

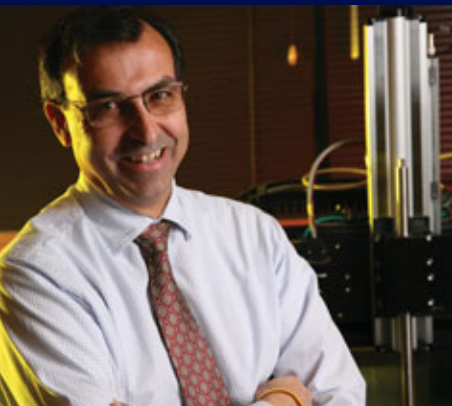
T H E U N I V E R S I T Y O F O K L A H O M A

EARTH & ENERGY

FALL 2013

THE MANY FACES OF RESEARCH

MEWBOURNE
COLLEGE OF EARTH & ENERGY
THE UNIVERSITY OF OKLAHOMA

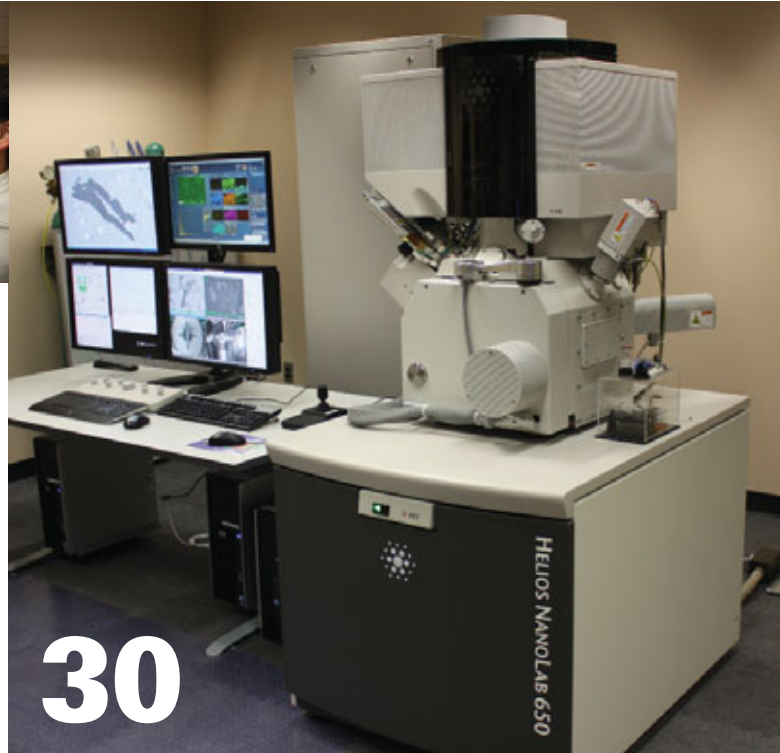


CONTENTS



02 COLLEGE

- 2 LETTER FROM THE DEAN
- 3 IN MEMORIAM: JOHN TIM KWIATKOWSKI
- 4 FROM CAIRO TO NORMAN
- 4 AN ACADEMIC VIDEO PLATFORM
- 5 ALUMNI ROLE MODEL
- 7 STAYING FOCUSED
- 8 A MEANINGFUL ROLE
- 9 PHILANTHROPIC DOMINO EFFECT
- 10 TRAILBLAZER SOCIETY
- 14 ADDRESSING GROWING NEEDS
- 15 INVESTMENT PAYS OFF



16 FACULTY

- 16 MAKING STRIDES IN PLANETARY GEOCHEMISTRY
- 17 TEACHING AROUND THE WORLD
- 18 REMOVING COMPLICATIONS



19 STUDENTS

- | | |
|--|-------------------------------|
| 19 AT THE TOP | 23 RAISING THOUSANDS FOR LIFE |
| 21 DEGOLYER GRADUATE FELLOWSHIP | 24 STUDENTS TEACHING STUDENTS |
| 22 GRAD STUDENTS CAPTURE IMPERIAL BARREL AWARD | 25 TELLING HER STORY |
| 22 BIG WIN IN CHINA | 27 IMMERSSED IN BOLIVIA |
| | 27 BIGGER AND BETTER |



EARTH & ENERGY MAGAZINE

Mewbourne College of Earth and Energy
University of Oklahoma

Editor: LevyMart Public Relations

Designed by: Haley Fulco, University Printing Services

Photo credits: Brandon Akbaran, Kevin Blake, Robert H. Taylor,
University of Oklahoma Western History Collections, Shevaun Williams

Contact:

Allison Richardson
Director of Alumni Relations
Mewbourne College of Earth and Energy
University of Oklahoma
1510 Sarkeys Energy Center
100 E. Boyd St.
Norman, OK 73019-1015
Phone: (405) 325-3821
Fax: (405) 325-3180
email: arichardson@ou.edu

This publication, printed by OU Printing Services, is issued by the University of Oklahoma. 6,000 copies have been prepared and distributed at no cost to the taxpayers of the State of Oklahoma.

The University of Oklahoma is an equal opportunity institution. www.ou.edu/eoo
©2013

This University in compliance with all applicable federal and state laws and regulations does not discriminate on the basis of race, color, national origin, sex, age, religion, disability, political beliefs, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid and educational services.

28 RESEARCH

- 28 FINDING FRACTURES IN THE MISSISSIPPI PLAY
- 29 OVERVIEW AND FUNDING
- 30 CLASSIFYING SHALES FOR ECONOMIC ASSESSMENT

32 ALUMNI

- 32 A BIT AND A CREW
- 34 A SCHOLARSHIP CHALLENGE
- 34 ABOVE AND BEYOND
- 35 DAVID A. KIMBELL SR.
- 35 JAY SANFORD HANDLEY SCHOLARSHIP FUND
- 36 JOHN M. CAMPBELL SR.
- 36 A CENTURY OF FRIENDS
- 37 CLASS NOTES
- 40 MEETINGS, CONFERENCES AND FIELD TRIPS

ADMINISTRATIVE STAFF

Larry R. Grillot, Dean and Lester A. Day Family Chair
Barry L. Weaver, Associate Dean and Associate Professor,
ConocoPhillips School of Geology and Geophysics
Donna Ade, Staff Assistant
Andrea Flores, Financial Associate
Luanne Howk, Financial Administrator
Allison Richardson, Director of Alumni Relations
Ameil Shadid, Director of Development
Yoana Walschap, International Outreach Web Support
Hope Watson, Administrative Assistant
Constance White, Manager, Administration and Operations

UNDERGRADUATE STUDENT SERVICES

Elizabeth Ehrhardt, Director
Laura Cullen, Senior Academic Counselor
Francesca Hunt, Staff Assistant

Web: www.ou.edu/mcee
Facebook: OU Mewbourne College of Earth and Energy
LinkedIn: Mewbourne College of Earth and Energy
Twitter: twitter.com/oumcee



AS I HAVE COMMENTED IN PREVIOUS ISSUES OF *EARTH & ENERGY* MAGAZINE, WE HAVE AN OUTSTANDING HISTORY AND HAVE BUILT A STRONG FOUNDATION FOR THIS COLLEGE. WE CONTINUE TO WORK TO MOVE THE COLLEGE FORWARD IN THE AREAS OF ENERGY AND EARTH SCIENCES AND ENGINEERING EDUCATION.

This edition of *Earth & Energy* magazine includes tributes to two of our alumni, David A. Kimbell Sr. and Jay Sanford Handley. And, as we were going to print, we learned of the passing of John M. Campbell Sr., whose obituary is reproduced in part on page 36. John was described to me as “legendary” with many of our graduates, and was viewed as such by the OU School of Petroleum and Geological Engineering.

Given the contributions of these alumni to the history of geology, geophysics, petroleum engineering and geological engineering at the University of Oklahoma, it is fitting that this issue focuses on research, and in particular the “many faces of research.” Research is a key element in faculty development and graduate education in particular, but also plays a key part in our undergraduate education. Although we still use textbooks where appropriate, in many cases we “teach from our research.”

OU is a major public research university, and research is an integral part of the three areas of activity: teaching, research and service. The Mewbourne College conducts a very strong research program in a variety of areas, including both fundamental and applied research. When combined with good teaching, such research provides the best approach to higher education. Research also provides one way for the college to stay in the forefront of technology and the concepts that will impact the education, science, engineering and industry of tomorrow. The proper combination of teaching, research and service is the way in which we can continue the legacy that has been left by those such as Campbell, Handley and Kimbell and pass it on to the next generation of leaders.

As I have commented in previous issues of *Earth & Energy* magazine, we have an outstanding history and have built a strong foundation for this college. We continue to work to move the college forward in the areas of energy and earth sciences and engineering education. The newly created TrailBlazer Society honors and recognizes donors for their support of the Mewbourne College’s mission and vision (see page 10).

As always, I offer my sincere thanks on behalf of our faculty, staff and students for your continued interest in and support for the Mewbourne College of Earth and Energy and the University of Oklahoma.

Larry R. Grillot

Larry R. Grillot
Dean and Lester A. Day Family Chair

JOHN TIM KWIATKOWSKI

1965 – 2013



Tim Kwiatkowski (left) and student Supratik Sarkar (Ph.D. geology, 2011) in the Crustal Imaging Facility.

After graduating in 1998 with his doctorate in physics from the University of Oklahoma, John Tim Kwiatkowski began working for the Center for the Prediction of Storms, managing its supercomputers. Colleague Brandon George, who later became the coordinator for the CAPS supercomputers says, “He was one of the most intelligent people I know. I don’t think there is anything he couldn’t accomplish when he put his mind to it.”

In December 2000, Kwiatkowski began working for the Shell Crustal Imaging Facility (now Crustal Imaging Facility) as systems administrator. At that time, the SCIF lab was a geophysical computer lab in the school of geology and geophysics. Early in his career, Kwiatkowski demonstrated his talent for translating scientific concepts into mathematical models for computer implementation. He began helping graduate students and senior scientists with their software projects, helping to optimize routines and add user interfaces. Eventually, he was instrumental in releasing Fusion Geophysical LLC’s Spectral Decomposition software to the geophysical world.

During his time with SCIF, Kwiatkowski and others on campus had the idea of a supercomputing center. As a result of their discussions, Henry Neeman, who holds a doctorate in computer science, was hired and the OU

Supercomputing Center for Education and Research was off and running, with Kwiatkowski serving on the Board of Advisors.

Kwiatkowski was a dedicated scientist to the end. He reviewed his last paper for the SEG two weeks before his death, sat on his last thesis defense as a committee member one week before his death, and made a software release three days before his death.

He donated his remains to OU Medical Center for cancer research. So, in true Kwiatkowski form, he continues to do science after the end.

Kwiatkowski filled four roles at the university: mentor to students with technical applications, guru/teacher of computational geophysics, research scientist and lead programmer/problem solver/system administrator. Each of his accomplishments was made while assisting his colleagues with whatever geophysical or computer difficulty that arose in the course of a day. Computer crashes and network outages seemed no more troublesome than a cloud momentarily blocking the sun. He was unfailingly kind and generous with his time and knowledge. He will be missed by the college, the university and the scientific community.

Contributions may be made in Kwiatkowski’s memory to the Wick Cary Crustal Imaging Facility Fund #42481, c/o The University of Oklahoma Foundation Inc., 100 Timberdell Road, Norman, OK 73019-0685.

FROM CAIRO TO NORMAN



Ilham El-Monier

Ilham El-Monier is a long way from her native Egypt. But she feels very much at home teaching and conducting research in reservoir engineering in the Mewbourne College of Petroleum and Geological Engineering.

El-Monier is a new MPGE instructor who this fall is teaching fluid mechanics, a 160-student lecture course with five lab sections. In

spring 2014, she is scheduled to lecture in the lab component of the reservoir and rock properties course taught by professor and Curtis Mewbourne Chair Carl Sondergeld.

"I'm really happy to be among the faculty here," she says.

El-Monier focuses her research on clay stabilizers that prevent fines migration and clay swelling caused by contact with low salinity or high pH fluids at high temperatures. "The presence of clay can make oil production difficult if there is different salinity, acidity or alkalinity in the formation, all of which trigger clay migration

that plugs pores and reduces permeability," she explains. "Previous clay stabilizers, including aluminum and zirconium compounds and cationic polymers have several drawbacks. Aluminum and zirconium compounds can be removed by acids. Cationic polymers can cause formation damage. Also, quaternary amine-based chemicals have been used for many years as clay stabilizers, but the environmental profile of some and short life of others have limited their use. So there is a need to develop new clay stabilizers that can work following acid treatment and are environmentally acceptable."

El-Monier holds undergraduate and master's degrees in petroleum engineering from Cairo University in Egypt. In 2007, she received a three-year Schlumberger Foundation Faculty for the Future fellowship, awarded to women from developing and emerging economies who are preparing for Ph.D. or post-doctoral study in the physical sciences and related disciplines at top universities for their disciplines abroad. As a Faculty for the Future scholar, El-Monier earned her doctorate in petroleum engineering at Texas A&M University.

AN ACADEMIC VIDEO PLATFORM

Faculty in the Mewbourne College of Earth and Energy are participating this semester in a beta launch of mymedia.ou.edu, an open source video platform that allows faculty to record lectures and other presentations they can then share with students.

Mymedia.ou.edu integrates seamlessly with Desire2Learn, a platform widely used by OU faculty and students for sharing information. With mymedia.ou.edu, faculty can upload recorded classroom lectures or short videos on specific topics and make them accessible to students through D2L.

For the beta launch, OU Information Technology is collaborating with select faculty who have experience with similar technology and can provide valuable feedback for the university-wide launch scheduled for early 2014.

Several Mewbourne College faculty members participated in the beta project.

"Another big piece the Mewbourne College brought to the beta is the three large classrooms that are wired for audio

and video," says Grant Butler, IT account representative to the college. "These rooms were made possible because Mewbourne College alumni provided the support to renovate and upgrade them with the latest technology."

When the mymedia.ou.edu launch goes university-wide, Butler says, all OU faculty will be able to create course-related video content. "It's an academic platform, so we will do some amount of monitoring to ensure it is used appropriately," he notes.

Kaltura, the vendor that licensed the technology to OU, counts among its more than 300,000 customers HBO, Texas Instruments, Warner Bros., Nestle, Siemens, Zappos, Best Buy and TMZ, as well as many colleges and universities, including New York University, University of Virginia, Yale University, University of Southern California, University of Kansas and Cornell University.

ALUMNI ROLE MODEL

It's little wonder that S. Kim Hatfield was honored with the University of Oklahoma's 2013 Regents' Alumni Award for dedication and service to the university. He has given back to OU for decades in a variety of ways.

Still, he is awed by the honor.

"The Regents' Award is the second highest honor the university awards, second only to the honorary doctorate," marvels Hatfield (B.S. and M.S. petroleum engineering, 1974 and 1979, respectively). "It's kind of mind boggling to me."

Both his parents grew up "absolutely dirt poor" in Yeager, a speck of a town in Hughes County. "Some places you grew up expecting to be rich. In rural Oklahoma at that time, they hoped they'd make it up to poor," Hatfield says. His father served in World War II, after which the couple married and came to OU, where they lived in Sooner City and the elder Hatfield attended school on the GI bill. He was the first generation in either family to go to college. After earning his law degree, he had a career in the FBI, was a judge and then became mayor of Durant, Okla.

"The University of Oklahoma changed our family tree," his son relates. "I have three brothers and a sister, and among us we have six OU degrees."

His own academic career might have begun much differently, however.

"I was planning to go to MIT, when [now vice president emeritus] Paul Massad called me out of the blue and convinced me to come to OU as a University Scholar," Hatfield recalls. "I was enrolled as a double major in math and physics. I didn't know there was a discipline called petroleum engineering. The oil field wasn't the big influence where I grew up like it was in other areas of the state."

But the first day of his first class at OU – honors calculus – changed Hatfield's professional course forever. "The professor gave us his philosophy on math, life and the universe. He told us that answers aren't important, that



From left: OU President David Boren, Regents Alumni Award recipient S. Kim Hatfield, OU Board of Regents Chairman Richard Dunning and OU Alumni Association president Floyd Simon Jr.

the beauty of the mathematic process is all that matters," Hatfield says. "Being young and brash, I suggested that if you used a Ouija board it didn't matter as long as you got the right answer. The professor replied, 'Son, you think like an engineer. Get the hell out of my class.'"

Hatfield headed to the north end of campus in search of the College of Engineering, but went to the wrong building and came across Professor Carl Moore. "I told him my story and he took me to his office and told me about petroleum and geological engineering," Hatfield remembers. "Dr. Moore was excited about his subject and he made me excited about it. After half an hour, I was a petroleum engineering student. It was a very fortunate encounter."

His first full-time industry job was at Atlantic Richfield at the beginning of the boom after the Arab oil embargo, where the shortage of personnel combined with rapid expansion of the industry allowed him to advance quickly. He became a troubleshooter for the company's floating drilling operations. By 1985, he was president of Oklahoma City-based Crawley Petroleum Corp., a privately held oil and gas exploration and production company that currently operates more than 500

continued on page 6

continued from page 5

properties in Oklahoma and Texas and has an economic interest in more than 1,400 properties operated by others.

Hatfield remains Crawley's president and serves on its board of directors. He also is on the board of the Oklahoma Independent Producers Association, and is a director and officer of Oklahoma Energy Explorers.

At the Mewbourne College, he serves on the college's Board of Visitors and the petroleum school's Industry Advisory Board. In 2010, the college recognized him with its Distinguished Service Award.

Hatfield frequently returns to campus, sometimes to talk with students, occasionally to lecture and regularly to attend football games. "I like to give students some flavor for the oil and gas industry," he explains. "One thing that we can do as alumni is help prepare students for their careers."

That's especially important because the industry and what Hatfield calls the "art of the impossible" have changed dramatically over the past 10 to 15 years.

"The university has done a great job in tooling up to teach these students," he says. "The labs and equipment students have to understand rocks are unlike anything we could have imagined as students. I joke that when I was in school all we had was a rock hammer and we broke it. Now they use nuclear magnetic resonance to determine porosity and scanning electronic microscopy to look at pore structures. Today's students understand rocks on a fundamentally different level than we did. And that's exciting."

But recruiting and retaining those students takes funding for laboratories, equipment and scholarships.

"When I was in school in the early 1970s, a lot of us were on scholarships from big oil companies. I was a Marathon Scholar, and it made a big difference in my ability to finish school and do well," Hatfield says. "When I started to get involved in the college several years ago, I assumed that was still the way it was. But consolidation in the industry eliminated many of those companies, and the scholarships were consolidated and reduced. Other companies just weren't supporting scholarships."

"Now, most of that funding comes from endowments from individuals and smaller companies," he continues. "With students coming out of school with tens of thousands of dollars of debt, scholarships and internships can make a big difference."

"To my fellow alumni, I say: These kids can use our help. Think about the difference scholarships made for us. Come back to OU to see what's going on, get engaged and do what you can to give back."

They have a role model in Hatfield.

2013-2014 BOARD OF VISITORS

Composed of up to 30 active members who are distinguished alumni, corporate leaders and outstanding scientists, the Mewbourne College of Earth and Energy Board of Visitors' membership is representative of the broad scope of earth and energy disciplines in general, and geosciences and petroleum and geological engineering in particular. The board provides advice to the dean and the other members of the College Executive Committee, helps shape and actively promotes the college's vision, goals and objectives, and assists the college's leadership with issues that impact the future of the college.

The fall 2013 meeting is scheduled for Nov. 15 and the spring 2014 meeting is slated for April 4.

SAVE THE DATE!

The Trailblazer Awards dinner at the Embassy Suites in Norman has been moved from Nov. 15, 2013, to April 4, 2014.

MEMBERS

Chris Cheatwood	Brian O'Brien
Douglas Cummings	Frank J. Patterson
James C. Davis	David G. Rensink
James C. Day	Conley Smith
John W. Doughtie	Charles Stephenson Jr.
James A. Gibbs	Robert L. Stephenson
Kris Goforth	J. Mike Stice
S. Kim Hatfield	Robert Thomas
Ronnie K. Irani	Gene Van Dyke
T.H. McCasland Jr.	Kenneth Waits
Bob McKenny	Lew Ward III

ASSOCIATE MEMBERS

J. Denny Bartell	Pamela S. Pierce
Jere W. McKenny	Ted Sandridge
Bill Z. Parker	

EX OFFICIO MEMBERS

Brad Biddy, chairman
CPSGG Alumni Advisory Council
 Tray Black, chairman
MPGE Industry Advisory Board

STAYING FOCUSED

Brad Biddy enjoys helping others focus on professional goals.

As a senior geological adviser at Devon Energy Corp., he works with interns and new hires, helping them “get into the swing of things” and assisting them in charting their career paths.

Biddy, a ConocoPhillips School of Geology and Geophysics alumnus (B.S. geology, 1976), has long been involved in helping to ensure that graduates are fully prepared to enter the workplace or further their academic careers. Now, as the new chairman of the CPSGG Alumni Advisory Council, Biddy is focusing on all of that and more.

“The Alumni Advisory Council helps the school stay abreast of industry trends,” Biddy explains. “I’d like to do more of that and also expand alumni involvement in a variety of activities. Some of these might be adjunct teaching, presenting in colloquia and other activities designed to open the aperture of experience at the school. Knowing the expertise of our alumni, I think there would be interest in that. So I plan to survey the depth of that interest.”

Another of Biddy’s goals is to more fully inform alumni about the current funding formula for public higher education. “Over time, the state has cut more and more higher education appropriations, making fundraising from alumni more critical than ever,” Biddy says. “I’d like alumni to understand that donating to the school can take many forms, including estate planning and the Mewbourne College’s new TrailBlazer Society.”



Brad Biddy

“WE WANT TO BE PART OF THE PROCESS THAT TURNS OUT GRADUATES WHO ARE PROUD OF THEIR EDUCATION AND WHO ARE ABLE TO REALIZE THEIR FULLEST POTENTIAL.”

Developing a position on the regulation of hydraulic fracturing, an issue facing the oil and gas industry today, is an initiative on which Biddy intends to lead the council during his term as chairman. “There is a great distinction between activities like injecting salt water or wastewater back into the ground, which can

have an impact on the kind of earthquakes we’ve seen recently in Oklahoma, and hydraulic fracturing, which has a minimal impact on earthquake activity,” he explains. “We want to be part of the strategy that guides the oil and gas industry on this issue. We want to be proactive by coming up with best practices and be a resource for informing legislative activity. We think that’s a critical interest in our industry.”

Mostly, though, he says the AAC’s purpose is to assist CPSGG. “We offer advice when it’s asked for, and sometimes when it’s not,” Biddy says with a laugh. “Our objective is to work with Dr. [Doug] Elmore [Eberly Professor and CPSGG director] and make the school as successful as possible. We want to be part of the process that turns out graduates who are proud of their education and who are able to realize their fullest potential.”



A MEANINGFUL ROLE

Tray Black has a solid plan for what he hopes the Mewbourne School of Petroleum and Geological Engineering's Industry Advisory Board will accomplish during his two-year term as its chairman.

"Our objective is to play a meaningful role in helping the school manage the increase in enrollment while continuing to provide an excellent student experience and turn out top graduates," says Black (B.S. petroleum engineering, 1998).

The IAB will do that by raising private funds to support programs and initiatives in the school and foster research and development collaboration between faculty and industry.

A key fundraising tool is the college's new TrailBlazer Society, a network of supporters dedicated to excellence in energy education and meeting the total needs of the college, including scholarships, fellowships, graduate teaching assistantships, and laboratory equipment maintenance and replacement.

Black knows a bit about fundraising for his alma mater. As part of his service on the IAB, he helped establish the Leave a Legacy Campaign, a student-led MPGE program created in 2012 that encourages recent or soon-to-be graduates to support a class gift through financial gifts or pledges.

"One of the goals of the TrailBlazer Society is to re-engage recent graduates by reaching out to people who may not have donated in the past, but who are now at a point in their careers where they should be able to



Tray Black

"OUR OBJECTIVE IS TO PLAY A MEANINGFUL ROLE IN HELPING THE SCHOOL MANAGE THE INCREASE IN ENROLLMENT WHILE CONTINUING TO PROVIDE AN EXCELLENT STUDENT EXPERIENCE AND TURN OUT TOP GRADUATES."

give back to the school or college that helped get them where they are today," Black explains. "A major focus of the Trailblazer Society is raising discretionary funds that the

dean and school directors can use to address their most urgent needs."

Along with promoting the TrailBlazer Society and other funding opportunities, members of the IAB also will advise MPGE about what industry values in graduates. "As the oil and gas industry moves more toward horizontal drilling, it's important that students get a lot of exposure to cutting-edge technologies that they will use after they graduate," Black says. "The IAB can help by linking the school with industry and encourage collaborative opportunities.

"Our ultimate goal," he adds, "is to ensure graduates of the Mewbourne School of Petroleum and Geological Engineering are the most sought-after and most prepared."



PHILANTHROPIC DOMINO EFFECT

LINN Energy LLC's philosophy about educational philanthropy is pretty straightforward: Improving education systems and supporting talented and committed students, ultimately benefits society as a whole.

"We invest in the brain power of the future of domestic energy," says LINN Energy community relations and internal communications representative Kristin Midgett. "Feeding what goes on at the university level is very important. The more we focus on education, the more we contribute to creating a better society. It's a domino effect."

The Houston-headquartered company has made a considerable contribution to that goal in only a decade. Founded in 2003 with just a few natural gas wells, LINN Energy has grown into one of the nation's top 15 independent energy producers. It employs approximately 1,200 people in more than 30 locations that include the Mid-Continent, Permian Basin, Hugoton Basin and the Rockies, plus sites in Michigan and California.

LINN Energy recruits at four colleges – OU and three Texas universities – but hires a whopping 42 percent of its interns from OU, placing them in operations across the country and offering them real-world, hands-on experience to help prepare them for careers in the energy industry.

"OU is a very important source of young talent for us," says Mark Owen (B.S. petroleum engineering, 1981), vice president of operations for LINN Energy's Oklahoma City division, who also oversees areas in Kansas and Texas. He says many students with one LINN Energy internship under their belts return for second and even third internships, as well as permanent employment, with the company.

The company supports OU students in many other ways as well.

Beginning this fall, LINN Energy will host a "LINN Energy Day" on campus where the company's local leadership will engage with petroleum engineering students, providing an opportunity for open discussions about real-world experience and current industry activities.

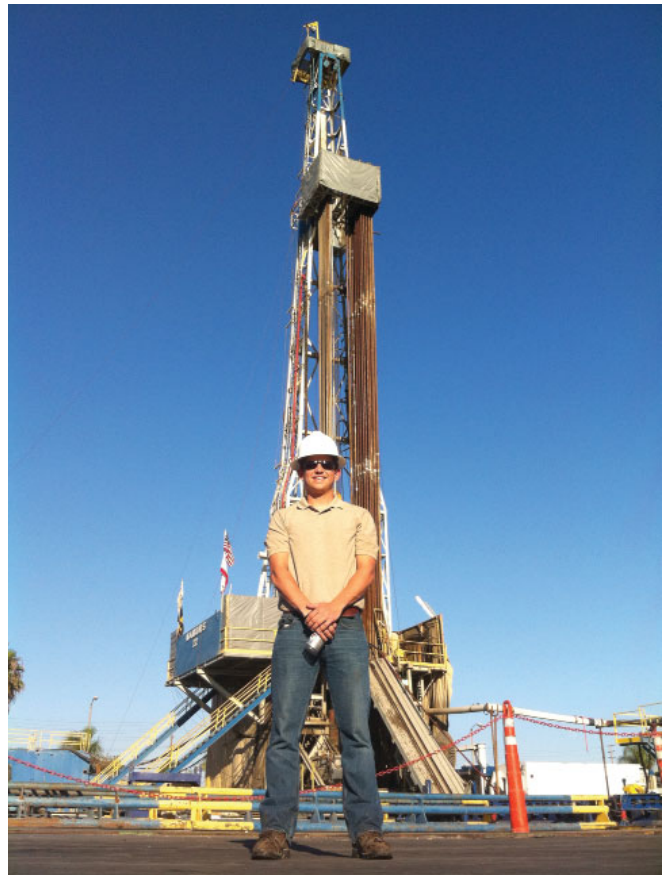
To enhance students' hands-on education on campus, LINN recently presented a \$50,000 gift to the Mewbourne School of Petroleum and Geological Engineering for the purchase of equipment in undergraduate laboratories. "We want to touch as many students as we can," Midgett says.

Each summer, LINN Energy participates in OU Alumni Club of Houston's Sooner Sendoff, a special event for incoming and current OU students and their families. When the OU SPE chapter held its annual Relay for Life fundraiser and needed T-shirts, Midgett says LINN was excited to partner with the student organization and provided the shirts at no cost. The company also donated to the 2013 SPE golf tournament.

"In one year, we have reached a lot of students," Midgett says.

"Our focus at OU is to support the students," she adds. "If we put more talent into the pool and encourage that talent to do more and to do better, that creates opportunity for LINN."

Owen notes that the effort is very much a part of LINN Energy's overall philanthropic strategy. "Over the last two years, we have given \$3 million back to communities all over the country," he says. "Our partnership with OU is part of that. We want to have a positive, direct influence on our communities."



Mark Payton Gannaway (B.S. petroleum engineering, 2012) participated in the LINN Energy internship program.

TRAIL·BLAZ·ER

*Points the way, takes the risks and
changes the landscape*

*Has a vision for a bright future, a
faith that turns dreams into reality,
a determination that cuts through
barriers and obstacles*

DEAN'S MESSAGE



The newly created TrailBlazer Society is a “giving” society that involves, nurtures, honors and recognizes donors for their continued support of the Mewbourne College’s mission and vision.

Gifts made through the TrailBlazer Society provide a reliable source of funding for some of our most critical needs: scholarships, new educational initiatives and outstanding facilities. The funding

the Mewbourne College receives through the university from state appropriations and student tuition provides a “basic” education. The “premium” content of our curriculum – labs, field trips, professional experiences for our students and support for student programs – must come from other funding sources.

TrailBlazer Society members invest in the future of the college by making a commitment at one of the membership levels. These funds can be unrestricted or directed to a specific area of interest. The leadership support of the TrailBlazer Society is crucial to the Mewbourne College’s success.

Best regards,

Larry R. Grillot

Larry R. Grillot
Dean and Lester A. Day Family Chair

MEMBERSHIP

Alumni and friends who make commitments of \$7,500 or more are eligible for TrailBlazer Society membership. Those who have made cumulative gifts of \$7,500 or more to the schools or programs that comprise what is now the Mewbourne College of Earth and Energy will be recognized during the TrailBlazer’s inaugural year as Cornerstone Members. Individuals making planned gifts by will or trust also may qualify for the TrailBlazer Society.

Gifts may be restricted for a particular purpose, such as scholarships, lab support or school and college priorities. Gifts also may be designated as unrestricted to the college, with the option of two-thirds of the gift directed to the ConocoPhillips School of Geology and Geophysics, Mewbourne School of Petroleum and Geological Engineering or Oklahoma Geological Survey.

TRAILBLAZER SOCIETY COMMITTEE

Greg Appleton, Oklahoma City

Brad Biddy, Edmond, Okla.

Tray Black, Houston

Chris Cheatwood, Colleyville, Texas

David Ferris, Norman, Okla.

Nicole Fritz, Oklahoma City

S. Kim Hatfield, Oklahoma City

Ronnie Irani, Oklahoma City

Bob McKenny, Spring, Texas

Sharon Minor, Norman, Okla.

Ken Waits, Tyler, Texas



TRAILBLAZER IMPACT

The TrailBlazer Society provides the Mewbourne College and its schools an opportunity to celebrate leadership giving and the impact it has on our students, faculty and programs. The college will provide an annual stewardship report to members detailing how contributions are used.

Members of the TrailBlazer Society will be honored through recognition prominently displayed in Sarkeys Energy Center and in college publications. All society members also will receive an invitation to the college’s annual celebration banquet.

WHAT

The Mewbourne College of Earth and Energy TrailBlazer Society is a network of supporters dedicated to excellence in energy education.

WHY

We believe that combining lecture and theory with a strong lab, field and applied component, as well as broad opportunities for student enrichment, continues to provide the best educational experience for our students. Private funding is a critical element for maintaining this excellence in education.

Our goal is to recognize ALL GIVING through the TrailBlazer Society to meet the total needs of the college. Continuing the tradition of giving for scholarships, fellowships and lab support with an emphasis on unrestricted giving will ensure a first-class education for Mewbourne College students.

HOW

Support Mewbourne College student programs, including:

- ▶ Individual scholarships, fellowships and graduate teaching assistantships
- ▶ Group scholarships — students engaged in a common activity — for field and laboratory education, which reduce student lab and course fees
- ▶ Student participation in national and international competitions and conferences
- ▶ Student organization support, convocation ceremonies and other milestone events
- ▶ Funds for the maintenance and replacement of equipment in teaching labs

WE WELCOME THE OPPORTUNITY TO VISIT PERSONALLY WITH YOU ABOUT YOUR MEMBERSHIP IN THE TRAILBLAZER SOCIETY. PLEASE GIVE US A CALL!

Ameil Shadid, Director of Development
(405) 325-0463

Allison Richardson, Director of Alumni Relations
(405) 325-2449



CORNERSTONE MEMBERS

Edward J. and Lou Ackman
W. B. and Jo Ann Akers
Ronny and Judy Altman
Carl B. Anderson Jr.
James K. and Jerrie S. Anderson
Bruce E. and Mary Ann Archinal
Bobby D. and Joann Armstrong
William B. and Elizabeth Arper
C. Hayden and Ruth Atchison
Tommy H. Sr. and Jan Atkins
Charles B. Jr. and Gerry Barlow
E. Jack and Nancy H. Barnes
J. Denny and Dixie Bartell
Ellen Bartell
A. E. Jr. and Ann B. Basinger
Carlton Beal
Clyde M. and Anita Becker
John S. Bell
Orville and Bonnie Berg
Richard and GERALD Beveridge
Wayne T. and LaFawn Biddle
Brad and Aleta Biddy
Tray and Emelie Black
Charles L. and Nancy Blackburn
G.T. and Elizabeth Blankenship
Peter E. Blau
Walter A. and Claire E. Bork
J. Philip and Dolores Boyle
Barth W. and Linda Bracken
Courtney H. and Amy L. Brackin
Leo Robert Brammer Jr.
John A. and Donnie V. Brock
Lawrence E. Jr. and Lorena Brock
Jane H. Browning
David G. Bryant
Paul and Natalie Buckthal
Ralph D. Burks
L. Weldon and Nell Calahan
Charles A. II and Tarah Cambron
John M. Campbell Sr.
Logan Wickliffe Cary
Kelvin D. and Valentina Cates
Pete W. Jr. and Charlsie E. Cawthon
James W. and Gayle Caylor
F. Martin Caylor
Samuel J. Cerny
Don O. Chapell
Chris J. and Cathy Cheatwood
Qing Chen
Kenton III and Nancy Chickering
H. E. "Eddie" Chiles
William W. and Lillian P. Clopine
Steven K. Cochran
Frank and Marty Cole
Ted Collins Jr.
Michael S. and Ellen Connelly
James C. and Amy E. Copeland
Rex D. and Marty Coppedge
Jack V. and Barbara Cowan
Tommy C. and Billy Joy Craighead
Tommy D. and Marilyn S. Craighead
Douglas R. and Peggy Cummings
Stanley L. and Suzanne Y. Cunningham
Bobby and Shirley Darnell
Elliott Davis
James C. and Teresa K. Day
Everette L. DeGolyer III
Edith W. DeGolyer
Rodger E. Denison
David M. Diamond
John W. and Dana Doughtie
Marlan and Marea Downey
Carole J. Drake
James M. and Susan Drennen
Donald J. and Helen P. Duffy
Sherman E. Dugan
Thomas A. and Mary Dugan
Thomas F. and Nancy C. Dunlap

William J. and Virginia L. Dunn
Jaye F. and Betty F. Dyer
John W. and Judith M. Elias
James A. Jr. and Bette Lou Embry
Marshall J. and Louise England
Eric W. and Shannon R. Erickson
Richard R. and Ruth F. Evans
Robert and Carolyn Evans
Ronald D. and Estelle L. Evans
Ronald T. and Patricia A. Evans
David K. and Terry Fagin
Richard G. and Judy Fagin
Steve Farris
Jeffrey L. Ferrara
Hershell and Beth Files
L. Randle and Rachel Flud
Donald C. and Judith G. Forbes
Bill Forney Sr.
Margaret B. Foster
Robert G. and Bonita Fowler
Jay M. and Susan Gabbard
Om P. Garg
Theodore T. Geffen
Norman R. Gelphman
James A. and Judith W. Gibbs
Charles and Mary Carol Gilbert
Richard D. and Linda D. Goddard
Dwayne E. and Awilda N. Godsey
Kristina R. Goforth
James M. and Lura L. Goodger
Frank Gouin
Jerry K. and Rebecca Greer
Gene E. and Janis R. Grogan
William R. and Charlotte Guffey
E. Murray and Nancy C. Gullatt
Carl E. and Thelma J. Gungoll
G. Carl Hale
Vance A. and Marilyn D. Hall
Jay Sanford and Lillian Handley
Harold W. and Nancy Hanke
W. Carey and Kellene Hardy
Gen. Hugh W. Hardy, USMC
Ben and Carol Hare
Verlan and Winnifred Harrell
Ralph L. and Maxine Harvey
S. Kim and Suzette Hatfield
William C. Hauber
Gerald M. and Carolyn Heinzelmann
James C. and Paula A. Henry
Frank D. and Bette J. Hill
William J. Hilseweck
William L. Hiss
Harold H. and Sara Holden
Clarice M. Hollingsworth
Henry T. III and Ann Hooper
John A. and Ruth W. Hord
Karen Hough
Joseph R. and Joan W. Huffstetler
Larry O. and Gayle Hulsey
Gustavo J. Inciarte
Ronnie K. and Shahnaaz R. Irani
J. Paul and Ruth Jennings
Donald D. and Rebecca
Gardner-Johnson
A. V. Jr. and Pat Jones
Jon Rex and Ann Jones
Jon Rex Jr. and Brenda W. Jones
Edward C. III and Letitia Joulilian
J. Clarence Karcher
Harold S. Kelly
Thomas E. and Gloria Kemp
Guy B. and Marian Kiker
David A. Sr. and Peggy Kimbell
Bobby D. and Elizabeth Kimberlin
Charles E. Kimmell
John C. and Rachael L. Kinard
Kendall K. and Alison Kirby
Robert E. and Doris Klabzuba

Pete J. and Kay A. Kmentos
Craig and Susan Kooztz
Ted K. Jr. and Patsy R. Krampf
Frank A. and Peggy Ladd
N. A. Lale Jr.
Graydon H. and Nancy J. Laughbaum
James R. Lesch
Harold and Jean Marie Liddell
Aaron R. and Joyce R. Liesch
Leonard L. Limes
Bill J. and Kay N. Lindsey
James P. and Darlene Linn
Robert L. and Else Lord
Robert Lowry
Tom N. and Cathy Luccock
Robert F. Luke
Charles J. Mankin
Kurt J. and Stephanie Marfurt
Alex H. Massad
James Roy and Jozelle Wyatt Maxey
Robert R. and Lillian B. McCall
Thomas H. Jr. and Phyllis A. McCasland
Thomas H. McCasland Sr.
Gary A. McDaniel
Jere W. and Anne S. McKenny
Robert S. and Elizabeth McKenny
Mason and Joye McClain
J. Roy and Mickey Melton
Paul M. Mershon Jr.
Curtis W. and Joanne Mewbourne
Charles S. Meyer
Charles and JoAnn Meyer
Dorothy Miller
Martin G. and Argentina Miller
Lee Mills
Ricky C. and Sharon D. Minor
Robert O. Mitchell
Don D. Sr. and Patty Montgomery
John H. and Mary Moore
James L. Morgan
Edward S. and Gladys M. Morris
Tom E. and Frankie P. Morton
Arthur J. Myers
Kenneth J. and Glenda J. Nelson
Kenneth L. and Virginia Nelson
Allan and Marilyn Neustadt
Stephen E. Nichols
Charles R. Jr. and Jo Ann Noll
Brian E. and Sandra O'Brien
Dennis J. O'Brien
Paul F. O'Brien Jr.
Glenn W. and Angel M. Okerson
Michael A. and Daphne Osborne
Cody M. and Karen T. Owens
John C. and Debby Oxley
Bill Z. and Gayle M. Parker
J. Durwood Pate Sr.
Frank J. and Jennifer L. Patterson
H. W. II and Norma J. Peace
Hugh W. and Jana Peace
Joe S. and Ruby Peerson
Charles R. and Nancy Jo Perry
Pam S. and David L. Pierce
Morris R. Pitman
Randel J. and Jeanne Polk
Michael A. and Teresa Pollok
Bob and Jo Ann Poteet
Jeanne Steele Potts
Mark C. Potts
Blair and Gaylene Powell
Thomas B. Preston
Victor W. Pryor Jr.
Mark A. and Myrna Rainer
Barton W. and Leah Ratliff
O.H. and Ruth V. Reaugh
Bill K. and DoAnn Reed
David G. and Carol A. Rensink
Fred S. and Jeanette A. Reynolds

Eddie W. and Nanette D. Rhea
James P. and Mary Adell Richards
Steven A. and June Richards
John W. and Lindy Ritz
Jean-Claude and Jeanne S. Roegiers
J. Hugh and Ann Roff
Robert W. and Sheri Rohlfing
Mr. Robert L. Rountree
John L. Rowland
Lance and Belinda Ruffel
J.D. III and Melissa Sandefer
Ted. L. and Kay E. Sandridge
Leo and Maralynn V. Sant
Amir M. Sarem
Lee and Liz Sargent
Bill D. Saxon
Frank A. and Betty Schultz
John E. and Charlotte Seng
Terry L. and Ruth E. Shyer
Robin Jr. and Cherrie Siegfried
Paul and Mary Simpson
Arlie M. and Luella Skove
Roger and Linda Slatt
W. Jack Jr. and Tess Sleeper
Raymond D. Sloan
Steven D. and Susan B. Smith
C. W. Smith
Wynne Jr. and Aimee Snoots
William O. and Shirley Snyder
Robert C. Southard
Alexander B. Spencer
Marie Frances Spencer
Donald G. and Jo Ann Spindler
Harry Jr. and Jewell Spooner
Col. B. Charles and La Donna Spradlin
Edward S. and Jackie Spragins
Col. Charles S. Jr. and Mildred
B. Standley
Thomas S. and Gayla M. Stapleton
Charles E. and Marilyn A. Stark
Ernest Steiner
Charles C. Jr. and Peggy Stephenson
Robert L. and Norma E. Stephenson
Gary C. and Teresa A. Stewart
J. Mike and Joni Stice
Jay D. and Susan Swanson
John A. and Ann Taylor
Ann Marie Terry
R. J. Thatcher
Robert C. and Sally R. Thomas
Hugh M. and Frances Thralls
Djebbar Tiab
B. C. and Mercedes Tucker
Michael S. and Ginny Turner
Gene and Astrid Van Dyke
Grady H. and Kris Vaughn
Joe T. and Caryn C. Vaughn
Sam K. Viersen Jr.
Cecil V. Von Hagen
Cyril Jr. and Lissa Wagner
Fred J. Wagner III
Kenneth S. and Laura Waits
Robert L. and Gwyn Waller
Gerard and Yoanna Walschap
Lew O. III and Myra B. Ward
Herbert E. Ware Jr.
H. Vaughan Jr. and Mary Watkins
Loy E. Webb
Stacey E. Weltmer
Harry Westmoreland
Charles M. and Elaine Wilbanks
Lester Wilkonson
Jon R. and Cathryn Withrow
Lesli J. Wood
Roy A. Worrell
Dah C. Wu
Roger A. Young
Loyce L. Youngblood

ADDRESSING GROWING NEEDS

When longtime Mewbourne College corporate donor Apache Corp. considered options for a scholarship program, it focused on a couple of key factors: the company's deep Oklahoma roots and its growing need for talented, well-trained engineers.

About those roots: Apache's first wells were drilled in 1955 in the Cushing field located about halfway between Oklahoma City and Tulsa. The first Cushing well came in at seven barrels per day. The next well Apache drilled – the Bradley Rafferty #1 – had an initial production rate of more than 700 barrels per day. Today, Apache Corp. is one of the world's top independent oil and gas exploration and production companies.

"We got our start in oil and gas in Oklahoma, and we're excited about our continued growth here," says Mike Bahorich, Apache Corp. executive vice president and chief technology officer. "As part of that growth, we recruit regularly at OU because we want to have the very best students and we want to support the university."

Students recruited by Apache Corp. typically start that journey with an interview at the beginning of their sophomore year for internships the following summer. Students awarded those internships often return in subsequent summers and then become full-time employees after earning their degrees.

"Because we hire interns for multiple years and because those interns often join us full time after graduation, we like to identify appropriate candidates early on," Bahorich explains.

As part of this overall recruitment effort, Apache developed a unique scholarship program.

"Each student in the Mewbourne School of Petroleum and Geological Engineering who completes his or her sophomore year in the top quartile of the class, has a 3.25 GPA and is eligible to work in the United States may apply for a \$1,000 scholarship," says Fersheed Mody, Apache Corp.'s manager of global research and development, who has served on the MPGE Industry Advisory Board for the past decade. "Scholarship recipients who complete a post-sophomore year internship with Apache, interview for and accept a second internship and continue to meet the academic and work requirements may apply for an additional \$10,000 individual grant direct from Apache Corp. If they become full-time employees after graduation, they are eligible for a second \$10,000 individual grant."

The inaugural student scholarships were awarded this fall.



"WE GOT OUR START IN OIL AND GAS IN OKLAHOMA, AND WE'RE EXCITED ABOUT OUR CONTINUED GROWTH HERE."

– Mike Bahorich

Executive Vice President and Chief Technology Officer, Apache Corp.

Apache Corp. also established a separate scholarship program in the ConocoPhillips School of Geology and Geophysics, this one aimed at incoming graduate students. Those with a minimum 3.5 GPA in their undergraduate degree program are eligible to apply for a \$2,500 annual award. Mody says the purpose of the graduate scholarships, the first of which also were awarded this fall, is to provide additional incentive for students to pursue graduate studies.

The company supports the college in a number of other ways that range from \$1 million in funding to MPGE's rock physics laboratory – formally known as the Integrated Core Characterization Center, or IC3 laboratory – to participating as an industry partner in the Shale Gas Reservoir Consortium, an MPGE-based initiative that seeks to build improved predictive tools for accurate unconventional reservoir management.

"There are lots of interesting things going on in the Mewbourne College," Bahorich says. "We look forward to continuing our long-term relationship with the college and its students."

INVESTMENT PAYS OFF

Schlumberger may have a reputation as a low-key company, but the world's leading supplier of technology, integrated project management and information solutions to the oil and gas industry is making sure students at the University of Oklahoma know who the company is and what it does.

Schlumberger's multi-year, multimillion-dollar gift of software to the Mewbourne College of Earth and Energy is a big part of that effort, says Bob Davis (B.S. aerospace engineering, 1971), a 36-year veteran of Schlumberger who currently serves as geology discipline career manager and the company's University Ambassador at OU.

"My job is to build an image of Schlumberger on campus so that students in science and engineering fields know who we are," Davis explains. "One of the ways we can get our message out to petroleum engineering, geology and geophysics students is by donating state-of-the-art software that will help them get jobs in the energy industry."

The vast array of software Schlumberger has donated to the college includes 50 licenses for 3-D visual imaging software Petrel, which allows students to build models of subsurface reservoirs; more than 100 licenses for ECLIPSE, which lets them model reservoir geology and fluids; and 50 licenses for Techlog, which enables them to perform basic and advanced petrophysics functions.

"Petrel is big with geology and geophysics graduate students and to a lesser but important degree with petroleum engineering undergraduate students," Davis says. "ECLIPSE is mostly a petroleum engineering tool. Techlog is very useful to all three groups."

In addition to the software itself, Schlumberger also offers students free training on how to use it. "We save a couple of seats at our commercial training classes, most of which are held in Houston," Davis says. "Students just need to register and pay their expenses. The course, which is worth \$4,000 to \$5,000, is free."

The company also brings employees to campus to teach faculty how to use the software so they can incorporate it into their curricula.

"Schlumberger is happy to provide the software and partner with OU. We believe that providing up-to-date software tools to students and faculty leads to a richer academic environment," Davis says. "The underlying reason for this program is that we hope it will lead to the hiring of OU students and collaboration on research that will turn into products for Schlumberger. It's a two-way street and everybody benefits."

"SCHLUMBERGER IS HAPPY TO PROVIDE THE SOFTWARE AND PARTNER WITH OU. WE BELIEVE THAT PROVIDING UP-TO-DATE SOFTWARE TOOLS TO STUDENTS AND FACULTY LEADS TO A RICHER ACADEMIC ENVIRONMENT."

— Bob Davis

Schlumberger University Ambassador at OU

Over the past couple of years, Davis says, Schlumberger has become the top employer of OU petroleum engineers. 2013 was the first year the company hired more engineers from OU than the University of Texas, which has two to three times the population from which to recruit. That, he adds, was one of his objectives when he took on his coordinator responsibilities.

"The result speaks highly to the quality of OU engineers," he says. "We can see our total efforts – not just the software – are really paying off."

MAKING STRIDES IN PLANETARY GEOCHEMISTRY



“MY STUDENTS AND I HAVE DONE GREAT SCIENCE OVER THE LAST SIX YEARS.”

– Megan Elwood Madden

Stubbeman-Drace Presidential Professor of Geology and Geophysics

Not many scientists can say that their modeling research in a laboratory on Earth synced with NASA field research on Mars.

Megan Elwood Madden can.

As a geochemistry doctoral candidate at Virginia Institute of Technology in 2004, Elwood Madden, now the Stubbeman-Drace Presidential Professor of Geology and Geophysics at OU, was working on chemical weathering on Mars using a computer program to model chemical reactions in geologic systems.

“My test project was to model how basalt, the most common material on Mars, chemically weathers. I kept getting jarosite, a mineral I had never heard of before this project,” Elwood Madden recalls. “As I was puzzling over whether my modeling was rubbish, the rover Opportunity landed on Mars and found jarosite, providing definitive evidence that liquid water had been present on the planet’s surface. I knew I had to quickly figure out the meaning of my modeling. I did, and submitted a paper to *Nature* about how jarosite forms when basalt is present in just a little bit of water.”

The paper, of course, was published. “Sometimes you’re in the right place at the right time doing the right thing,” Elwood Madden says.

She has continued the jarosite work at OU, where she found some exciting results for how jarosite dissolves in water and brines and the effects that jarosite dissolution can have on the overall chemistry, mineralogy and acidity of the system. She has published another five papers on jarosite dissolution rates and products.

Elwood Madden also focuses on planetary applications of gas hydrates, solid materials that look like ice but are not quite ice because gas molecules are trapped within it. “The ice arranges itself into kind of a soccer ball cage and gas is trapped inside. On Earth, these soccer balls form in deep-sea sediments and permafrost, and the trapped gas usually is methane,” Elwood Madden explains. “Methane hydrates are the most commonly found gas hydrates on Earth. You can volumetrically get more methane into gas hydrates than anything else other than solid frozen methane because of the high concentration in the gas hydrates. Even liquid methane doesn’t have as much.”

continued on page 17

continued from page 16

She says gas hydrates probably are pretty common throughout the solar system, especially on the icy moons. “We built the Gas Hydrates Lab here at OU to look at hydrate formation and decomposition rates under planetary analog conditions at low temperatures and pressures,” she states. “We [she and her graduate students] take gas and react it with ice to form hydrates, and we decompose hydrates into ice and gas. In most places on Earth, hydrates are forming in liquid water, but in planetary systems, they are probably forming in ice. So we’re looking at the process in colder temperatures.”

In addition, Elwood Madden and her husband, associate professor Andrew Madden, co-direct the Physical and Environmental Geochemistry Laboratory.

“Andy’s area is biogeochemistry, and he focuses on nanoscale geoscience. I focus on global scale, so we complement each other in terms of space,” Elwood Madden says. The two collaborate on several research projects, including the jarosite research and a NASA-funded study on brines.

She is quick to point out that the students do most of the hands-on laboratory research. “In lots of ways, these are

their projects as much as ours,” Elwood Madden says. “I’m proud that all of my graduate students have published from work on their master’s theses because of their hard work and the opportunity to do cutting-edge science.” She adds that two of her undergraduate students also have published results from their work in her labs and two more are on track to do so as well.

They are following in their professor’s footsteps. Elwood Madden has published more than 20 peer-reviewed articles in such journals as *Icarus* (a leading planetary science journal), *Geology*, *Earth and Planetary Science Letters*, *Geophysical Research Letters* and *Clays and Clay Minerals*.

Elwood Madden has established a productive research program – she has been awarded more than \$1 million of grant money from NASA and other funding agencies in five years – based on doing good science that is applicable to today’s major geoscience questions, whether water on Mars, gas hydrates or the effects of climate on chemical weathering.

“My students and I have done great science over the last six years,” she says.

TEACHING AROUND THE WORLD



Subhash Shah

The 2012-13 academic year was a particularly busy one for Subhash Shah. The professor and Stephenson Chair in the Mewbourne School of Petroleum Engineering and Geological Engineering and director of the school’s Well Construction Technology Center was one of 28 experts selected by the Society of Petroleum Engineers as a Distinguished Lecturer.

Shah traveled the world presenting his lecture “The Wonderful World of Fluids in Coiled Tubing.”

“My talk was on how and why fluid flow is different in coiled tubing versus straight tubing and how that impacts what we do in the field,” explains Shah, who spent 18 years with Halliburton before joining OU in 1994. “Fluid chemistry and fluid behavior are very complex phenomena.

We understand fluid behavior in straight tubing fairly well, but don’t have adequate knowledge and understanding of fluid flow behavior in coiled tubing, which requires more energy to pump.”

He shared his expertise on the subject with SPE members in South America (Colombia, Venezuela and Ecuador) to Asia (India and Malaysia), Europe (The Netherlands, Germany, United Kingdom, Russia and Kazakhstan) and the United States (Texas, Michigan, Wyoming, Louisiana, California and Utah, among other states).

Even though OU granted him an exemption from teaching during the term of his lectureship, because of increased teaching load on faculty Shah volunteered to teach one graduate course, Advanced Stimulation, in fall 2012 and one of the three sections of the freshman Introduction to Petroleum Engineering course in spring 2013.

“Being an SPE Distinguished Lecturer was very interesting and enjoyable, and was educational for me as well. If you keep yourself open to ideas, there is so much to learn,” Shah says. “I would like to thank the SPE Distinguished Lecturer Program and the University of Oklahoma for providing me with an opportunity to share the knowledge with the oil and gas industry.”

REMOVING COMPLICATIONS

Ben Shiau is committed to inventing enhanced oil recovery technologies that are both environmentally friendly and cost effective.

The associate professor in the Mewbourne School of Petroleum and Geological Engineering and director of the Applied Surfactant Laboratory has spent the past decade developing surfactant technologies to help the oil industry rework aging, underperforming fields.

Shiau says the vast majority of Oklahoma wells only produce about 10 barrels of oil a day. In addition, the state's reservoirs have uniquely high brine levels. So he and his colleagues had to address multiple challenges: find a way to recover more oil in the harsh, salty environment that smaller independent producers could afford to implement.



Ben Shiau

Using a process called chemical flooding, the team led by Shiau and OU chemical engineering professor Jeff Harwell overcame all those challenges.

The technique they use, called surfactant-only chemical flooding, helps break the bonds between petroleum molecules and rock tiny pores that live together in porous rock to release the oil.

"Chemical flooding has been around since the 1980s. Jeff was one of the researchers who worked in that area at that time," Shiau says. "Then oil prices dropped and many companies couldn't afford to pursue the technology. When prices started to climb toward \$100 a barrel, investing in chemical flooding technology became more viable."

Shiau and Harwell – joined by MPGE research associate Tzu-Ping Hsu, MPGE graduate research assistant Wei Wan and chemical engineering graduate research assistant Mahesh Budhathoki – are collaborating with Tulsa-based MidCon Energy and Chemical Flooding Technologies LLC to test the technology in an oil field in Tulsa County. Shiau says the results are expected to be available by the end of this year.

The five inventors received the OU Intellectual Property Management Office's 2013 Innovator Award for their innovative vision in developing and successfully commercializing the novel surfactant formulations.

"THIS TECHNOLOGY ENABLES INDEPENDENT PRODUCERS TO SWITCH TO A MORE EFFICIENT, AFFORDABLE AND SAFE RECOVERY SYSTEM. OUR JOB IS TO TRY TO REMOVE THE COMPLICATIONS SO THEY CAN ACCOMPLISH THAT."

– Associate Professor Ben Shiau

The technology also was featured in the cover article of the October 2012 issue of the *Journal of Petroleum Technology*.

"This technology enables independent producers to switch to a more efficient, affordable and safe recovery system," Shiau says. "Our job is to try to remove the complications so they can accomplish that."

AT THE TOP

MEWBOURNE COLLEGE OUTSTANDING SENIOR



Mewbourne College of Earth and Energy 2012 Outstanding Senior **Shelly Wernette** graduated in fall 2012 with a bachelor of science degree in geology and a math and anthropology minor. As an undergraduate, she maintained a 4.0 GPA while participating in activities and organizations on campus and in the community that included InterVarsity Christian Fellowship, Sooner Nation, Pick and Hammer Club, Operation Christmas Child, Habitat for Humanity, Cleveland County Youth Shelter, The Oklahoma Regional Food Bank, and Trick or Treating for Canned Food. Wernette was a National Merit Scholar and member of Phi Beta Kappa. She also was on the President's Honor Roll and Dean's Honor Roll and in 2012 received the Gould Outstanding Senior in the ConocoPhillips School of Geology and Geophysics.

Wernette is pursuing a master's degree in geology at OU.



Outstanding Senior first alternate **Caroline Hawkins** graduated in spring 2013 with a bachelor of science degree in petroleum engineering. She maintained a 4.0 GPA in her major courses and a 3.97 overall GPA. On campus, Hawkins was a member of Tri-Delta sorority, Chickasaw Learning Community, Society of Petroleum Engineers,

Dean's Leadership Council, Pi Epsilon, Tau Beta Pi and the American Association of Drilling Engineers. In the community, she participated in St. Jude Children's Research Hospital fundraisers, The Big Event, Relay for Life and Art with a Heart, and as a volunteer at the Norman Animal Welfare Center.



Outstanding Senior second alternate **Trevor Ingle** graduated in spring 2013 with a bachelor of science degree in petroleum engineering. He maintained a GPA of 3.91 as an undergraduate and was a member of the Society of Petroleum Engineers, American Association of Drilling Engineers, Dean's Leadership

Council and Dean's Advisory Council and was inducted into the Petroleum Engineering Honor Society, which he served as president. Ingle participated in Relay for Life, which supports cancer research, and represented the OU SPE chapter at the Relay for Life Summit.

CONOCOPHILLIPS SCHOOL OF GEOLOGY AND GEOPHYSICS AWARDS



Nguyen



Pham

Charles N. Gould Outstanding Senior Award

Uyen Thi Thanh Nguyen

Alan J. Witten Award

Khanh Le Huy Pham

Thang Nguyen Ha



Ha



Rosencrans

David Stearns Outstanding Senior Award

Ellen Marie Rosencrans

Estwing Hammer Award

Jennifer DiGiulio

Hoang Huy Bui (photo unavailable)



DiGiulio

MEWBOURNE SCHOOL OF PETROLEUM AND GEOLOGICAL ENGINEERING AWARDS



Hawkins



Mercado

Outstanding Senior

Caroline Hawkins

Outstanding Junior

Marissa Mercado

Outstanding Sophomore

Connor Walters



Walters

2012-2013
FAST FACTS

FACULTY 35

RESEARCHERS 20

TOTAL STUDENTS 1,144

23% increase

UNDERGRADUATES 953

GRADUATE STUDENTS 191

DEGREES CONFERRED 197

ConocoPhillips School of Geology and Geophysics**BACHELOR'S DEGREES**

Geology	21
Geophysics	10
Environmental geology	4
Petroleum geology	2
Paleontology	-

MASTER'S DEGREES

Geology	21
Geophysics	5

DOCTORAL DEGREES

Geology	1
Geophysics	3

Mewbourne College of Petroleum and Geological Engineering**BACHELOR'S DEGREES**

Petroleum engineering	91
-----------------------	----

MASTER'S DEGREES

Petroleum engineering	27
Natural gas engineering and management	6
Geological engineering	1

DOCTORAL DEGREES

Geological engineering	-
Petroleum engineering	5

TOTAL 197

DEGOLYER GRADUATE FELLOWSHIP

ANDREW SWINDLE IS THE RECIPIENT OF THE 2013 DEGOLYER GRADUATE FELLOWSHIP IN GEOLOGY AND GEOPHYSICS.

Everette Lee DeGolyer (1886-1956) is recognized throughout the world as an excellent scientist, a pragmatic and successful explorationist and a book collector of great scope. The DeGolyer Graduate Fellowship in Geology and Geophysics was established at the University of Oklahoma by the DeGolyer family in fall 1997. To honor his memory and affiliation with OU and his contributions to the science and profession of geology, the DeGolyer Fellowship is awarded to a graduate student for academic excellence.

DeGolyer was an oilman and philanthropist who earned a geology degree from OU in 1911. One of OU's most famous alumni, he was a pioneer in the use of geophysical techniques in the search for oil. His love for science led him to acquire a significant collection of items related to the history of science, including an extensive history of geology. This collection serves as the foundation for both the History of Science Department in the College of Arts and Sciences as well as the History of Science Collections in Bizzell Memorial Library. Geological classics in the library include the writings of Nicholas Steno, Georgius Agricola, William Strata Smith, James Hutton, Sir Roderick Impey Murchison, Abraham Gottlob



Andrew Swindle

Werner, Charles Lyell, Baron Friedrich W.K.H. Alexander von Humboldt and James Dwight Dana.

Swindle came to OU in 2009 as a potential Ph.D. candidate. He previously had earned bachelor of science and master of science degrees in geology from Oklahoma State University. Between graduating from OSU and beginning his graduate studies at OU, he spent more than five years working as a consulting geologist in Texas and Oklahoma.

Swindle's dissertation research at OU focuses on the comparisons between field and laboratory investigations of mineral reactivity, and the impact of dissolved organics on the surface reactivity of nano-sized minerals. He also has conducted research on projects involving the sequestration of uranium by iron-reducing bacteria and the occurrence of nanodiamonds as indicators of comet impacts in Quaternary-age deposits.

Swindle has presented research findings at three international conferences, including the presentation of the conclusions of his dissertation research at the Goldschmidt 2013 International Conference in August.



The first OU Topographic Team working in the Arbuckle Mountains (1905) included student Everette DeGolyer (far right).

GRAD STUDENTS CAPTURE IMPERIAL BARREL AWARD

Representing the Mid-Continental Section of the American Association of Petroleum Geologists, a team of graduate students in the ConocoPhillips School of Geology and Geophysics captured second-place honors at the 2013 AAPG Imperial Barrel Award competition.

Alfredo Fernandez, Luis Castillo, Colleen Klockow, Daniel Sigward and William Bailey were awarded the \$10,000 Selley Cup Second Place award, which will support scholarships in CPSGG.

Graduate student teams from universities around the world participate in the annual prospective basin evaluation program, in which they analyze a dataset of geology, geophysics, land, production infrastructure and other relevant materials and deliver their results in a 25-minute presentation to a panel of industry experts. Winners are selected on the basis of technical quality, clarity and originality of presentation.

OU is the first school in the competition's history to place first (2008), second (2013) and third (2007).



(Left to right): Alfredo Fernandez, Luis Castillo, Colleen Klockow, associate professor John Pigott, Daniel Sigward and William Bailey

BIG WIN IN CHINA

Jon Clark and Zheng Jiang didn't go to China looking to win PetroBowl China 2012.

But that's what they did.

While attending the Society of Petroleum Engineers' International Conference for Future Petroleum Engineers in Beijing, Clark and Jiang (both B.S. petroleum engineering, 2012) decided on the fly that they would enter the PetroBowl China 2012 competition, which was part of the conference.

"We got involved at the last minute," says Clark, a completions engineer at ConocoPhillips in Houston. "To compete, we had to have three people. We met Aidar Svyatov, then a graduate student at the University of Tulsa and a native of Kazakhstan, and formed an all-Oklahoma team."

PetroBowl matches SPE student chapter teams against each other in a fast-paced quiz competition. The competing teams are challenged to answer both technical and non-technical questions associated with the oil and gas industry.

The PetroBowl China competition was strong and included teams from Russia, Germany, Thailand, Egypt, Malaysia, Indonesia, Australia and Austria. But Clark said the Oklahoma team was confident as it entered the finals after winning four rounds.

The final round pitted the team against competitors from Malaysia and China. The Oklahoma team was victorious after a tiebreaker.

"It felt good to win," Clark says.

Jiang, a graduate student in energy resources engineering at Peking University, adds, "The China University of Petroleum hosts the International Conference for Future Petroleum Engineers every year in Beijing. The conference and PetroBowl China are great opportunities for students in petroleum-related disciplines to discuss professional field knowledge and have a culturally diverse experience. I hope more OU students have a chance to go."

RAISING THOUSANDS FOR LIFE

Each year, more than 4 million people in 20 countries raise funds and awareness to save lives from cancer through the American Cancer Society's Relay for Life.

About 1,000 people participated in the 2013 University of Oklahoma Relay for Life event held April 20.

But it took only 40 members of the OU chapter of the Society of Petroleum Engineers to raise \$42,250 – one-third of the university-wide total of \$126,000. The second- and third-place teams raised \$13,381 and \$6,038, respectively.

More impressive stats: SPE's participation was the sixth-largest Relay for Life fundraiser in Oklahoma. And the total exceeded the nearly \$30,000 SPE raised for the event in 2012.

"Participating in this event is the best opportunity to give the gift of life to future generations by supporting cancer research," says Steven Crowley, who participated through SPE and will serve as the organization's philanthropy chairman this year. "Any motivated team is capable of

making an impact that will be felt by anyone whose family has been or will be affected by cancer. SPE continues its success in this event because the members, alumni and supporters share a passion to help others and protect the future."

Crowley says SPE's success was the result of months of fundraising and hard work. His goal this year is to do even more.

"I plan to encourage more members of SPE to participate in Relay for Life and think outside the box to fundraise," he relates. "It's important that we put forth the effort to exceed our total from last year.

"Relay for Life is one of many opportunities OU SPE students seize to make an impact on their community," he adds. "We thank our corporate and alumni donors as well as the student fundraisers. Their generosity and hard work is responsible for SPE's reputation as a campus and state leader in Relay for Life."



STUDENTS TEACHING STUDENTS

With an emphasis on community service in 2012-13, OU Pick & Hammer took on a new challenge: promoting geosciences education through a partnership with Norman Public Schools.

The multi-project initiative included:

- preparing middle school students for the Science Olympiad and assisting at Olympiad meets
- identifying and cataloging boxes of rock and mineral samples from area schools
- visiting elementary school classrooms to teach third-graders about rocks and minerals
- and hosting some of those third-grade classes at Sarkeys Energy Center, where the youngsters viewed mineral and fossil collections, saw equipment typically used by geologists and geophysicists and – maybe best of all – practiced their coring techniques on cupcakes.



“OUR PARTNERSHIP WITH NORMAN PUBLIC SCHOOLS WAS SUCH A SUCCESS THAT WE ARE PLANNING TO CONTINUE THOSE EFFORTS THIS YEAR.”

– Andrew Swindle

2012-2013 Pick & Hammer president

“Eleven third-grade classes participated in these opportunities,” says graduate student Andrew Swindle, Pick & Hammer’s 2012-13 president. “Our partnership with Norman Public Schools was such a success that we are planning to continue those efforts this year.”

Pick & Hammer also helped Boy Scouts participating in Merit Badge University earn their geology merit badges. “Club members led activities that taught scouts how to identify rocks and minerals and use maps,” Swindle explains. “These activities piqued their interest by showing them why studying geology is important and fun.”

In late July, the club hosted a group of KinderCare students at Sarkeys Energy Center.

As part of a community outreach collaboration between Pick & Hammer and Norman Public Schools, third-grade students practice coring techniques on cupcakes (above left) and learn about the mineral Londonite at Sarkeys Energy Center (above right).

Telling Her Story

Growing up in Eufaula, Okla., Casie Sudderth didn't know much about engineering careers for women.

She excelled in math and science in high school. Her teacher, noting her superior analytical skills and understanding of physics, suggested engineering as a career.

"Originally, I wanted to be a mechanical engineer," says Sudderth (B.S. petroleum engineering, 2009). I thought I'd work for NASA, maybe work on the Mars rovers." Then two things happened early in her freshman year at the University of Oklahoma.

"At freshman orientation, someone came in to talk about petroleum engineering," she says. "Even though I'd grown up in Oklahoma, I never really paid attention to that field and didn't know anyone who worked in it. During the presentation, I discovered I was much more interested in oil extraction and all the challenges associated with it than I was in mechanical engineering. I changed my major a couple of days later."

Later that semester, Sudderth, the only female engineering major in the President's Leadership Class, met former OU engineering professor and assistant dean Teri Reed-Rhoads at a PLC roundtable discussion. "Dr. Rhodes had both petroleum and industrial engineering degrees and had spent several years in the oil and gas industry. She told me about her experiences and encouraged me to get a job in the field as soon as possible. She introduced me to [now professor emeritus] Dr. J.C. Roegiers, who offered me a job working on research with his master's students. He became my mentor and emphasized the importance of networking and internships."

This past spring, Sudderth and fellow alumna Danielle Wright Mezo (B.S. petroleum engineering, 2009)



Casie Sudderth (right) and Danielle Wright Mezo

"IT WAS NICE TO HEAR FROM AND TALK TO WOMEN WHO HAD BEEN THROUGH THE SAME THINGS WE HAD BEEN THROUGH AND CONTINUE TO EXPERIENCE. AND IT WAS NICE TO KNOW THAT A SUCCESSFUL CAREER IN PETROLEUM ENGINEERING IS DOABLE."

— Danielle Genest

Mewbourne School of Petroleum and Geological Engineering sophomore

shared these experiences and more with a group of 30 young women, all students in the Mewbourne School of Petroleum and Geological Engineering facing many of the same challenges as Sudderth and Mezo as students and as young engineers in a profession still dominated by males.

"We want our female students to meet and get to know each other to form a bond – to know they are not alone," explains Francey Freeman, the school's coordinator of student relations. "We also think it's important to hear

continued on page 26

continued from page 25

from female OU alumni who have successful PE careers talk about how they got there and obstacles they had to overcome. We want our female students to know there is a light at the end of the tunnel."

That certainly was the takeaway for sophomore Danielle Genest.

"It was important to me to know that there is support for women in petroleum engineering," Genest says. "It was nice to hear from and talk to women who had been through the same things we had been through and continue to experience. And it was nice to know that a successful career in petroleum engineering is doable."

SUDDERTH'S OTHER TIPS FOR ASPIRING WOMEN PETROLEUM ENGINEERS

- When communicating with colleagues, move outside your comfort zone and don't be intimidated. It's not unusual to be the only woman in a meeting or on an assignment.
- Take advantage of networking opportunities and seek an informal industry mentor outside of your internship or new job with whom you can speak candidly and get feedback you might not get in an office environment.
- Go to the career fair. HighMount received 101 petroleum engineering student resumes at last year's fair and only 14 were women. Even if you're not looking for a job, the fair helps you get comfortable meeting managers and recruiters and starting conversations. If you don't know what to say or ask, especially as a freshman or sophomore, just listen to what other people say and observe.
- In school, focus on the actual subject matter and learning. Having a genuine interest in a subject comes across in interviews and on the job.
- Learn what's going on in the industry to supplement the theory and practice you're learning in school. Get involved and be engaged in your future profession.

Sudderth and Mezo are a testament to that. After graduating from OU in four years, Sudderth joined ExxonMobil in Houston as a reservoir engineer, working stateside and abroad. "One of the reasons I liked petroleum engineering and wanted to work for a major company was that I was interested in international travel and working overseas," she explains.

Despite her penchant for international travel, Sudderth realized working abroad wasn't for her. "You work 16 hours a day and when you're not working you spend a lot of time with Americans," she says. "And I wanted to come back to Oklahoma."

She joined HighMount Exploration and Production in Oklahoma City in 2011 as a reservoir engineer working the Permian Basin.

"THINK ABOUT WHAT'S IMPORTANT TO YOU IN A CAREER – YOUR FIRST JOB ISN'T THE BE-ALL TO END-ALL. IF YOU DON'T LIKE IT, YOU CAN MAKE A CHANGE."

– Casie Sudderth

Reservoir engineer, HighMount Exploration and Production

In sharing her experiences and insights with the young women who plan to follow her into the petroleum industry, Sudderth had this advice: "Think about what's important to you in a career – your first job isn't the be-all to end-all. If you don't like it, you can make a change," she says. "Women in this industry feel a lot of pressure to do everything – have a family, be good at their job and be able to put 100 percent into both. I've realized I can be really good at my job and still maintain a work-life balance."

Freeman says the school hopes to hold "Telling Her Story" each semester. Genest would attend again.

"This event was one of my first points of contact with the school of petroleum engineering and my fellow female PE students," she says. "Next time I'll invite more of them to come with me and take advantage of this great opportunity."

IMMERSED IN BOLIVIA



The 11 petroleum engineering students who participated in the Mewbourne College's 10-day study abroad program in May 2013 brought to 27 the total number who

since 2011 have expanded their scholarly and cultural horizons through intensive study and cultural immersion.

The May 2013 destination was Santa Cruz, Bolivia.

Accompanied by Yoana Walschap, the college's international outreach coordinator and director of the Energy Institute of the Americas, and Deepak Devegowda, assistant professor in the Mewbourne School of Petroleum and Geological Engineering, the group was joined by 24 Bolivian engineering students and five young industry professionals for Devegowda's Improved Recovery Techniques course at Universidad Privada de Santa Cruz del la Sierra.

The trip also included cultural visits to Samaipata Fortress, an archeological site from pre-Inca times, and the 17th-century Chiquitania Jesuit missions in Santa Cruz.

"I learned a great amount about Bolivia – the culture, people and food," reports petroleum engineering senior Samuel Eccles. "I learned how to interact with students and other people from another country despite language barriers preventing fluent conversation."

Marissa Mercado, also a petroleum engineering senior, adds, "With the college's international program, I was able to have my study abroad experience that did not interfere with my summer internship while still taking a relevant petroleum engineering elective."

Through the college's study abroad program, five petroleum engineering students studied at the University of Colombia in 2011. The following year, a group of 11 headed to Argentina's Instituto Tecnológico de Buenos Aires.

National University in Colombia has been selected for the 2014 study abroad destination. The University of Sao Paulo in Brazil is the anticipated 2015 site.

BIGGER AND BETTER

The more than \$40,000 the 2012 University of Oklahoma Society of Petroleum Engineers Golf Classic raised was a new record for the annual fundraiser.

The 12th annual event was held at Winter Creek Golf and Country Club in Blanchard, Okla. Forty-five SPE students volunteered and 55 played in the tournament. Forty-nine teams and 36 companies were represented.

"We raised more money than we ever have, which allowed us to fund more SPE meetings and social events, attend conferences and participate in competitions, and still leave a very significant amount of money for the class behind us," says 2012 golf tournament coordinator Austin Qualls (B.S. petroleum engineering, 2013).

He notes that the tournament also is a recruiting tool.

"Recruiters from sponsoring companies can request certain students to play with them," Qualls says. "Once the company-specific requests are fulfilled, we try to place students searching for jobs or internships in the remaining spots to help them network with industry professionals."

He says the goal was to put on a great event that would encourage companies to come back in future years and grow the tournament.

"We accomplished that. This year's two-day golf tournament will be even bigger and better," Qualls states. "The college is growing, so SPE fundraising must keep up with the burgeoning student population."

Editor's note: The 2013 tournament was held Sept. 20-21 at Winter Creek Golf and Country Club. Details were not available at press time.

FINDING FRACTURES IN THE MISSISSIPPI PLAY

The 6.5-million-acre Mississippi Play concentrated in northern Oklahoma and southern Kansas has been producing thousands of vertical oil wells for more than half a century. Over the past five years, this limestone formation has become known as a new North American resource play where advanced technologies are being developed and employed to evaluate, drill and produce non-shale reservoirs.

Kurt Marfurt, Frank and Henrietta Schultz Chair and Professor of Geophysics in the ConocoPhillips School of Geology and Geophysics, whose research focuses on development and calibration of new seismic attributes to aid in seismic processing, seismic interpretation and reservoir characterization, plays an important role in the Mississippi Play production efforts.

To appreciate his work, a little history of the area is in order.

"The eastern part of the Mississippi Play, primarily in Osage County, Okla., tends to be oil-rich, while the western part tends to be more gas-rich," Marfurt explains. "The Mississippi lime is intimately related to the Mississippi Valley lead and zinc deposit in northeast Oklahoma, southeast Kansas and southwest Missouri, which was a main source of the lead and zinc used in World War I. The lead and zinc formed in collapsed caves and fractured with hydrothermal fluids that were precipitated when the acid, lead and zinc came into contact with the basic alkaline limestone. The same thing occurred in Osage County, forming the initial 'plumbing' of the reservoir. When the reservoir was above sea level, rainwater caused further dissolution, enlarging the fractures. The area has undergone a great deal of what you would call strike-slip or wrench tectonics, and parts of the Mississippi Lime were popped up and then dropped down again and preserved."

The result is limestone full of chert – flint, to a layperson – the main compound of which is silicon dioxide, or silica. Porosity can reach up to 50 percent in the extreme case, forming a rock type called tripolite.

Those are the sweet spots, Marfurt says, which such companies as Tulsa-based Ceja Corp. recognized with 3D seismic data and drilled primarily vertical wells. Since then, pioneers like Spyglass Energy Group, also



Kurt Marfurt (top); samples from the Mississippi Play

headquartered in Tulsa, have initiated horizontal drilling, but with a twist.

"It's the same horizontal drilling that is used in shale. But the idea is not to drill through the tripolite, because they are just spots, but rather to drill deeper down through the siliceous chert, which is naturally fractured, and then drain the oil out of the natural fractures," he explains. "And if a sweet spot is hit during drilling, that's even better."

The trick is finding those natural fractures and identifying which are brittle and which are ductile. That's where Marfurt comes in.

"The goal of my research in the Mississippi Lime is to use 3D surface seismic data to predict and map areas that are more brittle and then might have natural fractures – the chert-rich rocks – versus tight limestone. That will help identify places that are better to drill."

continued on page 29

continued from page 28

He says three things give rise to natural fractures: amount of strain, thickness and brittleness. "Fracture will occur if we subject rock to strain – essentially fold the rock, which results in high strain at the crest and trough and low strain on the flanks. A brittle rock breaks more easily than a more ductile rock. In the Mississippi Lime, the chert is pure silicon dioxide and will fracture almost like glass, while the more ductile limestone will take more strain before it breaks. And a thick rock will fracture further apart than a thin rock. By measuring the relative thickness, we can estimate fracture intensity."

With conventional "stacked" 3D seismic data, Marfurt and his colleagues generate maps of curvature and correlate the patterns to fractures seen in horizontal image logs. The transformation of "prestack" seismic data into acoustic impedance is commonly referred to as "seismic inversion" – which allows them to estimate the density, compressional wave impedance and shear wave impedance of the rock.

"That allows us to estimate the brittleness of the rock and differentiate among tripolite, cherty limestone and tight limestone facies. In Osage County, density is the best estimator of tripolite," Marfurt says.

He notes, however, that more well control is needed in the Mississippi Play to better understand its statistical variation. This tightly held information should become more available when most of the available acreage has been leased.

"To be able to estimate whether the rock is brittle and therefore has experienced natural fractures or, alternatively, can be successfully completed using hydraulic fracturing is critical," he says. "For those operators who have not yet shot a seismic survey, my recommendation is to acquire wide azimuth and long offset seismic data. In Osage County where the Mississippi Lime is 3,000 to 4,000 feet deep, wide azimuth and long offset seismic will provide a very good estimate of not only potential natural fractures, but all of lithology."

RESEARCH OVERVIEW AND FUNDING

Norman campus faculty achieved a record number of research awards in FY 2012, topping \$93 million for the first time in the university's history.

The Mewbourne College of Earth and Energy's total for FY 2012 was \$7,641,267.00. University-wide, the college ranked fourth in research expenditures and second per capita.

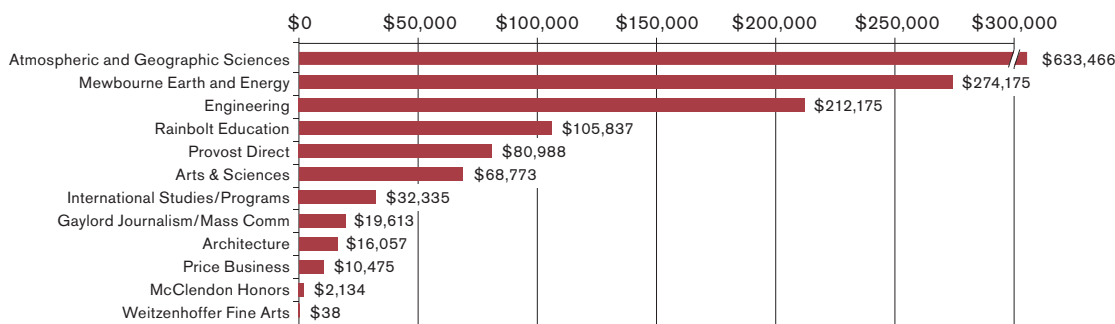
MCEE RESEARCH

NO. OF GRANTS FY13	RESEARCH FUNDING FY13	RESEARCH EXPENDITURES FY13	FY13 PROPOSALS
55	\$38,417,425	\$7,250,652	40 submitted for a total of \$14,453,335

NO. OF GRANTS FY12	RESEARCH FUNDING FY12	RESEARCH EXPENDITURES FY12	FY12 PROPOSALS
54	\$34,803,458	\$7,641,267	42 submitted for a total of \$14,501,077

RESEARCH EXPENDITURES PER CAPITA BY NORMAN CAMPUS COLLEGE, FY 2012

per tenured and tenure track faculty member



Sources: Norman Campus Financial Support Services (FY 2012 expenditures) and OU Institutional Research and Reporting (Fall 2011 tenured and tenure track faculty counts)

CLASSIFYING SHALES FOR ECONOMIC ASSESSMENT



Research at the newly established FEI-OU Pore Scale Characterization Laboratory focuses on the development of routine quantitative methods to classify shales in the economic assessment of tight oil and gas plays.

The new oil and gas center of excellence, housed in the Mewbourne School of Petroleum and Geological Engineering, is a collaboration between the University of Oklahoma and FEI, a leading supplier of scientific instruments for nano-scale applications and solutions for industry and science.

"There has been tremendous growth in the development of oil and gas found in unconventional shale reservoirs," says Carl Sondergeld, MPGE professor, Curtis Mewbourne Chair and director of the new lab. "Unlike conventional reservoirs, the pores that hold the oil and gas in shales are very small and poorly connected – hence the term 'tight' – making it difficult to extract any hydrocarbons that might be present.

"FEI's tools allow us to see the pores and organics directly, view the material they contain and reconstruct three-dimensional models of the pore network," he adds. "The challenge now is to relate these nanometer-scale features to the large-scale geological and petrophysical characteristics that determine the economic potential of a particular reservoir."



"FEI'S INSTRUMENTS ALLOW US TO SEE THE PORES AND ORGANICS DIRECTLY, VIEW THE MATERIAL THEY CONTAIN AND RECONSTRUCT THREE-DIMENSIONAL MODELS OF THE PORE NETWORK."

– Professor Carl Sondergeld

Director of the FEI-OU Pore Scale Characterization Laboratory

Rudy Kellner, vice president of FEI's Industry Group, notes FEI's strong track record of transforming laboratory methods into industrial solutions.

"For example, our systems have become critical in the semiconductor manufacturing industry for process control and failure analysis. We would like to replicate that success as the leading provider of 'information from images' in the upstream oil and gas industry," Kellner explains.

"Collaborating in the development of external resources, like this FEI-OU Pore Scale Characterization Laboratory, allows us to acquire a deeper understanding of the industry's challenges and our role in providing solutions."



The state-of-the-art equipment in the FEI-OU Pore Scale Characterization Laboratory (pictured on p. 30 and above) that will help researchers develop new quantitative methods to classify shales in the economic assessment of tight oil and gas plays includes: a multimillion-dollar Helios NanoLab™ 650 DualBeam™ scanning electron microscope, which has enhanced capabilities over the Mewbourne School of Petroleum and Geological Engineering's existing Helios 600 FIB-SEM; a QEMSCAN® automated mineralogy tool, which combines SEM imaging with EDS (energy dispersive X-ray spectroscopy) to yield quantitative mineralogy of cores and cuttings; and an argon ion mill, a sample preparation device required for imaging with the Helios NanoLab™ 650 DualBeam™.

The collaboration agreement includes FEI's Helios NanoLab™ 650 DualBeam™ and QEMSCAN® automated mineralogy tool. The DualBeam uses a scanning electron microscope to provide high-resolution imaging and a focused ion beam to remove thin slices of the sample, allowing the reconstruction of a high-resolution 3D model of the pore network. The QEMSCAN combines SEM and X-ray spectrometry to automatically analyze mineral content, rock type and other petrographic characteristics.

Sondergeld says a key objective at the FEI-OU Pore Scale Characterization Laboratory will be to link nano-scale observations to large-scale petrophysical parameters relevant to economic decision making in the exploration and development of shale gas reservoirs.

"This means imaging and analyzing the micro- and nano-scale structures with QEMSCAN and DualBeam technology and reconciling the results with such conventional macroscopic measurement technologies as mercury injection, NMR, CT scanning and core fracturing studies to build better reservoir models," he explains.

Looking even further ahead, Sondergeld says the researchers may be able to infer the maturity of organic matter from the morphology of the organic particles and the surrounding texture, or to determine if anisotropy can be used to map organic richness.

"Anything we can do to reduce uncertainty in exploitation and reservoir evaluation will have great value to the industry," he states.

A BIT AND A CREW



College of Engineering Dean Tom Landers, OU Seed Sower Award recipient Ted Collins and Mewbourne College of Earth and Energy Dean Larry Grillot

When Ted Collins Jr. was a boy his father told him, “If you want to go into the oil business, you need to go to the University of Oklahoma.” It was high praise from a man who knew a thing or two about the industry. A former bookkeeper for a Texas hardware chain, the elder Collins began trading oil and gas leases during the Gusher Age of the 1920s. He played gin rummy with Sid Richardson and rubbed elbows with the likes of Clint Murchison and William “Monty” Moncreif. Even though Collins Sr. did not live to see his son graduate from high school, Ted Jr. took his advice to heart.

The younger Collins earned a degree in geological engineering from OU and had a job offer from Pan American Petroleum [now BP Amoco] before graduating in 1960. “I started at \$525 a month and said ‘hallelujah!’” he recalled. To celebrate his good fortune, he bought a brand new Chevrolet with all the bells and whistles for \$3,100.

“I GOT A JOB AT A TIME WHEN JOBS WEREN’T THAT EASY TO FIND BECAUSE OF MY EDUCATION. IF I CAN HELP SOMEONE ELSE DO THAT, I AM HAPPY TO DO IT.”

– Ted Collins Jr.

In 1963, Collins left the company to become an independent oil operator. His start-ups grew into sizeable companies – American Quasar Petroleum and Collins & Ware, which he founded with fellow OU alumnus Herbert Ware Jr.

He was president of Houston Natural Gas’s oil division when it merged with Northern Natural Gas to form Enron. He left Enron in 1987, but remained an independent and active and player in the industry.

continued on page 33

continued from page 32

For the past five decades, he has built a reputation as a straight-shooter that has earned him accolades from the American Association of Professional Landmen's Lifetime Achievement Award to the Permian Basin Petroleum Association's Top Hand Award in 2008. He is a past president of the Permian Basin Petroleum Association, the Permian Basin Landmen's Association, the Petroleum Club of Midland and has served as chairman of the Midland Wildcat Committee since 1984.

In 2009, he was elected into the Permian Basin Petroleum Museum's Hall of Fame and in 2012 earned the Hearst Energy Award for Lifetime Achievement. That same year, he was presented OU's prestigious Seed Sower Award in recognition of his gifts totaling more than \$1 million to his alma mater.

Recently, Collins has supported two key initiatives in the Mewbourne College of Earth and Energy: undergraduate rock properties laboratories and graduate teaching fellowships. He has funded 10 graduate fellowships at \$25,000 apiece to help master's students who are working their way through school by teaching laboratory courses.

"I got a job at a time when jobs weren't that easy to find because of my education," said Collins. "If I can help someone else do that, I am happy to do it."

Determined to graduate in four years, Collins took 21 hours with five labs during the last semester of his senior year. "I got serious," he said. Professors like Ralph Disney, Victor Monnet and Preston Moore, who came to the classroom by way of the oil industry, were especially motivating, he recalled.

Collins said this is an exciting time to be in the oil and gas business. "I'm having a lot of fun," he said. "There's a boom going on out there, and we're very active. We're drilling a lot of wells."

Collins currently owns interests in oil and gas drilling operations in the Barnett Shale in North Texas, the Permian Basin in West Texas, the Eagle Ford of South Texas and the Bakken fields of Montana and North Dakota.

"I sold Harold Hamm of Continental Resources three-fourths interest in their first acreage in the Bakken play," Collins said. "At that time, they had not drilled a well there, and now they are the largest acreage owner and producer in the Bakken."

Although Collins is more reserved than many oil producers in his belief that the U.S. can achieve complete energy independence, he does believe the nation can significantly reduce the amount of oil it imports through a combination of lowered consumption and increased production.

"We do have a lot of oil that, thanks to new technology, we can reach. Horizontal drilling and hydraulic fracturing have been incredible technological advances to the industry," he said. "You have better equipment, better bits, safer procedures so you can go deeper. But a lot hasn't changed."

At the end of the day, "You still go out there with a bit and a crew."

Reprinted with permission from Priority Newsletter, Winter 2013, The University of Oklahoma Foundation Inc.

2012 DISTINGUISHED ALUMNI AND DISTINGUISHED SERVICE AWARDS

Eight individuals and one family were honored at the Mewbourne College of Earth and Energy Distinguished Awards dinner held Nov. 9, 2012, for their extraordinary support of the University of Oklahoma and service to the industry and community.

DISTINGUISHED ALUMNI AWARDS

Chris J. Cheatwood
R. Vance Hall
Thomas H. McCasland Jr.
Jere W. McKenny
Bill Z. Parker
Robert C. and Sally Rahe Thomas

DISTINGUISHED SERVICE AWARDS

Robert J. Davis

The Becker Family

- Fred, Robert, Theodore, Donald, Phillip and Clyde – "The Becker Boys"
- The Clyde & Anita Becker Foundation
- Clyde Jr. and Pam Becker
- Sally B. and Howard Wells
- Susan B. and Bill Phillips
- Donald and Rhonda Becker
- Steve and Dee Becker
- Trey Becker and Devon Becker
- Rick, Shelby and Elizabeth Becker Heath

A SCHOLARSHIP CHALLENGE

“SOMEONE GAVE ME THIS OPPORTUNITY, AND I WANT TO PASS ON WHAT I CAN.”

– Juan Sebastian Galindo Munoz

Juan Sebastian Galindo Munoz knows there is strength in numbers.

When he identified a way he could give back to a community that had given so much to him, he challenged his peers to do the same.

Galindo Munoz (B.S. petroleum engineering, 2013) arrived at the University of Oklahoma in fall 2008 and quickly discovered how difficult it is for an international student to make ends meet, even for one like him, who had financial support from his family.

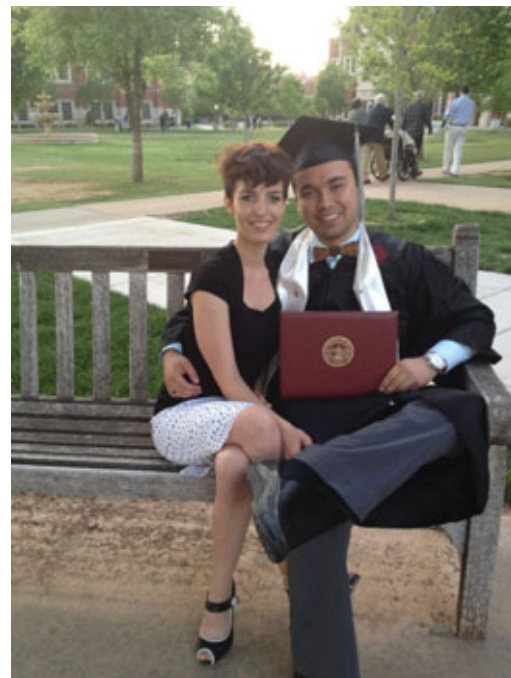
Through COLSA – the Colombian Student Association – he learned about scholarships available through the Colombian OU Alumni Association to any COLSA member with a demonstrated financial need. He applied that first semester and received \$2,000. During his five years at OU, he was awarded more than \$5,000 in COUAA scholarships.

“I always felt it was my duty to pay back that money,” says Galindo Munoz, now an engineering trainee with Helmerich & Payne Inc.

So in March 2013, he made a pledge to match the first \$10,000 in gifts over the next two years to the new Colombian OU Alumni Association Endowed Scholarship Fund.

“Someone gave me this opportunity, and I want to pass on what I can,” says Galindo Munoz. “There are a lot of engineers who have graduated with help from COLSA, and it is our duty to give back. Working together, we can do greater things than working by ourselves.”

To contribute to the COUAA Endowed Scholarship Fund, go to <http://www.couaa.com/donations.html>.



Juan Sebastian Galindo Munoz and his wife, Carolina Gonzalez

ABOVE AND BEYOND



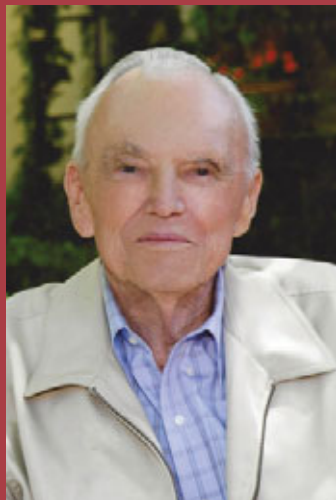
Ameil Shadid

Recognizing his dedication to the University of Oklahoma chapter of the Society of Petroleum Engineers, SPE awarded its 2013 Outstanding Staff Award to Mewbourne College director of development Ameil Shadid.

“The award is given to a staff member who goes above and beyond the call of duty,” says Trent Guinn (B.S. petroleum engineering, 2013), SPE immediate past president and now a reservoir engineer at Continental Resources. “Ameil was chosen for his outstanding dedication to the chapter. He spent a lot of time and effort to help ensure OU SPE was well-funded and had many excellent speakers, such as Jim Henry of Henry Resources and Frank Patterson of Anadarko Petroleum Corp. Beyond that, Ameil was there to help and advise the chapter in any way that he could.”

SPE made the presentation during its annual awards banquet this past spring.

DAVID A. KIMBELL SR., 1929-2013



David A. Kimbell Sr. died Feb. 23, 2013, in Wichita Falls, Texas.

A native of Wichita Falls, Kimbell graduated from OU with a bachelor's degree in petroleum geology in 1951. That year, he established Alan Drilling Co. He drilled and completed wells across north Texas and southern Oklahoma. He and Peggy Stanford were married in 1952.

Kimbell joined Burk Royalty Co., founded

by his father, George Thomas Kimbell, and partner Clyde Bohner, as geologist and exploration manager. He became president of the company in 1962. At the time of his death, Kimbell was the company's president and chairman of the board.

Kimbell generously contributed toward the building of the ConocoPhillips School of Geology and Geophysics Bartell Field Camp in Colorado.

His community service and philanthropy also included serving as a member of the boards of three North Texas banks, a longtime member of the North Texas State University Board of Regents, president and board member of the North Texas Oil and Gas Association, member of the Independent Petroleum Association of America board of directors, president and chairman of the board of the Boys and Girls Club of Wichita Falls, and co-chair of the President's Excellence Club at Midwestern State University in Wichita Falls. Kimbell also helped fund the building of the Dalquest Research Center in the Trans-Pecos region of Texas.

In 1982, he was a member of a 10-person delegation of independent oil producers invited to China to exchange information and ideas with their Chinese counterparts.

At Kimbell's Feb. 27, 2013, memorial service "Boomer Sooner" was played as the family processed out.

JAY SANFORD HANDLEY SCHOLARSHIP FUND

A native of Newton, Texas, Jay Sanford Handley attended the University of Oklahoma, working intermittently in the oil fields. After Pearl Harbor, he entered the U.S. Army, had training in the Signal Corps and served in Panama and the Caribbean area. He returned to the United States for training in gasoline production and piping and was then sent to Okinawa to service planes for the future invasion of Japan. After the end of WWII, Handley returned to OU and graduated with a bachelor's degree in petroleum engineering in 1947. He married Lillian Tarlton of Norman the following August.

As a mud engineer for Magnolia Oil Co., Handley worked on one of the very first wells to be drilled in the Gulf of Mexico. In 1949 he joined Louisiana Natural Gas Co. (later bought by Texas Gas Transmission Co.), where his first assignment was as a reservoir engineer. He advanced to senior engineer in 1952 and superintendent of Production and Drilling in 1956.

Handley drilled the first well for Texas Gas Exploration Corp. in Edgerly, La., shortly before the company's actual formation. That well is still producing today.

In 1957, Texas Gas Exploration Corp. transferred Handley to Houston. For almost two decades, he served the company in many capacities. As vice president of Production and Drilling in 1961, a significant well was drilled in Ghana, Africa, in 1970, and two years later, Handley was assigned to London, where he served as the company's vice president of International Operations in the North Sea. Upon returning to the United States in 1976, he became vice president of Development and Reservoir Engineering.

After taking early retirement, Handley and his family built a home in Brenham, Texas, where they established a permanent residence. He died Oct 23, 2001, after a long battle with Parkinson's disease.

Early this year, Lillian Handley (B.A. mathematics, 1942) established the Jay Sanford Handley Scholarship Fund in the Mewbourne College in her husband's honor. "I think it is essential that we have petroleum engineers, and we need to support OU students pursuing careers in the profession," she says.

JOHN M. CAMPBELL SR., 1922–2013



John M. Campbell Sr. died Aug. 24, 2013, after a brief illness. He was born in Virden, Ill., on March 24, 1922.

Campbell received a bachelor of science degree in chemical engineering at Iowa State University in 1943. Shortly after graduation, he was assigned to the Manhattan

Project by his employer, DuPont, and was part of a group that developed the atomic bombs that were dropped on Nagasaki and Hiroshima that ended the war with Japan.

In 1946, Campbell came to the University of Oklahoma as a graduate student and instructor in chemical engineering. In 1951, he received a doctoral degree in chemical engineering, the first offered in the College of

Engineering. After three years in industry, he was rehired by OU in petroleum engineering and served as the chair of the department for 12 years. He also served as the director of the Petroleum Research Center and was the Halliburton Professor before resigning in 1968 to found the first of several companies to serve the international petroleum industry.

By virtue of his high-profile international energy consultancy and his successful books and technical papers, Campbell received many national and international honors, culminating in his election to the U.S. National Academy of Engineering.

His flagship company, John M. Campbell and Co., is still the worldwide leader in training for natural gas conditioning and processing.

A CENTURY OF FRIENDS

Lester Le Roy Wiles II learned early in life that everybody needs a little help now and again. He says he has gotten more than his share during his 100-plus years on Earth.

"You can't get on without your friends," says Wiles (B.S. petroleum engineering, 1936), who now lives in Amarillo, Texas.

After completing high school in Skiatook, Okla., Wiles attended Oklahoma Military Academy (located in what now is Preparatory Hall on the campus of Rogers State University in Claremore) for two years before enrolling at OU in fall 1932. America was three years into the Great Depression and money was scarce. But Wiles had friends.

One of those friends had connections in OU's utility department and helped Wiles get a job there. Another drove for OU President William Bennett Bizzell and lived in an apartment above Bizzell's home. "When he got ready to graduate, he recommended me for the job. I worked for Dr. Bizzell and lived in the garage apartment for two years," Wiles remembers. "Dr. Bizzell was an extremely fine man. He wanted everybody to have an education."

Each summer, Wiles worked for independent operator J.R. "Jake" Phillips in the oil fields of the Texas Panhandle. "Dumas to Shamrock was my backyard," he says. "I dug ditches and did whatever else needed to be done, and eventually progressed to doing some petroleum engineering work. That's not what they called it, but that's what it was.

"Jake Phillips taught me a lot about developing properties," he adds. "And during those summers I became acquainted with a lot of people who later became my customers. You need to develop contacts anytime you get the chance and make the most of those opportunities."

After graduating from OU, where he says he had many fine professors, he joined his father in establishing Pennowa Oil & Gas Co. in Borger, Texas.

"My dad handled the business side and I supervised the field," Wiles says. "It was just the two of us when we started. Before I sold the business in 1983, we had developed 47 oil wells and only two dry holes." When his father died in 1947, Wiles assumed full-time management of the company.

These days, Wiles and his wife, Alice, play bridge and enjoy one another's company in a retirement community, in where they met and later married in January 2008, when he was 95 and she was 76. "She's a very good bridge player, but I'm just average. She taught me a lot of what I know," he relates. "It has been a very successful marriage."

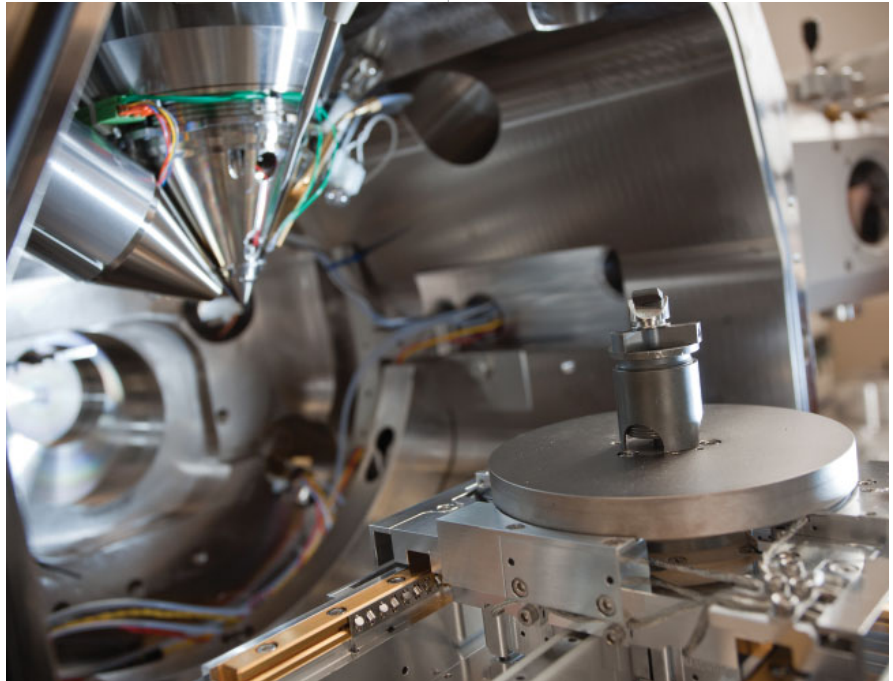
As, he says, has been his life.

"I'm an old poor boy," he says. "I've had a very good profession and a very good life. A lot of people have helped me along the way."

CLASS NOTES

1970s

MIKE MORRIS (B.S. petroleum engineering, 1979) currently is a completion engineer for Enstor in Houston. He served as energy adviser to the Iraqi Ministry of Oil in 2005-2006 and retired from the U.S. Department of Treasury as a petroleum engineer in 2009. Morris served in Djibouti and Afghanistan with the U.S. Army in 2010-2011 and retired from the U.S. Army Reserves in 2012. He also was a contractor in the Apache Oil & Gas decommissioning group in 2012.



1980s

BECKY BERGERN (B.S. geology, 1982), an independent geologist in Houston, is running for Texas Railroad Commissioner. She has spent the past five years in acquisitions and divestitures of oil and gas properties. Bergern currently serves on the Texas State Republican Executive Committee for the Republican Party of Texas and the Texas Federation of Republican Women's Board of Directors.

TERESA BURROWS HARRIS (B.S. geology, 1988) is principal hydrologist at Groundwater Environmental Services Inc. in Arizona. The national firm recently added an office in Oklahoma City. Harris recently enjoyed a family celebration in Santa Fe, N.M., honoring her parents' golden wedding anniversary, as well as the 12th wedding anniversary of Harris and her husband, Ron.

JOHN DOUGHTIE (B.S. geology, 1984) is Vice President Exploration GoM-Houston. His son John Jr. graduated from Colorado School of Mines in May 2013 with a degree in petroleum engineering and is now working at XTO in Oklahoma City; daughter Jennifer is a junior at OU majoring in petroleum engineering and just completed a summer internship at XTO; daughter Jordan is entering the eighth grade.

PHILIP GIBICAR (B.S. petroleum engineering, 1984) is a senior staff reservoir engineer at Berry Petroleum Co. in Bakersfield, Calif., working on an asset team involving heavy-oil thermal recovery EOR projects. He and his wife, Ruth, recently celebrated their 21st wedding anniversary. They have one son James, age 19.

COL. BARRY GREER, M.D. (B.S. petroleum engineering, 1984) is senior staff radiologist at Lackland Air Force Base, Texas. He was promoted to the rank of colonel in the U.S. Air Force in June 2012. Greer's oldest son Christopher graduated from OU in 2011 with a bachelor of science degree in aerospace engineering. His youngest son Blaise graduated from OU in May 2013 with a bachelor of arts degree in economics, at which time Greer had the privilege of commissioning Blaise second lieutenant in the U.S. Marine Corps.

GEORGE LAGUROS (B.S. geophysics, 1985) is advanced senior geophysicist at Marathon Oil Co., currently working Gulf of Mexico production. He has been with Marathon for 26 years. His two sons attend Texas A&M University, one as a graduate student in kinesiology and the other as a sophomore in finance. Laguros and his wife Virginia hope to come to Norman for a game football game or two this fall.

CLASS NOTES

EVELYN MEDVIN (B.S. geology, 1980) is vice president of Core Laboratories in Houston. She became a grandmother in June 2013.

SHARON RECTOR (B.S. geology, 1985) is principal of Strategic Energy Associates LLC in Houston.

CHRIS SLAGLE (B.S. geology, 1984) is employed with Plymouth Exploration LLC of Tulsa, currently working the Mississippi Play with a focus on identifying potential in the Woodford and basal Mississippian/Kinderhook dolomite/sandy lime interval. "We've drilled three wells in our area so far with some success in this interval," he says. "We continue to pursue this and plan on doing some more rotary sidewall cores in the very near future."

STEVE SMITH (M.S. petroleum engineering, 1988) is president of Legacy Royalties in Tyler, Texas. He is married to OU alumna Susan Brookshire Smith and they have four children.

MICHAEL THOMAS (B.S. petroleum engineering, 1982) is a senior aerospace engineer in the Propulsion Sustainment Division Air Force - Life Cycle Management Center at Tinker Air Force Base. After graduating from OU, he worked six years in the oil and gas industry as a production engineer for Sun Oil Co. He changed careers during the oil bust of 1988, entering civilian service as a mechanical engineer but quickly transitioned to aerospace engineering, in which he has worked for the past 25 years. Thomas is completing requirements for a master of science degree in aerospace administration and logistics at Southeastern Oklahoma State University and expects to graduate in December 2013.

TYLER TIBBETS (B.S. geology, 1989) is vice president of sales and marketing at Tethis in Raleigh, N.C., helping launch a groundbreaking technology that will transform water treatment in fracking and refining. The company is commercializing research from North Carolina State University that uses waste products from the pulp and paper and seafood industries to desalinate formation and process water on contact.

ANDREW BROUSSARD (B.S. petroleum engineering, 2010) is a reservoir engineer for Devon Energy Corp. on the Southeast Eddy County, N.M., Team in the Permian Business Unit. He married fellow Sooner Alexandra Blair Rayburn on Jan 5, 2013, in Santa Fe, N.M.

WENDY CALVIN (B.S. petroleum engineering, 2001) owns Wendy Calvin, LLC, a professional speaking and consulting business, and serves as vice president of the Oklahoma Engineering Foundation, a nonprofit organization dedicated to encouraging youth in Oklahoma to pursue careers in engineering. She previously spent more than 10 years as a petroleum engineer in engineering and business leadership roles with ConocoPhillips Co.

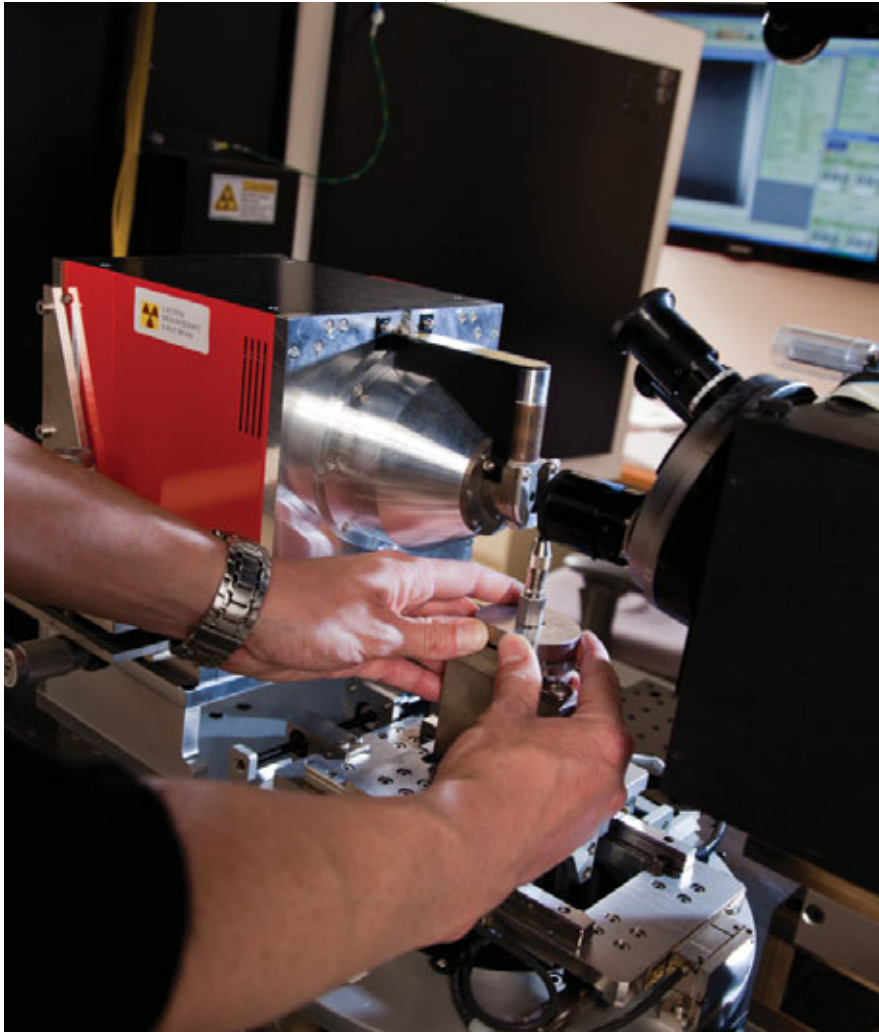
2000s

FOLUKE AJISAFE (B.S. petroleum engineering, 2005) is a senior production and stimulation engineer at Schlumberger in Midland, Texas.

DAN AMBUEHL (B.S. and M.S. geology, 2011 and 2013, respectively) has joined EOG Resources Inc. as a geologist.



CLASS NOTES



TOBY DEEN (B.S. petroleum engineering, 2010) married Danielle Sherwood (B.S. mechanical engineering, 2010) in June 2013. He works for Devon Energy and she is employed by Ulterra Drilling Technologies.

GAVIN FLUKE (B.S. petroleum engineering, 2008) has been with Anadarko Petroleum Corp. for five years. After working four years in the onshore drilling group, he currently is working in the Gulf of Mexico deepwater drilling group on the Lucius and Heidelberg development programs. In February 2013, his wife Suzanne gave birth to their beautiful daughter Holly Marie Fluke.

JONATHAN FUNK (M.S. geology, 2010) is completing his second rotation at Marathon Oil Co. after working international new ventures and South Texas exploration. He recently bought his first house in Houston.

NICK GOREE (B.S. petroleum engineering, 2010) recently celebrated his one-year anniversary with LINN Energy and soon will celebrate his one-year wedding anniversary with wife Lan. They live in Jones, Okla.

JONATHAN GREEN LARSON (B.S. geophysics, 2008) has worked for the Oklahoma Geological Survey in Norman, Okla., for more than five years.

BRANDON GUTTERY (B.S. and M.S. geology, 2010 and 2012, respectively) lives in Henderson, Nev., and is a doctoral student at the University of Nevada Las Vegas.

JOHN LEEMAN (B.S. geophysics and meteorology, 2012) is a Ph.D. student at Penn State University, where he is studying electrical properties of faults and frictional failure in the rock and sediment mechanics laboratory and via modeling.

OYETUNDE OYEWO (M.S. natural gas engineering and management, 2009) is a pipeline integrity supervisor for ONEOK in Tulsa, Okla., overseeing the integrity of the more than 7,000 miles of NGL pipeline from an assessment and remediation standpoint. He and his wife have a 2-year-old son, Demilade.

ERNESTO PUCHE (B.S. petroleum geology, 2003) has worked for Chevron in Houston since 2009. He currently works deep-water exploration in the Gulf of Mexico. Puche is married with two children and another on the way.

ASHLEY ZUMWALT (B.S. petroleum engineering, 2012) recently celebrated her one-year anniversary as a drilling engineer at ExxonMobil. She recently accepted a new position as a 28/28 rotating drilling engineer in Neuquén, Argentina.

MEETINGS, CONFERENCES AND FIELD TRIPS

2013

NOVEMBER

- 4-6** Interstate Oil & Gas Compact Commission
2013 Annual Meeting
Long Beach, Calif.
www.iogcc.state.ok.us
- 5-6** 12th Annual Osage Minerals Council
Oil and Gas Summit
and Lease Sale
Catoosa, Okla.
www.osage tribe.com
- 15** Mewbourne College of Earth and Energy
Board of Visitors Meeting
Norman, Okla.
Allison Richardson
(405) 325-2449
arichardson@ou.edu
- Mewbourne School of Petroleum and Geological Engineering Industry Advisory Board Meeting
Norman, Okla.
Sonya Grant
(405) 325-6822
sdgrant@ou.edu
- ConocoPhillips School of Geology and Geophysics Alumni Advisory Council Meeting
Norman, Okla.
Devon Harr
(405) 325-0360
devonharr@ou.edu

- 19-21** Oklahoma Shale Gas and Oil Workshop and Field Trips
Norman, Okla.
Brian Cardott
(405) 325-8065
(800) 330-3996
bcardott@ou.edu
Michelle Summers
(405) 325-7313
(800) 330-3996
mjsummers@ou.edu
www.ogs.ou.edu

- TBA** GIS Day 2013 at OU
Norman, Okla.
Melissa Brown
(405) 325-4871
msbrown@ou.edu
www.csa.ou.edu

DECEMBER

- 9-13** American Geophysical Union
Fall Meeting
San Francisco
(202) 462-6900
www.agu.org

- TBA** OIPA Mid-Continent Coalbed Methane and Gas Shale Symposium 2013
(405) 942-2334
www.oipa.com

2014

JANUARY

- TBA** 13th Annual Oklahoma Aggregates Association Field Trip and Meeting
Oklahoma City
Meeting:
Jim Rodriguez
(405) 524-7680
jrodriguez@okaa.org
Field Trip:
Stan Krukowski
(405) 325-8033
skrukowski@ou.edu
www.okaa.org

FEBRUARY

- 4-7** North American Prospect Expo
Houston
(817) 847-7700
www.napeexpo.com
- 23-26** 2014 Society for Mining, Metallurgy and Exploration Annual Meeting and Exhibit
Salt Lake City
www.smenet.org
- TBA** Science in Action
Norman, Okla.
Neil Suneson
(405) 325-7315
(800) 330-3996
nsuneson@ou.edu
www.snomnh.ou.edu

MARCH

7-9

Igneous Rocks of the Southern Oklahoma Aulacogen Conference and Field Trip
Sulphur, Okla.
Neil Suneson
(405) 325-7315
(800) 330-3996
nsuneson@ou.edu
www.ogs.ou.edu

27

GIS Day at the Capitol
Oklahoma City
Shellie Willoughby
(405) 521-4828
shelliew@okcc.state.ok.us
www.okmaps.onenet.net

TBA

American Society of Petroleum Geologists/Society of Economic Geologists Student Expo
OU ConocoPhillips School of Geology and Geophysics
Norman, Okla.
Devon Harr
(405) 325-0360
devonharr@ou.edu
www.geology.ou.edu

TBA

Water Appreciation Day at the Capitol Oklahoma City
(405) 530-8800
www.owrb.state.ok.us

TBA

Oklahoma City Rock and Mineral Show
Oklahoma City
www.rockngem.com

TBA

2014 American Association of State Geologists Liaison Meeting
Washington, D.C.
www.stategeologists.org

APRIL

4

2014 Oklahoma Trailblazer Award Dinner
Mewbourne College of Earth and Energy
Norman, Okla.
Allison Richardson
(405) 325-2449
arichardson@ou.edu

Mewbourne College of Earth and Energy Board of Visitors Meeting
Norman, Okla.
Allison Richardson
(405) 325-2449
arichardson@ou.edu

Mewbourne School of Petroleum and Geological Engineering Industry Advisory Board Meeting
Norman, Okla.
Sonya Grant
(405) 325-6822
sdgrant@ou.edu

ConocoPhillips School of Geology and Geophysics Alumni Advisory Council Meeting
Norman, Okla.
Devon Harr
(405) 325-0360
devonharr@ou.edu

6-9

American Association of Petroleum Geologists Annual Convention and Exhibition
Houston
www.aapg.org

MAY

9

OU Commencement

10

Mewbourne College of Earth and Energy Convocation
Norman, Okla.
Francesca Hunt
(405) 325-4005
fchunt@ou.edu



100 East Boyd, Room 1510
Norman, OK 73019-1015

ADDRESS SERVICE REQUESTED

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
UNIVERSITY OF OKLAHOMA

