

## PRESIDENT OF THE TENNESSEE ACADEMY OF SCIENCE FOR 1997

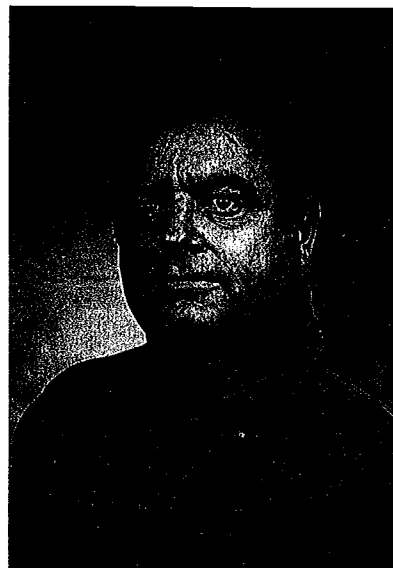
One of the duties of each new President of the Tennessee Academy of Science is to provide the membership with a short biography. As the Academy President for 1997, I am honored to do so in this column.

My elementary and secondary school training was provided by the Arlington Public School System, a small suburban town located northwest of Boston adjacent to Cambridge and Lexington. Regarding my elementary school training, I remember my fourth grade teacher, Mrs. Cullen, whose fiancé was an Air Force pilot. She noted that, because I was always building things with my pencils and erasers on my desk, I was going to be an engineer. At the time, I did not exactly know what she was talking about, but, from the tone of her voice, I discerned that it was not something bad. I also remembered a day just before the Christmas holiday that year: she was crying and had to be escorted from class by other adults. When she returned to teach us several weeks later, she was very sad, and we learned that her fiancé was missing in action in Korea. My secondary training was uneventful other than I was moved from grade to grade in the advanced group and did moderately well in mathematics and science courses. However, my academic interests and performance suffered because of afternoon trips to the big city which was within easy traveling distance by street car and subway through Harvard square where an old college was located. I remember vividly on returning home on a crowded subway from one such trip reading the headlines of a newspaper in big bold letters, "Sputnik Launched." The implications of this event are still rippling through academia.

Upon graduation from high school, I had the opportunity to attend college, but, much to my family's disappointment, I enlisted in the Air Force. I spent nearly 4 years in the Strategic Air Command where I learned about the need to guard our nation's "fence line." Also, during this period, I was still trying to sort out what it was I wanted to be and earned several hours of college credit through correspondence and night-school courses. I realized that I liked math, and, during the last years of my enlistment, I focused on taking courses in mathematics. However, I did take a course in life science which was given by an elderly, enthusiastic professor who turned me on to biology. Thus, at 22 years old, I decided to be an engineer who works in an area involving biology.

As a nontraditional student, I entered the University of Massachusetts, Amherst, to pursue a degree in electrical engineering with a minor in zoology. Campus life was somewhat chaotic. It seemed that there were two worlds: those who supported the military and those who did not. There appeared to be little common ground on the issue. In my junior year, I became a student member of the Engineers in Biology and Medicine Society of the Institute of Electrical and Electronic Engineers of which I have been a member ever since, and I also was admitted into the engineering honors program. In my senior year, I remember two things of note, one minor and the other major. My honors paper was on the stochastic properties of the cardiac cycle, and, much more importantly, I met my wife Carol, and we have been together ever since.

My graduate training at the Department of Electrical Engineering of the University of Rochester, New York, with interdisciplinary work in visual science was an awakening. Not only did I learn new areas of analysis in communication and control systems, but I also learned about experimentation on the eye and the brain. My research was on human eye tracking and the development of predictive mathematical models. I will always be thankful to my major professors, Gerald Cohen and Robert Boynton, who supported me in my efforts. However, while I did



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enjoy the work, I expressed the desire to use my knowledge on an "applied" problem. My first opportunity to work on such a problem came while a postdoctoral fellow in the Department of Ophthalmology and Laboratory of Neurophysiology, Good Samaritan Hospital and Medical Center, Portland, Oregon. I developed a methodology to evaluate visual prosthetics for the blind. Also, I became aware of the activities of ophthalmic and neurologic medicine and surgery.

Upon completion of my postdoctoral fellowship, I obtained a position in clinical engineering at the Oregon Health Sciences University medical school. My experience in clinical engineering provided me a view of the engineer's role in maintaining and operating a hospital and the time to obtain my professional engineer's license in Oregon. However, the opportunity for research was somewhat limited. Within a year, I was back in neurophysiology working on the eye and brain with a research group in the Department of Psychiatry. While the work was interesting, in my spare time, I began developing instrumentation and a methodology to detect subtle changes of vision associated with diseases such as optic neuritis and multiple sclerosis. Within a few years, I was provided the opportunity to work with neurology and neurosurgery. Over the next several years, I received some unique training on neurologic diseases and traumatic brain injury. Also during this time, I began working with a diabetologist on an effort to evaluate the early visual changes associated with diabetes. Needless to say as a "research professor," I was always on "soft" money, and, with the arrival of our daughter Leah, it was decided that I obtain a more secure position.

In 1988, I accepted a position as an associate professor in electrical engineering at Memphis State University (now The University of Memphis) and my family moved to Memphis, Tennessee. Within 4 months of my arrival, I traveled to Cookeville, Tennessee, to give my first paper at the Tennessee Academy of Science. The meeting was a

rewarding experience. The atmosphere of the meeting was friendly and did not have the competitive tension which seems to prevail over national and international meetings. In particular, the meal in the Flag room before which a grace was given and a moment of silence was taken for those members that passed away in the previous year impressed me with a sense of tradition. I decided that I was going to participate in future meetings.

In 1995, I was promoted to professor. Over the years, I have primarily focused my nonteaching activities in two areas: programs for middle- and high-school students and research. For the past 7 years, I have directed a summer enrichment institute for rising ninth graders which has been supported by the National Science Foundation, the American Society of Civil Engineers, and Allen and Hoshall Inc., a Memphis engineering consultant firm. For the past 5 years, I have directed the regional Science Olympiad competition. In collaboration with others, I have taught a sequence of laboratories designed to

illustrate the use of mathematics as a means of describing concepts in current and fluid flow. My research effort has progressed. Most recently, I received funding for my work on traumatic brain injury from the National Institutes of Health. The success of my efforts are directly related to valuable collaborations with members of the biomedical research community from physiology, pediatrics, neurosurgery, neonatology, and anesthesiology at The University of Tennessee, Memphis.

Like all healthy organizations, our Academy will evolve in pursuit of its mission to provide a forum for science education and research in Tennessee. In particular, I hope all of you participate in the Visiting Scientist Program. My experiences lead me to the opinion that most middle- and high-school students do not have an impression of science. This program is an opportunity to help them develop such an impression by making science tangible through your presence in the classroom and spreading a sense of tradition of science in Tennessee. Again, I am deeply honored to be President of the Academy.