DOCUMENTS OF THE GENERAL FACULTY

REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR ARWIN A. DOUGAL

The special committee of the General Faculty to prepare a memorial resolution for Arwin A. Dougal, professor emeritus, electrical and computer engineering, has filed with the secretary of the General Faculty the following report.

Sue Alexander Greninger, Secretary
General Faculty and Faculty Council

IN MEMORIAM
ARWIN A. DOUGAL

Professor Emeritus Arwin Adelbert Dougal, an engineering professor at The University of Texas at Austin who represented everything that is noble about the engineering profession, died on July 30, 2012, in Austin, Texas, at the age of eighty-five.

Arwin was a devoted engineering teacher, a strong researcher in the field of plasma science and physical electronics, a dedicated public servant who interrupted his life twice to serve his country, first as an enlistee in the U.S. Army Air Corps in 1946 and later as the assistant director of the Department of Defense Research and Engineering in the 1960s. He also served as an elder in the Covenant Presbyterian Church. Throughout his life, he remained an engineer’s engineer, always wanting to understand better how things worked, committed to making things work better, and doing so with his keen intellect, incessant curiosity, and respectful manner.

Arwin was born in the farming community of Dunlap, Iowa, in the Loess Hills of the Missouri River Valley on November 22, 1926, the second of three sons of Adelbert Isaac Dougal and Goldya White Dougal. As a youth, he was an inquisitive boy and assiduous reader of books on adventure, biography, documentary, and scientific matters. In high school, Arwin built a “pre-vacuum tube” radio receiver. In 1939, he first flew in an airplane. His love of electronics and his love of flying would remain with him the rest of his life.

In 1943, Arwin graduated from the Everly Consolidated School in the midst of World War II. He excelled at the national electronics examination known as the Eddy Test, and in 1946, he enlisted in the U.S. Army Air Corps, where he worked on the then secret air force RADAR and TELERAN equipment. In 1949, following his release from military service, Arwin began his college education at Iowa State University, where he earned his Bachelor of Science degree in electrical engineering in three years. It was during that period that Arwin met and married Margaret Jane (“Peggy”) McLennan, his lifelong love and companion. They were married on September 3, 1951.

Professor Dougal’s research focused on high voltage breakdown (arcing and sparking) in air and other gases. He was interested in visualizing and analyzing the basic physical processes at work during the formation of the arcs and when they are sustained. He worked on optical instrumentation to study the ionization processes in gases, with emphasis on extremely high pressures. One of the most interesting devices in his laboratory was a “Streak Camera,” which recorded visual information at ultra-high speeds not attainable with other instrumentation of the day, for example the high-speed motion picture cameras. It was an artifact of the Cold War, actually developed by Soviet scientists and “acquired,” as it were, by British intelligence; or so the story went. Among Arwin’s important papers were “Fringe multiplication in dark-field holographic interferometry,” which he published with Frederic Weigl and Otto Friedrich in IEEE Journal of Quantum Electronics (1969) and

Arwin’s dedication to teaching and mentoring was acknowledged by numerous awards, including the Teaching Excellence Award from the UT Students Association, the Outstanding Graduate Advisor Award, the Distinguished Advisor Award, and the Professional Achievement Citation in Engineering from the Iowa State University Alumni Association. He particularly relished the accomplishments and awards achieved by his many former research students.

Among Arwin’s major contributions to the College of Engineering (now the Cockrell School of Engineering) and the University of Texas was his attracting the JSEP (Joint Services Electronics Program) to the University. This program was funded by the U.S. Army, Navy, and Air Force, and supported research at the top research universities in the country, including the Massachusetts Institute of Technology, Harvard University, the University of California at Berkeley, Stanford University, and the University of Illinois. It was the premier research program of the U.S. Department of Defense. Arwin devoted considerable effort to attracting this program to Texas. The JSEP program at the University of Texas was instrumental in attracting additional research funding from other agencies in the Department of Defense and graduate students and faculty from other premier universities. His success in bringing this program to the University and directing it, helped UT Austin to join the ranks of major research institutions in electronics and electrical engineering, leading to the rise of the Cockrell School of Engineering’s prominence.

Arwin served the professional engineering community, both at UT Austin and nationally, in many important capacities. He was director of the university’s Electronics Research Center, national director of Electrical and Electronic Engineers (IEEE), director of IEEE Region 5, and chairman of the IEEE Central Texas Section. He was a Registered Professional Engineer in Texas and a Fellow of both the Institute of IEEE and the American Physical Society.

In the 1960s, he served as Assistant Director of Defense Research and Engineering (DDR&E) for the Office of the Secretary of Defense at the Pentagon in Washington, District of Columbia, where he was instrumental in upgrading the importance of and reliance on technology in our Armed Forces. Arwin loved flying and the precision and complexity of the radios, navigation instruments, and electronics of airplanes. He respected the dangers of flight, understood the capricious nature of weather, and was a careful pilot. He owned many airplanes during his life, including an aluminum Luscombe, an aerobatic Pitts Special, a Volksplane, and assorted Cessna Skyhawks.

Arwin continued to visit the electrical and computer engineering (ECE) department many times after his retirement, mostly at special events. Professor Tony Ambler, a former chair of ECE and a pilot himself, recalls enthusiastic discussions with Arwin over the past fifteen years on the intricacies of flying. Professor Yale Patt, who was a young lieutenant in the U.S. Army when Arwin was a major force at DDR&E in the Pentagon in 1967, recalls meeting Arwin at an ECE function at UT Austin ten years ago, and that he was profoundly impressed by this soft-spoken emeritus professor who was such a key figure in Washington during the Vietnam Era. A guest at one of the department’s banquets, who was involved in oil drilling, recalls a long and animated discussion with Arwin, involving safety issues in the oil drilling business.

Throughout his retirement, Arwin remained interested in the various engineering technologies and was always ready to question how things worked with an eye toward making them work better. Those in electrical and computer engineering at the University always looked forward to his visits.

In addition to his wife Peggy, Arwin is survived by his brother, Maurice Dougal, of Spirit Lake, Iowa; his children Catherine, Roger, Leonard, and Laura; ten grandchildren; and ten great-grandchildren.

This memorial resolution was prepared by a special committee consisting of Professors Yale Patt (chair), J.K. Aggarwal, and John Pearce.

Distributed to the dean of the College of Engineering on November 29, 2012, and posted under “Memorials” at http://www.utexas.edu/faculty/council/.