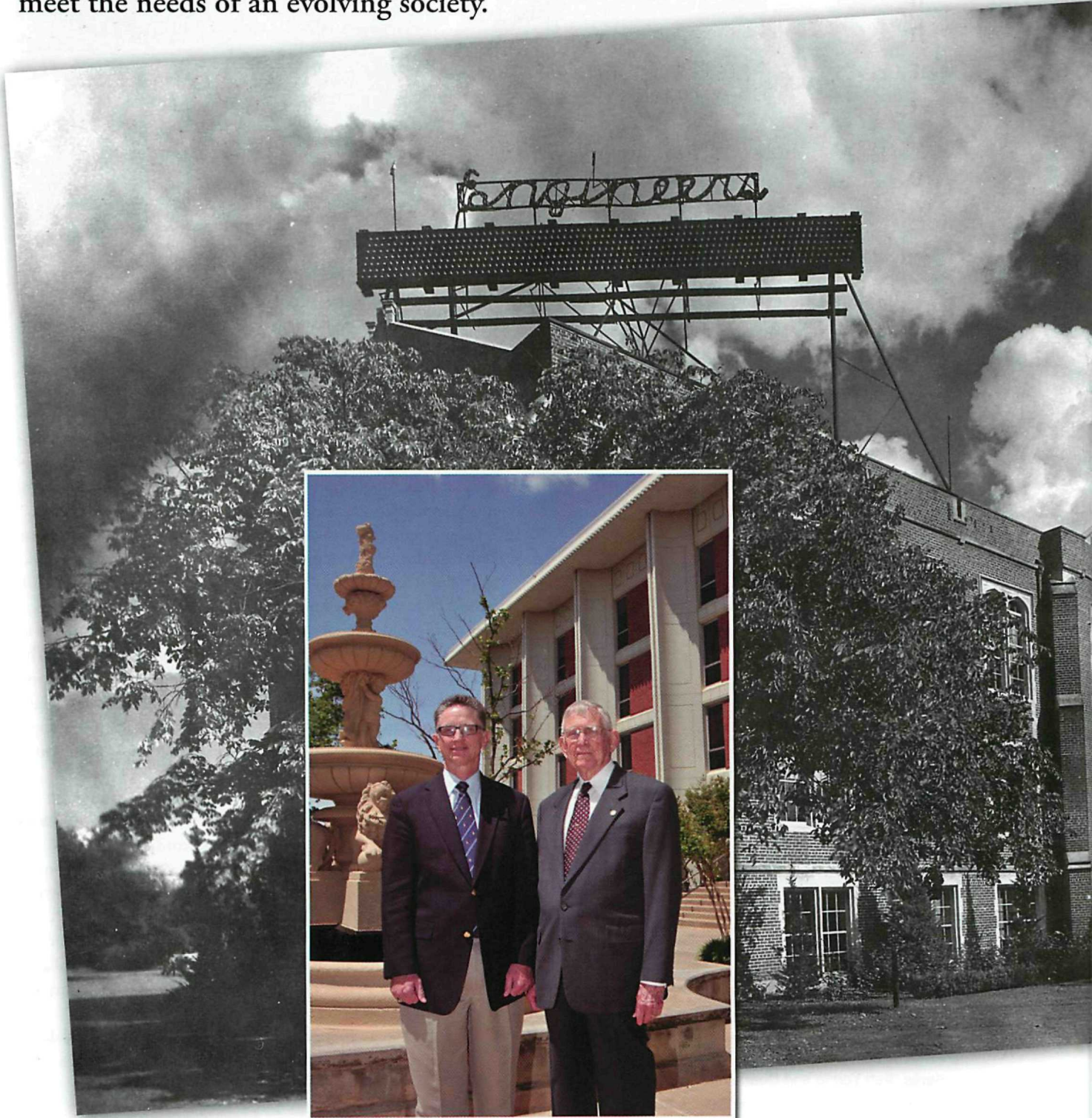


One Hundred Years

Perhaps no place within the University have the changes of the last century been more vividly demonstrated than in the college where science and technology meet the needs of an evolving society.



of OU Engineering

BY DEBRA LEVY MARTINELLI

Historic photos courtesy OU Western History Collections

The year 1909 was a memorable one for civil rights, sports, aviation and international trade.

That year, the National Association for the Advancement of Colored People was organized. Jim Thorpe made his professional baseball debut. Orville and Wilbur Wright delivered the first military airplane to the Army and the Army Air Corps was formed. The Boston Red Sox traded 41-year-old Cy Young to Cleveland. The first concrete for the Panama Canal was poured.

Nineteen aught nine also was memorable for the University of Oklahoma. As the state's flagship university marked almost two decades of existence, its academic units were significantly reorganized. As part of that reorganization, the OU College of Engineering was established and the first engineering degrees were conferred.

This spring, the college celebrates its centennial with a look back through its rich history and an eye toward the promise of the next 100 years.

The Early Years

An engineering curriculum already was under development by the time the college was created in 1909. A surveying course—the first professional engineering class at OU—was offered as early as 1899. By 1902, a curriculum in civil engineering was established and courses in electrical and mechanical engineering were being offered. Two years later, engineering courses were organized under the School of Applied Science. The first formal curricula for electrical, civil and mechanical engineering were created in 1908.

As OU prepared to take engineering to the next level, James Felgar was hired as an instructor in the College of Applied Science in 1906. When the college was established three years later, Felgar became its first dean, serving in that capacity for the next 28 years.

During the college's first full decade, the student Engineers' Club was founded and curriculum options in metallurgical chemistry, petroleum technology and sanitary chemistry were developed. In 1920, the College of Engineering had 15 faculty members and awarded 21 degrees.

Today, the college has 1,954 undergraduate students, 569 graduate students and 107 faculty. In 2009, 257 bachelor's degrees, 92 master's degrees and 29 doctoral degrees were conferred.

In his history of the college from its inception to 1970, Tom J. Love, engineering professor emeritus and former interim dean, writes about more than just the chronology and growth of the college. He tells of freshman electrical engineering student Maurice Prescott and recent graduate and newly appointed assistant professor Otto Walter installing a 30-watt broadcasting station, with the licensed call letters 5XW, in the Prescott home basement in 1921.

By 1923, 5XW had moved into the Electrical Engineering Laboratories building and been assigned the call sign WNAD. The station broadcast concerts in Holmberg Hall by stringing a line from the Engineering Building, where the

In 1930, OU electrical engineers installed a massive sign atop Felgar Hall capable of broadcasting away-game football scores and other news flashes to the campus—just one of the fascinating facts in the college's history being written by professor emeritus Tom Love (inset, on right, with current Engineering Dean Tom Landers).

transmitter was relocated, to Holmberg Hall, with students running back and forth between the two. When the transmitting power of WNAD was boosted to 3,600 watts in 1972, the station was the most powerful school radio station in the United States.

Love mentions that in 1922 the Pittsburgh Gas Meter Co. gave two gas meters to the School of Mechanical Engineering to be used in the gas measurement course required of all engineers. Three years later, 100-plus engineering students from Oklahoma, Arkansas, Texas and Kansas attended a three-day gas meter course, the primary emphasis of which was the repair of tin case meters. "Everyone was requested to wear overalls and to actually work at repairing meters," Love writes. From that workshop, a gas measurement short course was developed.

As Henry Ford's assembly line made the automobile affordable for America's middle class and Albert Einstein contin-



An OU engineer in 1946 could aspire to no greater honor than being chosen St. Pat, shown here adjusting his Queen's crown.

ued to work on the probabilistic interpretation of quantum theory during the 1920s, the OU College of Engineering grew and flourished. The School of Engineering Physics was created in 1924 with Homer Dodge as director, and a curriculum in architectural engineering was developed. Predictably, the growth created a serious space problem. The Oklahoma Legislature appropriated funding for a new engineering building, which was

completed in 1925. That structure later became the west wing of Felgar Hall.

In 1929, an aeronautical option was incorporated into the mechanical engineering curriculum. Course offerings, Love reports, included elements of aeronautical engineering, aeronautical motors and theory of propellers. The previous year saw the formation of Tau Omega, the first honor society for aeronautical engineering in the country.

Today, course offerings in the School of Aerospace and Mechanical Engineering, still located in Felgar Hall, include embedded real-time systems, aerospace propulsion systems and flight systems.

There currently are more than 40 engineering student organizations that provide opportunities to supplement and enhance their coursework learning experiences.

The Boom Years: 1930-1960

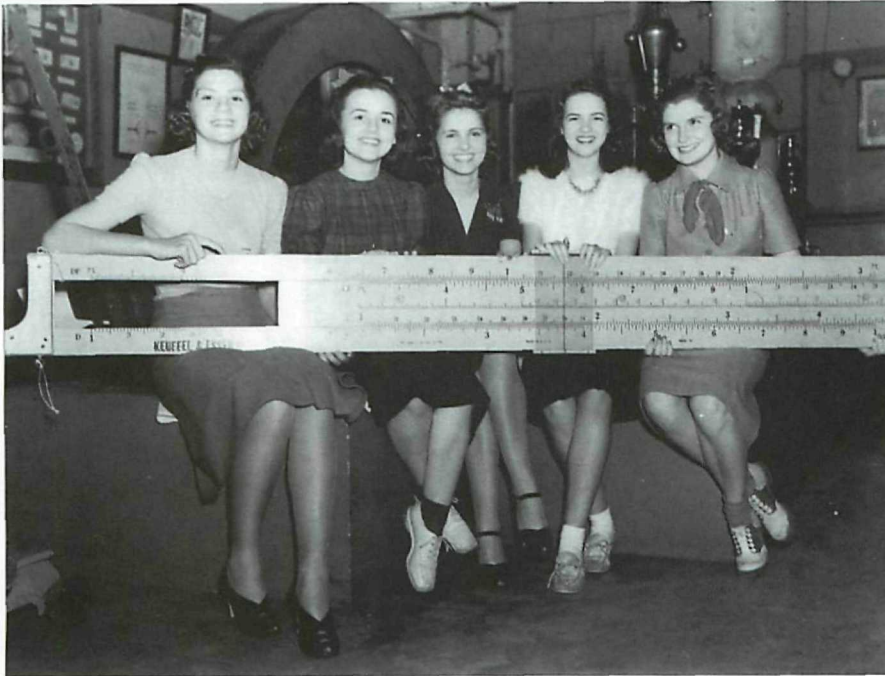
The demands of the gas industry spurred the organization of a School of Natural Gas Engineering in 1930. Eight years later, the professional work in refinery engineering in the School of Petroleum Engineering was transferred to the School of Chemical Engineering.

When Felgar became dean emeritus in 1937, William Carson was tapped to lead the college. Carson would serve until University rules required him to relinquish the deanship at age 67 in 1962.

After several years of decreased enrollment during World War II, OU's enroll-



"Going Green" had a far different meaning in 1932 as Engineers' Week perpetuated the legend that St. Patrick was an engineer. To raise awareness of the annual, tradition-packed celebration, St. Pat (in center foreground) shouldered his surveying tools and paraded around the campus in search of the Blarney Stone.



Engineering Queen candidates pose with a giant replica of the ever-present slide rule, which until the late 1970s dangled in a leather case from the belt of each and every engineer, distinguishing them from the general University student population.



In 1942, the ROTC not only hosted the Engineering Ball in the Armory but also chauffeured the royal court to the queen's coronation festivities Army style.

ment in 1946 was 11,200. The College of Engineering, with 4,077 students (4,043 men and 34 women), comprised nearly one-third of that total. Crowded into what is now the west wing of Felgar Hall, the Engineering Laboratory Building and the small building east of the wind tunnel occupied by petroleum and chemical engineering, the college again was sorely in need of additional space. In 1948, a new addition to Felgar Hall was completed. However, as Love reports in his historical narrative, there were insufficient funds to complete the engineering library.

In 1951, the Aeronautical Engineering Laboratory building, which replaced a hangar destroyed in the 1949 tornado, was completed on the North Campus at a cost of \$105,000. The structure housed a machine shop, power plants lab, structural test lab, classrooms and offices.

The post-World War II era also saw an increase in the number of international engineering students at OU. In 1948, there were 38 international students in petroleum engineering, eight in mechanical engineering, six in chemical engineering, two in general engineering and one in civil engineering.

Today, 369 international students are enrolled in a College of Engineering major or program. Twenty percent of engineering students are female.

Until the late 1970s, engineering students were easily recognized by the ever-present slide rule, their chief computing tool. "Engineering students were identified by the twelve-inch rule, which hung from the belt in leather cases, always at the ready," Love writes in his historical narrative. "All engineering students took required drawing courses, and the drawing set was also a part of the engineer's distinctive property."

During the 1950s, the College of Engineering, long focused on undergraduate education, began to direct more attention to graduate and research programs. Cedimir Sliepcevich, who joined

the engineering faculty as chairman of the School of Chemical Engineering in 1955, was named the college's associate dean and given the responsibility for developing those programs.

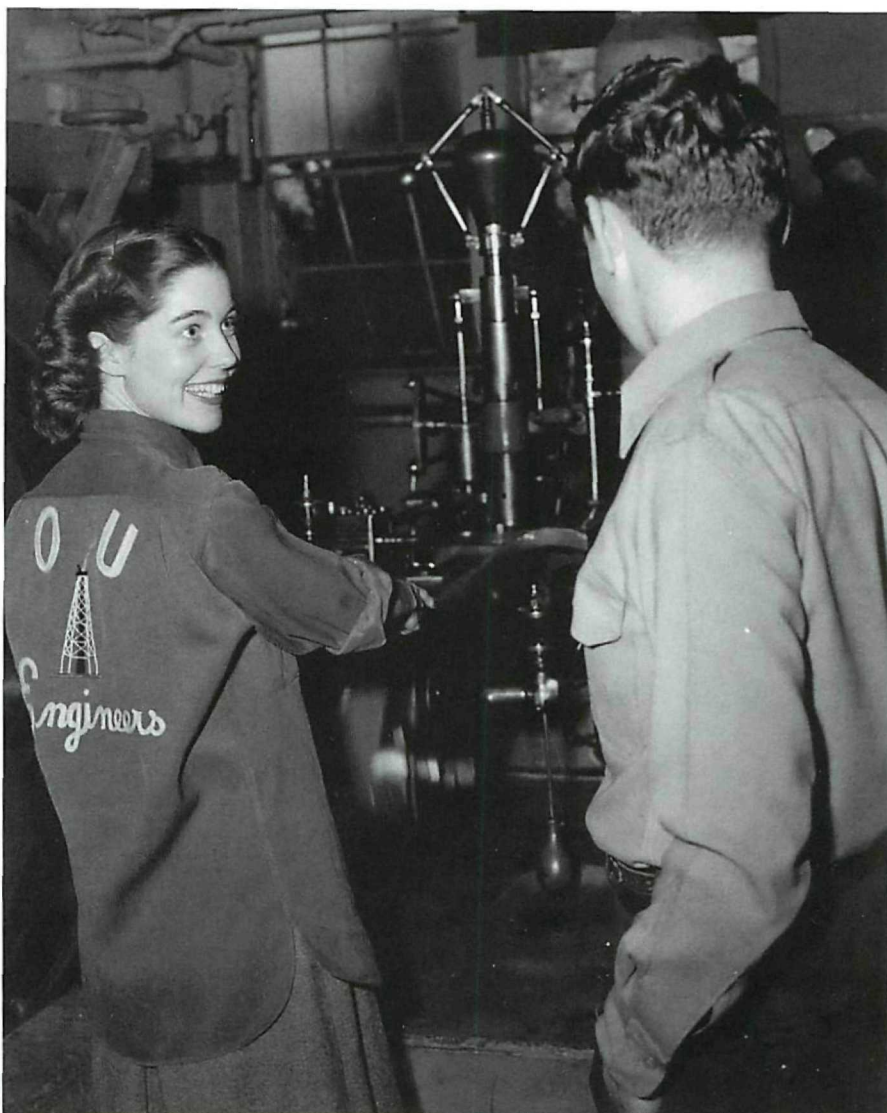
In 1953, tragedy struck OU and the college. A C-117 airplane carrying a group of NROTC students crashed on takeoff from Whiting Field, a naval air base in Milton, Florida. Of the 40 NROTC members aboard, 22 OU students, including 12 engineering majors, were killed.

The Space and Computer Age

The space race between the United States and the Soviet Union that began in 1957 with the Soviets' successful launch of Sputnik 1 gave birth to two new technological eras: the space age and the computer age. The OU College of Engineering changed its curriculum to better prepare graduates for both.

The college's current dean, Thomas Landers, was an undergraduate engineering student in the late 1960s and early 1970s and remembers the effects of the Soviet Union winning that first round. "America was shaken to the realization that we didn't attend to basic math and science and its applications. One result was a revolution in engineering education that was grounded in research and knowledge creation as well as teaching and outreach."

When 36-year-old Gene Nordby became the college's third dean in 1963, he consolidated the college's 17 academic units into 11: School of Aerospace and Mechanical Engineering, School of Architecture, School of Chemical Engineering and Material Sciences, School of Civil Engineering and Environmental Science, School of Electrical Engineering, Department of Engineering, Program in Engineering Physics, Department of Industrial Education, School of Industrial Engineering, School of Petroleum and Geological Engineering.



The post-World War II years saw a big jump in University enrollment. Of the 11,200 students at OU in 1946, nearly one-third were engineers—4,043 men and 34 women. By 2009-10, women composed 20 percent of the undergraduates enrolled in engineering.

Today, the college is organized into six schools: Aerospace and Mechanical Engineering; Chemical, Biological and Materials Engineering; Civil Engineering and Environmental Science; Electrical and Computer Engineering; Computer Science; and Industrial Engineering. The School of Petroleum Engineering is housed in the Mewbourne College of Earth and Energy. There also are degree programs in bioengineering and engineering physics.

During that same period, ground was broken for a new \$2.9 million engineering center, which later was named for Carson. (When he stepped down as dean, he remained on the faculty as professor of mechanical engineering

and director of Engineering Placement Services.) The move into what is now Carson Engineering Center was completed in 1965. The School of Aerospace and Mechanical Engineering and School of Petroleum and Geological Engineering remained in Felgar Hall. Four years later, the School of Architecture separated from the college, forming the College of Environmental Design, now the College of Architecture.

A near catastrophe that gripped the world in April 1970 had a direct connection to the college. Alumnus Fred Haise, who earned a bachelor of science degree in aerospace engineering in 1959, was one of the astronauts aboard Apollo 13 when

it experienced a power malfunction on a mission to the moon. Despite great hardship caused by limited power, loss of cabin heat and a shortage of potable water, the ship successfully splashed down, and all crew members were safe, thanks to the resourcefulness of engineers on board and among the ground crew.

The College of Engineering's first computer center was established in 1972 with 20 machines for use by students and faculty. In the 21st century, the college maintains instructional computer labs, but also requires all students to have their own laptops.

In 1991—the same year the Dow Jones average topped 3,000 for the first time, Microsoft released MS DOS 5.0 and the World Wide Web was made available to the public—the college expanded once again, this time into the new Sarkeys Energy Center, a four-square-block, seven-acre, 100,000-square-foot teaching and energy research complex east of Carson Engineering Center. The School of Chemical, Biological and Materials Engineering and the OU Bioengineering Center, as well the Mewbourne School of Petroleum Engineering (now a part of the College of Earth and Energy), are among the disciplines currently housed there. The following year, a new research facility, the Fracturing Fluids Characterization Facility, was created to evaluate behavior and properties of fracturing fluids under real-world conditions.

Building for the Future

Over the past decade, the College of Engineering has cemented its reputation as a hub for basic and applied research in such areas of social significance as aerospace, biomedicine, energy, water quality, engineering education, transportation infrastructure, nanotechnology and weather technology. Compatible with the regional and national research focus on biofuels, researchers are developing technologies for improved and highly efficient processes for production of biomass-derived liquid fuels.

“We’ve had enormous growth in our research programs, from about \$6 million a year in 1997 to \$22 million in 2009. That includes growth in funding through the federal departments of Transportation, Defense and Energy, as well as the National Science Foundation and National Institutes of Health,” explains Landers, who joined the college in 1998 as director of the School of Industrial Engineering and became associate dean of research before becoming

OU Engineering Deans

James Houston Felgar

1909-1937

William Henry Carson

1937-1962

Gene Nordby

1963-1970

William R. Upthegrove

1970-1981

Martin Jischke

1981-1985

John Francis (acting)

1985-1986

Tom J. Love (interim)

1986-1987

Billy Crynes

1987-1998

W. Arthur “Skip” Porter

1998-2005

Thomas L. Landers

2005-Present


dean in 2005. “Another significant development over that period is the number of new young faculty that has joined the college. Including recently promoted associate professors and assistant professors, almost a third of our faculty have been here seven years or less, giving us a lot of new vitality and leading-edge research interests and capabilities.”

If he had to name the single most important accomplishment during his tenure as dean, however, Landers’ choice is clear: bringing the college’s newest facilities—Devon Energy Hall and the ExxonMobil Lawrence G. Rawl Engineering Practice Facility—from the drawing board to reality.

The five-story, 103,000-square-foot Devon Energy Hall, dedicated in January 2010, is the new home of the Schools of Electrical and Computer Engineering and Computer Science. The building houses three types of flexible classrooms plus research spaces for such areas as weather radar, microelectronics and software; small and large team rooms; forum rooms for studying, gathering and seminars; and computer areas complete with a computer science teaching lab and digital design lab.

The adjacent ExxonMobil Lawrence G. Rawl Engineering Practice Facility honors the late Lawrence G. Rawl, who earned his engineering degree from OU in 1952 and later became president, CEO and chairman of the board of ExxonMobil’s predecessor, Exxon Corp. The first of its kind in the nation, the two-story, 41,000-square-foot building features five first-floor practice bays where students gain real-world, hands-on teamwork experience in engineering. The facility also is used for activities designed to inspire kindergarten through 12th-grade students to become future engineers and scientists.

“Being part of the team of architects, engineers, contractors, students, faculty and staff that made these two buildings a reality has been a once-in-a-lifetime opportunity,” Landers says. “It is an enduring legacy that means opportunity for generations of students to come.”

A fitting tribute to the College of Engineering’s first 100 years and a challenge for the next 100. 

Debra Levy Martinelli is principal of LevyMart Public Relations in Norman. She writes freelance articles for Sooner Magazine.