

Bill Nowlin, Part 1

(As published in The Oak Ridger's Historically Speaking column the week of July 9, 2018)

Benita Albert brings us another amazingly well researched insight into the life story of yet another of her past Oak Ridge High School students. Enjoy the look back with Benita:

Bill Nowlin could not have seen his future upon graduation from Oak Ridge High in 1982, his career was waiting for his talents, experimentation and specialization. By the late 1980's he was in graduate school at Harvard working in Applied Mathematics and Robotics. His specialization eventually led him to a new Silicon Valley Company, Intuitive Surgical, as a principal design engineer for the daVinci Surgical System.

His work in surgical robotics has evolved through four generations of surgical systems. His company's surgical systems have been used in nearly 5 million patient operations.

Certainly, Bill Nowlin qualifies as one of our hometown heroes, a talented problem solver and innovator who is now contributing significantly to advancements in robotics and medical surgeries. This Part One of Bill's two-part story will concentrate on his Oak Ridge origins and education. Part Two will chronicle his amazing career and discuss the future of surgical/robotic technology.

Bill's parents were scientists who met while carpooling to their summer jobs at Bell Labs. Charles (Charlie) Nowlin would claim their story was love at first sight as he proposed marriage to Anne Cary (A. C.) Williston only ten days after their first date. They married in 1956 while Charlie was attending Harvard graduate school where he ultimately earned his PhD in Applied Physics.

Charlie and A.C. moved to Oak Ridge, Charlie accepting a job in the Instrumentation and Control Division at the Oak Ridge National Lab in 1962. Speaking of this move, Bill said, "They drove their 1962 Rambler with all of their possessions down US 11 to Oak Ridge and bought a "C" house on Malvern Road."

Bill proudly speaks of his dad, "He was a devoted dad. He taught me how to throw a baseball and kick a football, and we spent a lot of time being shade-tree mechanics for his fleet of poorly engineered AMC (American Motor Company) products. My dad was very much a self-made man and accomplished in fixing and improving things around the house, but his fixes and improvements tended to be a little unusual. His collection of tools was enormous, as was his collection of projects in limbo."

Bill continues, saying that when his dad retired, "he puttered with computers and software, always trying to build a system that would run some of his old FORTRAN code." Charlie died in December 2016 at his and A. C.'s new home in California near Bill.

Bill reflected, "I am incredibly proud of Dad; he was just this kind, intelligent, generous soul who gave his absolute full attention to whomever he was talking to, and he wished the best for everyone he met." These attributes are also clearly a part of Bill's persona as viewed from my perspective as his high school math teacher and now the proud writer for this story.

Bill's mother, A. C., graduated with an undergraduate degree in Chemistry from Smith College. Though she gained Harvard graduate school acceptance to continue her studies, she opted to marry Charlie and support him through graduate school.

In the middle 1960s, Charlie and A. C. added two children, Bill and Margo, to their Oak Ridge home. A. C. devoted her life to her family, to the children's school activities, Brownies and Camp Fire Girls, their church, and for herself, a ladies' investment club.

When her children were in junior high school, she earned a Master's degree in Educational Psychology and then taught in local community colleges, a career she enjoyed very much. A. C. died February 1, 2018 in California.

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Bill's sister, Margo, was a 1984 ORHS graduate and a computer science major at Clemson University. She and her husband have lived in Germany for more than two decades. Bill reports that Margo and husband have busy careers which require much traveling in addition to raising their teenage son.

Bill and Margo attended Cedar Hill Elementary, Jefferson Junior High School and Oak Ridge High School. Bill has many fond memories: third grade's innovative independent-study math for selected students; sixth-grade teacher Mrs. Chapman's classroom kiddy pool, full of moss, lichens, fish, crawdads, etc.; learning to play the trombone in band; and Clifford Smith's JJHS geometry class where he says, "I first learned that math was interesting and fun for me...it worked my young brain in a new and profound way."

Bill also enjoyed JJHS gym class and the weekly mile runs around the building and football field, the training ground for his joining the ORHS cross-country and track teams. Bill says of this, "The track team was good for me because I interacted with awesome people who are still my friends, but with whom I didn't share a single class... they called me 'professor.'"

Other ORHS sports memories include the great football teams of 1980 and the 1981 state champions. Bill says, "In 1981 the boys' cross-country team also won the state...So when the boosters arranged for a trip to the Orange Bowl for the football team, someone stood up and demanded that the cross-country team also get that trip...Most of the football players let us tag along without too much complaint. Coach Mac (Jim McNamee, ORHS cross-country coach) was a great influence on me."

Bill's high school academic studies leaned heavily toward math and science. He was one of the first ORHS students to elect to take two years of Calculus, AP Calculus BC and Calculus 2 in one year, his senior year. It was in Calculus 2 that he first met Linear Algebra, a field of study which would become the foundational basis for his future career.

Recounting memories from his childhood, Bill says, "Oak Ridge was a wonderful, special place... I could ride my bike through the greenbelt and catch crawdads. I could play basketball at old Pine Valley School, about five minutes from my house. I had a paper route off Pennsylvania Avenue that taught me responsibility and values.

I mowed lawns for \$5, and the goal was to mow a lawn in an hour. Oak Ridge provided a very safe, nurturing place where kids could grow up. In later collegiate summers, Bill worked at the Atmospheric Turbulence and Diffusion Lab, via a program sponsored through Oak Ridge Associated Universities. He says of this experience, "There I really got exposed to what science was all about...I knew I had to learn a lot more."

And learn he did, at the University of Virginia as an Echols Scholar, he graduated as the top student in both of his majors, Applied Mathematics and Physics. He did his graduate studies at Harvard in Applied Mathematics and Robotics. After finishing coursework, Bill's graduate research specialized in signal processing and the underlying mathematics of certain kinds of arrays of sensors. He loved the new and well-equipped lab in which he worked and where his challenge became to: "Build and test fluid-filled squishy fingertips to imbue robots with inherently more stable grasping hardware." Bill was finding his future.

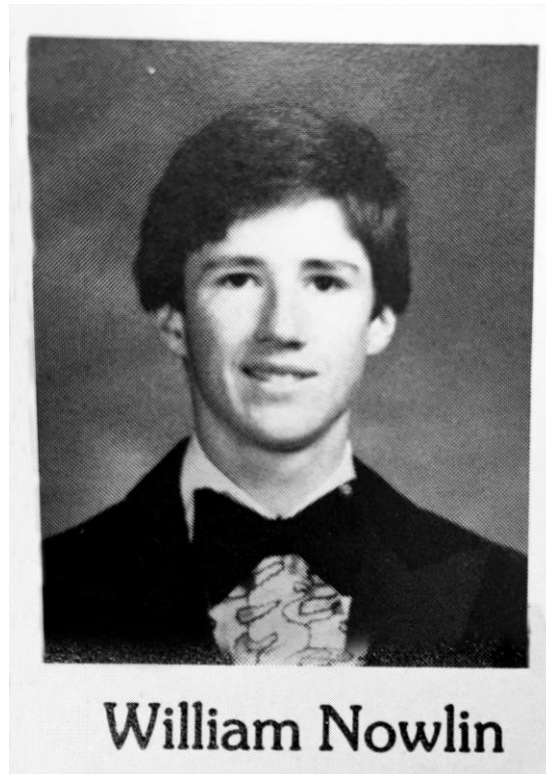
To anticipate the next part of this story, let's end with Bill's description of new robotic surgical procedures, "Prior to the daVinci Surgical System, prostatectomy was a difficult 'open' procedure involving a large incision and long recovery. But because of the technology of 3D vision and wristed instruments, you can think of the surgeon as being shrunk and placed inside the patient, where he or she can work in relative comfort and with great confidence due to the precision and control."

Thank you, Benita, for introducing us to Bill Nowlin, another of the Oak Ridge High School alumni who has excelled in his career. Next Benita will tell us about Bill's visit back to Oak Ridge and his interaction with Oak Ridge High School students.

Bill Nowlin's amazing career accomplishments will be the focus of Part Two of this story.

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Bill Nowlin's Oak Ridge High School senior photo



The daVinci Surgical System being operated by Benita Albert