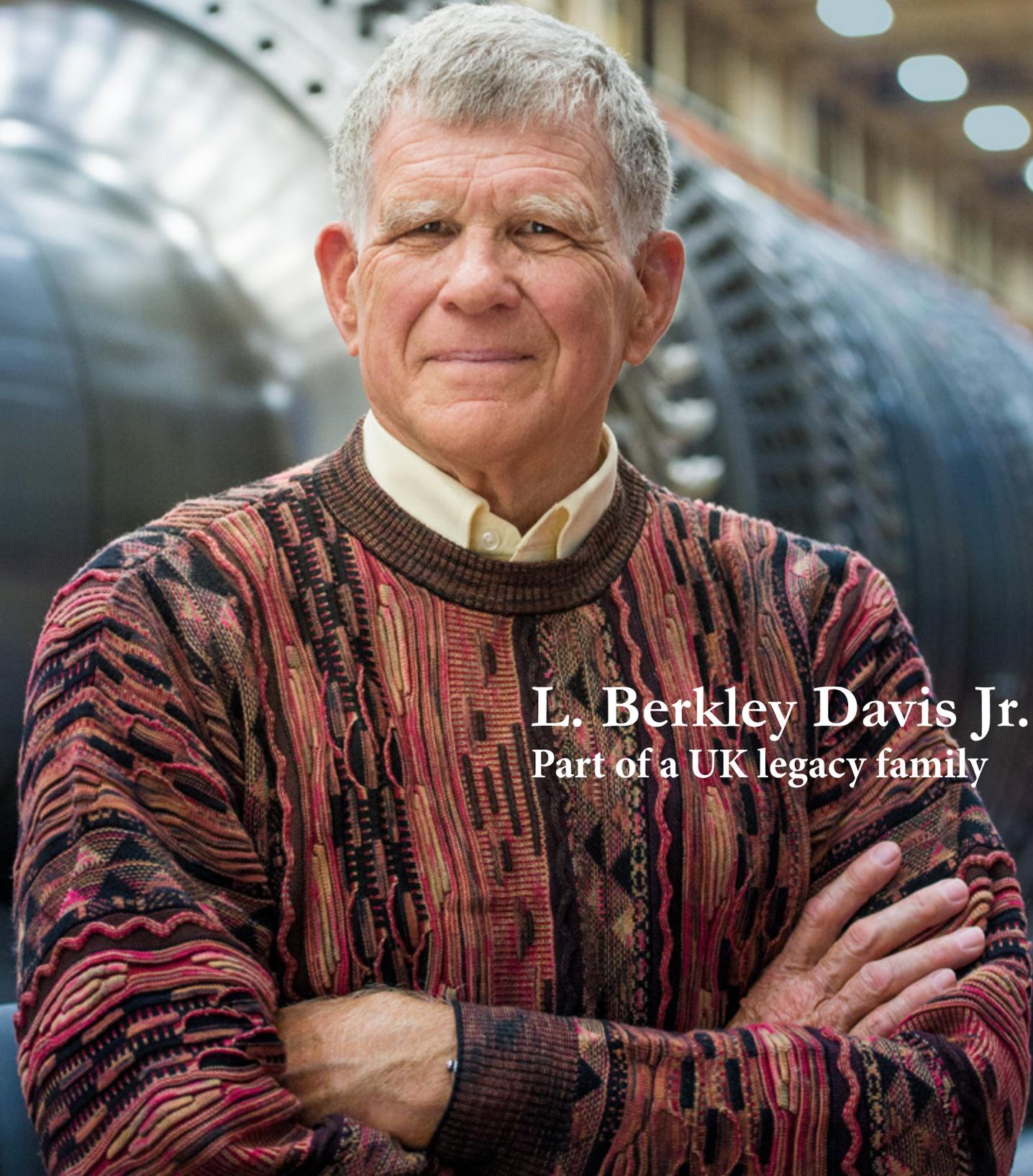


University of Kentucky Alumni Association

# KENTUCKY

## Alumni

WINTER 2016



**L. Berkley Davis Jr.:**  
Part of a UK legacy family

# Genetically **ENGINEERED**

*Like his father before, L. Berkley Davis Jr. drew on his UK experience for a successful career at General Electric*

By Christina Noll

In February 2015 L. Berkley Davis Jr. '66 '70 '72 EN traveled to Lexington to be inducted into the University of Kentucky Alumni Association Hall of Distinguished Alumni. Fifty years earlier, in 1965, his father, the late Lewis Berkley Davis, did the same. It was one moment, among many, in a legacy of success that all started at the University of Kentucky. Both father and son became Life Members of the UK Alumni Association, UK Fellows, were inducted into the UK College of Engineering Hall of Distinguished Alumni and enjoyed long careers with General Electric (GE).

L. Berkley Davis Jr. first came to the university as an undergraduate to study engineering, following in his father's footsteps. During that time, UK President John Oswald brought in Robert M. Drake Jr. '42 EN, a UK alum and former head of the Mechanical Engineering Department at Princeton University. Drake, who eventually became the dean of the new UK College of Engineering, hired a number of quality faculty, who Davis states, "strengthened the undergraduate curriculum." During his time at the university, Drake became a valuable fixture in Davis' life, as a teacher and mentor throughout his engineering career.

It has been a remarkable profession and one that continues. Davis, who has made a lifelong career with GE, is known internationally for developing innovative designs of low-nitrous-oxide-emission gas turbines for electric-power generation that have been implemented worldwide. The technology is employed in power plants in more than 40 countries on six continents and helps provide cleaner air to more than a billion people.

He credits much of his success at GE to his experiences and education at UK.

"I received a good grounding in basic subjects like heat transfer, which was very valuable later on," he says. "The Mechanical Engineering Department at

UK became a very exciting place to be, so I stayed for my other degrees." Davis' degrees from UK include bachelor's, master's and doctoral degrees in mechanical engineering.

For his doctoral project, Davis chose an unusual topic — energy transfer in animal fur. "No one had really dealt with that before from an engineering



**Lewis Berkley Davis**

standpoint," he says. In hindsight, he recognized important gains from his experience with his doctoral project that he was able to draw on later throughout his career at GE. One of those gains included learning the importance of combining analysis with experiments to deliver a real world product. In order to gather data for his Ph.D. project, he needed to do a lot of experimental work, including experiments on radiation, thermal conductivity and simply on counting hairs to assess the density. "It

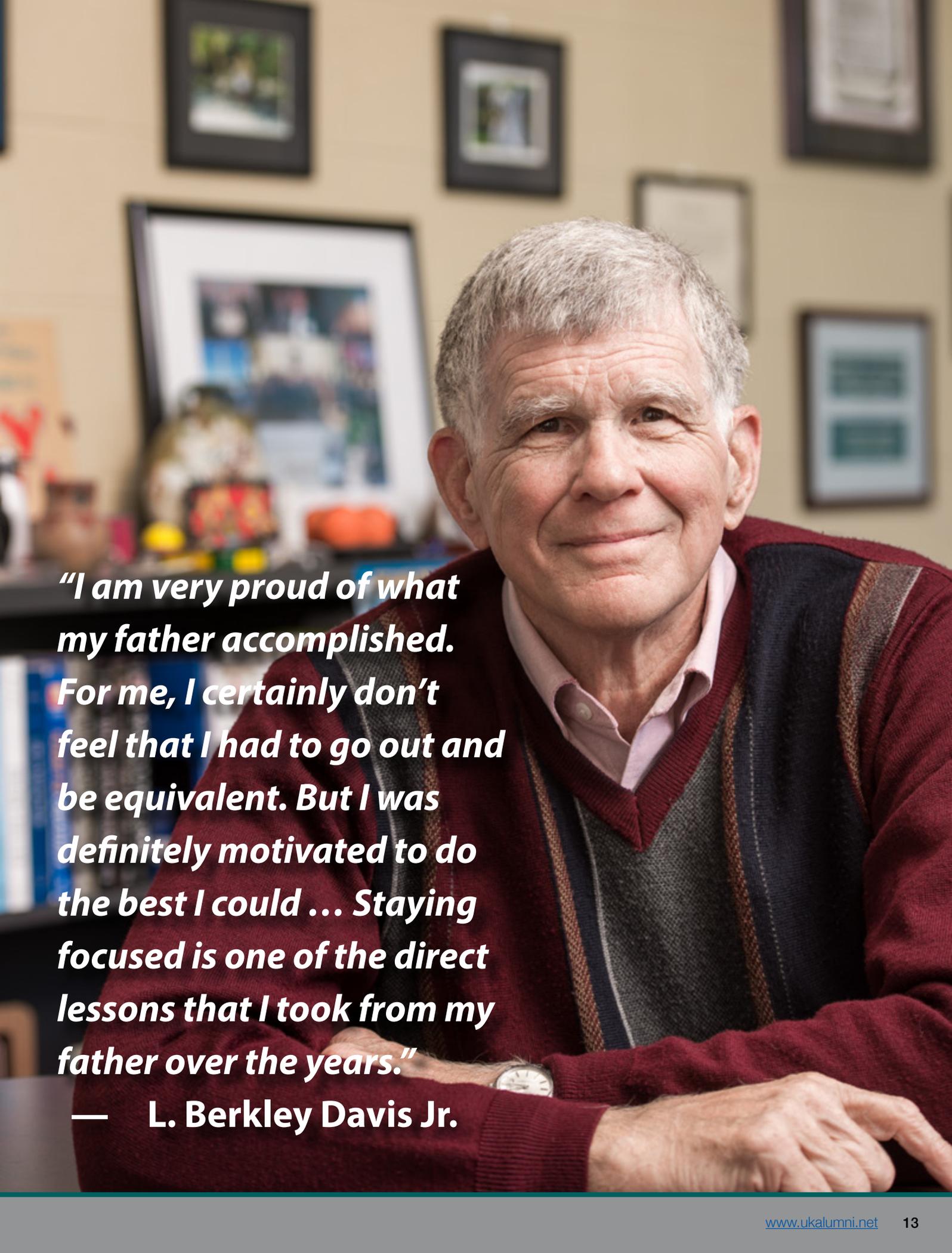
wasn't just study, write a paper, graduate and move on," he explains. "I wanted to deliver a definite "product" — a tool that people in the field could actually use in calculating energy balances of an animal. That goal-oriented thinking carried on in my subsequent career at GE."

It did in fact carry on as during his first few years at GE, his work had a lot to do with heat transfer and throughout his combustion career, required a synthesis of experiment and theory. "My predilection from my work at UK was to want to do both, and that was unusual for many engineers, so that was very valuable," Davis says. "I was well positioned during the first 10 years of my career, which are the ones where you do work that really forms how you will be as an engineer later on."

His successful leadership on the Dry Low Nitrogen Oxide (DLN) program, which ultimately led to the creation of a family of very successful gas turbine power plant emission systems that have been deployed around the world, is what made his reputation in mechanical engineering. This program came about due to several factors, beginning with a change in emissions regulations. In response, GE introduced new gas turbine DLN technology to meet the regulations.

"The project combined a number of unique experiences," says Davis. The team had to completely invent the system, so creativity was at the forefront. Davis organized the engineers into small teams and gave them considerable authority over their particular piece of the project. "One of the things I learned was that it's the players who play the game and the engineers who make the design. It was good people who made the DLN project successful and that lesson stayed with me throughout my career."

During the decade Davis was involved with the DLN project, he filed and was granted many patents related to gas combustion design. At the start of the program, the team was to deliver



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**— L. Berkley Davis Jr.**



**Lewis Berkley Davis, back row, third from right, was on Adolph Rupp's 1933-1934 UK basketball team.**

three products in four years, but by the program's end the team had delivered 33 products in response to changes in regulation. "We and everyone else underestimated both how difficult the technology was and how rapidly the market would demand DLN," he says. "It was a dramatic increase in scope." However, he reminisced, the real success was in the learning process. "One lesson is that you have to persist to be successful. That's a hard lesson to understand," he says.

It's a lesson he learned early on from his father, who also had a successful career as an engineer with GE. Lewis Berkley Davis attended the UK College of Engineering from 1931 to 1934 at the height of the Great Depression. During his time at the university, he played basketball under Adolph Rupp. Due to the Depression, jobs were extremely scarce when he left UK. However Lewis Berkley Davis was able to find a position with a small company called Ken-Rad Tube and Lamp Corp. in Owensboro. He agreed to play basketball on the company team if the owner would hire him as an engineer.

"At that time, there wasn't an NBA, but there were industry teams that were pretty good," explains his son.

Lewis Berkley Davis was an electrical engineer, and he began his career working with radio components. During World War II, he helped develop defense-related radar. After the war in 1945, GE acquired Ken-Rad, and he was named manager of operations in Owensboro. Later, he was general manager of tubing operations, when television sets were at the center of business. When he retired in 1976, Lewis Berkley Davis was vice president of GE Co. During his career he received numerous awards, including the EIA Medal of Honor in recognition of his contributions to the advancement of the electronic industries.

"I am very proud of what my father accomplished," says Davis. "For me, I certainly don't feel that I had to go out and be equivalent. But I was definitely motivated to do the best I could." Davis also learned perseverance from his father, both in his words and his actions. "Staying focused is one of the direct lessons that I took from my father over the years," he says.

It's a lesson he passes on to aspiring engineers, and even those who are already having success in the field. "Be able to focus on the goal, even while you're trying to be creative, even when you're in trouble," he explains. "We got into a lot of

trouble while working on the DLN project — we were moving really fast, stepping way outside the technology boundaries. Engineers are more risk averse than most people, but in the case of this program, we were taking very significant risks and we knew it. At the end of the day, we were successful."

Davis continues with his career at GE Power Systems, working as systems chief engineer in Schenectady, New York. In recent years he has worked with cross-functional teams to develop new gas turbine products.

When he's not at GE, he enjoys spending time with his wife, Kathy, a fast pitch softball and ice hockey player, and current professor at Albany Medical College. "She's a scientist, and I'm an engineer. I will assure you that leads to some entertaining dinner table conversations at times," says Davis.

In their free time, the couple enjoys traveling the world, and over the last 15 years they have managed to visit all seven continents. "Until a few years ago, one of our definitions of a vacation was, 'a place we're not at the top of the food chain,'" jokes Davis. The couple has been on safari in Africa, toured Morocco, Turkey, and enjoyed one memorable crocodile infested trip in South America, to name a few of their vacations. When at home in Niskayuna, New York, they like to spend time hiking and kayaking, as well as taking in the theatre, concerts and ballets.

Davis is also still involved with his alma mater, coming back to campus annually since 2008 to deliver a 1.5-hour lecture to senior undergraduate students in an Engineering Leadership course. "I've had a strong connection with the college of engineering for quite a number of years," he says. In addition to delivering the leadership lecture, Davis is a member of the Mechanical Engineering Advisory Board and retains connections with various faculty and professors.

Among his accolades, Davis is a member of the National Academy of Engineering and has received numerous awards, including the GE Edison Award (2011), ASME/IGTI Industrial Gas Turbine Technology Award (2009), UK College of Engineering Hall of Distinction (2007), GE Steinmetz



**Dr. Ralph Angelucci, right, the out-going president of the UK Alumni Association, congratulated Lewis Berkley Davis, center, the new president of the association for 1960-1961, while newly-elected vice president James Sutherland looks on.**



L. Berkley Davis Jr., left, chatted with fellow engineer Tom Farineau near a GE turbine during a walk-through of GE Power Systems' manufacturing facility in Schenectady, New York.



In 2007, L. Berkley Davis Jr., center, was inducted into the UK College of Engineering Hall of Distinction. Former dean of the college Robert Drake, left, and former UK President Lee T. Todd Jr. were on hand to congratulate him.

Award (1991) and multiple others. In 2000, he was named a Fellow of the American Society of Mechanical Engineers.

However, despite his achievements, Davis remains refreshingly grounded. "I was surprised when I was invited to join and then inducted into the UK Engineering Hall of Distinction," he says. "It's a great honor. And when the note came about the UK Alumni Association Hall of Distinguished Alumni, I was shocked. I remain very honored and a bit awed."

Born in Owensboro, Davis attended a military-based high school and admits that his adjustment to life as an undergraduate at the university was difficult. Although at first he struggled with self-discipline, he was able to get back on track with the help of many fine influences he found at UK. "Robert Drake had written one of the premier textbooks on heat transfer at the time and he hired me to do some work on a new edition." The mentoring relationship that formed helped Davis to focus on his college work and is one that has continued through the years. "Most every time I get to UK I manage to have lunch with him still," says Davis. "We talk about things of interest, and I ask him questions — there are still things I learn from him."

Davis also credits his doctoral dissertation advisor, Professor Richard Birkebak and his master's advisor, Professor Clifford Cremers. "They were young, and they treated us as colleagues rather than students," he remembers. "You learned a lot technically just being around them and listening to their experience." A fellow student by the name of Frank Sagendorph '71 EN, says Davis, "was older, wiser, a good role model and helped give a different perspective of the world."

Now it is Davis' turn to share his perspectives with future generations of engineers. "The first thing I tell students, 'It's a great time to be an engineer,'" he says. "There's a wonderful little book called, 'If You Don't Know Where You're Going,

You'll Probably End Up Somewhere Else.'" Davis says students should think about where they want to be in 10 years and what they need to do to get there.

"You don't have to be right, just think about it," he says. Davis asks students a series of questions to help them consider how they might achieve their goals and what kind of action steps they will need to take along the way to achieve them. For example, if a student wishes to be an academic, they need to think about how and where they will attend graduate school. The action step is to apply to relevant schools. If a student wants to go into an industry, they should identify the branch that interests them most.

Davis explains that a current engineering graduate will enter an industry with a large group of other talented graduates, and will compete with those people as they advance through their career. "If they want to be part of the creative pool that shapes the industry, they need to really be able to remain focused," he says.

It is advice handed down from father to son, from one engineering great to another. ■

Then UK Alumni Association president Elaine Adams Wilson welcomes L. Berkley Davis Jr. as a member of the UK Alumni Association Hall of Distinguished Alumni in 2015.

