Mewbourne School of Petroleum and Geological Engineering

Discovery

What's Inside

The College of Earth and Energy

is a progressive change for the university. This college will be a center of excellence for study and research with an emphasis on energy education. The University of Oklahoma is dedicated to excellence and that is the type of service that will be provided as we make this transition together.

COLLEGE OF EARTH & ENERGY
The University of Oklahoma

Mewbourne School of Petroleum and Geological Engineering
Discovery

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Created by the Oklahoma Territorial Legislature in 1890, the University of Oklahoma is a doctoral degree-granting research university serving the educational, cultural, economic and health care needs of the state, region and nation. The Norman campus serves as home to all of the university's academic programs except health-related fields. Both the Norman and Health Sciences Center colleges offer programs at the Schusterman Center, the site of OU-Tulsa. The OU Health Sciences Center, which is located in Oklahoma City, is one of only four compre-hensive academic health centers in the nation with seven professional colleges. OU enrolls more than 30,000 students, has more than 2,000 full-time faculty members, and has 19 colleges offering 150 majors at the baccalaureate level, 142 majors at the master's level, 76 majors at the doctoral level, 30 majors at the first professional level, and five graduate certificates. The university's annual operating budget is more than $1 billion. The University of Oklahoma is an equal opportunity institution. 4/06

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The University of Oklahoma

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Message from the Director

by Dr. Dean S. Oliver

There can be no question about the importance of petroleum engineers in today's world. The news about petroleum engineering crosses all boundaries — *Wired Magazine* recently ran an article titled "Why $5 Gas is Good for America" in which it was argued that high prices will subsidize research into technologies that will "change the energy game." It is clear that the "energy game" is changing dramatically at OU. As evidence, one only needs to consider the formation of our new College of Earth and Energy, the establishment of several large multi-disciplinary research projects, and the growth of enrollment in the undergraduate program.

The most noticeable change is in the size of classes. The undergraduate enrollment recently climbed back above 200 for the first time in 20 years, making OU again one of the "Big 5" of petroleum engineering schools. The growth has placed stress on our ability to offer scholarships, our ability to keep class sizes small, and on our ability to fit all students into lab sections. On the other hand, Petroleum Engineering is now one of the most dynamic programs on campus and the excitement is easy to see.

Due to the increase in the student population, MPGE has added a staff position bringing our total number of administrative and support personnel to seven (see page 13). The School has also recently hired two new faculty members. Don Zhang is the new Miller Chair professor.

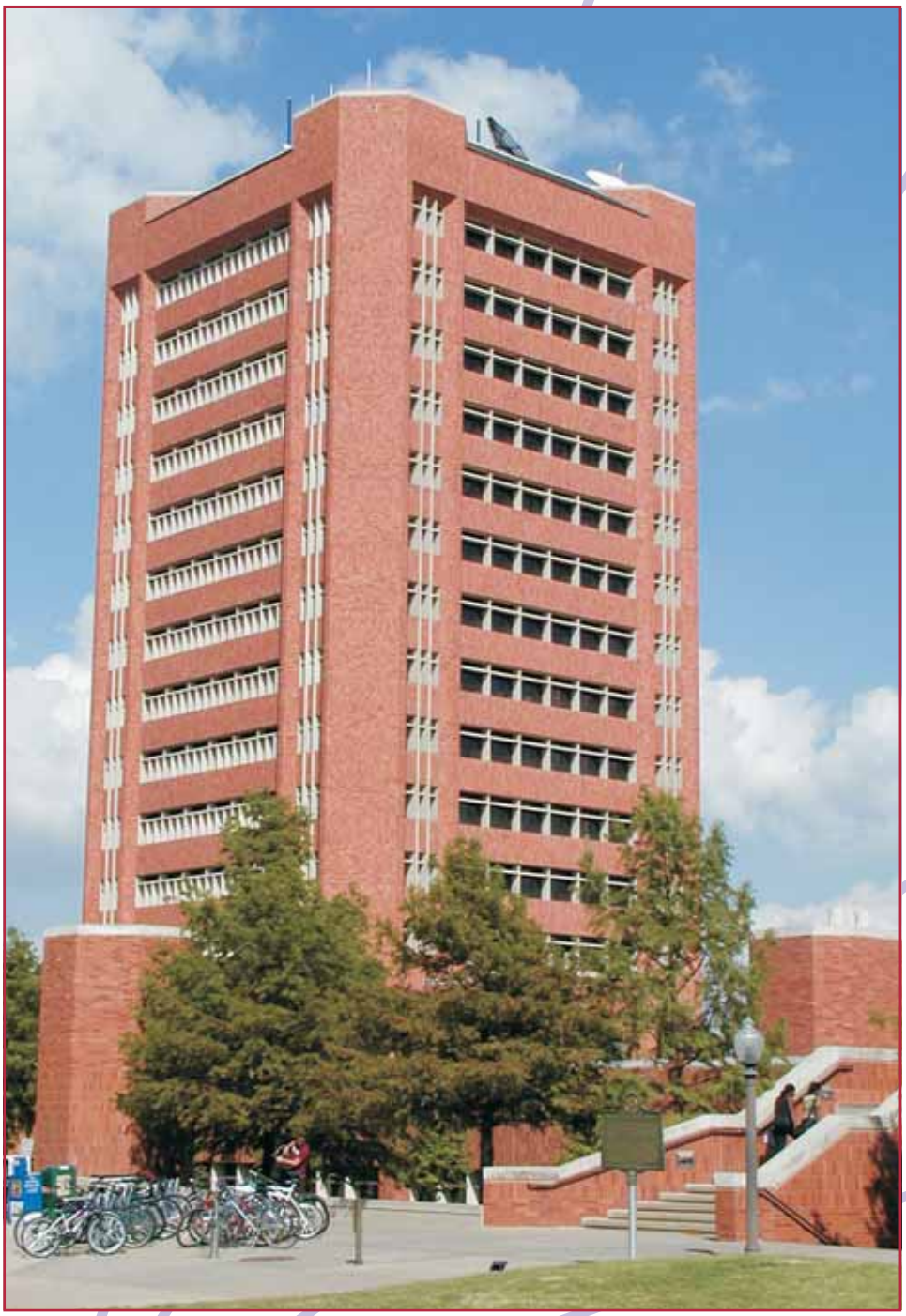
His research interests include subsurface single and multiphase flow and transport with applications to both environmental and petroleum engineering problems. His recent book "Stochastic Methods for Flow in Porous Media" reflects the state of the art of stochastic techniques for analyzing uncertainties in environmental predictions and reservoir simulations. He currently serves on the Editorial Boards for SPE Journal, Water Resources Research, and SIAM Multiscale Modeling and Simulation. He will teach a graduate class in geostatistics in the spring semester and taught Numerical Methods to undergraduates in the fall.

Jim Lea joined us in January 2006 as the Kerr-McGee Professor in petroleum engineering. He was recently the Roy Butler Professor of Petroleum Engineering and Department Chair at Texas Tech University. Jim is a world-renowned expert in production engineering. He is the author of the book "Gas Well Deliquification" and regularly writes articles for *World Oil* on "What's New in Artificial Lift." Prior to joining TTU, Jim was the team leader of the Optimization and Production Group at Amoco. He will teach both undergraduate courses on production engineering in the spring semester.

> Petroleum Engineering is now one of the most dynamic programs on campus and the excitement is easy to see.

A good way to catch some of the excitement in the Mewbourne School of Petroleum and Geological Engineering is to attend one of the students-sponsored functions — an SPE chapter meeting or the SPE golf tournament. Check their web site for upcoming events and ours for news and events.

College of Earth and Energy



Sarkeys Energy Center, home of the College of Earth and Energy.

The University of Oklahoma has re-shaped energy education and research by creating a new college that brings together closely related energy studies programs and facilities. The College of Earth and Energy officially began January 1, 2006 and is composed of The Mewbourne School of Petroleum & Geological Engineering, the School of Geology and Geophysics, Sarkeys Energy Center institutes, and the Oklahoma Geological Survey.

After many months of study by an advisory group of industry and OU representatives, President Boren approved this progressive change in order to better address the needs of educating students for the future and conducting research that will benefit the petroleum industry and the United States. The college will be a center of excellence for study and research with an emphasis on energy education that encourages more interdisciplinary research and study. It will also provide closer ties between the academic and research units and better coordinate research that will produce new technology. The culmination of these and other benefits are that the College of Earth and Energy will establish interdisciplinary relationships that will carry over into the profession.

Our students are our most important asset and the University has been hard at work ensuring that petroleum and geological engineering students make a smooth transition. The College of Engineering remains unchanged with the exception of The Mewbourne School of Petroleum and Geological Engineering's move to the College of Earth and Energy. As Dean, Tom Landers is working closely with the new college to ensure that petro-

College of Earth and Energy, *continued*

leum engineering students are still included in all student engineering activities and societies. An academic advisor for the new college was hired last summer so that students are assured that all advising and related matters are being handled appropriately. Linda Goeringer, academic counselor, works closely with both the College of Engineering and the former College of Geosciences in order to facilitate the changes for the students.

A national search committee for the Dean of the College of Earth and Energy was formed early last summer. The committee was chaired by Paul Bell, Dean of Arts & Sciences and was comprised of faculty, students, and industry representatives. We are proud to announce that on recommendation of the Search Committee, President Boren and Provost Mergler, the Regents approved the appointment of Dr. Larry Grillot formerly of Phillips Petroleum as the first Dean of the new College of Earth and Energy at the University of Oklahoma.

"Personally, Judy and are very pleased to be part of OU, and look forward to getting to know the OU "family." For the College of Earth & Energy, I can say that I am going to do my best to work with faculty, staff and alumni to build on the history, heritage and foundation of Petroleum & Geological Engineering, Geology & Geophysics at OU to provide students with skills to define and solve high-level problems of tomorrow in "earth and energy". For the university at large, my goal is to have the College of Earth & Energy be viewed by the other OU Colleges as a partner and key contributor to excellence at the University of Oklahoma", said Dr. Grillot.

Biography
Larry R. Grillot

Larry R. Grillot is a native of Crystal Springs Mississippi. He received a B.S. degree (major, physics) from Mississippi State University and was awarded a National Science Foundation traineeship to attend graduate school at Brown University. He received his Master's and Ph.D. degrees from Brown in Geological Sciences (geophysics specialty).

After graduation, Dr. Grillot began a career in the oil & gas industry as a research geophysicist with Phillips Petroleum Company in Bartlesville, Oklahoma. During his 30-year career with Phillips, he worked in a variety of technical and managerial positions in Bartlesville, London and Calgary. These included Chief Geophysicist, Africa Exploration; Director, Seismic Stratigraphy; Manager, E&P Planning; President & Region Manager, Phillips Petroleum Canada; Manager, International Exploration and Manager, E&P Technology & Services.

Larry and his wife Judy have been married for 37 years and have two daughters, Lauren and Leslie. They enjoy their three grandchildren Taylor, Jackson and Megan, and look forward to their fourth due in June.

Dr. Grillot was named the 2003 Alumni Fellow for the College of Arts & Sciences at Mississippi State University, and until his appointment at OU had been serving on the Advisory & Development Council, College of Arts & Sciences, and the External Research Advisory Board of MSU.

"I am going to do my best to work with faculty, staff and alumni to build on the history, heritage and foundation of Petroleum & Geological Engineering, Geology & Geophysics at OU to provide students with skills to define and solve high-level problems of tomorrow in "earth and energy".

Undergraduate News

Undergraduate Program

by Debi Bradley

Three years ago we set a five year target enrollment of 200 undergraduate students. We are pleased to announce that we have exceeded that five year goal. Enrollment for the 2005/2006 academic year is 211 students. This number represents an 80% three year growth rate, the second highest of any PE school in the nation (Fig. 1). Of the 211 undergraduate students, 46 are classified as freshmen, 52 sophomore, 44 junior, and 69 senior (Fig. 2). The fact that the number of sophomores is somewhat greater than the number of freshmen is a consequence of the way that the University identifies students. Many of our new students arrive with advanced placement credits that qualify them for sophomore status. The large number of seniors is a reflection of the difficulty of graduating in four years. Of the 69 students classified as seniors we expect approximately 34 will graduate this year.

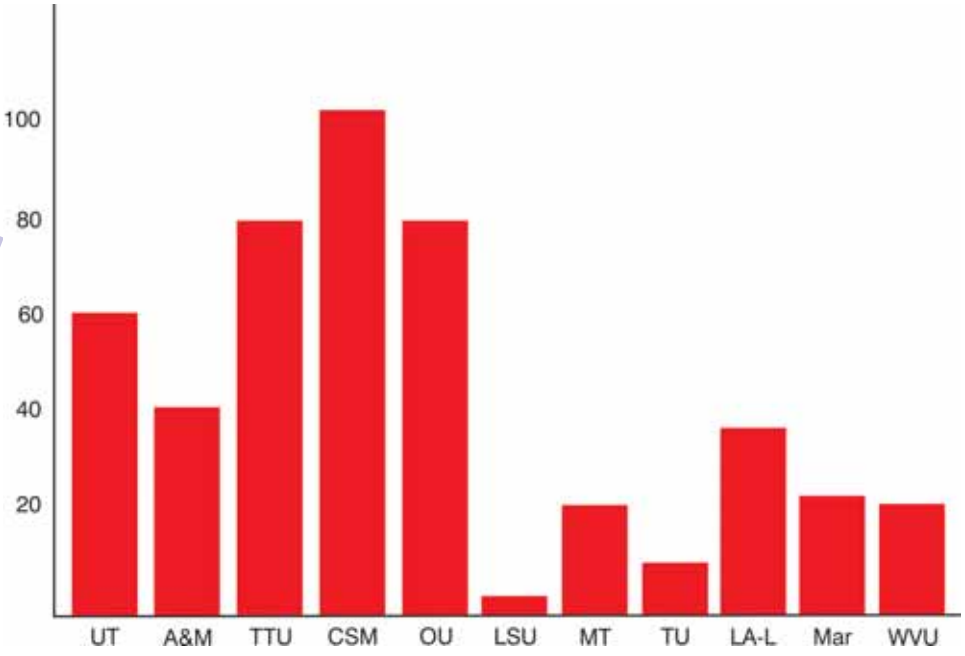


Figure 1: Three year growth rate by school

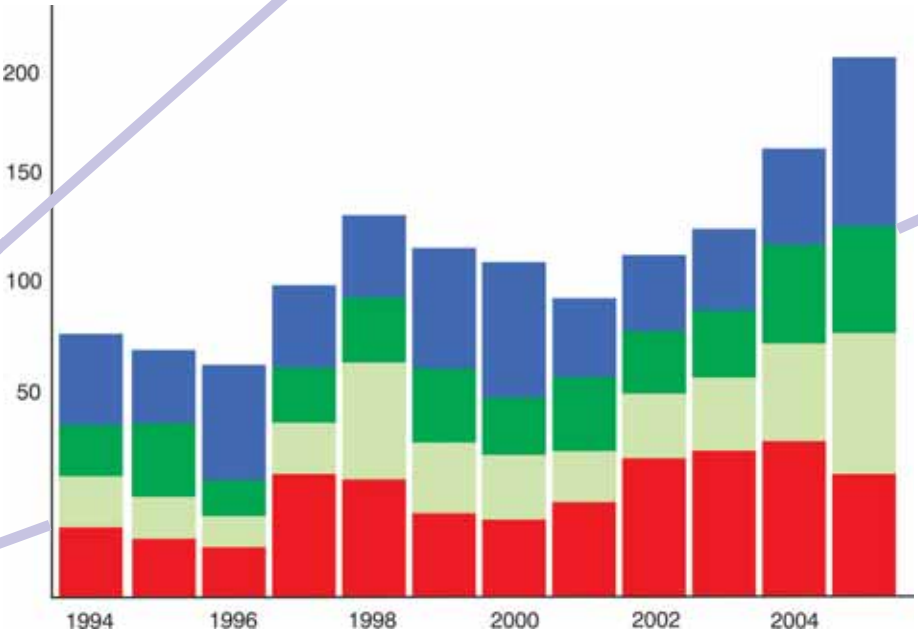


Figure 2: Enrollment by class in undergraduate petroleum engineering at the University of Oklahoma. Freshmen (red), sophomore (yellow), junior (green), senior (blue).

The current student population is comprised of 168 males and 43 females. The percentage of females in the program has dropped from 28% in 2003 to 20% in 2005. This presents a recruiting challenge going forward as the preference would be to have females represent a minimum of 25% of the total student population. The undergraduate student population continues to be dominated by United States citizens with 190 US citizens. No other country has more than three students in the program. There are 21 international students representing 15 countries including Bolivia, Botswana, Burkina Faso, Cameroon, Canada, Columbia

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Undergraduate Program, *continued*

India, Indonesia, Kazakhastan, Malaysia, Nigeria, Qatar, Saudi Arabia, Venezuela, and Vietnam.

The quality of students entering the program continues to increase. Freshmen scholarship recipients had an average ACT score of 28.2, average SAT score of 1262, and average high school gpa of 3.91. There are 8 valedictorians and 1 national merit scholar in the freshmen class. Approximately 2/3 of upperclass students maintain a gpa of 3.0 or higher. The average gpa for the sophomore, junior and senior classes are almost identical (approximately 3.15). In addition to scholastic achievement, we have seen an increase in the involvement of the MPGE student population in student organizations. As well as participation as active members, MPGE students hold offices in several organizations such as Vice President of the University of Oklahoma Student Association, Vice President of National Hispanic Professional Engineers, President of the National Society of Black Engineers and Vice-President of the Society of Women Engineers. Attendance at student SPE meetings has been over 100 for each meeting during the fall semester. In October, 2005 the OU SPE student chapter hosted the most successful student session in history at the Society of Petroleum Engineers Annual Technical Conference and Exhibit. Approximately 800 petroleum engineering students from around the world attended. The OU SPE student chapter arranged and hosted technical sessions, a recruiting fair in which thirty energy companies were represented, and a social event.

The undergraduate program in petroleum engineering at OU has graduated somewhat more than 3600 students since its inception. Only Texas A&M has graduated more (slightly more than 4000 total), but the University of Texas at Austin is not far behind. The gap between number 3, Texas, and number 4, Colorado School of Mines, is fairly large (Fig. 3). It is clear that five schools (Texas, Texas A&M, Texas Tech, Colorado School of Mines, and Oklahoma) have responded to the recent increased demand for petroleum engineers.

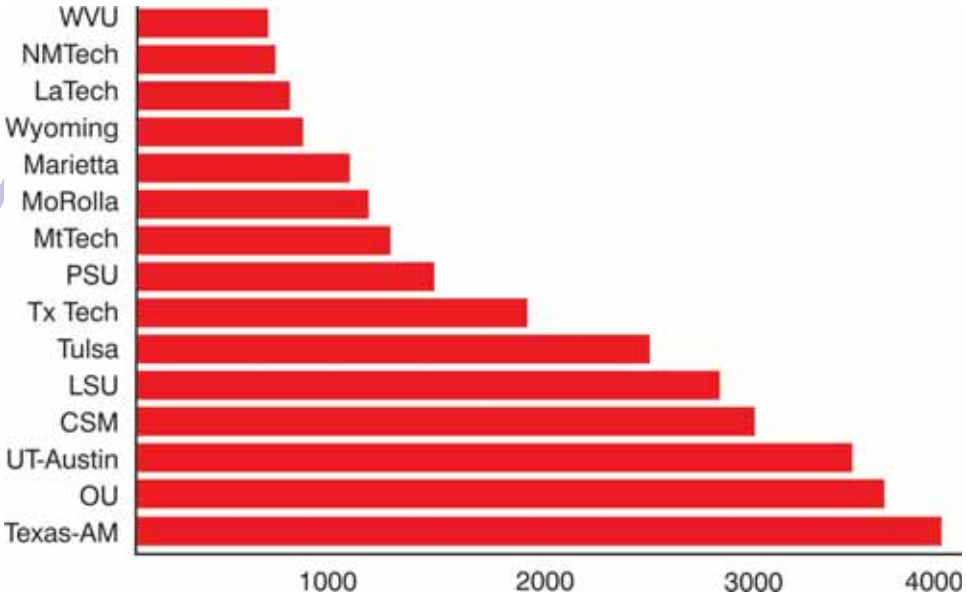

Figure 3: Cumulative undergraduate degrees awarded for US petroleum engineering programs.

In addition to scholastic achievement, we have seen an increase in the involvement of the MPGE student population in student organizations.

Undergraduate News

Undergraduate News

Scholarships

Oklahoma Energy Resources Board (OERB) College Scholarsip Program

by Debi Bradley

The OERB has created a $300,000 per year scholarship program to assist students studying petroleum related fields in Oklahoma state colleges. Students majoring in petroleum engineering, geology and energy manage-ment are eligible to apply for the program. Once accepted students are eligible for annual award amounts between $1,000 and $5000 per academic year. Of the total allocation for state students, fifty-two MPGE undergrad-uate students have been awarded over $90,000 in scholarships for the current academic year.

In addition to financial support, upper class OERB scholars will have the opportunity to encourage Oklahoma's middle school students to consider a career in the petroleum industry by working with the OERB's Petro Pro's program. They will also have the advantage of field trips, mentoring, Oklahoma internship opportunities and executive question-and-answer sessions.

The program is an exciting and much needed boost for MPGE's scholarship base. It enhances our ability to recruit and retain high quality students and eases some of the scholarship pressure created by our fast-paced growth.

MPGE would like to extend a special note of appreciation to Mike Terry, OERB Executive Director, Mindy Stitt, OERB Education Director, and Ronnie Irani, OERB Executive Board member for bringing the concept to us and for all of their diligent work to create this pro-gram and make it happen quickly.

"There is a long term need for more workers in Oklahoma's oil and natural gas industry," said OERB Chairman Steve Agee. "As the nation's second-leading natural gas producer and sixth-leading oil producer, Oklahoma is in a position to make a significant contribution to U.S. energy needs, which will continue to grow. Through the OERB Petroleum Scholar Program, we hope to attract more professionals to this vibrant industry and keep Oklahoma's brightest college graduates in this state."

Scholarships, *continued*

Mewbourne Leadership Scholars Named

by Francey Freeman

The prestigious Curtis W. Mewbourne Leadership Scholars Program kicked off this year with a luncheon September 15 attended by scholarship recipients, Mewbourne Oil representatives – Ken Waits, Drew Greene, Joe Odom - Dr. Dean S. Oliver and several MPGE faculty and staff. After a wonderful lunch, Mr. Ken Waits spoke about the University of Oklahoma, MPGE, the state of the industry and the importance of our scholars to the industry.

The Curtis W. Mewbourne Leadership Scholars Program is a premier program whose scholars are selected as freshmen with strong academics, balanced high school extracurricular activities, demonstrated leadership, school/community involvement and a commitment to the oil and gas industry as a career. After being selected as a scholar, the students receive a renewable five years scholarship and regular interaction with industry leaders, other Mewbourne scholars and professional engineers in various aspects of the energy industry.

2005-2006 Mewbourne Leadership Scholars

The 2005 – 2006 Mewbourne Leadership Scholars are: Christopher Fleming, James Chapman, David Robison, Bryce Ratchford, Karen Tapp, Douglas Willits, Kyle Walker, Marc Lemons, Greg Shephard, Andrew Taylor, Kyle Johnson ,Robert Thurman including new freshmen Devon Koetter-Manson and Taylor Wiggy. Congratulations to these fourteen outstanding students.

Internships

Twin Interns

by Ashley and Lauren King

We never thought that being a twin would open doors of employment, but that is just what happened when we were offered the opportunity to work as summer interns with Extex Operating Company out of Houston.

Extex is an independent oil and gas producer owned by Wallis Marsh, a University of Oklahoma Petroleum Engineering graduate, and Kerry Whitfield, a Texas University Petroleum Engineering graduate. Being a twin himself and a graduate of OU, we seemed to have a lot in common with Wallis and were fortunate enough to receive an offer to work with Extex. Extex and Wallis were a great match for us for several reasons. Wallis understood that we are OU athletes and would need to spend time during

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Ashley and Lauren King with Wallis and Kerry Marsh.

Internships, *continued* Undergraduate News

Twin Interns, continued

the summer to workout and stay in training. He went above and beyond our expectations when he provided the perk of a health club membership at the University Club in the Galleria. The office was also conveniently located near Memorial Park where we were able to spend time after work practicing our soccer skills. Additionally, perhaps due to Wallis being a twin himself, Wallis and Kerry offered each of us a job when Extex had planned for only one intern.

Extex purchases existing producers and performs workovers and recompletions to increase production. We reviewed the well files, prepared wellbore diagrams, and wrote procedures for subsurface pump placement and sucker rod design. Although we gained great insight into the oil and gas industry, Wallis and his team of employees gave an unselfish amount of time in helping us gain a greater understanding of the various aspects in this industry.

Kate Murray

For all petroleum engineering students, the final summer before graduation is a crucial one. My case was no different, and I knew that it was my last opportunity to identify how I would start my career. With that in mind, I decided to find out more about two companies, through an internship with BP in Houston, and a week long "internship" with Shell.

For 10 weeks, I worked in Houston for BP in Deepwater Development. Using Petroleum Experts software, I developed an integrated asset model for the Atlantis field. Although my initial objective was to build the model, I also had time to make prediction runs and learn much more about the usefulness of the software. My experience with BP was a traditional internship, which proved to be a sharp contrast to the program I would be involved in with Shell.

At the end of the summer, I spent a week at a world-class resort located just outside of Palm Springs, California in order to participate in Shell Oil Company's Gourami Business Challenge. The purpose of the week was to prepare a 5-year business plan involving extensive development of vast hydrocarbon reserves, manufacturing and transportation improvements, and a marketing plan. About 45 participants were divided into 3 regional exploration and production teams, a finance team, a marketing team, and a manufacturing team. As a petroleum engineering major, my role was in exploration and production. Using engineering and geological data, each team determined the value of the assets located in its respective region. The engineering was the easy part; integrating the upstream, downstream, and financial elements posed a greater challenge. With a limited capital budget, the groups had to collaborate and determine how the available resources would be budgeted. Finally, we presented our 5-year plan to the Shell Gourami shareholders, who were actually top executives of the Shell Corporation. An hour-long interview and a much needed spa treatment ended my week in California. Throughout the week, Shell employees observed us closely, taking notes about our contributions, working style, and leadership skills. I believe the Gourami Business Challenge to be the most innovative and creative recruiting tool in the oil industry.

Each of my experiences validated my prior opinions about the companies, and I would be happy to work for BP or Shell. I highly encourage all students to take advantage of as many diverse opportunities as are presented. Looking back on four summers of internships, which took me all the way from the Gulf of Mexico to the North Slope, I know that did just that.

"This picture was taken during the summer I worked in a tool shop for Key Energy Services in Pearland, Texas. I got invaluable experience sanding, cleaning, inspecting, painting and organizing parts, and sometimes they even let me manuever the forklift!"

Lindsey Hufnagel

Undergraduate News

OU SPE Chapter News

by Daniel Rehg

The University of Oklahoma's society of petroleum engineers (OU SPE) has finished an outstanding semester with a number of great achievements. The chapters focus on student involvement and leadership development has allowed it to become more involved on campus and in the community.

As enrollment in petroleum engineering increases, the chapter is working to grow by strengthening its leadership structure. Five new leadership positions were created and have already had an impact on the organization. New positions have made things like the freshman mentoring program and community service possible.

In September, the 05' Fall Classic golf tournament boasted a 625% increase in gross funds raised and a 240% increase in total participants. "We would like to have our participation grow even further," said Keystone Hughes, OU SPE's golf tournament director. The annual event hosted 48 teams of four and had 22 sponsors.

The chapter hoped to establish a strong foundation by drafting and voting on chapter by-laws earlier this semester. The by-laws should help clarify past discrepancies on elections and executive power. The document was voted on during the September 29 meeting and passed by a strong majority.

Student, faculty, and staff alike traveled down to Dallas in October to attend the SPE Annual Technical Conference and Exhibition (ATCE 05). OU SPE was this year's host chapter for student activities and was responsible for planning a student tech talk, career fair, and social event held at Medieval Times. Their success as the host chapter will boost its chance at the Chapter of the Year award given annually by SPE International.

The webmaster, Jonathan Ashcraft, has been hard at work on the new website that went public on November 11. The site will serve as an organizational hub for members, faculty, staff, and industry. Pictures, links, downloads, contact information, and a calendar of events are just a few of the things the site has to offer. "We are currently trying to include forums and establish space for site sponsors on the homepage," said Mr. Ashcraft. The site is still under construction and will be near completion and ready for sponsors in the coming months.

On November 10, the SPE International president, Eve Sprunt, visited the University of Oklahoma and gave a presentation over the future of the energy industry. The presentation, hosted by OKC SPE, was well attended by chapter members, energy management students, geology students, faculty, and OKC SPE members.

The chapter is looking forward to a fun and exciting agenda for the spring 06' semester. Be sure to check the website for upcoming events and news (www.ou.edu/spe). Thank you to all that have made OU SPE a success.

Pictured at the SPE golf tournament are Jeremy Smith, John Walker, Brad Osmus, and Daniel Rehg.

Graduate News

Graduate Program News

by Dr. Dean S. Oliver

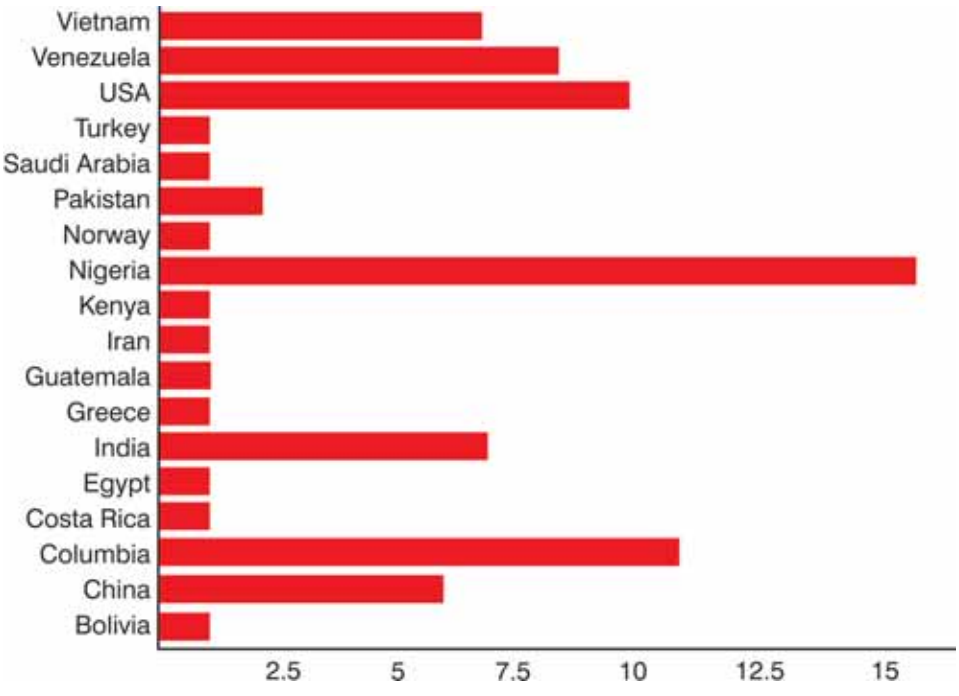
The graduate program in petroleum engineering at OU has always been one of the premier programs in the nation. It is currently ranked 5th by US News & World Report and attracts applicants from around the world. Last year, the School identified four objectives for the program:

1) Attract high quality students;
2) Expose students to high quality research;
3) Increase the level of funding;
4) Increase the number of American graduate students.

Changes in the graduate program in the last several years have resulted in a student body that is among the best in the nation in petroleum engineering. In particular, admission criteria have been tightened so that the quality of current admissions is comparable to any in the nation. The table to the side shows various measures of quality, including acceptance rate (low is usually better as it indicates selectivity) and scores on the Graduate Record Exam (GRE). A perfect score on the verbal and quantitative sections of the test is 800 and our students have been averaging nearly 760 on the quantitative test.

Institution	Acceptance Rate	GRE Verbal	GRE Quantitative
U Texas	25%	550	765
Stanford	35%	567	774
U Tulsa	60%	425	721
Texas A&M	43%	498	742
U Oklahoma	32%	435	758

Because the market does not place a large premium on post-graduate degrees in petroleum engineering, the undergraduate BS degree is the most common terminal degree in our industry and relatively few of our students continue on for MS or PhD degrees. The situation is different for students from other countries and from other disciplines. As a result, our graduate student population is dominated by international students. The chart below shows a wide diversity in nationalities, with the largest numbers coming from Nigeria but significant numbers coming from Columbia, USA, Venezuela, Vietnam, India, and China.



Progress has also been made on the goal of increasing the level of funding for graduate students and to increase the fraction of students who are supported, from 35% (in 2003) to 50% in three years. Distance learning students are not included in this computation. The size of the average stipend will increase from the 2003 levels of $1000 (MS) and $1200 (PhD) to $1200 and $1500 respectively within three years. Currently 44 students (31 GRA, 13 GTA) are receiving funding. Average GRA stipends are $1020 (MS) and $1300 (PhD). Ultimately, our goal is for all students to receive stipends.

During the current year, the faculty will be considering a number of revisions to the graduate program. Based on the current progress, and the proposed changes, it appears that the School is well on its way to achieving all of its goals.

MPGE Student Field Trip

by Mark Eichenberger

Thursday, December 1st, 2005, Dr. Roegiers led a field trip for his Intro. to Rock Mechanics class (PE 5243) to the Barnett Shale. We toured three Devon Energy well sites and got the experience of seeing many of the topics that had been discussed in class this semester with our own eyes. It was a great opportunity for each of us to get first hand knowledge of the practical applications of some of our academic discussions.

The first site that we toured was being fracture stimulated by BJ Services. We got to see the frac. tanks, pumping units, sand trucks, mixing units, and go inside the trailer to speak with and watch as the engineers did their jobs.

The second rig we toured was drilling a directional well and had a closed loop mud system because of its close proximity to a suburban neighborhood. We were led around the rig floor and saw the mud system as well as the tools used for drilling directional wells. We were also given a short talk about how these tools work and the reasons that they are commonly used.

Field trip participants pose with Dr. Roegiers

The final rig we saw was a very new rig with a top drive and completely digital control system. We toured the rig and were allowed to stand in the dog house with the driller wile he explained all the different graphs and numbers that were displayed on his multiple computer screens. He also showed us how he was able to control drilling operations with from his joystick and computers.

Devon Energy and Dr. Roegiers went out of their way to lead us on a very informative, educational, and enjoyable day. The lunch that Devon Energy provided was excellent, and their hospitality was very generous. As a class, we truly enjoyed the field trip and were grateful for the opportunity to participate.

Student Recognition at AADE

by Vinj Nguyen

This April, I was invited to attend the American Association of Drilling Engineers (AADE) National Drilling Conference in Houston. As with previous years, AADE has supported university student attendance through its "Student Poster Session". My poster titled "On the Chemico-Mechanical Parameters for Wellbore Stability in Shales with Solute Transport" was awarded second place medal. However, the best part of the conference might not be winning the medal but the invaluable interaction with industry people. Outside of the judge panel, there were many company representatives that constantly dropped by my poster asking questions or commenting on my work. Some of the representatives even offered me internship opportunities. It was a very encouraging and fruitful experience. On top of that, I had the opportunity to interact with other students from all corners. There were more than 10 universities participating in the event including Colorado, Alaska, LSU, and Texas to name a few. I enjoyed making friend with students coming from as far as Faculte Poly-technique de Mons in Belgium. We shared our research experience and learned about other schools' academic programs. It was a pleasant surprise to know that many of the students were interested in OU and I took pride in representing MPGE. Through this event, I realized that it was more than just an academic competition. It was what the real world wanted from you.


American Association of Drilling Engineers
2005 National Technical Conference and Exhibition
Certificate of Recognition
2nd Place – Student Poster Contest
Vinh Nguyen
University of Oklahoma – Norman
"On the Chemico-Mechanical Parameters for Wellbore Stability in Shales with Solute Transport"

Certificate of Recognition presented to Nguyen.

Graduate News

Multidisciplinary Shale Gas Research Project with Devon Energy

by Dr. Carl Sondergeld

Two schools in the College of Earth and Energy (Mewbourne School of Petroleum and Geological Engineering and School of Geology and Geophysics) have entered into a research partnership with Devon Energy Corporation. This project is exactly what the new College of Earth and Energy was designed to address. Devon is the major operator in certainly the largest shale gas field in North America and soon to be the largest producing gas field in North America. The pace of exploitation has outstripped internal capacity for data analysis and certainly any related research. Recognizing this, Devon sought to partner with a university which could provide comprehensive skills to fulfill these basic needs with the hope that studies will lead to immediate and future field improvements. Devon views OU, in particular, the new College of Earth and Energy as one of its prime partners. The immediate goal of this study is to better quantify the physical properties and the heterogeneity of Barnett shale and to correlate them to the gas production. The road to reaching a mutually agreeable contract was rocky; however, through the sheer perseverance of Mr. Jeff Hall, Manager of Exploration and Exploitation, Central Division, Devon Corporation, the agreement was reached with OU. We hope this experience will lead to improvements in the processes for dealing with industry in general.

The project requires skills from biostratigraphy, stratigraphy, geochemistry, petrophysics, geophysics, completions and reservoir modeling. These skills now reside under the one roof of the new College of Earth and Energy. Professors Paul Philp, Chandra Rai, Subhash Shah, Richard Sigal, Roger Slatt, Carl Sondergeld and Donxiao Zhang are cooperating to address the issues affecting the production of gas from shale. Shales being an uncommon reservoir have historically been studied very little. Shales are classically viewed as seals and or problems, especially to drillers and not reservoirs. The paucity of information on shales and the vast potential of the Barnett and other shale gas formations make them prime for study. Shales have extremely low permeabilities and porosities; they are notoriously anisotropic, contain organics, and are extremely fine grained often dominated by the presence of clays. Unlike common reservoirs where established and accepted procedures for measuring fundamental properties such as porosity and permeability exist, no such standards exist for shales. Furthermore, the existing technologies applied to make these measurements

> Devon is openly sharing all their data with the new college thus providing a rare opportunity for faculty and students to work with such a rich and timely data set.

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Front row left to right: Dr. Chandra Rai, Juan Gomez Alvarez, Dr. Carl Sondergeld, Arigyrios Karastathis. Back row left to right: Prema Singh, Harpreet Sidhu, Bin Qin, Yunxu Zhou, Dr. Subhash Shaw, Dr. Dongxiao Zhang, Dr. Richard Sigal and Kim Dongwon.

Shale Gas Research, continued

are not appropriate for shales. Obviously, research must be carried out in simply characterizing the physical properties of shales.

Shales when viewed on a very fine scale show considerable variability. Stratigraphy, geochemistry and mineralogy are required to quantify the variability. Variations in physical properties must be related to the geologic, mineralogic and geochemical variablities. Relating these to log and seismic responses will allow us to exploit this new knowledge when redesigning completions. Studying production history and well performance in the new context will allow improvements in modeling of the flow processes within the shales. Understanding the fracture process, for example, could lead to new recommendations for completions.

Devon is openly sharing all their data with the new college thus providing a rare opportunity for faculty and students to work with such a rich and timely data set. Any findings can immediately be fed back to Devon for review and implementation. Rarely do researchers see the fruits of their efforts have an immediate impact.

The active industrial interest, potential economic impact, collective expertise and unusual nature of the reservoir define a very special project which also has an enormously research attraction. This project is prototypical of projects which lie within the grasp of the new college. They are too large for any one person or a limited team. They are multi-disciplinary, requiring new solutions and methodologies and are much more than data assimilation and analyses.

Iscan Conducts Research

by Gurkan Iscan

Mr. Gurkan Iscan from the Middle East Technical University, Department of Petroleum and Natural Gas Engineering in Turkey, where he is currently a PhD candidate, has spend nine months at the Mewbourne School of Petroleum and Geological Engineering since January 1, 2005 on a research fellowship. He has conducted research on fines migration and pore plugging, formation damage by drilling fluids, and x-ray analysis in formation damage both experimentally and numerically under the super-vision of Prof. Faruk Civan.

Gurkan Iscan with the core testing experiments, which he has facilitated in his research.

Staff News

Francey Freeman has joined MPGE as the Undergraduate Student Coordinator. Her primary duties are to recruit high school students to MPGE and assist current undergraduate students. She brings student services experience from Prospective Student Services and the College of Engineering where her duties included diversity coordinator, recruiting, and advising. Shalli Young has been named Graduate Student Coordinator, assisting both new and current graduate students. In addition to her position as Assistant to the Director, Debi Bradley has moved into the role of liaison for industry and alumni focusing on the development of internships, placement, and scholarship support. Dr. Sam Osisanya and Debi Bradley serve as advisors for the OU SPE student chapter. As well as a strong academic program we have developed well coordinated faculty and staff support for our students and our industry. Mona Troxell has been with MPGE 2 years. She is the Financial Associate for the school and is known as "the money lady".

Left to right: Francey Freeman, Mona Troxell, Pam Hicks, Shalli Young, and Debi Bradley.

Donors

by Mona Troxell

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Faculty News

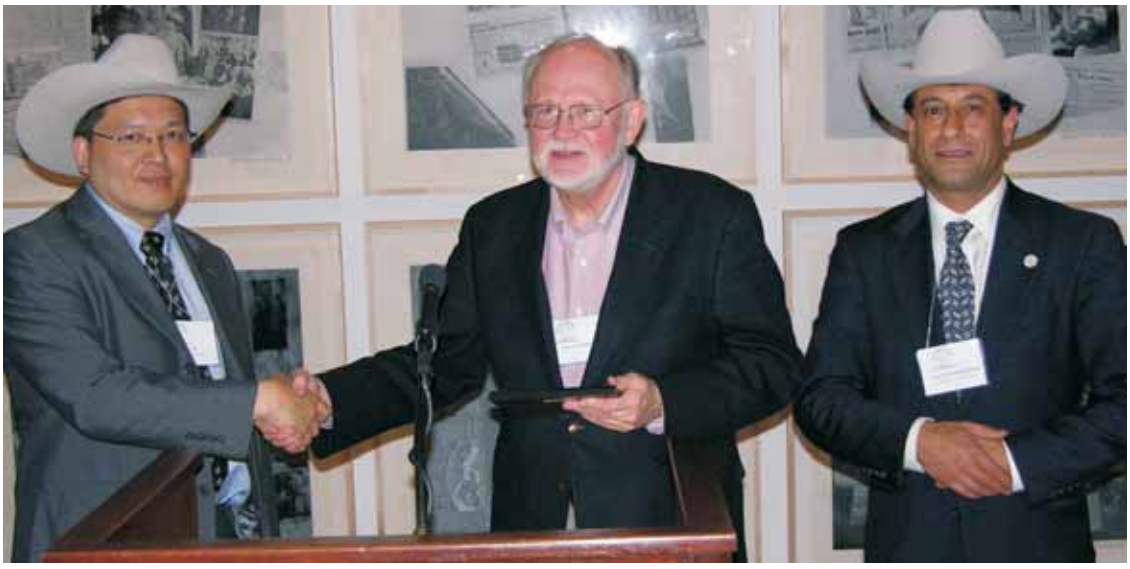
Biot Centennial Conference

by Younane Abousleiman

More than one hundred and fifty scientists and engineers from around the globe gathered in Norman this past May to attend the Biot Centennial Conference. The Third Biot Conference on Poromechanics, "Biot Centennial (1905-2005)," was held on May 24-27, 2005 in memory of Dr. Maurice A. Biot. The three days of technical sessions went very well and were well attended. The sessions on porodynamics and experimental techniques in poromechanics were extremely animated and generated a lot of discussion and questions for the authors. The technical sessions on engineering applied poromechanics and in particular those related to the oil and gas industry applications also generated a lot of interest and were well attended.

Dr. Nancy Mergler, Senior Vice-President and Provost, gave an opening speech for the Biot Gala Dinner during the evening of May 25. After welcoming the attendees she continued on to announce the establishment of the College of Earth and Energy as of January 1, 2006, stressing the point that the upper administration of the University is very keen on strengthening the undergraduate and graduate studies in energy related issues by taking up this new challenge in establishing the new college. In addition, Dr. T. H. Lee Williams, Vice President for Research, was also present. Immediately following the dinner, the 2005 Biot Medal was awarded to Dr. James G. Berryman, Lawrence Livermore National Laboratory, University of California. The next day Dr. Berryman delivered the conference Biot Lecture titled "Twenty-Five Years of the Slow Wave." Also, Professor Stephen C. Cowin, City University of New York, was awarded the honorary plaque from Columbia University, New York, for being selected the first speaker for the Biot Endowed Lecture at Columbia in 2004.

The generous support from Mewbourne Oil Company to sponsor the Biot Gala Dinner at the Fred Jones Jr. Museum of Art made this an impressive event for all attendees and a wonderful memory of the University of Oklahoma and Norman, in particular. Also, many thanks go to Shell International E & P Inc., Chevron Corporation, MTS Systems Corporation, the Oklahoma Geological Survey, the School of Civil Engineering and Environmental Science, and the School of Petroleum & Geological Engineering for their financial support through sponsorship of other related conference activities and registration fees.



Pictured left to right are Peter Lin, Steve Cowin and OU's Dr. Younane Abousleiman.

Biot Centennial Conference

Faculty News

A Tribute to Donald E. Menzie

by Roy M. Knapp

Don was a great colleague. He encouraged me when I was early in my time at OU and was always willing to serve diligently without demanding constant recognition. It is clear that he was always on his student's side. That did not mean being easy. It meant expecting their best. I have three short stories about him that make me smile in the recollection.

First, he was Mr. Waterflood at OU. He always had the 1/3 rule of thumb about recovery factors. You should get 1/3 of the oil from primary. You should get 1/3 of the remainder from secondary and as a goal, 1/3 of the remaining oil from tertiary recovery. But he always said you ought to strive for 100%.

Second, I think the saddest I ever saw Don was after the faculty meeting when we decided to drop Physical Chemistry from our curriculum. He firmly believed that was the most useful of our required courses. Of course, many students cheered our decision and switched to the new curriculum as soon as possible. He was probably right about P Chem.

Third, Don ran some of the earliest experiments on tertiary oil recovery. One method he thought had promise was "immobilizing injected water" to improve sweep efficiency. He had a student who did some clever experiments that involved "Jello" floods. In fact, he insisted that "lemon Jello" recovered more oil than any other flavor.

Finally, I think of Don's petroleum engineering legacy. Our School was begun in 1919. Don was part of our faculty for 46 years. Counting his time as a GA at Penn State, he taught petroleum engineering for a remarkable 51 years. Probably a record that will never be matched. In our School's history, over 5,000 men and women have earned BS, MS, and PhD degrees from our programs. Don was on our faculty during the "boom" years of enrollment and he was part of the educational experiences of more than 2/3 of those 5,000 graduates. The careers of our graduates have shaped the world in which we live. Don's contributions to their educations helped shape their careers. Don's contributions to our world did not end with his retirement in 1996. His students carry on that legacy.

I have always been impressed with the affection and esteem Don's students have for him. I am sure that you would like to share some of your recollections. On behalf of the School, I invite you to send us a note. We will publish them and will make sure that his wife Jane and their sons have an opportunity to enjoy them.

Dr. Donald E. Menzie, Professor,
1951-1996
Petroleum & Geological
Engineering
The University of Oklahoma

Dr. Menzie was born April 4, 1922, in DuBois, Pa., to James Freeman Menzie and Helga Johnson Menzie. He was an author, international lecturer and professor of petroleum and geological engineering. He received his Bachelor of Science Degree in Petroleum and Natural Gas Engineering from Pennsylvania State University. Following his service as a civilian marine engineer with the Navy at the Philadelphia Navy Yard during World War II, he returned to Penn State to pursue an advanced degree. There, he received his M.S. degree in Petroleum and Natural Gas Engineering. While in graduate school he met his wife Jane and they were married Nov. 6, 1946, in Philadelphia. In 1951, they moved to Norman and Dr. Menzie began teaching at the University of Oklahoma. Sohio Oil Company awarded him a grant to return to Penn State to complete his Ph.D. after which he returned to OU to continue his teaching. He was named professor emeritus at OU after he retired in May 1996. The Society of Petroleum Engineers honored Dr. Menzie in August 2002 by inducting him into its Legion of Honor. During 46 years teaching at OU, Dr. Menzie participated in directing 178 master's and doctoral degree candidates with programs, theses and dissertations. Nine years after he retired, former students continued seeking his guidance in life decisions as well as for technical advice. Dr. Menzie served on the board of McFarlin Memorial United Methodist Church and was Fellowship Class president. He served as the south entrance greeter for 27 years.

The family requests contributions be sent to the Dr. Donald E. Menzie Scholarship Fund (The OU Foundation), 3391 Boyd Street, Norman, OK 73019 (325-3701), or Boy Scouts of America by writing to Menzie Memorial BSA-Last Frontier Council, 30 NW 64th Street, OKC, OK 73116 or call the Boy Scot Office at 840-1114.

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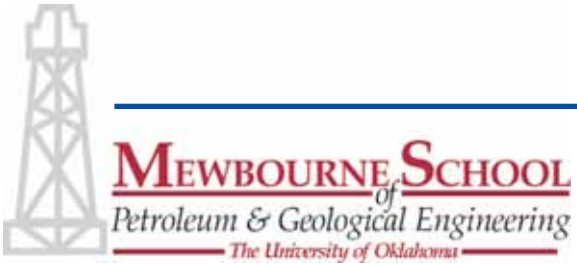

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