PRESIDENT OF THE TENNESSEE ACADEMY OF SCIENCE FOR 2000

I would like to thank the Tennessee Academy of Science for the opportunity to serve as president; I am most grateful for the honor. My work is eased by the devoted efforts of my predecessors and the energetić work of our officers and committee members, who contribute their efforts so generously.

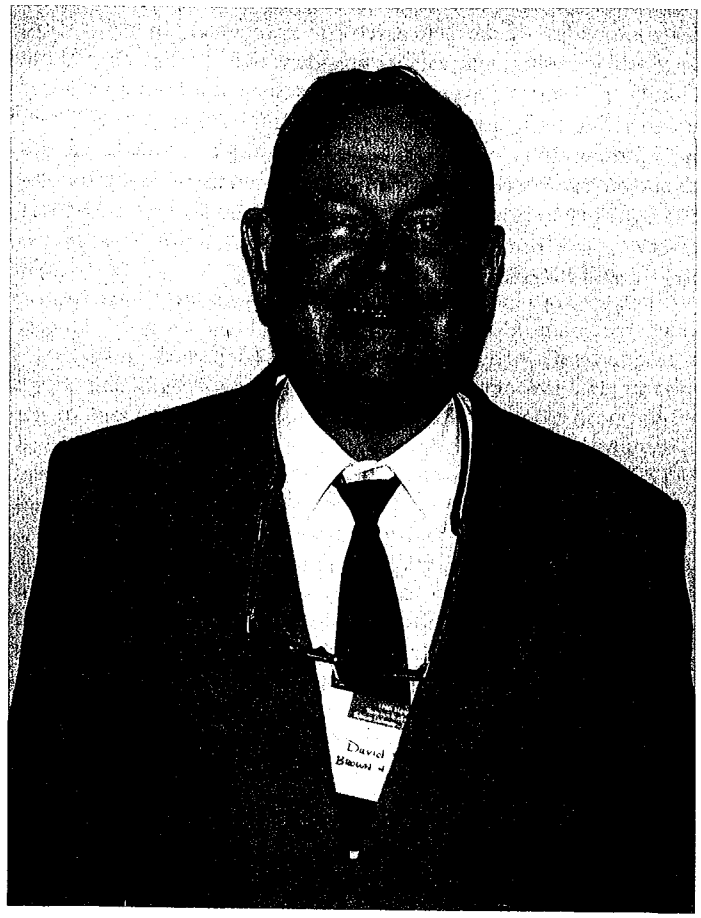
In my K–12 years I had some outstanding teachers. Mr. Jackson awoke my interests in science and math, and Miss Wood "fired-me-up" about mathematics by loaning me a marvelous book on celestial navigation when I took trigonometry. Mr. Morhart fostered my interest in chemistry in many ways. My parents gave me encouragement, a microscope, a chemistry set, and tolerated lots of smells, smoke, and stained clothing.

Thanks to a scholarship from Pepsi-Cola, I went to Stanford to study chemistry. Those were exciting years, thanks to professors like Harold Johnston, Eric Hutchinson, and Frederick Koenig (chemistry), Michael Weissbluth and Felix Bloch (physics), and Harold Bacon, John Herriot, and George Polya (mathematics). As a junior I started with Johnston on a gas phase kinetics project, and in physics was lab-partnered with a bright New York City girl, Marty Mayers. We were married the fall after graduation in 1952.

I began graduate school at Stanford on a National Science Foundation fellowship, working with Johnston on unimolecular reactions. After a year I was drafted, and Marty and I spent two years at the Army Chemical Center, where I worked on toxic agents. We returned to Stanford for a year; then Johnston moved to California Institute of Technology (Cal Tech). We moved with him, and I finished my Ph.D. in a hectic third year. Molecular structure from Linus Pauling, electromagnetic theory from William Smythe, and Norman Davidson and Harden McConnell's group meetings provided ample stimulation.

We next moved to the University of Rochester, where colleagues in physical chemistry (Ed Wiig, Danae Walters, W. A. Noyes, and Frank Buff) were most helpful to a beginner. Frank gave me a taste for the subtleties of statistical mechanics; Ed taught me how to teach the bright, aggressive kids we got from New York City; and Danae was a great role model for working with graduate students. I developed Nuclear Magnetic Resonance facilities for the department, and worked on hydrogen bonding, charge transfer complexes, and structural chemistry (with Stan Tarbell, a leader in antibiotics chemistry). I also continued in gas phase kinetics; theory of unimolecular reactions, quantum theory of inelastic scattering, and anharmonic vibrations in polyatomic molecules. In addition, I advised students and directed undergraduate studies. Our family spent 1964–65 at the University of Ife, Nigeria, where I taught and set up physical and inorganic chemistry labs, and we traveled throughout that fascinating country.

In 1969 we moved to Vanderbilt, where my interests shifted into environmental chemistry. We studied contaminant levels in human milk; lead levels in *Corbicula* shells, teeth, and canned milk; and chlorinated solvents in ground and surface water. A surface chemistry class I taught led to experimental and theoretical work in foam flotation of trace metals and organics from



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wastewaters; I later wrote a book with Ann Clarke on this. During this period I received a joint appointment in environmental engineering.

Shortly after arriving in Tennessee I joined the Tennessee Academy of Science, which provided opportunity for my students to speak before a professional group, and which provided contacts leading to some great graduate students. In 1988 consulting work led to interests, both theoretical and experimental, in hazardous waste site cleanup technologies. These included soil vapor extraction, air sparging, steam stripping, low-temperature thermal, bioremediation, and electrokinetic remediation. I've written two books on hazardous waste site remediation, one with Ann Clarke. A sabbatical at the University of Malaga, Spain, provided research opportunities with Cesar Gomez-Lahoz, Jose Maroto, and Rafael Delgado, as well as studies of the effects of Spanish wines and paella on American chemists. I now work in environmental science and engineering for Brown and Caldwell; I do mathematical modeling, statistical interpretation of data, and chemical consulting.

I served on Vanderbilt's senate for four years, was secretary for one, and was a student advisor and director of graduate stud-

ies. I served on the board of the Vanderbilt Center for Health Services, which supports health-related projects in under-served areas in the Southeast; I tested a lot of dirty wells in East and West Tennessee.

In the 1960's I worked on the Rochester Committee for Scientific Information's projects on water pollution and lead poisoning, both highly successful environmental action projects. I have been a member of the Tennessee Environmental Council almost since it's founding, and was its president twice. I also carried out a study of pesticide manufacturing residues at a Memphis dump which led to its being declared a Superfund site and to its clean-up. I am currently on the executive committee and technical advisory board of the Cumberland River Compact, which promotes water quality improvement in the Cumberland River Basin. I was a Scout leader for sixteen years, and we are the proud parents of three Eagle Scouts.

Marty and I have four sons (John, Chuck, Bill, and Andy), a daughter (Joyce), and eight grandchildren. John, Bill, and Joyce are involved with computer science, Chuck is a doctor, and Andy is a mechanical engineer.

Since 1969 I have mentored about a hundred high school science projects. Many of these students went on to college to study science or engineering, and quite a few undertook advanced studies. I believe that science projects greatly encourage interest, spark motivation, and improve subject mastery. The Tennessee Academy of Science's support of science and math education is one of our most important functions. We are very active in this: Junior Academy, Tennessee Academy of Science prizes at science fairs, grants for science projects, the Visiting Scientist program, and our Networks Scientists Website. More recently, I have taken on a new role—providing mentors for school science projects. Tennessee Academy of Science members have the training, the facilities, and the experience to do this effectively. A pilot-mentoring project is underway in Nashville, and I hope to report significant developments at our meeting next fall.