she would sometimes cheekily let the gentlemen think she was a note-taking secretary before she was introduced to speak at a large event, just to watch their eyes get wide with surprise as she stepped up to the podium."

There were many times when Shirley's multi lingual skills surprised friends and coworkers. She told a story of a group of Japanese men who were talking about (belittling) her, in Japanese, on the way to a meeting. Then, when she got up and started to speak at the meeting in Japanese, their jaws dropped to the floor. A similar thing happened with French students that spent a few weeks with us up north one summer. She did not speak French to them because they were there to learn English. Then, the next summer we toured France, and spent a few days with them. They were astonished and a maybe little embarrassed, when they discovered she spoke French.

Shirley was often under estimated and always over achieved but her best attribute was the

way she appreciated, interacted with and genuinely cared about getting to know everyone she met. She would eagerly inquire of peoples' interests and passions. She loved sharing common interests and invited everyone to join in the activities they enjoyed together. She was forever generous with her time, effort and support to any deserving cause or person. She will be deeply missed by all who knew her well.

Shirley was predeceased by her parents and brother-in-law Leonard (Linda) Schwartz. She is survived by her family who will carry her spirit with them including; husband, Ronald Schwartz, sons Steven Schwartz, Bradley (Colleen) Schwartz and George Schwartz, sister Sally (Charles) Jarvis, sister-in-law Donna (James) Stevens, six grandchildren; Jessica Schwartz, Kelly (Phil) Ploski, Mathew (Rebecca) Schwartz, Clara Schwartz , Laura Schwartz, Jonathan Schwartz, one great grandchild Maryanna Joy Ploski, and several nieces and nephews. There will be a Memorial service on Saturday June 18, 2016, at 3:00 pm followed by a reception and visitation at Zion Lutheran Church, at 1501 West Liberty, Ann Arbor, MI 48103. If you wish, donations can go to the Alzheimer's Association.