L. Decker Dawson

L. Decker Dawson, founder and chairman of Dawson Geophysical Company in Midland, Texas, moved up through the energy ranks during a very different time in the industry’s history. He’s still confident that the faculty and resources that were available to University of Tulsa students in the 1930s contributed directly to his prosperity.

With 1,500 employees, Dawson Geophysical is the undisputed leader in the continental United States when it comes to seismic surveys and geophysical data gathering critical in the preliminary stages of petroleum exploration. “I still love what we do. It is fascinating,” he said.

A Tulsa native who graduated from what is now Oklahoma State University in 1941, Dawson attended TU from 1937 to 1939 and fondly remembers his time on campus where, among other things, he was a proud member of the Sound of the Golden Hurricane marching band. He credits TU with being a catalyst to his long-term success.

Patrick McKee

Dr. Patrick A. McKee, George Lynn Cross Professor of Medicine and Laureate Chair of Molecular Medicine at the University of Oklahoma Health Sciences Center (OUHSC), was born in Tulsa, attended The University of Tulsa, and graduated from the University of Oklahoma College of Medicine in 1962.

“TU was a game changer for me,” he says. “My three years at TU had a profound effect on my life. One of the most important things I learned at TU was how to learn on my own.”

McKee went on to perform his internal medicine residency training and a fellowship in molecular/cell biology at Duke University Medical Center (DUMC). He was a clinical research associate at Framingham Heart Program in Framingham, Massachusetts, then served as chief resident in internal medicine at OUHSC; and after a fellowship in hematology, he joined the Department of Medicine faculty at DUMC in 1969, ultimately achieving the rank of professor of medicine.

Ali Moshiri (BS ’76 MS ’78)

Ali Moshiri, president of Chevron Africa and Latin America Exploration and Production Company in Houston, Texas, was born in Iran and received his bachelor’s degree from TU in 1976 followed by his master’s degree in 1978. He credits Tulsa’s reputation as an oil city and TU’s excellence in petroleum engineering education with equipping him to succeed in the energy industry.

“I came to the United States about 40 years ago. The first place I called home was Tulsa. It’s in my heart,” Moshiri says. “My family still lives there. If you ask me what I call home, I say, ‘Tulsa.’”

In 1978, he joined Chevron as a reservoir engineer, later becoming a drilling engineer and then a senior production engineer. From 1983 to 1987, he served as supervisor of Reservoir and Facilities Engineering for Chevron Energy Technology Company in Houston. He then joined Chevron Overseas Petroleum in the United Kingdom; and in 1991, he became supervisor of Petroleum Engineering for Chevron Overseas Company.

In Memoriam

Steven J. Bellovich

TU’s College of Engineering and Natural Sciences felt a deep loss earlier this year with the passing of longtime Dean Steven J. Bellovich, who died Feb. 21, 2012, in Tulsa after a long and hard-fought battle with cancer. He was 67.

Bellovich joined the TU faculty in 1972 as an assistant professor of earth sciences. He was appointed dean of the college in 1995 and continued to teach throughout his time as dean. He also maintained a number of professional affiliations, including the Association of American Geographers, the National Council for Geographic Education and the American Society for Engineering Education.

“He was a talented administrator, teacher and mentor who cared deeply about our students and met the challenges of the deanship with collegiality, clarity of vision and decisive leadership,” said then-President Steadman Upham.

Bellovich led the college during the university’s recent chapter of growth and development, including the construction of two state-of-the-art buildings for the college: J. Newton Rayzor Hall and Stephenson Hall, and Samson Plaza, which will serve students and faculty for generations.

Services were held at Church of the Resurrection followed by a reception on the TU campus. The dean is survived by his wife, Janet; sons, John and Michael; John’s wife, Brena; and grandsons, Ian and Aaron.

www.utulsa.edu/ens

2012 Engineering & Natural Sciences Hall of Fame Inductees

(Continued on p. 3)
We are all saddened by the passing of Steve Bellovich. He was a gentleman of integrity and vision.

He was respected by the faculty who worked in his College of Engineering and Natural Sciences as a trusted leader committed to the growth and development of each department and discipline. He was a colleague to his fellow academic deans and administrators who could be counted on to support the best interests of the entire university. He was loved by the students who studied in his geography classes, and by those who benefited from his passion for the education and welfare of every student in the college.

His standards were high for academics and for personal behavior. His nearly 17 years as dean capped as many preceding years as associate dean when he learned his craft, and remained the steady hand during several transitions of the college—training several deans, moving from the North Campus in Keplinger Hall in 1983, and later adding new facilities including two new buildings that are now expanding opportunities for future students.

He was honored at the dedication of J. Newton Raynor Hall in November 2011 by having a student commons lounge named in his honor—a tribute to the affection of the students, alumni and colleagues whose lives he had touched. He did not live to see the dedication of Stephenson Hall, which takes place this fall, but it will provide additional state-of-the-art facilities for the education of generations yet to come.

His courage in fighting the cancer he struggled with for more than half a decade will remain an inspiration to us all. He continued to contribute. He attended a meeting of the University’s Executive Council just three days before he died, sharing his wisdom and humor with the enterprise he loved so well.

On a personal note, I had known him for 35 years, and I recall a great deal of mutual teasing we inflicted on each other, but every encounter was in the spirit of friendship and ended in laughter. Like many, I will miss him profoundly. But The University of Tulsa is a better institution for his having served us all.

Roger Blais
TU Provost

TU funds Make A Difference Engineering program through new endowment

For more than 25 years, TU’s mechanical engineering students have focused their talents on projects that address the special needs of area residents with physical and developmental disabilities. As word spread, donations began to trickle into ENS in support of this initiative.

Dean Steve Bellovich took a keen interest in the projects, offering them funds from his budget, and the name Make A Difference Engineering (MADE at TU) took hold. The MADE at TU program has fundamentally improved the lives of many disabled children in northeast Oklahoma through projects such as mobility aids and other adaptive devices.

The social service aspect of the MADE initiative is tremendously valuable to TU students and faculty: The technical challenges are comprehensive, and the client interactions are ideal exercises in developing design requirements. The most recent success was the 2012 building of a sensory learning tool, called Honeycomb Hollow, that assists students at Tulsa’s Little Light House.

Bellovich passed away in February 2012 and was unable to see this latest project completed. However, in April, then-President Steadman Upham announced the establishment of the Make A Difference Engineering Endowment Fund, in Bellovich’s honor. The endowment was started by the university with a $250,000 investment, and the earnings of the fund will provide support for the MADE at TU program in perpetuity.

“Despite the sadness we feel at the loss of a leader such as Dean Bellovich, we must continue to be a source of strength and inspiration for each other,” Upham said. “Indeed, much of TU’s success comes from being embedded in a community of outstanding professionals and generous friends who know the importance of giving back.”

The endowment will help pay for materials and other expenses associated with projects identified as part of the MADE program.

John Henshaw, the new chair of the Department of Mechanical Engineering, thanked Upham and others for their support of MADE at TU.

“The students who participate in these special projects learn as much about themselves as they do about engineering,” he said. “Aides from the obvious educational benefits, the hands-on process of improving the life of another human being reaps its own reward.”
A project that supplies a simple and inexpensive water heating system to a Bolivian village.

Kightlinger is working on two research projects, including a solar shower.

TU boasts most nationally competitive scholars in state

At least eight current or former ENS students have been awarded prestigious nationally competitive scholarships from several foundations in 2012.

Julie Monda (BS ’09), Rachel Hoffmann and Tara Drwenski won National Science Foundation Graduate Fellowships, and Will LePage is one of just seven nationwide to receive the Udall Scholarship twice.

LePage, Stephen Macke and Cody Martin each received a scholarship from the Barry Goldwater Foundation, and Weston Kightlinger was one of only 12 students in the country to receive an Engineers Without Borders International Scholarship.

TU students continue to lead the state, winning more nationally competitive scholarships than all other Oklahoma universities combined.

The NSF Graduate Research fellowship promotes outstanding graduate students in NSF-supported science, technology, engineering and mathematics disciplines. Fellows receive three years of support, a $30,000 annual stipend, $12,000 per year cost-of-education allowance to the institutions the fellows attend, international research and professional development opportunities and access to the TeraGrid Supercomputer — the world’s largest, most comprehensive distributed cyber infrastructure for open scientific research.

Those receiving 2012 NSF stipends are Rachel Hoffmann (BS ’11, MS ’12) from Searcy, Arkansas; Tara Drwenski (BS ’12) from Oklahoma City; and Julie Monda (BS ’09) of Memphis, Tennessee, who is pursuing graduate studies at the University of Tennessee’s Health Science Center and will soon enter a doctoral program in biology at the Massachusetts Institute of Technology.

Established by Congress, the Udall Foundation is dedicated to educating a new generation of Americans to preserve and protect their national heritage through scholarship, fellowship and internships focused on environmental and Native American issues. The foundation is also committed to promoting the principles and practices of environmental conflict resolution.

This year, 80 students were selected from 585 applicants. Of those 80, there were seven repeat scholars including TU’s Will LePage, a mechanical engineering senior from Center Town, Missouri. He has worked on the design, construction and implementation of solar-powered water treatment systems for developing communities.

In addition to receiving his second Udall Scholarship (a first in TU history), LePage also received a 2012 Goldwater Scholarship.

Established by Congress, the purpose of the Goldwater Foundation is to provide the nation with a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue careers in these fields. Trustees of the foundation awarded 282 scholarships for the 2012–13 academic year to undergraduate sophomores and juniors across the United States, including LePage and two others from TU: Samuel Cody Martin, a senior chemistry major from Bristow, Oklahoma; and Stephen T. Macke, a computer science and applied mathematics senior from St. Louis, Missouri.

Pre-med/chemical engineering junior Weston Kightlinger of Linetville, Pennsylvania, has been awarded one of only 12 CHEM HILL Engineers Without Borders-USA Scholarships in the United States. CHEM HILL, a global full-service consulting, design, construction, and operations firm, provides $5,000 scholarships to students who are actively involved with EWB chapters and projects at their universities.

Kightlinger is working on two research projects, including a solar shower project that supplies a simple and inexpensive water heating system to people in a Bolivian village.

Engineering and Natural Sciences Hall of Fame

(Continued from page 1)

L. Decker Dawson, continued

“I thought, ‘You mean you can find oil down there below the surface?’” His job involved “lugging jugs,” or laying electrical devices that record sound waves generated by explosive charges.

Dawson served in the Navy in World War II. After his discharge, he accepted a position at Republic Exploration, traveling throughout Louisiana, Mississippi, Oklahoma, and Texas. He settled in Midland, Texas, and wed a beautiful Western Company employee named Louise “Lou” Loper. The couple had one daughter, Mary.

In 1952, Forrest Oil asked Republic to place another crew in the Permian Basin, but Republic declined.

Dawson called Forrest Oil to see if they would hire him if he were to start his own crew. Forrest said yes. Within one month, he opened Dawson Geophysical.

Beyond the Permian Basin, the company now works in every major basin in the United States, from the Bakken to the Marcellus, from North Dakota and Wyoming to Pennsylvania and West Virginia.

Patrick McKee, continued

At Duke, he was appointed a Howard Hughes Medical Institute (HHMI) Investigator for nine years while doing molecular studies of human proteins. McKee was founder and first Chief of the Division of General Internal Medicine until leaving in 1985 to become professor and chairman, Department of Medicine, OUHSC. Besides funding from HHMI, he has received grants from the National Institutes of Health, the William K. Warren Foundation, the Department of Veteran Affairs, and the Department of Defense.

In 1995, McKee accepted an endowed chair at OUHSC and devotes most of his time to biomedical research. He lists more than 120 original publications in first-line, peer-reviewed scientific journals.

Most recently, McKee helped lead the development of the new Laureate Institute of Brain Research, which includes collaborative research with The University of Tulsa and the University of Oklahoma, Tulsa College of Medicine.

Two of McKee’s children also attended TU. His older brother petroleum engineer Calvin McKee (BS ’48) was inducted into the TU Engineering Hall of Fame in 1980.

Ali Moshiri, continued

In 2000, he assumed the position of general manager and advised to the vice chairman of the board for Chevron Corporation Exploration and Production.

In 2001, Moshiri was appointed managing director of Chevron Latin America Exploration and Production Company, where he was responsible for upstream operations in Argentina, Brazil, Colombia, Mexico, Trinidad & Tobago and Venezuela.

Moshiri is the president of Spindletop International Charities and was chairman of the Venezuelan Association of Hydrocarbons from 2003 to 2006. He serves on the boards of the Council of the Americas, the Institute of the Americas, the Pan American Development Foundation, the Trust for the Americas, Organization of American States, and the Houston Zoo. He is a member of the Jones Graduate School Council of Overseers at Rice University, and is married to Maria Luisa (Misi) Berisacher-Moshiri.
Construction of Stephenson Hall is nearing completion at the corner of 5th Place and Gary Avenue. Faculty from the McDougall School of Engineering and the Department of Mechanical Engineering will begin moving into the 38,600-square-foot building in August. A dedication is being planned for early October to thank the donors who made it all possible, including Charles and Peggy Stephenson, who made the lead gift for the $16.1 million structure. Other major donors include Mary and Jimmy Brooks, Pat and Arnold Brown, Chevron, Donna and David Dutton, Carrie Kirk, Noble Energy, Pam and Thomas Russell, Stella and Bob Schwartz, Sherman Smith Family Foundation, Lynn and Jack Wahl and Williams Companies.

Stephenson Hall includes several key labs for education and research related to drilling, rock and fluid properties, thermofluids, instructional controls, composites and materials. It matches J. Newton Rayzor Hall, which houses the Tandy School of Computer Science and the Department of Electrical Engineering that was dedicated last fall. The two are joined to Keplinger Hall and the Allen Chapman Activity Center via the inviting new Samson Plaza.

Stephenson Hall opens to classes, labs in August

After announcing Geoffrey Orsak as The University of Tulsa’s 18th president in May, TU officially welcomed him to campus July 1.

The computer scientist and electrical engineer most recently served as dean of the Bobby R. Lyle School of Engineering at Southern Methodist University in Dallas where he played a significant role in advancing the school’s national prominence. Under his leadership, SMU’s engineering school experienced growth in faculty and physical facilities, increased research levels and developed engineering education outreach programs for children in grades K-12.

Orsak earned bachelor’s, master’s and doctoral degrees in electrical and computer engineering from Rice University. As an applied mathematician earlier in his career, he conducted research that helped lead to today’s wireless revolution. “I was part of a team that examined the foundations of mathematics and digital technology that helped pave the way for today’s cell phones, voice recorders and other communication devices,” Orsak said.

The president said he will utilize his training as an engineer in his new leadership role at TU. “Scientists and engineers like to know how things work,” he said. “We enjoy finding ways to meet challenges and accomplish goals that others may think are daunting.”

TU officials said Orsak’s vision as a respected professor and successful administrator also runs parallel to the university’s mission of applying scholarship to social needs, both locally and globally.

“I want to develop close involvement with every department here on campus. Together, we can further advance TU on a national level while making our community a better place to live, learn and work.”
Moving science from the bench to the patient: The incredible career of Crystal Icenhour

When Crystal Icenhour was presented with her award as the 2012 Ewing Marion Kauffman Foundation Outstanding Postdoctoral Entrepreneur, she observed, “I was drawn to the entrepreneurial world to more effectively take my science from the bench to the patient. While not for the faint of heart, entrepreneurship drives innovation, economic success, and improved quality of life.”

After more than 10 years of infectious disease research, she became president and chief science officer for Phthisis (Tulsa) Diagnostics, in Charlottesville, Virginia, in 2006. In addition to her scientific background, she brings business and management experience to her role at Phthisis.

As Chair of the National Postdoctoral Association in 2008, she managed staff and directors, reviewed and approved financials, engaged in fundraising, and served as the public face of the organization. This combination of experience and skills prepared her to provide leadership, develop corporate strategies and strategic partnerships, and to ensure that financial goals are met at Phthisis.

Dr. Icenhour is an adjunct professor at Duke University Medical Center’s Division of Infectious Diseases in its Department of Medicine and currently serves on the board of the Virginia Biotechnology Association. She is a member of the Charlottesville Business Innovation Council, Sigma Xi, Medical Mycology Society of the Americas, National Postdoctoral Association, and the American Society for Microbiology.

Icenhour, who holds an undergraduate degree from TU’s Department of Biological Sciences, received her doctoral degree from the University of Cincinnati Medical School of Graduate Studies in Pathobiology and Molecular Medicine. Between TU and Cincinnati, she completed a fellowship in the Thoracic Diseases Research Unit at the Mayo Clinic College of Medicine and was a research associate at Duke University Medical Center’s Department of Molecular Genetics and Microbiology.

Originally from Midland, Texas, Icenhour notes that she selected TU because of its strong pre-med curriculum and small class sizes.

“I was a work-study in Professor Estelle Levetin’s lab beginning my freshman year,” she recalls. “She introduced me to laboratory basics, mycology, and medically-relevant research. Her expectations for my academic and laboratory work were high — encouraging me to work hard and excel in all that I do.”

Excelling, one could say, is a way of life for Icenhour. While a postdoctoral fellow at the Mayo Clinic College of Medicine, she was the first to identify and characterize Pneumocystis melaninis. She holds or has applied for seven patents, has authored or co-authored 14 research articles and theses, and has been a prolific speaker and presenter at scientific conferences. She has served on review panels for National Science Foundation Small Business Innovation Research (SBIR) grants.

Her dedication to both science and to bringing products to market that will benefit patients explains why she has so often expressed her goal of “bridging the translational gap between these two worlds” of science and business.

Phthisis Diagnostics is a rapidly growing biotechnology research and development company founded in 2005. The company’s mission is to develop and commercialize easy-to-use, cost effective molecular diagnostics. Phthisis Diagnostics works with biotechnology companies and clinical diagnostic labs to develop innovative molecular diagnostic products. The company also works with academic research and environmental testing laboratories to adapt its products for use in these settings. Phthisis Diagnostics has tightly integrated its business and research teams, resulting in a highly effective and efficient business model.

The fourth leading cause of death in the United States is infectious disease. Early and proper diagnosis is key to delivering effective treatment, reducing risk of outbreaks, and improving patient care. Phthisis Diagnostics works with diagnostic partners around the world toward this goal. Specialties include complex nucleic acid extractions, molecular biology, infectious disease diagnostics, parasitology and mycology.
Group returns to Cambodia to help orphans

Four ENS students with a group called Sustainable Engineering for Needy and Emerging Areas (SENEA) headed to Multiple Blessings Orphanage in Svy, Reing, Cambodia, in May 2012. This was the group’s second trip to the country to evaluate needs at the orphanage and to work on projects that will promote the health and well-being of the children. “The opportunity to immerse myself in a foreign culture such as Cambodia is invaluable,” said electrical engineering junior Rick Shipley.

“The opportunity to immerse myself in a foreign culture such as Cambodia is invaluable,” said electrical engineering junior Rick Shipley. “Working in Cambodia is unlike any project I will ever work on in the classroom. I am responsible for the research, design and implementation of a project that could dramatically improve someone’s life.”

Shipley was joined on the trip by Jordan Occeña, an engineering physics junior; Andrew Lowe, a chemical engineering junior; and TJ Johnson, an electrical engineering freshman.

“My favorite part of the trip was hanging out with the people at the orphanage and playing volleyball with the children,” Shipley said. “Working on the Cambodia projects made me a better engineer, a better student and a better person.”

It’s a sweep in MAA competitions

TU students swept both the team and individual competitions at this year’s Mathematical Association of America (Oklahoma-Arkansas section) meeting at Henderson State University in Arkadelphia, Arkansas. Andrew Ruff, Ahmed El-Kishky and Trang Le won the Math Jeopardy team contest by a large margin, and Le also won the individual Integration Bee contest. Also, Ruff won the prize for the highest score from the section in the national Putnam Mathematical Competition.

Graduate student published in Analytical Methods

Jessica Little, a doctoral student in geosciences, co-authored a recent article in Analytical Methods. The paper is based on work she did last summer at the Idaho National Lab. The citation is: Elias, G., Mattson, E.D., and Little, J.F., 2012, A HPLC method for the quantification of butyramide and acetamide at ppb levels in hydrogeothermal waters. Analytical Methods, DOI: 10.1039/c2ay05576g.

Tri-Beta members present at district meeting

TU’s Pi Alpha Chapter of Tri-Beta, the national Biological Honor Society, attended the South Central Regional District Meeting at the OU Biological Field Station by Lake Texoma from March 30 to April 1, 2012. Faculty adviser Karen McMahon and the following students attended the meeting:

• Chapter President Michael Callegari presented Pi Alpha’s chapter report and gave a presentation on “Induced stress regulation of thyroid hormone receptors in the larval salmonid brain,” a project supervised by Dr. Ron Bonnett.

• Callegari also placed first in his session winning the Frank G. Brooks Award and securing $350 in travel funds to present his research at the biennial meeting in San Juan, Puerto Rico, May 14-20, 2012.

Two awards from AAAS during Tulsa conference

Three science students from the Brazil Science Without Borders program studied at TU last semester in the College of Engineering and Natural Sciences: Andre Morais, electrical engineering; Marcelo Lindenbergh, geology; and Amadeu Neto, chemical engineering.

“Many of the students have expressed a desire to return to TU in the future,” said Andre Morais, a senior from the Federal University of Minas Gerais. They are thinking about their future in the United States. After their U.S. studies are complete, they plan to return to Brazil and participate in a summer internship.

Morais, a senior from the Federal University of Minas in Brazil, says that the biggest difference between his Brazilian university and TU is what he terms, the infrastructure. “It’s clear that in TU, every detail is carefully planned to provide a good learning experience to the students and professors. My home university has good infrastructure, but the campus of TU is absolutely amazing.”

The Brazil Science Without Borders program, announced in August 2011, provides scholarships to undergraduates from Brazil in the sciences, technology, engineering and mathematics (STEM) fields to study at colleges and universities in the United States. After their U.S. studies are finished, students return to Brazil to complete their degrees.
During the first week of 2012, two TU mechanical engineering students and two experienced international workers established community-scale solar powered water chlorination systems at three villages in Guyana, South America.

Under the joint direction of TU’s Department of Mechanical Engineering and Department of Chemistry and Biochemistry, seniors Will LePage and Kevin Mayer have spent the past two years developing water purification methods that utilize renewable energy. Pending successful feedback from this pilot project, a team of undergraduates hopes to continue collaborating with the people of Guyana to bring clean water to villages in their country and beyond.

“The people welcomed us with open arms and provided us an intimate perspective to the water-related issues their families face on a daily basis,” LePage said. Each of the three projects had unique challenges for the water delivery system due to their remote locations and limited access to grid electricity. The systems were installed at central locations, which frequently serve as community meeting places.

Sustainable Engineering for Needy and Emerging Areas (SENEA) connects sustainable and alternative energy technologies with the global community. Students research, develop, and implement engineering projects that directly improve the quality of life for impoverished people.

Since the initial trip, the team has identified several opportunities for improving the system design.

“Kevin and I plan to return to Guyana. We’re also hoping that at least one of the freshmen students on our SENEA water research team will be able to join us on the next trip,” LePage said. “I’m exceptionally grateful for all of the support our project has received, and I’m very optimistic about the project’s future.”

Team represents TU at International Battle of the Brains

Three University of Tulsa computer science students attended the world finals of the Association for Computing Machinery’s International Collegiate Programming Contest sponsored by IBM. The TU students’ team, Aleph 1, won the ACM South Central USA Regional Programming Contest, which qualified them to participate in the international competition May 14-18, 2012, in Warsaw, Poland.

The regional contest featured 68 teams from Oklahoma, Texas, Louisiana, and Mississippi. Aleph 1 – comprised of senior Logan Brooks and juniors Alex Ruff and Stephen Macke – was the only team to solve five of eight problems in the allotted five hours.

TU was one of only 18 U.S. universities to qualify for the international competition. Aleph 1 finished 13th among those schools and 93rd overall.

TU Computer Science Professor Sandip Sen, the team’s faculty coach, said the regional win by Aleph 1 was the best finish by any TU team during the past 25 years that the university has been participating in the contest. The finals, hosted by the University of Warsaw, featured 165 teams from around the world competing for awards and prizes in what’s been nicknamed the “Battle of the Brains.”

The ACM-ICPC is a multiterm, team-based programming competition involving a global network of universities hosting regional competitions that advance teams to the world finals. Participation has grown to 25,000 computer science students and faculty at more than 2,000 universities from 88 countries on 6 continents. The contest fosters creativity, teamwork and innovation in building new software programs and enables students to test their ability to perform under pressure. It is the oldest, largest and most prestigious programming contest in the world.

The competition pits teams of three university students against eight or more complex, real-world problems, with a five-hour deadline. Teammates collaborate to rank the difficulty of the problems, deduce the requirements, design test beds and build software systems that solve the problems under the scrutiny of expert judges.

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In February 2012, ENS students sponsored the annual E-Week activities at Keplinger Hall with the help of some dedicated faculty members who work to make sometimes complicated concepts more accessible to area children. Organizers said 538 middle school students from 17 different schools and homeschool groups signed up for this year’s open house, which is designed to stimulate interest in science, technology, engineering and math.
ME Chair Rybicki retires

Edmund F. Rybicki, the Harry H. Rogers Chair in Mechanical Engineering, retired in June 2012 after 33 years at The University of Tulsa. During that time, Rybicki saw many changes in the college and the ME department, which he led since he came to TU in 1979.

When he arrived, the College of Engineering and Natural Sciences shared the Cities Service Building on the North Campus. The ME department had five faculty and no graduate program. The industry-funded Erosion/Corrosion Research Center was started in 1983 by Rybicki and Professor Emeritus John Shadley. The Erosion/Corrosion Research Center has 25 member companies today and has spun off three other industry-sponsored programs.

Rybicki started the ME Industrial Advisory Board in 1981. The board now has 90 members and provides a network of contacts who have hired many TU students for full-time jobs and internships. The board is involved in recruiting students, maintaining national accreditation of the department, and providing ideas and funds for some of the senior design projects. These projects give students real-world experience in designing and constructing equipment that is used by industrial companies or in teaching labs at TU.

In 1983, the college moved to Keplinger Hall, enhancing the sense of community with the rest of the university for students and faculty. It also helped to recruit students. The total number of undergraduate students has increased by 70 percent, and the number of female ME students has risen by 500 percent since moving to the main campus.

Rybicki represented TU as a member of committees in four international technical societies. He received prestigious fellow awards from the American Society of Mechanical Engineers, American Society of Metals, American Welding Society and National Association of Corrosion Engineers. He also received the AWS Distinguished Member Award and A.F. Davis Silver Medal Award and the NACE Technical Achievement Award.


He received the Outstanding Tulsa Professional Engineer of the Year award in 2003, Outstanding Oklahoma Professional Engineer of the Year award in 2005, Outstanding Teacher Award from TU in 2012 and TU Mr. Homecoming award in 2006.

NASA named a computer after Rybicki for a method described in a paper he published with Mel Kanninen while the two were at Battelle. The method is said to be the most popular computational method for studying and preventing fracture of certain materials used in aircraft, commercial airplanes and spacecraft. Rybicki has authored or co-authored more than 480 journal publications, conference proceedings, and technical conference presentations.

He is married to Sandy Rybicki, who is a nurse, a member of PEO and the Assistance League of Tulsa, and a former volunteer in the Jenks school district. The couple has three children and four grandchildren.

“I have had the good fortune to work with many very capable and pleasant people at Battelle and The University of Tulsa in my career. Any measure of success and contributions to the university and Battelle have been a group effort. Equally important have been the environment and support that my wife, Sandy, and my children have provided,” he said.

NanoLab manager renews her energy in atomic gardens

London is calling the manager of TU’s Micro and Nano Characterization and Fabrication Laboratory, Paige Johnson, who travels to England two to three times a year. Johnson not only has her master’s degree in chemistry from TU, but also holds a master’s degree from the University of Bristol in garden history that focuses on art, architecture and design for gardens and landscapes in their cultural and social contexts. Johnson is one of a few scholars capable of practicing in both science and the arts — a fact that has led to some very interesting areas of confluence.

Johnson was asked to speak about gardens of the 1950s and ‘60s leading her to research the “atomic gardens” of the times. “I was looking for atomic expressions in design motifs and stumbled across the literal use of atomic power in the garden, which has been mostly forgotten,” she said.

In the giddy aftermath of World War II, many believed that atomic energy had the power to save humanity in many areas. One of these was food production. What began as a series of controlled scientific experiments to discover the effects of radiation on food crops became a pop phenomenon. Widely reported on by newspapers, the hope was that it would cause plants to grow faster and produce more fruit.

Although the structure of DNA was not completely understood at the time, there was some understanding that radiation would increase mutations. In the United States, entrepreneurs sold “atom-blasted” seeds; and in England, Muriel Howorth founded the Atomic Gardening Society so British gardeners could contribute to the scientific research by planting the seeds and monitoring their growth patterns.

“More than 300 people signed up to be ‘mutation experimenters,’ but the results of their experiments have been lost,” Johnson said. Today this would be called crowd-sourcing science. The atom-blasted seeds were the topic of the award-winning play The Effect of Gamma Rays on Man-in-the-Moon Marigolds.

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When she is in Great Britain, Johnson often is asked to speak at venues such as the Garden Museum in London. She is also an expert on science motifs in Art Deco gardens where designers incorporated concepts such as electricity and sound waves and the use of light and sound in gardens of the Renaissance. She writes about these topics and more online at http://gardenhistorygirl.blogspot.com/.

Back home, in the TU NanoLab — a university-wide resource — Johnson analyzes everything from Natufian spear points to photovoltaic nanostructures using TU’s million-dollar FEI Helios NanoLab microscope. It’s just another example of how science and culture complement each other everyday.
Outstanding Teachers announced

Two of the three recipients of TU’s Outstanding Teacher Awards for 2012 are from ENS. They are Edmund Rybicki, the recently-retired Harry H. Rogers Chair in Mechanical Engineering, who had been at TU since 1978; and Robert Sheaff, associate professor of biochemistry, who has been at TU since 2006.

Among the highest forms of recognition that the university can bestow upon a faculty member is the Outstanding Teacher Award. Initiated in 1980, it is limited to three faculty members per year – fewer than one percent of the resident faculty. The winners are nominated by students, and the selection is made by the elected Faculty Affairs Committee of the Faculty Senate. Thus, the award represents recognition by both students and fellow faculty. The winners of this prestigious award are traditionally honored at the spring commencement with a monetary award and a medallion.

Singh earns OCAST honor

EE Professor Surendra Singh has received more grant money from the Oklahoma Center for the Advancement of Science and Technology’s Intern Partnership program than any other individual or institution in OCAST’s 27-year history. Singh can be credited with securing much of the $1.3 million for TU’s engineering internship program since its inception in 2002.

He was most recently awarded $60,000 by OCAST for two student interns to work for Tulsa-based Qual-Tron. Directed by Qual-Tron engineers, the students will work with intrusion sensors used in the surveillance industry, including the design, specifications, development, testing, and manufacturing of the sensors.

Singh began participating in the engineering internship program at TU because he wanted engineering students to have the opportunity to apply what they learn in the classroom to real-world situations at highly specialized and technical Oklahoma corporations.

“The OCAST program helps keep Oklahoma’s best and brightest in the state by connecting them to local, high-paying, technically challenging jobs,” Singh said. “In many cases, students are hired after graduation by the firms for which they interned or have multiple job offers from local companies, usually at a higher salary than a student without this experience.”

Henshaw publishes new book

John Henshaw, the new chair of the Department of Mechanical Engineering, has released a new book, A Tour of the Senses: How Your Brain Interprets the World, which was published by Johns Hopkins University Press in February 2012.

Four granted tenure in 2011-12

Four ENS faculty members were granted tenure this academic year. They are Dylan Brennan, physics; Jeremy Daily, mechanical engineering; Robert Sheaff, biochemistry; and Sanwu Wang, physics. Congratulations to all!

Daily awarded SAE prize for top educator

ME Professor Jeremy Daily has been selected to receive the Society of Automotive Engineers SAE Ralph R. Teetor Educational Award for 2012. This is a nationally competitive award that recognizes effective and innovative engineering educators. Previous winners in the ME department include Drs. Steve Tipton and John Henshaw.

Reflecting the firm belief of its donor that engineering educators are the most effective link between engineering students and their future careers, the SAE Ralph R. Teetor Educational Fund’s major program is focused on younger engineering educators. Its objective is to provide an engineering atmosphere in which these teachers can meet and exchange views with practicing engineers.

HAPS conference held in Tulsa

The Human Anatomy and Physiology Society’s 26th Annual Conference was held in Tulsa from May 26-31, 2012. TU Biology Instructor Karen McMahon was the conference coordinator this year. The event drew educators and researchers from across the country to share ideas and elect new board officers for the global organization. The conference also was a great opportunity to show what great things are offered on the TU campus, at Gilcrease Museum and throughout Green Country.

Materials, heal thyself!

The exciting new field of self-healing materials is in the news, and the possibilities for life-saving benefits from these materials are endless. At TU, researchers are creating self-healing materials inspired by the human body.

Michael Keller, an assistant professor in the Department of Mechanical Engineering, says the term “materials science” is being used as a catchall for many different types of research. His work focuses on real-world applications of basic science. “I scan research from other fields with an eye towards finding novel solutions to existing problems,” Keller said.

One problem has huge implications. While some materials, like metals, bend before they break, giving people a heads up that the material is weakening, the composite materials that Keller works on snap with no warning that is visible to the naked eye. Catastrophic failure can lead to disaster.

Composites are made of two materials: fibers and reinforcement. Keller held up the sample he keeps in his office, showing the carbon fiber (the same used in high-tech golf clubs) coated on either side with what is essentially hardened glue. This sample is thin, lightweight and can easily be stacked for the desired thickness. The downside is that the glue is brittle and, once broken, allows the fiber to tear. To stop this process in its tracks, tiny capsules can be mixed into the glue. Keller described the capsules as “glue balloons.” Cracks in the material pop the balloon, releasing a different kind of glue that fills the crack and hardens, repairing it.

“We are taking inspiration from the body’s healing process. When your skin is cut, your body seals up the opening with a scab – not too big and not too small. The ease of collaboration back to Tulsa by the air of excitement and collegial atmosphere.

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IPEC responds to requests, branches out to Rockies

TU’s Continuing Engineering and Science Education is expanding its national and international scope for its 19th International Petroleum Environmental Conference (IPEC) taking place October 30 through November 1, 2012.

For years, CESE has sponsored seminars outside of the region by request. This year’s IPEC host city is Denver. Pat Hall, the associate dean of CESE, noted that Denver and the surrounding area have huge reserves, making it a logical choice for IPEC’s first conference outside of the Southwest. The conference will be held at the Grand Hyatt Downtown Denver with many amenities and activities nearby.

IPEC attendees, many of whom work in industry, government agencies, and academia, come from all regions of the U.S. and countries as diverse as Argentina, China, Peru, and Malaysia. This is a wonderful networking opportunity, and the new venue should bring in a new crop of attendees, Hall said. Paper topics include “Water Management Issues,” “Advanced Environmental Diagnostics” as well as “Colorado/Rocky Mountain Regional Issues.”

This year’s conference will be chaired by TU Chemical Engineering Professor Kerry Sublette and by John Veil of Veil Environmental, LLC, Annapolis, Maryland. As always, plenary lectures will feature leading experts exploring timely petroleum environmental problems and solutions. For example, Stan Belieu, deputy director of Nebraska Oil and Gas Conservation Commission in Sidney, Nebraska, will give a talk titled “FracFocus — Recent Enhancements that Facilitate the Information Needs of the Public and Allow Industry Uniform Disclosure to Regulatory Agencies.” FracFocus, the hydraulic fracturing chemical registry website, is a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission.

Other confirmed speakers include John Boysen of BC Technologies, in Laramie, Wyoming; and Dag Nummedal, director of the Colorado Energy Research Institute at the Colorado School of Mines in Golden, Colorado.

Representative session talks include “Anaerobic Treatment and Hydrocarbon Seepage Control Using Modifications to Natural Stream Morphology” given by Jeffrey Binder of Burns & McDonnell Engineering Company, Kansas City, Missouri; and “Examining Gene Expression in Environmental Samples” given by Dora Ogles of Microbial Insights, Rockford, Tennessee, for the session Bioremediation of Hydrocarbons & Chlorinated Hydrocarbons; and “HDPE Lined Produced/Flowback Water Ponds” given by Neil Nowak of Weaver Boos Consultants, LLC, Greenwood Village, Colorado, for the Waste Management & Pollution Prevention session.

IPEC is very excited about the new venue and stellar list of speakers. Previous conferences have been rated either “good” or “excellent” by 97 percent of participants, and this conference looks to be even better. Visit the CESE website for updated information on speakers. Although onsite registration is allowed, early registration is available for a significant discount. The early deadline is September 3, 2012.
The 2011 ELITE graduates, left to right, were: Matt Porter, McElroy Manufacturing; Stephen Miska, TD Williamson; Marcia Brueggenjohann, WPX Energy; Allen Richardson, TD Williamson; Hejian Sun, ConocoPhillips; and Sean Berzas, WPX Energy.

The 2012-13 Continuing Engineering and Science Education’s Executive Leadership Institute for Technical Professionals & Engineers (ELITE) program begins in August. Each year, employers are encouraged to nominate workers who have a technical background and are being promoted to leadership positions. ELITE gives those valuable employees the training they need to become successful leaders in business and industry.

With career-focused learning experiences, ELITE students cover eight modules and meet once a month. The students must complete all eight modules before receiving the Certificate of Completion.

For more information about the ELITE program and other continuing education courses offered by TU, please visit www.cese.utulsa.edu.

How can ELITE training help you?

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The ELITE graduation speaker this past year was Maj. Gen. Jerry D. Holmes, U.S. Air Force (retired). His address was titled “Make it Better; Make it Happen.”

CESE adding new instructors

CESE welcomes Mark Klins, a new instructor for the "Petroleum Engineering for Non-Engineers" course. He is a management consultant specializing in the development of petroleum resources and building the teams that coordinate those efforts.

He received his Ph.D. in petroleum engineering from The Pennsylvania State University and attended the Wharton Executive Development Program at the University of Pennsylvania. Klins served as a professor of petroleum and natural gas engineering at Penn State and the University of Southern California.

He later joined Chevron and worked for 25 years in various upstream operations, serving in an array of drilling, production, and reservoir engineering assignments and asset management positions in the Gulf Coast, West Texas, the San Joaquin Valley, South America, and the Middle East as well as additional corporate appointments in Houston and San Ramon, California.

Klins is a registered professional engineer, recipient of the Society of Petroleum Engineers Outstanding Young Member Award, has served the SPE as Pittsburgh Section Chairman and has chaired the Educational & Professionalism, Distinguished Peer Faculty, and Outstanding Young Member Award Committees, as well as served as a technical editor for the Journal of Petroleum Technology. In addition, Klins has authored or co-authored three textbooks and written more than 25 refereed papers and articles.

Attention experienced professionals: CESE wants to add instructors for various noncredit/non-technical cross-discipline exploration and geology courses emphasizing practical, real-world applications. Interested candidates should contact Pat Hall at patricia-hall@utulsa.edu.

Auburn partnership expands course selection

CESE is constantly looking for new ways to accommodate busy engineering professionals who would appreciate the option of obtaining needed PDHs without having to spend time in the classroom. To this end, the department has started a new partnership with Auburn University’s highly regarded Samuel Ginn College of Engineering to increase TU’s course selection.

Nancy Kruse, CESE director of programs, explained, “We are excited about our new partnership with Auburn University’s Engineering Professional Development Department. This gives us an opportunity to expand our professional development opportunities to engineers in our region fairly quickly in a variety of different disciplines.”

At first, the classes will be available on DVD only; future plans are to offer courses online. The dozen initial courses range from Electrical Power Systems and Soil Basics to Ethics and Professionalism.

Scheduling for the DVD courses is extremely flexible. The DVD and course materials are shipped directly to either home or office. Exams can be taken online with immediate scoring or mailed in for grading. The deadline for completing the course is two years from the date of purchase.

CESE NEWS
YOUR GIFT AT WORK

The annual fund for the College of Engineering and Natural Sciences is a critical resource in providing students an exceptional educational experience. In this issue of Vision, you’ve learned about our students who traveled to Guyana and Cambodia to participate in sustainable engineering projects. You also read of the growing support for student organizations, outreach activities for high school students and student design projects that help disabled children. The Annual Fund supported each of these endeavors, and it’s your commitment that makes a significant and positive impact on the education of today’s students. We hope you’ll join us in continuing to provide extraordinary opportunities to the college’s students and faculty.

Make your gift online today at www.utulsa.edu/giving
or contact Heather Apodaca, coordinator of the TU Annual Fund, at 918-631-3524, or at heather-apodaca@utulsa.edu.