

President of the Tennessee Academy of Science for 2012

Getting to know me.... Let me start by saying that it is a privilege to serve as President of the Tennessee Academy of Science (TAS). I still have trouble picturing myself in this role because my professional connections to academia are rather tenuous. The closest I've gotten to being a professor was my tenure as a graduate teaching assistant. However, there are plenty of tried-and-true academics working closely with me—your Executive Committee members and your committee chairs. These dedicated folk have made me feel at home in my four years with TAS, have supported me during my tenure as President-Elect, and continue to prop me up whenever I need propping. You are fortunate to have these people working on your behalf.

Instead of being a university scholar, I have managed to stay employed for 35 years at the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL), performing R&D in measurement science; supporting researchers who have unique measurement requirements; and helping to solve technical problems for other government agencies, for our military, and for U.S. industry. I'm happiest (at work, anyway) when coming up with a new sensor for some obscure physical phenomenon or designing a circuit to condition the signals from unusual sensors and digitizing them so they can be analyzed by a researcher at his computer. Great fun!

I have always liked what Sir William Thompson, Lord Kelvin, said over 100 years ago about making measurements: "When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge of it is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced it to the stage of science."

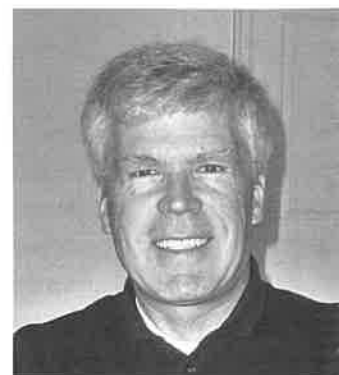
My instrumentation projects have varied from detecting when a lab mouse dies in its cage to developing artificial retinæ to creating the world's largest and most sensitive sonar system to be used

characterizing the acoustic emissions from American submarines. The latter was one of my all-time favorite programs because it was so technically challenging and because ensuring the stealth of our submarines is so important to our national security. I was responsible

for the underwater power- and signal-conditioning electronics for sending digitized signals from more than 2,000 hydrophones through several half-mile-long fiber-optic cables to two Cray SuperServer parallel-processing computers aboard the USNS Hayes. Development of this large and sophisticated system was required because, starting with the Sea Wolf class, our submarines are now so quiet that noise levels in the ocean actually are *reduced* when one passes close by! (The amount of ocean background noise blocked by their sound-absorbing hulls is greater than the amount of noise that the subs generate.) The system served the Navy well for over a decade until it started to be phased out and replaced by a less capable but cheaper-to-operate land-tethered system. (Ships and crews cost a lot of money.)

My current activities at "the lab" involve working to keep weapons of mass destruction out of the hands of less-than-trustworthy nations and organizations and measuring spectra of light emitted under different conditions by plasmas inside fusion reactors. I got official notice just last week that a small team I was a member of has been awarded a patent for a hand-held instrument to be used for locating clandestine graves—an electronic cadaver dog, so to speak. That's the great thing about working at ORNL: there is such a wide variety of fascinating science going on here.

I came to ORNL immediately after college, which consisted of an undergraduate program in



William H. "Andy" Andrews, Jr.

physics at the College of William and Mary in Virginia and a Masters program in electrical engineering at the University of Virginia. Have you noticed that two out of the most recent three TAS Presidents were undergrads at William and Mary? Maybe someone should investigate...?

At William and Mary I was able to indulge in one of my favorite hobbies—photography. I served as photography editor for the campus paper for three years, garnering a nice accolade when named National Collegiate Journalism Photographer of the Year for the 1973–74 school year. The other good thing photography did for me during those years was introduce me to my wife-to-be, who needed a photo for use in her hometown newspaper. Carolyn and I wed after she was graduated, and we have been happily married nearly 36 years. We have three outstanding sons. One is a practicing engineer, one a Virginia lawyer, and the other preparing to enter the Foreign Service, specializing in Middle Eastern affairs. (Did I mention that one attended Yale, one went to Princeton, and one is now a graduate student at Harvard?) My wife and I have been blessed with two darling granddaughters (so far).

Other avocations include motorcycle riding (I own two bikes; Carolyn has one.) and music. In spite of a great teacher and a considerable amount of effort, my musical talent never developed past mediocre. My admiration of persons who can make good music with their instruments or their voices is barely bounded. And then there are those beyond-belief performers who can play one instrument, set it down, pick up an entirely different instrument, play it masterfully, retune all of its strings, play more beautiful music, sing, switch to yet another instrument, etc. There's a substantial, mysterious difference between the brains that those folks possess and the one I've been blessed with. I try not to take it personally. My favorite listening fare these days is bluegrass and traditional Southern Appalachian music.

Lacking talent to ever play well enough so that anyone would actually enjoy listening to me perform, I found another way to be involved in music—audio recording. I have a small (currently

very small) recording business on the side. I enjoy recording school, church, and civic groups—all of which have very little money to spend on luxuries (like making recordings) in these tough economic times. Recitals are especially fun for me, as is making audition or demonstration tapes for aspiring musicians. My business has never generated much profit because I tend to invest my earnings in new and better recording gear. My adoration of a good microphone rises almost to the level of a fetish. I get a great deal of satisfaction in capturing pristine sound, editing and mastering recordings, and working with artists.

Although I'm not a professional educator, education has always been important to our family. Carolyn taught high-school English and served for a decade as the Scripps National Spelling Bee's Word List Manager. I teach grade-school and adult Sunday School classes, and I volunteered in various positions for the Southern Appalachian Science and Engineering Fair for 25 years. And now my affiliation with TAS has opened new opportunities to support and promote science education in our state.

As you will be hearing often during the coming year, 2012 spans our hundredth-year anniversary. We will strive to honor the scientists who founded TAS in Nashville in 1912, as well as the leaders who maintained its vitality through good times and bad in the century since. We are aiming for an annual meeting that will be the largest and most memorable in recent history. And we hope to mark the year by establishing an important new program or two that will endure after the Centennial festivities are complete. A lot of thinking has gone into how we can make this year special, and work is underway to turn some of these ideas into reality. Please don't hesitate to let us know what you would like to see added or improved. How can we make the Academy more useful and important for you? We will be very grateful for any and all suggestions.

Enough fluff for this issue of the Journal! Now it's time to read the research papers in this issue. That's the heart of what TAS is all about. I hope to see you at our centennial meeting in November.