Families pass down all sorts of things from one generation to the next—photographs, heirlooms, long-held traditions and well-loved stories. In the Deeds clan, you can add to that legacy an innate curiosity about the natural world and a love for sharing discoveries.

In nearly 40 years on the physics faculty, Ed Deeds guided many students toward graduate degrees. His daughter Holly, an alumna of the department, is now a member of the science faculty at the McCallie School in Chattanooga. Their respective paths to the classroom were quite different, with father working for the Manhattan Project and daughter starting out in studio art, yet they share an obvious love for teaching that indicates both ended up right where they should have.

“A Ringing in My Ears”

It’s a Friday afternoon in early October, and Ed Deeds has just come from the Science Forum at Thompson Boling Arena. Retired from the physics faculty since 1990, the now-professor emeritus still keeps up with the goings-on in science and research at the university, a trademark of the inquisitiveness he has known all his life.

“I’ve always been interested in how things work,” Dr. Deeds says with enthusiasm. “I was curious about things.”

That curiosity propelled him to a bachelor’s degree in physics and math at Denison University in 1941. The Ohio native then headed west to Caltech for a graduate assistantship and a teaching fellowship in physics. But just six months after his arrival, Pearl Harbor was bombed, and before long he was part of a wider national initiative.

“Essentially, they assigned all the physics students in the country to work on science projects,” he says.

His particular project turned out to be measuring acoustic shock waves from all sorts of things—shotguns, rifles, cannons, and rockets—for the National Defense Research Council. Ever the professor, Dr. Deeds automatically gets up from his chair and makes his way to a white board, where he starts sketching out an illustration of how shock waves originate and how they can be measured.

“We were the U.S. experts on sound waves,” he says, quickly writing out equations with a blue marker.

When Bell Labs developed a quartz microphone that could detect sounds of up to 125,000 cycles per second, Caltech scientists tested the device by mounting it on a telephone pole and then shooting bullets past it. It fell to the young graduate student to record the data as they went whizzing by.

“I was under the telephone pole in a dugout with my oscilloscope and a camera, (and) they would shoot these things by,” Dr. Deeds recalls. Sometimes, he says, the bullets would accidentally hit the pole. And although the microphone escaped damage, on a couple of occasions it came crashing down into the sand.

“And ever since I’ve had a ringing in my ears,” he says with a chuckle.

Still, refining a method to make measurements like these (although a little unnerving at times) proved to be an important part of the U.S. war effort. Dr. Deeds began working with W.K.H. Panofsky. The Panofsky group was later recruited by physicist Luis Alvarez to work on the Manhattan Project at Los Alamos to design and build instruments to measure the yield of atomic explosions.

“They took our spheres with the microphones and radio transmitters in them and installed the receiving equipment in a B-29,” he says. “It turns out that our measurements of the shock wave were the only good measurements they have of the Hiroshima bomb.”

On to Academe

Dr. Deeds completed a master’s degree at Caltech and then headed back to Denison after the war ended. He taught there for a couple of years and went on to Ohio State to finish his Ph.D. in 1951. Then it was time to look for a new position.

“At that time, teaching jobs were not very numerous,” he says. “I got an offer from Bell Labs to work on the research staff and an offer from Tennessee to come and teach. I knew I wanted to teach, so I decided to come here.”

He signed on as an assistant professor in 1952, teaching primarily graduate courses in theory. He worked on rocket research with Redstone Arsenal and served as principal investigator on a DARPA project involving missile defense. He was also quite a specialist in eddy currents; one of his papers on the subject has been cited 198...
times. But teaching was his great love. “I had 23 Ph.D. students and 36 master’s students,” he says. “Physics is nice to teach because people don’t take physics unless they’re interested in it.”

As it turns out, two of his four children shared that interest in physics. Son Dean earned bachelor’s and master’s degrees in physics at UT and a Ph.D. at UC-Irvine. He now works in satellite communications. (“He was like me, curious about everything,” Dr. Deeds says.) Holly followed suit in the sciences. “All the children were National Merit Scholars,” he says. “I never helped them with their homework at all. I don’t ever remember having to force them to do it. They were eager to read everything.”

Son Eric went into archaeology and has written computer-based courses in algebra, geometry, calculus, and physics. Daughter Amy is a writer for Kenyon College.

Ultimately, he says, he wanted for his own children what he wanted for his students, to pursue what interested them the same way he chose physics.

“I went into it because of curiosity,” he says. “I wanted to find out why things are the way they are. That’s what science is to me.”

The Accidental Teacher

On a rainy Tuesday afternoon, Holly Deeds answers the phone with a smile in her voice. She has finished another day at McCallie, a private all-boys school in Chattanooga, where she has taught since 1990. She is cheerful and witty; exactly the kind of person who could make physics a little less daunting to a roomful of teenage boys. Although early on, teaching science was not at all what she had planned.

“It was almost accidental,” she says of her transition to education. She graduated from UT in 1982 with a degree in studio art, but wasn’t really inspired by the job opportunities she saw at the time. After spending six months working for a food vendor at the World’s Fair, she decided to explore some other options. A little fatherly advice came in handy.

“My dad suggested that I take some computer science classes,” she says. But because she wasn’t enrolled in a degree program, she wasn’t categorized as a priority student, and the computer science classes were wildly popular and hard to get. Dr. Deeds suggested she enroll through the engineering program, so she signed up for engineering science and mechanics, which required physics and math.

“I’d never had physics before at all,” she says. Yet she ran the gauntlet and completed coursework in physics, calculus, and electrical engineering. “The physics was most logical to me, and the most creative,” she says. “Physicists were interesting.”

She finished a bachelor’s in engineering physics and went on to complete her master’s in 1987. But while she was working toward a Ph.D., she found the long hours in the lab a little isolating. That’s when a family friend suggested that she would be a good teacher. Before that, she says, she never would have considered it.

Ms. Deeds arrived at McCallie as a mid-year appointment and has been teaching there ever since. She teaches seniors in general senior physics and advanced placement physics B. She’s also an advisor for 17 students, monitoring their academic, social, and emotional well-being. “In some ways, it’s more work, and in some ways, it’s more rewarding,” she says.

Teaching science can be a serious challenge, especially at the middle and high school levels. But Ms. Deeds insists that good equipment and engaging presentation can inspire even the most wary students. They don’t mind the work or even the math if they can see where you’re leading them, she says. “If you give them a pattern, they love it.”

Evidently the approach has worked. At a reunion just the weekend before she learned one of her first students had taught physics at a small school in Jackson, Mississippi. And over the years she has heard from students who have majored or minored in physics—including some she never would have imagined would take that route.

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“Every once in a while you hear about one who has taken this unexpected path . . . and that’s gratifying,” she says. Students often let her know when they’re taking college courses in physics and how they’re doing—and thank her for preparing them.

“I enjoy the collaboration with young minds,” she says. “The energy of it appeals to me. They still come up with new and interesting ideas.”

Given her background, perhaps it’s not that surprising that she became a teacher.

“I think we were brought up to appreciate education and to enjoy learning for the sake of learning,” Ms. Deeds says, adding that there was never any pressure from Dad to choose a particular profession. With one exception, perhaps.

“The only thing he didn’t want me to do,” she says, laughing, “was to go into acting.”