In OU Discovery’s first Executive Column, industry giant and OU alumnus Archie Dunham describes graduates who will make a difference.

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f you are reading this introduction, you are a part
of OU Petroleum and
Geological Engineering
history.

You have the first issue
of the first volume of OU Discovery,
the University of Oklahoma School
of Petroleum and Geological Engi-
neering’s new magazine for friends,
alumni, students and future
students. Thank you for being a
part of our inaugural issue.

On almost every page of this
first issue, you are either being
introduced to new people who are
important to PGE at OU, or we are
telling you about a new initiative or
focus. This is an exciting time, one
that called for a new publication to
keep you informed and involved.
That is the primary purpose of OU
Discovery, to keep you informed and
involved in PGE at OU.

Keeping you informed will be
relatively easy. In future issues, you
will read about changes in the
curriculum being made in direct
response to industry needs; innova-
tive scholarship and leadership pro-
grams that will enhance our ability
to recruit top prospective engineers;
the increasing importance of grad-
uate education to the petroleum and
natural gas industry, and other items
that will be of interest to individuals
who are committed to the energy
industry.

Keeping you involved will be the
more interesting part. Here are
some ways you can help:

■ Send us your alumni news. Whether
it's personal or professional, we invite
you to keep your colleagues and class-
mates informed. Photos and e-mail are
welcome.

■ Introduce us to a prospective stu-
dent. Our best leads come from friends
and family members. Use the Prospect
Reply Card to put us in touch with
tomorrow’s petroleum engineers.

■ Be an author. Write a letter to the
editor or contribute an article. Readers
are invited to comment on industry
issues, educational concerns, employ-
ment advice—any topic that might be of
interest to other OU Discovery
readers.

Change is clearly the theme of
this first issue, but some things will
remain the same. Like the old
Sooner Pipeline, OU Discovery will be
produced twice a year. Some of the
features you see in this issue, like
our wonderful first Executive
Column, authored by Archie Dun-
ham, will be a regular feature with a
different contributor each time. Our
guest column, contributed this time
by Dr. John Campbell, will be an
open forum. We will always be
bragging about our students. And,
hopefully, the pride that each one
of us takes in our association with
Petroleum and Geological Engineer-
ing at the University of Oklahoma
will come through loud and clear
in each and every issue of OU
Discovery.

Please stay in touch, and we will
do the same.

Lisa L. Schmidt
Editor
Petroleum Companies and the Quest for Graduates Who Make a Difference

It’s an honor to be featured on the cover of this exciting new magazine.

Of all the things that brighten my life, few are more important to me than my home state of Oklahoma and the rich fabric of relationships that bind me to family and friends there.

I plan to maintain those precious ties until my last breath. Among a lifetime of Oklahoma memories, some of the most vivid were created at OU’s School of Petroleum and Geological Engineering.

During the months and years to come, OU Discovery will be an excellent biannual reminder of the marvelous education we received, and the benefits we still receive, as graduates of this outstanding school.

As I write these lines in early March, PGE alumni who chose a career in the petroleum business come to work each day and are confronted by the nagging question: “When are crude prices going to recover?”

It’s been that way now for almost a year, thanks to one of the most severe downturns in industry history. The value of a barrel of crude oil slipped into freefall last summer when it became obvious that the demand falloff in Asia was real. Today, the value of West Texas Intermediate is about half of what it was just two years ago. On an inflation-adjusted basis, crude prices are at the lowest levels we’ve seen in a quarter century.

The impairment to industry earnings has been severe. Today, companies are proceeding carefully and cautiously — delaying discretionary investment and reducing costs in any way possible. A new wave of mega-mergers in the industry adds to the inclination of companies to reduce costs by cutting back on employment while also slowing down, or stopping in some cases, the recruitment of new graduates.

How long will this last? In my view, energy prices are likely to remain soft for a while, at least through 1999. Much will depend on what OPEC does during the next 90 days to further restrain production. But even in the absence of an early OPEC agreement, I believe crude prices will improve, sooner rather than later. Asia is already recovering, so demand for crude and refined products should strengthen during the second half of this year. Supply will also tighten, as recent cuts in drilling and investment by cash-strapped companies begin to eat into production growth. Eventually supply-demand will tighten to the point that prices trend upward.

The petroleum industry will rebound and once again be an aggressive recruiter of new talent, especially at superior institutions like OU’s School of Petroleum and Geological Engineering.

What kind of graduates will companies like mine be looking for? First, we will look for someone...
who’s trained in a technical discipline — whether it’s petroleum or chemical engineering, finance systems technology, or mathematics. Naturally, the new employee will learn a great deal as he or she gains experience on the job, but Conoco is not in the business of providing “graduate education” to new hires. Companies that depend on sophisticated technologies, work processes and communications systems as their lifeblood require new employees who can contribute from day one.

But being well prepared for the world of work requires more than just technical training, no matter how good the training. Increasingly, employers look for other qualities in the people they choose.

One is vision. The traditional, tried-and-true ways of doing things no longer cut it in companies with ambitious growth plans. Growth companies need visionary thinkers — “entrepreneurs” — throughout their whole organization, at all levels. Entrepreneurs are people who are forward-looking, motivated and creative, people for whom achieving or exceeding existing goals is not enough. Entrepreneurs seek to con-tinuously raise the standards of achievement by expanding the per-formance envelope not just by a little, but by an order of magnitude. Cyberstars like Bill Gates and Michael Dell provide the most visible examples; they’ve created totally new ways of doing things . . . totally new products . . . and, indeed, totally new industries.

Another desirable quality of newcomers to an organization is flexibil-ity in putting knowledge to work — one’s own knowledge and that of others. In today’s competitive environment, “knowledge” does not have to be exclusively owned by a company in order to create value. Successful companies are skilled and practiced at gaining access to the intellectual assets of others — through alliances, partnerships and joint ventures. True “learning organizations” that are good at this must be staffed by flexible, open-minded people who possess the responsivenss and customer orienta-tion to excel at partnering with others.

“Talent, like electricity, must be switched on for it to make a contribution.”

New graduates need to be flexible and adaptable for another reason. Specialized knowledge has a short-term value in a world where data and information can be zapped almost anywhere with the click of a mouse. To stay ahead of competi-tors, companies must capitalize quickly on what they know. So they need employees who can adapt quickly to new technologies, who can switch flexibly from task to task, and who can be energized to use their talent on behalf of the com-pany. Talent, like electricity, must be switched on for it to make a contribu-tion.

Finally, companies in the future are going to want people who have a healthy sense of proportion about job and career . . . and dimensions of their lives. As the leader of a company with ambitious goals, I want all of our employees to believe in what they’re doing when they come to work each day. I want them to be fully committed to the company’s goals and willing to go the extra mile to help achieve them.

But at the same time, I want Conoco’s employees to have a rich and rewarding life away from the office, refinery or drilling rig. Each of us should leave room for reflec-

continued on page 4
A

rchie W. Dunham is president and chief executive officer of Conoco Inc. and an executive vice president of E.I. du Pont de Nemours and Company, Conoco’s parent.

Dunham joined Conoco in 1966 as an associate engineer in Houston. For seven years he worked in various positions within the natural gas and gas products department and the corporate new project development group. In 1973, he became manager of the gas products division, followed by an appointment to Harvard University’s Management Development Program.

He was elected executive vice president of Douglas Oil Company, a Conoco subsidiary in California, in 1976 and became president of the subsidiary in 1979. He returned to Houston in 1981 as vice president of logistics and downstream planning. In 1983, he was named vice president of transportation, natural gas and gas products. After participating in Stanford University’s Senior Executive Management Program, he became executive vice president of petroleum products, North America, in 1985 and was elected to the Conoco board of directors.

In 1987, Dunham became senior vice president of DuPont’s chemicals and pigments sector at DuPont headquarters in Wilmington, Delaware. He assumed the same position for polymer products in 1989.

Dunham returned to Houston in 1992 as Conoco’s executive vice president, exploration production. He held that position until becoming president and CEO in January 1996.

Dunham is active in several professional business and advisory organizations. On the national level, he is chairman of the United States Energy Association and serves on the boards of directors of the American Petroleum Institute and the Energy Institute of the Americas as well as the National Board of the Smithsonian Institution and the board of trustees of the George Bush Presidential Library Foundation. He is on the executive committee and the board of directors of the U.S.-Russia Business Council. Dunham is also a member of the National Petroleum Council, a key advisory body to the Secretary of Energy.

Locally, he is a member of the executive committee and board of directors of the Greater Houston Partnership, the board of governors of The Houston Forum and the board of directors for Memorial Hermann Healthcare System. Dunham also serves on the boards of trustees of Houston Grand Opera, the Houston Symphony, and the United Way of the Texas Gulf Coast. He led Conoco’s 1996, 1997, and 1998 corporate United Way campaigns, which each raised more than $1 million. Dunham and his wife, Linda, are active members of the Second Baptist Church of Houston.

Born in Ada, Oklahoma, in 1938, Dunham holds a bachelor’s degree in geological engineering and a master’s degree in business administration from the University of Oklahoma. He has been honored by both the College of Business Administration and the College of Engineering as a distinguished graduate. In 1994, he was recognized by the OU Board of Regents for his dedicated service and demonstrated leadership to the University of Oklahoma. Dunham was inducted into the Oklahoma Hall of Fame in 1998.

The Dunhams have three children and seven grandchildren.
In the latest issue of *Strategy & Business*, a quarterly published by Booz Allen Hamilton, John Quelich, former dean of the London School of Business, wrote: “The scarcity of qualified managers has become a major constraint on the speed with which multi-national companies can expand their international sales.” Other similar commentaries parrot the same concern — a lack of leadership for the future.

If you study the genesis of petroleum engineering, you will discover that, starting in the mid-1950s, the University of Oklahoma led the way in developing so many of the giants in the oil business. Archie Dunham, author of our first Executive Column; John Campbell, another pioneer and *OU Discovery* contributor; and 1998-99 SPE President Gustavo Inciarte are all Petroleum and Geological Engineering graduates and leaders.

Sports teams have their dynasty years. So do businesses, universities and schools. The *U.S. News and World Report’s 1998 Best Graduate Schools* ranked OU’s School of Petroleum Engineering as tied with Stanford University for third place. Texas A&M was ranked first and the University of Texas, second. One could argue that the rankings are subjective, or that the resources available to the Texas schools are too great to compete against. As the new director, I respect both Texas schools for their accomplishments, as well as the tradition that Stanford has in Reservoir Engineering.

However, numbers of graduates don’t make the school, nor does the money to which it has access. Production of future leaders, the tradition of leadership in research, innovative technology development and application, and committed faculty and students make the mark of the school.

Students go to certain universities and academies like Harvard, MIT, Stanford, Annapolis and West Point because they want to be the best of the best, the future leaders.

As director, I have a vision for the School of Petroleum and Geological Engineering: To be a school for leaders. This includes all aspects of leadership for students, faculty, research staff and our alumni.

Industries go through various phases as they mature. Like the aerospace, automotive, mining and other industries, the oil and gas industry went from the technological pioneering days between the 1950s through the 1970s, to the technological development boom days of the 1970s through the mid-1980s. From the mid-80’s until now, a new maturity has occurred. We’ve shifted into a “business driven industry” where application of technology is the priority.

One could speculate that each era caused the production of a certain type of Petroleum Engineering graduate. As we enter the new millennium, there is no doubt we are challenged by another era for the petroleum student and graduate, and the role of the school with industry. This is certainly reflected in the new accreditation standards referred to as ABET 2000.

This year, the College of Engineering and the School of Petroleum and Geological Engineering will be up for ABET 2000 accreditation. But even more importantly the school, in partnership with industry via our Advisory Board, will define the new needs of industry for undergraduate students. We will change, alter, add and drop courses to meet these new needs for our dynamic industry.

To achieve real excellence in leadership, and to be industry leaders, requires hard work, commitment and, most importantly, the will to change. Already, faculty teams are developing new directions for our reservoir engineering program, and the start of our new Well Construction Technology
Center (previously called FFCF). A third team is piloting our school through the new territory of ABET 2000. New initiatives in conjunction with the Sarkeys Energy Center in the areas of reservoir, rock physics and natural gas engineering, have been started. We envision a partnership with Sarkeys that will build our research capacity, and we are pursuing opportunities to create a master’s degree in Natural Gas Engineering and Management with the School of Chemical Engineering and Materials Science and the Institute for Gas Utilization Technologies. There are other initiatives in the pipeline that will be reported as they progress.

This is not a shotgun approach, but a business strategy and plan. We are building on our strengths, traditions and industry network. Aligning with the overall strategic goals of the College of Engineering, the School of Petroleum and Geological Engineering plans to be a leader in making it work. Barriers will come down. Old excuses and history will not deter us. Only by example will we show the students, alumni and industry that the University of Oklahoma School of Petroleum and Geological Engineering is once again a “school of leaders for leaders.”

As the line from Frank Herbert’s classic, Dune, says, “The Sleeper has awakened.”

Keith K. Millheim

Eberly Family Chair and Director, Petroleum and Geological Engineering, University of Oklahoma

Ph.D., Mining Engineering, University of Leoben, Austria

M.Sc., Petroleum Engineering, University of Oklahoma

B.Sc., Petroleum Science, Marietta College

Only current member of OU Engineering faculty in the National Academy of Engineering.

Co-authored Applied Drilling Engineering, published in 1986 and still considered the principal drilling textbook in use today.


Holds five patents.

Internationally known consultant in strategic planning.


Board of Directors, Rig Design Services LTD and RDS-Naftagas LTD, 1995-1997

Director, University of Leoben, Austria, Department of Drilling, Petroleum Production and Economics, 1994-1998

Current JPT Special Columnist

SPE Distinguished Lecturer Emeritus

Received first SPE Drilling Engineering Award

Distinguished SPE Member

Professional experience includes work in Australia, Canada, the Middle East, United Kingdom, North Sea, Norwegian North Sea, Netherlands, South America, and throughout the United States.
University of Oklahoma
College of Engineering Dean
W. Arthur “Skip” Porter has a
vision. It starts in
the classrooms and labs at OU. It
crosses time. It crosses cultures. It
crosses curriculum. It embraces this
state’s economic destiny. It encom-
passes the world. And it all starts
with this precept... “The difference
between creating jobs and creating
wealth is knowledge. We must
understand that knowledge is the
new coin of the realm. To gain a
competitive advantage in a changing
global economy, we must learn how
to leverage this community’s intel-
llectual resources,” said Porter.

It’s a bold statement. It’s a bold
vision. And in a bold move Dr. Porter
has accepted the challenge of lead-
ing the University of Oklahoma
College of Engineering into the next
millennium and the leveraging of
intellectual assets has begun. He’s
been on campus just 10 months and
already you can see, hear, sense and
feel his vision becoming reality.

Significant progress has been made
in all facets of the College of Engi-
neering. The most meaningful
advancement being in changing
attitudes, perceptions and thought
patterns.

“I have challenged everyone here
in the College of Engineering, from
the faculty to the students, to
rethink their education...its de-
livery...its content...its usefulness in
today’s global marketplace,” he said.

Porter’s challenge is being met.
Today’s CoE students are being
taught not only the technical knowl-
edge they will need to succeed in
the workplace, but also the analyti-
cal and the practical skills they will
need to be competitive in the future.

“Our graduates not only need to
be able to get jobs once they leave
our campus, they need to be able to
create jobs as well if we are going to
take control of this state’s economic
destiny,” explains Porter.

continued on page 8

He’s been on campus
just 10 months and
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reality.
Porter, continued from page 7

“From the moment W. Arthur “Skip” Porter crossed the Red River north into Oklahoma, things just haven’t been the same...for Oklahoma or for him. He has hit the red dirt running and change for the better has been as constant as the Oklahoma wind. Since July of 1998, Porter has been the visionary presence for the University of Oklahoma Office of Technology Development, the agent of change for the OU College of Engineering and the advocate of intellectual prosperity for the State of Oklahoma.

Under Porter’s leadership, the Office of Technology Development at OU has helped six new businesses get up and running. Plans are under way for a technology research park, and an incubator for fledgling entrepreneurs will soon open its doors. Porter’s vision hasn’t stopped there. He has added the fourth component of technology transfer to the traditional university paradigm of teaching, research and service.

“I wanted to get energy flowing and conversations started,” said Porter, “not just on campus, but in the community, over the Internet and out among other intelligentsia.”

Porter is morphing other areas of the CoE as well. New faculty evaluation and benchmarking standards are now in place that compare OU College of Engineering faculty against national standards of the top 25 public engineering colleges. In addition, CoE promotion and tenure standards are being re-evaluated to reflect the importance of Porter’s fourth component of technology transfer being added to the traditional university paradigm of teaching, research and service.

In addition to serving as the OU dean of Engineering, Porter serves as the University Vice President for Technology Development and is the Secretary of Science and Technology Development for the State of Oklahoma.

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As Secretary for Science and Technology Development for the State of Oklahoma, Porter has led the charge to make Oklahoma a leader in the global marketplace by facilitating a dialog between faculty researchers, business gurus and government leaders to diminish the barriers that preclude new technology from getting to the marketplace.

Prior to his coming to Oklahoma, Porter was president and CEO of the Houston Advanced Research Center (HARC), a non-profit, university-linked research institution with major research interests in energy, the environment and policy studies. Under his leadership, HARC raised more than $135 million in research projects and grants, and currently attracts more than $13 million in industry and government support for its research.

For more than two decades, Porter has been recognized as an international authority on technology commercialization and the management of collaborative projects. His insight into this highly specialized area is regularly sought by government, industry and academic organizations here and abroad.

Porter is the recipient of numerous awards and honors, including NASA’s Certificate of Research Recognition, which he has received twice. In addition he is the 1996 recipient of the American Society for Engineering Management’s Technology Leadership...
These are the best of times; these are the worst of times; these are challenging times.

From my point of view, these are the best of times in the sense that the College of Engineering and PGE are in the process of developing and implementing strategic plans to re-engineer themselves — to serve the needs of the marketplace in the forthcoming century. These are the worst of times for those striving to survive in the short term and retaining a base for future prosperity. These are challenging times for all as we wrestle with the problems and barriers that must be addressed to achieve desired goals. People are searching for desirable solutions and then trying to ascertain which of these are doable.

One of the advantages of being old is that you have survived a lot of ups and downs. Every time you survive a down and enjoy an up, the process gets a bit easier. At this point, I am happy to have grown up in the only depression of this century. It prepared me for the rollercoaster ride that we call life. I mention this as a prelude to the idea that adversity creates opportunity if one chooses to embrace it. We must accept the fact that adversity is usually nothing more than a situation which arises that cannot be addressed using conventional wisdom and old familiar practices.

The petroleum industry of my youth is not the petroleum industry of today. It is now a mature industry. Oil and gas are now merely commodities. It is subject to global and political constraints over which the industry has little control. It is easy to assemble a list of ills that can bring tears to our eyes. But, I find much to be optimistic about. (Let me hasten to add that I believe this is rational and not due to the onset of senility.)

What does all of this mean to the College of Engineering and PGE at OU? First of all, the problems among industries differ in severity and scope, but all are facing drastic changes. Some of the problems are unique to petroleum, but many are not. But, for our purposes we need to concentrate on PGE. If the faculty and administration truly listen to the industry and supply the type of graduates needed, and if they supply the type of distance learning needed to continually upgrade the professional staff, and if they provide needed research support, half of its problem has been solved. This is an internal university responsibility subject to the advice and support of its clients.

What is the other half? It is having a satisfactory quality and quantity of students to meet both the industry needs and maintain the critical mass of students needed to remain and prosper as a separate school in the college. In the past 30 years or so, PGE has gone from being a “star” in the College of Engineering to a “bit player” as its enrollment has continued to decline in comparison with other schools. Much like a production decline curve, at some point in the decline, abandonment results. It appears that the industry will continue to hire at least 30-35 PGE graduates per year regardless of its short-term problems. This results in a total undergraduate enrollment that satisfies both industry and the internal requirements at OU to maintain a viable program. How do they recruit a sufficient number of quality students? With scholarship support!

I have looked at the funds now available and estimate that they must be increased about $100,000 per year in order to meet both quality and quantity needs. Where will they come from? Some will come from a few who are willing to share their good fortune by establishing scholarship endowment funds. Some will come from company grants as enlightened owners and managers realize that such commitments are a whale of an investment. The rest will come from individuals or groups who can pledge to support a deserving student for four years by an annual investment of $2,500 to $3,000.

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SPE Technology Summit Draws Industry Leaders to Campus

Decision-makers and industry leaders from across the country and around the world will be on campus April 29 and 30 for what is being called one of the most important energy-related events of 1999. The SPE Technology Roundtable will be hosted by the University of Oklahoma and Sarkeys Energy Center. Keith Millheim, director of OU’s School of Petroleum and Geological Engineering, will serve as roundtable facilitator.

Chief technology officers from mega-majors, existing majors, independents, service companies, government, and universities will take part in discussions on technology and utilization for the emerging oil and gas industry. This is only the third time that SPE has sponsored such a gathering. The first SPE Roundtable on Research and Technology was held in Cambridge, U.K., in 1993. The second was in Caracas, Venezuela, in 1994. Oil prices were around $15-$18 a barrel (U.S. dollars) at that time. “Now with prices closer to $10 to $12 U.S. dollars per barrel, the one certain fact is that the industry will be different. The unknown is how different,” observes Gustavo Inciarte, 1999 SPE president and University of Oklahoma alumnus.

“Inciarte invited 20 preeminent leaders from six countries and the United States. Inciarte will also be attending the summit as president of SPE. As with the first two roundtables, key findings from the event will be reported in the Journal of Petroleum Technology.

“The opportunity for OU to host a major event like this is a tribute to both the new leadership in the College of Engineering, and the long and proud history of this university as a key player in the energy industry,” says Millheim. “Our students will have a chance to see first-hand how an enormous industry like the oil business responds to change.”

The SPE Technology Summit is by invitation only. For information regarding media coverage, contact the SPE Dallas office at spedal@spelink.spe.org.
Congratulations to the graduating seniors in petroleum engineering:

Amy Bunch
Joshua Cooper
Michael Mercer
Chen-Fah Ng
Craig Stewart
Oleg Tolmatchev
Robert Underwood, Jr.
Tia Watts

1999-2000 Officers

SPE Student Chapter:
President: Ion Ispas
Vice President: Rick Murillo
Secretary: Leo Kouemo
Treasurer: Walter Poquioma
St. Pat’s Representative: Don Miller

Pi Epsilon Tau:
President: Walter Poquioma
Executive Vice President: Catherine Seaton
Second Vice President: Julio Cabrera
Secretary-Treasurer: Kehinde Adesina
Corresponding Secretary: Rick Murillo
St. Pat’s Representative: Murray Gardin

Steve Richards, Industry Advisory Board Chair, and June Richards

1998 Distinguished Scholars Banquet
October 23, 1998

Keith Millheim congratulates Mojisola Enilari, elected by the PGE faculty as 1998-99 Outstanding Sophomore

Keith Millheim and Rob Underwood, 1998-99 Toolpusher Award recipient, which recognizes students who have “gone the extra mile” to help and promote PGE and named in honor of the person “who gets things done around the rig.”
The name of the Fracturing Fluid Characterization Facility, (FFCF), has been changed to the Well Construction Technology Center (WCTC). This name change reflects the University of Oklahoma’s new strategies for commercialization, as well as the expanding capabilities of this North Campus research facility.

The capabilities have been expanded to additional areas of the oil and gas industry, including drilling, completions and production. The new name encompasses the broad spectrum of the petroleum industry and more clearly defines the role that the Center will perform. The strategies for the expansion of the scope of the WCTC into other research areas are in closer alignment with those of the School of Petroleum and Geological Engineering, as well as the College of Engineering.

Several industry projects and third-party proprietary tests are currently being conducted at the WCTC. The Fracturing Fluid Characterization project; Coiled Tubing Consortium; Proppant Flowback Consortium; SBIR sub-contracts; and several other proprietary tests are under way at this time.

The WCTC provides a broad range of engineering and technological services to help meet the needs of the petroleum industry.

Listed below are some of the equipment and engineering services unique to the Center:

**Equipment**
- Unique High Pressure Simulator (HPS) – 7 ft. X 9 1/3 ft. vertical slot with state-of-the-art fiber optic vision system
- 9500 feet of coiled tubing ranging in size from 1 inch to 2 3/8 inch OD
- Field scale mixing and pumping capabilities
- Bohlin rheometer and high pressure, high temperature Fann viscometers
- 500 ft. double-pipe heat exchanger
- Foam flow loop with elevated temperature testing capabilities
- Wireless data acquisition and control systems
- Concentric and eccentric annuli flow behavior of complex fluids
- Proppant flowback and sand production studies
- Wellbore cleanout simulations and experimental studies
- Dynamic fluid leakoff
- Near wellbore fluid behavior and perforation pressure losses
- Rheology of foam fluids

During this time of downsizing and mergers in the petroleum industry, the WCTC faculty and research staff see the opportunity to continue to align themselves to the research needs of the industry. For more information about WCTC, visit the website at www.ou.edu/wctc.

**Engineering Services**
- Mathematical modeling / experimental study of fluid behavior
- Proppant transport and placement
- Frictional losses in straight tubulars as well as coiled tubing

**Faculty Team:**
- Dr. Subhash Shah
- Dr. Samuel Osisanya
- Dr. Keith Millheim
Accreditation Visit Scheduled for Fall

The petroleum engineering program at the University of Oklahoma has been continuously accredited since 1936 and is one of the oldest accredited engineering programs at OU, along with civil, electrical and mechanical engineering. This fall, the engineering programs at the university will undergo an accreditation review by a team of visiting engineers from industry and academia. In anticipation, preparations are under way in the College of Engineering and the School of Petroleum and Geological Engineering to showcase our engineering programs.

Engineering programs in the United States are reviewed and accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The EAC has recently made some major changes to the criteria for accreditation. The new criteria require each program to develop a clear set of objectives, detail how those objectives are achieved within the curriculum and demonstrate the objectives are being met through a regular assessment program.

The petroleum engineering program is putting together a self-study report that documents the educational experience provided to the student. The faculty, with input from the Advisory Board, have developed a set of program objectives:

1. Our graduates will be able to apply basic math, science, and engineering knowledge to identify, formulate, and solve engineering problems, design and conduct experiments, analyze and interpret data, and design systems, components, or processes using modern techniques, skills, and engineering tools suitable for engineering practice.

2. Our graduates will experience a broad-based education in an environment that fosters an understanding of contemporary issues, the global and social impact of engineering solutions, their ethical and professional responsibility, and the need for effective communication and continuous learning for successful careers.

3. Our graduates will be able to characterize and evaluate subsurface geological formations using geological and engineering methods.

4. Our graduates will be able to design and analyze systems for drilling, completing and producing wells, and apply reservoir engineering principles for optimizing resource development.

5. Our graduates will be able to incorporate engineering economics and resource evaluation methods with the concepts of uncertainty and risk management in the design and selection of equipment and procedures, and development of systems or processes for production and recovery of resources.

Faculty Team:
Dr. Roy Knapp  
Dr. J.C. Roegiers  
Dr. Djebbar Tiab  
Dr. Michael Wiggins, Team Leader

Reservoir Engineering Excellence Team

The mission of this team is to establish OU as a leading center of excellence in reservoir engineering education and research. The team is conducting a critical review of our reservoir engineering curriculum and research activities. We seek to align our curriculum and research with the needs of oil and gas industry while instilling in our students an ability for lifelong learning.

A graduate-level program focused on reservoir engineering and management is also under consideration.

Faculty Team:
Dr. Faruk Civan  
Dr. Anuj Gupta  
Dr. Richard Hughes  
Dr. Daniel O’Meara  
Dr. Keith Millheim, Team Leader
The School of Petroleum and Geological Engineering is grateful for the support our students and program receive from the following friends, companies and alumni. While we have made every effort to insure the accuracy of these listings, please call to our attention and accept our apologies for any errors or omissions.

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Mr. & Mrs. W.B. Akers
Richard Alexander
Robert A. Allen
George Allman
Ronny Altman
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James Andritos
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Lester Wilkonson
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Betty Zoccola & Bonnie Hartis
Scholarships, Internships: *Investments with Big Dividends*

Imagine being a freshman, and female, and telling your mom that you’ve accepted a summer internship as a roustabout on an off-shore production platform rig out of New Orleans.

If you are curious about how that might go, ask Tia Watts, a fifth-year petroleum engineering senior who will be graduating from OU this May.

“I know my mom was really concerned about how I would be treated, but it was the best internship. I learned so much, and those guys took me in like a little sister.”

And how many other women worked on the platform? Two full-time cooks and one secretary. Tia was the only female engineer, working seven days on and seven days off through the summer of 1995 as a roustabout for Chevron. Her experience at Marathon Oil Company, where she interned last summer, and where she will begin full-time employment after graduation, was another great experience. “My internships definitely helped me decide what kind of company I wanted to work for. I liked that I had coworkers at Marathon who were young, and there were several female engineers.”

Watts encourages freshman and sophomore PE majors “to consider internships very, very, very important.”

“You can apply and relate what you learn in the classroom to what you are actually going to be doing and that can be incredibly helpful,” says Watts. She is also grateful for the scholarship support she received during her undergraduate career at OU. “I am definitely planning on contributing scholarships for other students as a result of the contributions that were made to me.

“(Scholarships) totally enabled me to have a successful college career, I was able to concentrate on school.”

Tia credits Sydney Jones, assistant director of OU’s Minority Engineering Program (MEP) with helping her decide to major in petroleum engineering. Tia has been a member of MEP and has held offices in both the student chapter of the Society of Petroleum Engineers (SPE) and Pi Epsilon Tau, the petroleum engineering honorary. The PGE faculty selected Tia 1998-99 Outstanding PGE Senior. She is originally from McAlester, Oklahoma.

The oil and gas industry was all around when Steve Meacham was growing up in Clinton, Oklahoma. He always liked math and science and was pretty sure he would study engineering in college when he picked OU over OSU. But it wasn’t until after a successful freshman year, when Teri Walker, coordinator for student relations for PGE at the time, called to invite him to consider a career in petroleum engineering that Steve committed to the program and became a PGE Distin-

guished Scholar. Now in his junior year, he has one internship under his belt and is committed to the same company, Mewbourne Oil Company, for another internship next summer.

“The internship experience is priceless,” says Steve. “The chance to get out there in the field and learn how to establish a good rapport with the guys you will be working with and for, it’s just so crucial.”

Joseph Odom, vice president for Administration at Mewbourne Oil Company, agrees. “Internships help us find out so much about a poten-

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they get along with people? Our internship program is a real main-stay of our company.” Of the seven interns Mewbourne has lined up to work next summer, four are from OU.

Steve says he prefers “fieldwork” to “bookwork” and his career goals will require a healthy dose of both. Steve plans to graduate from OU in May of 2000 with two degrees, one in petroleum engineering and a second degree in letters, an interdisciplinary program with a concentration on the humanities. He has thought about attending law school and becoming an oil and gas lawyer. With a strong academic record and the experience gained through summer internships, Steve has lots of options.

Murray Gardin grew up in “the heart of the Canadian oil patch” in Olds, Alberta, Canada, north of Calgary. He gives credit to OU alumni like Leo O’Rourke, and many others from Canada, who attended the University of Oklahoma then returned to build the oil and gas industry Canadians enjoy today. Murray heard all about “the tradition, the quality of the graduates, and the Boomer Sooner school spirit” from these Canadian Sooners. He already knows the OU Club of Canada is the University’s largest alumni association outside the state of Oklahoma.

“Even though I had heard all about OU when I was growing up, I spent about a year looking at petroleum programs in the United States and Canada,” reflects Gardin. “All things considered—tradition, quality of graduates, reputation of the program—when you add in the generous scholarship support, OU just could not be beat.”

Murray knew all along that he would go into the oil business, what he calls the “most exciting, dynamic business around.” “But the scholarship support was really instrumental. Without it, this would not have been a reality for me.” He has also benefited from both summer internships and working part-time while attending school full-time. His work at Louis Dreyfus Natural Gas in Oklahoma City and Union Pacific Resources in Fort Worth, Texas, have helped him form definite perspectives about the future of the industry, and his role in that industry.

“To be successful, and in this industry in particular, you need to have a flexible vision of the future. The industry needs people who are dynamic, resourceful, clever and quite tough, to bring it into the 21st century. I want to be one of those people.” Murray is a former member of President David Boren’s International Leadership Class and was recently elected St. Pat’s Day representative for Pi Epsilon Tau, the petroleum engineering honorary.
New PGE Staff Members Since July, 1998:

Kelly Foster, Assistant to the Director

Lisa Schmidt, Coordinator, Student Relations and Editor, OU Discovery

Chyrl Yerdon, Graduate Secretary

Dawn Mueller, Accounting Specialist
A Note from Roy Knapp

It was my privilege to serve your school as interim director for the past two academic years. When asked to serve, I was pleased for two reasons. First, the university’s officers thought my service could be useful to one of the university’s important programs. Second, I was anxious to see if I had the physical stamina to work on things that were important. I feel that together with the faculty, staff, students and alumni we have accomplished some things of value. First, we have continued to be an important source of petroleum and geological engineering talent for industry. Second, we have continued to add to the knowledge base of petroleum and geological technology and understanding through a robust research program. Through the leadership of our Industry Advisory Board, our alumni have continued to support our industry, university, and school. Finally, our faculty recruited two new colleagues. Keith K. Millheim (MS ’64) joined us at the start of the academic year as director and Eberly Chair. At the start of the spring semester, Richard G. Hughes joined us as an assistant professor. We look forward to the new ideas and energy they will bring to our programs.

Our students, along with many of the rest of us, are having a stressful time with job searches and career doubts. The important thing for our students is that they obtain a quality education, one that prepares them for a career in providing and using the technology to produce the essential sources of energy minerals. As economies in the less developed countries regain their normal growth, the balance between demand and supply will be reestablished. Then things will become good again.

For me, things are good now. I have the privilege of returning to my regular faculty duties, duties to which I eagerly look forward. It appears there may be renewed government interest in research directed toward enhancing the value of the domestic hydrocarbon resource base. My interests in microbial enhancement of oil recovery and using reservoir characterization and simulation to identify opportunities for increasing recovery factors seem to be timely again. Additionally, I want to commit time to reviewing and perhaps revising our students’ laboratory learning experiences in reservoir mechanics.

Lifelong learning is a current focus of ABET. I believe that as faculty, we always try to convey that continued learning is essential for continued success. I want to contribute a little to your pursuit of continued learning. There are five books you can benefit from reading during the first five years after you leave OU. During your first five or so years, every change of job assignment opens career growth opportunities. These books can help you develop perspectives on some of the choices you may be offered and on your and others’ roles. Even if you have been gone for more than five years, you may enjoy reading these books. All are available in paperback and relatively inexpensive. Only two of them are recent. The others are “classics” or should be. Read them in any order. I think you will find they are interesting, sometimes amusing and surely provocative.

■ How to Read a Book by Mortimer J. Adler and Charles Van Doren.

■ The Prize: the Epic Quest for Oil, Money, and Power by Daniel H. Yergin and Joseph Stanislaw

■ Parkinson’s Law and Other Studies in Administration by C. Northcote Parkinson

■ Extraordinary Popular Delusions and the Madness of Crowds by Charles Mackay

For those of you who have been in any of my classes, you know that I generally start each class with announcements. My book list is a small effort to continue that tradition.

Please stop and visit when you return to your alma mater.

Knapp, continued from page 18

Dr. Roy Knapp is the Mewbourne Professor of Petroleum and Geological Engineering and former Director of the School of Petroleum and Geological Engineering.

Porter, continued from page 8

As a member of the technical staff of Texas Instrument's Semiconductor Research and Development labs (1966-1968), he developed the first fully automated system used in manufacturing integrated circuits.

Porter received his bachelor's and master's of sciences degrees in physics from the University of North Texas and his Ph.D. in interdisciplinary engineering from Texas A&M.

Algerian Program Update

Two groups of students are currently enrolled in the University of Oklahoma Graduate Program in Petroleum Engineering in Algeria. The $2.5 million program, which officially started in July, 1997 is funded totally by Sonatrach, with Djebbar Tiab, UNOCAL Professor of Petroleum Engineering, as project director.

The 12 students of Group-1 have completed their coursework. Six OU PGE faculty members taught courses in the program. The OU Graduate College also granted "Special Graduate Faculty Membership" to two Algerian professors who taught courses in the program.

All 12 students in Group I chose the thesis option and are expected to defend in the summer of 1999 in Boumerdes. "This is certainly an outstanding group of students," observed Tiab. "No one has a grade point average lower than 3.25, and three students have a perfect 4.0."

Three PGE faculty members will travel to Algeria in May 1999, to administer exams: Samuel Osisanya, who is supervising research projects for three of the students; Subhash Shah (supervising two students' research), and Tiab (seven students).

The 14 Algerian students in the second group started the graduate program in the 1999 spring semester and are expected to graduate in December 2000. A research associate/adjunct professor is expected to join Tiab in the fall semester 1999. She or he will be totally supported by Algerian Graduate Program funds and will begin teaching courses in the spring semester 2000.

The University of Oklahoma and Sonatrach/Institut Algerian du Petrole (IAP) signed the contract establishing the University of Oklahoma Graduate Program in June 1996. The contract was signed by David L. Boren, president of the University of Oklahoma, and A. Sebbagh, director of Human Resources - Sonatrach. The duration of this initial program is eight years, July 1997 through June 2005.
The University of Oklahoma is a doctoral degree-granting research university serving the educational, cultural and economic needs of the state, region and nation. Created by the Oklahoma Territorial Legislature in 1890, the University has 18 colleges offering 134 degree programs, 82 master’s degree programs, 51 doctoral degrees, four graduate certificates, and one professional degree. OU enrolls more than 25,000 students on campuses in Norman, Oklahoma City and Tulsa and has approximately 1,830 full-time faculty members. The University’s annual operating budget is $590 million.

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