

VOLUME 96 NUMBER 4
Fall 2006

MINES

**Burning Snowballs:
A Future Energy Source**
page 14



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page 6

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Future Leaders** page 20





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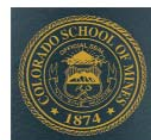
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MINES FALL 2006

Mines is published quarterly by the Colorado School of Mines and the CSM Alumni Association for alumni and friends of the School. *Mines* magazine is a critical communication serving the Colorado School of Mines community. Its mission is to keep readers informed about the School, to further the goals of the School and the Alumni Association and to foster connectedness.

Comments and suggestions are welcome. Contact us by writing to *Mines* Magazine, P.O. Box 1410, Golden, CO 80402; or call 303-273-3294 or 800-466-9488, ext. 3294 between 8 a.m. and 5 p.m. M-F, MST; or email magazine@mines.edu

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Letters to the Editor

The Bomb In My Garden

I enjoy *Mines* magazine and look forward to receiving it every quarter to find out about the school, my classmates and friends. One of the things I admired, and still do, about CSM is its enlightened atmosphere and focus on relevant issues rather than noisy and baseless ones.

The latest issue of *Mines* magazine (referenced above) that I received was a little strange I must say. The full page "promotion" of M. Obeidi's novel about the bomb in his garden was a bit over the edge in my opinion. It has been a while since even the stubborn U.S. administration has given up on that excuse for invading and occupying Iraq and accepting its falsehood. Not to mention that the most collaborative Iraqi spies have admitted using these stories as a sales pitch to promote the invasion.

Please understand the reason behind this message. I would like to preserve my image of CSM and continue to belong to it; but just because an alumnus wrote a book, it does not make it worth featuring, especially when it is not based on realities.

Perhaps I have no right to criticize or that everyone is entitled to their opinion; but if you follow the news about newly disclosed information that was not shared with the American people three years ago, you would understand my position.

Please keep up the good work and I look forward to my next issue of *Mines*.

Tariq A. Al-Omari
BSc CPR Eng '92

Editor's note: Mr. Obeidi believed that there were no weapons of mass destruction in Iraq by the time of the invasion.

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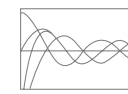
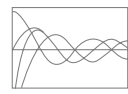
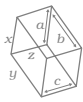
... and can provide for you and the School, for example:

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- You may realize estate-tax savings.
- With gifts of \$1,000 or more in value, you are recognized as a member of the CSM President's Council.

Undeveloped, revenue generating or environmentally sensitive land may be accepted by the CSMF Property Management Corp. The unique expertise and talents of the CSMF Property Management Corp. could help relieve you of the liability of property with environmental issues.

Gifts of property, stock or other capital assets can be used in making a charitable gift to your alma mater. As with any gift to the School, you will have the satisfaction of knowing that you are providing for future generations of students.

**FOR MORE INFORMATION,
CONTACT THE EXECUTIVE DIRECTOR, CSM FOUNDATION INC.
Linda M. Landrum at (303) 273-3142**



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Bioplastic is biodegradable

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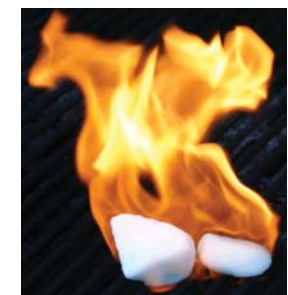
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About Our Cover: Hydrates are formed on the sea floor under high pressure and low temperature conditions. They may be part of our future energy solution.



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Field of Dreams: Corn-based plastics have reached the big leagues

By Aaron Ferster

Corn on the cob. Corn nibblets. Corn muffins. Corndogs. And now, corn containers. When the world's largest retailer recently announced it is switching from petroleum-based plastic containers to those made of corn for its cut fruit, herbs, strawberries, and Brussels sprouts, it signaled that this new generation of plastic had reached the big time.

The environmental benefits of the new containers are expected to be huge, saving the equivalent of 800,000 gallons of gasoline and eliminating more than 11 million pounds of emissions. In addition, the process of extracting the building blocks of plastic from crude oil involves some highly toxic compounds. Not so with corn.

The new plastic is also easier to trash. Because of its natural makeup, this "bioplastic" is biodegradable. It breaks down naturally and can even be composted. This is all good news for our landfills, where containers and packaging account for about one-third of municipal solid waste by weight.

Brewing Plastics

The idea of harvesting plastics from corn has been around for more than six decades, according to Dr. John Dorgan, a chemical engineering professor at Colorado School of Mines in Golden, Colo.

In the late 1990s, Dorgan and fellow CSM Professor Dan Knauss received a grant from the Technology for a Sustainable Environment (TSE) program. Part of the U.S. Environmental Protection Agency's (EPA) Science to Achieve Results (STAR) research program, TSE is a joint effort by the EPA and the National Science Foundation to support research and engineering projects in environmentally friendly "green" chemistry.

"EPA's support allowed me to populate the technical literature with data showing how corn-based plastics compare to petroleum-based plastics. This scientific, apples-to-

apples comparison enabled plastics users to replace petroleum-based materials with plant-based materials" Dorgan explains.

Dorgan and Knauss synthesized and studied research-grade PLA, or polylactic acids, which can be harvested from corn. PLAs have the high molecular weight and other physical characteristics needed to make plastics.

Turning corn into PLA is a multi-step process that starts with milling the kernels to remove starch and produce a natural sugar. Then, as in a brewery, that sugar is fermented into lactic acid (the same chemical that makes your muscles ache from overdoing it at the gym). Finally, molecules of lactic acid are linked together in long chains to form PLA.

The EPA-sponsored team focused on making PLA production more attractive to industry. They created and studied specially-synthesized, research grade PLA polymers, and worked to learn how to standardize production and quality control and quality assurance methods. Continuing under EPA support, the CSM researchers are now working to improve the properties of PLA using new advances in nanotechnology to make the first ever polymeric nanocomposites based on 100% renewable resources.

Living the Dream

As the technology advances, some big, exciting questions are on the horizon. Will "bio-refineries" begin to replace oil refineries? Will the Corn Belt of the future bring us as many raw materials for plastic and other products as we now get from imported oil? Now that corn-based plastics have moved into the marketplace, that future is clearly not just a pipe dream.

Reprinted with permission. Aaron Ferster is a science communications writer-editor for the U.S. Environmental Protection Agency.



Call for Nominations for 2007 CSMAA Awards

Do you know of someone who deserves special recognition for their work on behalf of the School and/or the Alumni Association? If so, please go to www.alumnifriends.mines.edu/forms/awards/awards.htm to submit your suggestions.

OUTSTANDING ALUMNUS AWARD

is given to an alumnus/a and CSMAA member who has contributed meritorious service on behalf of the Association.

HONORARY MEMBERSHIP AWARD

is given to a person who has rendered distinguished service to the Association and/or the School. The recipient must be of good moral character and in good standing professionally, but does not have to be a CSM graduate.

YOUNG ALUMNUS AWARD

is given to an alumnus/a who has received his or her degree in the past 15 years and who is no more than 40 years old. The criteria is based on service and potential to the School and Association.

MELVILLE F. COOLBAUGH AWARD

is given to a person who has made an outstanding contribution toward improving the image and enhancing the reputation of the School.

Save the Date!



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More information to come.
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to volunteer.

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Introducing the Neighboring Class Reunion!



Next May we welcome back to campus the Classes of 1932, 1937, 1942, 1947, 1952, 1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992, 1997 and 2002. And now the party is getting even bigger!

Because many of you straddle more than one class (started with one but finished with another), for the 45th through 5th year Reunion Classes, we're also inviting the neighboring classes on either side. Your Class Dinner will include the class below you and the one ahead of you, e.g., 1986, 1987, 1988. Reconnect with friends with whom you shared extracurricular activities!

We look forward to seeing alumni from the Classes above and also from 1961, 1963, 1966, 1968, 1971, 1973, 1976, 1978, 1981, 1983, 1986, 1988, 1991, 1993, 1996, 1998, 2001, 2003.

Mark your calendars for May 9-12, 2007!

Record Recruiting

With Steinhauer Field House filled to capacity and companies turned away due to lack of space, Fall Career Day, held in September, was the largest ever hosted at Mines. Representatives and recruiters from 160 organizations talked with students about full-time employment as well as internships. "There's a booming business in students seeking internships right now," says Ron Brummett, Career Center director. He noted that today's economic conditions, along with concerns surrounding the aging work force, contributed to this year's record participation, and he also credited the outstanding job-development efforts of the Career Center staff.



Fall Career Day

Mineral Gala

At September's annual Geology Museum open house, guests enjoyed the exhibits, refreshments and a silent auction offering more than 100 donated specimens. Of particular interest was the recently donated John Marshall tourmaline collection on display at the event.



Geology Museum

Celebration of Mines

More than 100 booths representing Mines' clubs, organizations, recreational and educational activities filled Kafadar Commons in September for Celebration of Mines. A barbecue, games and entertainment drew a large campus crowd for the annual back-to-school event.



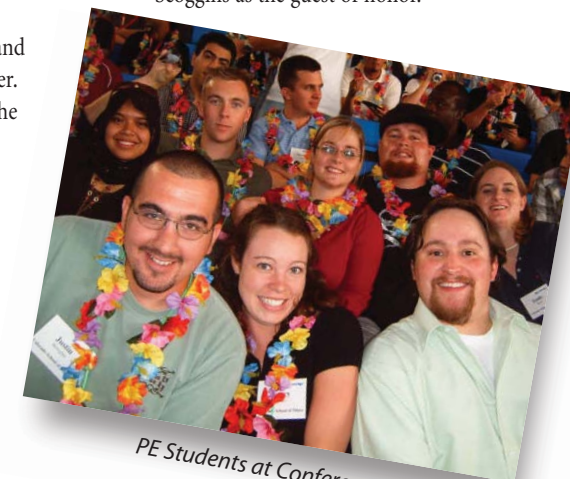
Back to School

SPE in San Antonio

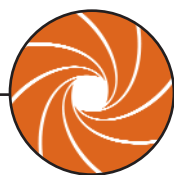
Mines' Petroleum Engineering Department sent all its faculty and 115 students, the most students from any university in the world, to the Society of Petroleum Engineers (SPE) 82nd Annual Technical Conference and Exhibition in September. Held in San Antonio, the conference drew 9,300 industry professionals from around the world.

Highlights included six paper presentations by Mines professors, a first-place finish

for Mines students in the annual Petrobowl competition among the world's leading petroleum engineering departments, and a Mines alumni reception for 200 people with President Bill Scoggins as the guest of honor.



PE Students at Conference



SHORT STAKES

New Faculty

Thirty-one new faculty members were introduced at the annual faculty conference August 21 by Nigel Middleton, executive vice

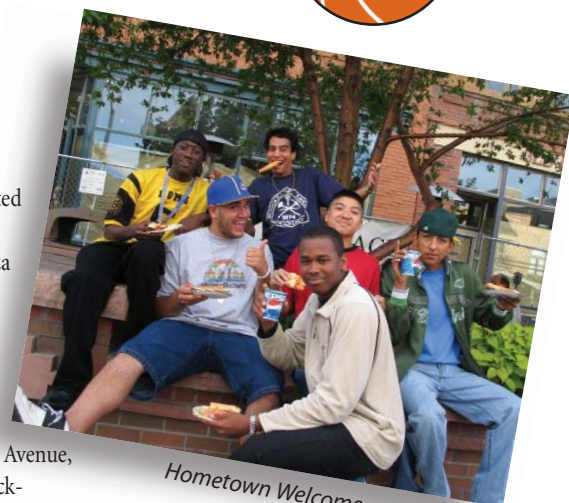
president for academic affairs and dean of faculty. Classes began August 22.



New Year, New Professors

Golden Pizza

The City of Golden hosted its annual Miners' Pizza Party in downtown Golden in August. Held on Washington Avenue, the event kick-started the new school year and honored Mines' students, faculty, staff and their families with free pizza, prizes and live music.



Hometown Welcome



Newspaper Staff

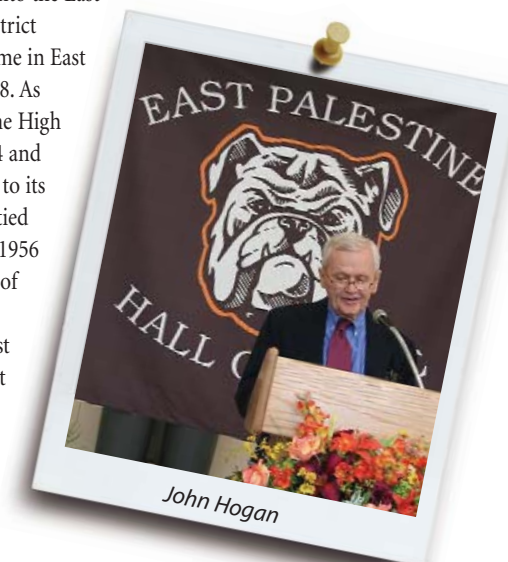
Oredigger

The *Oredigger* has published its first editions of the year and staff members are now in full journalistic swing. Go to www.oredigger.mines.edu to view the current issue, peruse the archives or subscribe. Also inquire at prospector@mines.edu about copies of past *Prospector* yearbooks.

Hogan in Hall of Fame

John Hogan, LAIS emeritus professor, was inducted into the East Palestine City School District Distinguished Hall of Fame in East Palestine, Ohio, on Sept. 8. As coach of the East Palestine High School Bulldogs, '52 - '54 and '56 - '58, he led the team to its first-ever undefeated, untied season championship in 1956 and to a five-year record of 38 wins and nine losses. "You don't talk about East Palestine football without mentioning the name John Hogan," said Jeff Richardson, the district's

superintendent of schools. Hogan was the Mines NCAA representative for 29 years.



John Hogan

FIJI Hosts Halloween Fun

Mines' chapter of Phi Gamma Delta (FIJI) and the Guild of the Children's Diabetes Foundation of Denver hosted their annual Halloween Party in the Green Center on October 29. Party guests included children with diabetes and their families who enjoyed showing off their adorable costumes, decorating pumpkins and trick-or-treating for diabetic-friendly Halloween candy.



photo by Christopher Peters

Mines Celebrates Homecoming

Students went prehistoric for Homecoming in October. Shouting "Yabba Dabba Mu," which was this year's theme, cavemen and women paraded down Washington Avenue on floats depicting barren lands

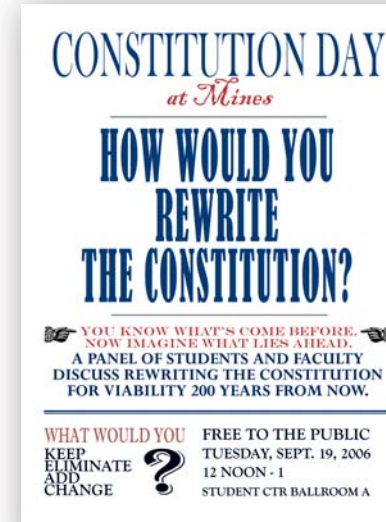


dotted with volcanoes and dinosaurs. Hundreds of alumni visited campus to enjoy the parade, barbecue, tailgating and the Orediggers' football game.



M-Climb a Splash

The mountainside "M" got whitewashed again Aug. 21 as 880 freshmen and transfer students hiked up Mt. Zion carrying rocks and returned wearing a fresh coat of white paint. Joining the crew passing buckets of paint up the mountain was Mines President Bill Scoggins. This year's total enrollment includes 3,209 undergraduates, 770 graduates and 77 non-degree students.



Constitution Day

At a September event recognizing Constitution Day, a student/faculty panel was assigned the question, "How would you rewrite the constitution for viability 200 years from now?" Changes that were considered included eliminating the Electoral College, increasing the number of senators, adding a three-member executive cabinet and reorganizing the format of the document.

SHORT STAKES

In the Field

The Energy and Minerals Field Institute (EMFI) held its annual government field program in August for selected federal and state government personnel. Kicking off in Golden and concluding in Farmington, N.M., the program introduced the 23 participants to the geologic, technical, economic, environmental, social, institutional and political aspects of energy production. Topics included renewable energy, natural gas production from tight gas sands and coal beds, conventional coal mining and power generation, oil shale research, Western water law, Native American issues and environmental impact on national parks. Since



Summer Field Sessions

Field sessions were a success in summer '06. Seventy-two petroleum engineering students once

again traveled to Massadona, Colo.; civil engineering students conducted land surveying using solar observations; and economics and business students made a choice between conducting their own study or joining a course that would challenge them to run a firm in a competitive environment.

1978, EMFI has conducted similar programs to familiarize selected audiences with the realities of resource development in the western U.S.

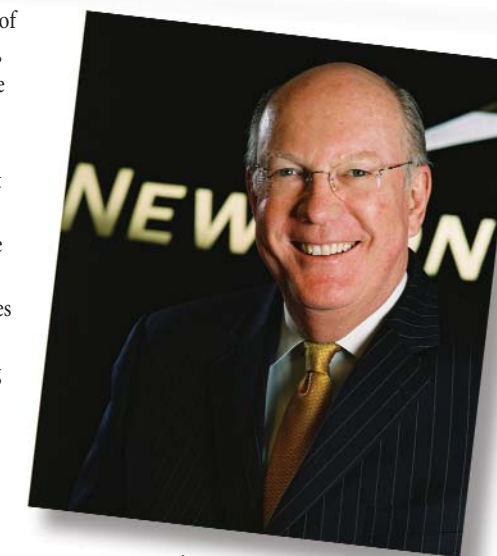


Civil Engineering Students



Newmont CEO

Wayne Murdy, chairman and CEO of the Newmont Mining Corporation, was the first speaker selected for the William H. Erickson Distinguished Lecture Series. In his presentation, "Leadership and Mining in the 21st Century," held at Mines Sept. 20, Murdy remarked on the state of the industry, described geopolitical, technical and recruitment challenges facing industry leaders, and addressed opportunities for mining engineering and earth sciences students.



Wayne Murdy

Golden Welcomes Dr. Scoggins

A community reception to introduce Dr. and Mrs. Bill Scoggins to Golden was held at the president's residence in September. Golden Mayor Chuck Baroch was among the many guests at the reception.



President and Mrs. Bill Scoggins and Emeritus President and Mrs. Ted Bickart.

NREL, Mines, CSU, CU in Renewable Energy 'Collaboratory'

By Marsha Williams

The School of Mines has entered into collaboration with the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), Colorado State University and the University of Colorado to study renewable energy. The collaboration, called the Colorado Renewable Energy Collaboratory, was made possible in part by the governor's office and the state legislature, which provided funding.

Mines President Bill Scoggins says, "I believe this is a great opportunity to enhance our leadership in the energy field. Mines has had a long collaboration with NREL in the field of solar photovoltaic energy and we are clearly world leaders. The collaboratory will help us build on our strengths."

"The Colorado fuel cell center here on campus will also have a significant impact on renewable energy research," he continues. "Currently, we have at least four research proposals under the collaboratory umbrella covering essentially all areas of renewable energy research. We look forward to making the most of this collaboration."

The Collaboratory will receive up to \$2 million per year for three years, beginning in fiscal year 2007. These monies can be used only as matching funds to enable the Collaboratory to qualify for federal and private research projects. NREL and the universities will pay for all overhead costs of the Collaboratory from their existing budgets. In addition, the legislation requires that, if the Collaboratory uses any state monies as matching funds, those monies must be repaid to the state as the Collaboratory earns income from technologies developed and transferred to private industry.

Renewable energy includes a broad range of current and potential energy sources, including solar and wind energy;

biofuels that can be produced from agricultural crops and forest products such as ethanol and biodiesel; geothermal energy from beneath the Earth's surface for heating and cooling; hydrogen fuel cells; and other emerging technologies. Federal, state and private investments in renewable energy research are increasing rapidly.

Although the formal establishment of the Collaboratory is still in process, NREL and the Universities have already joined forces to compete for a contract that will be issued by the U.S. Department of Energy for research on the utilization of solar energy.

The National Renewable Energy Laboratory is the Department of Energy's primary national laboratory for renewable energy research and development. Colorado School of Mines, Colorado State University and the University of Colorado all have strong research programs in renewable energy and energy efficiency. By working in collaboration, these four Colorado institutions will enhance the state's reputation as a renewable energy and energy efficiency leader.

The Collaboratory will emphasize the development of new technologies and the advancement of existing technologies for rapid transfer to private industry for commercial development. This research and technology transfer program will attract new renewable energy enterprises to Colorado, adding to the state's economic vitality.

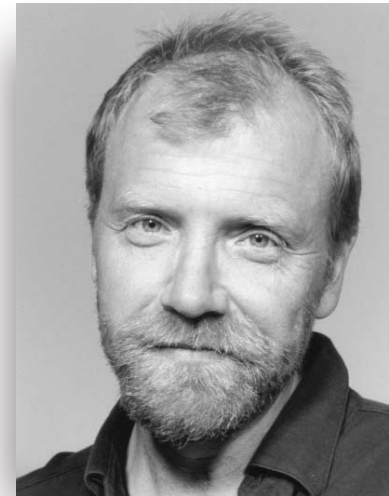


Alumni notes & quotes

Alumnus Named MacArthur Foundation Fellow

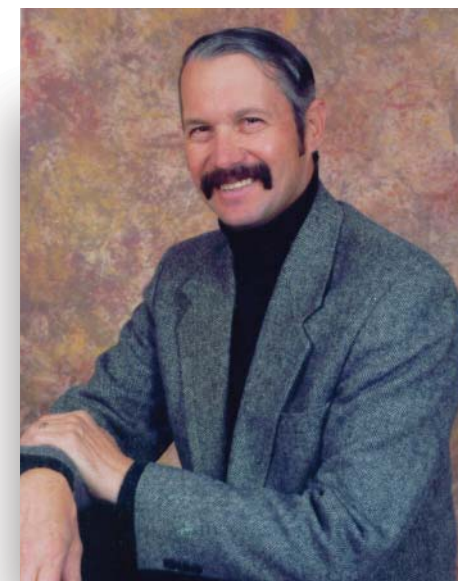
George Saunders BSc Geop '81 was one of 25 people awarded the prestigious 2006 John D. and Catherine T. MacArthur Foundation fellowship this year. Saunders, who was profiled in the summer 2001 issue of *Mines*, is a creative writing professor at Syracuse University in Syracuse, N.Y. He writes fanciful, surreal short stories and has published four books and a novella. His fiction has also appeared in *The New Yorker*, *Harper's* and *Esquire* magazines.

According to the Foundation's website, the \$500,000 no-strings-attached fellowships are "intended to encourage people of outstanding talent to pursue their own creative, intellectual and professional inclinations. There are three criteria for selection of fellows: exceptional creativity, promise for important future advances based on a track record of significant accomplishment, and potential for the fellowship to facilitate subsequent creative work."



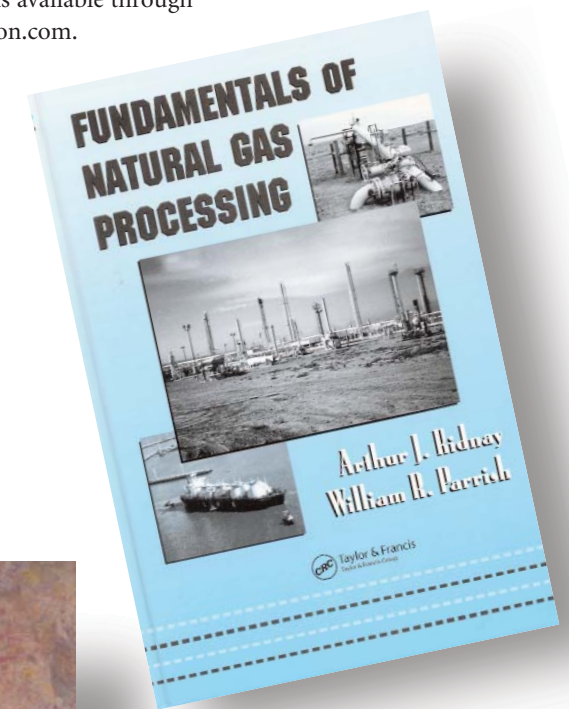
Kraemer '72 Named to Police Hall of Fame

Donn Kraemer BSc Min Eng '72, a senior agent with the Lakewood, Colo., Police Department, has been selected for his agency's hall of fame. Kraemer, who has been with the Lakewood Police Department since 1976, was honored for his expertise in firearms training. He serves as the LPD's lead instructor in law enforcement basic pistol and tactical shooting and was recently appointed by Governor Owens to the Colorado Peace Officers Standards and Training Board. He is also known for his widely televised appearance in the SWAT rescue of Patrick Ireland, the Columbine High School student in the library window, in April 1999.



New Book on Natural Gas Processing

Arthur Kidney PRE '56, DSc CPR Eng '68, professor emeritus of chemical engineering, along with Dr. William Parrish, has published *Fundamentals of Natural Gas Processing*. The book discusses the natural gas industry from the wellhead to the marketplace. Kidney was a research engineer with the National Institute of Standards and Technology for nine years before joining the CSM faculty in 1968. He served as department head for seven years and was dean of graduate studies and research for seven years. He has taught and conducted research in the fields of vapor-liquid equilibria, physical adsorption and heat transfer. The book is available through Amazon.com.



HYDRATES - AN ENERGY SOURCE FOR THE FUTURE?

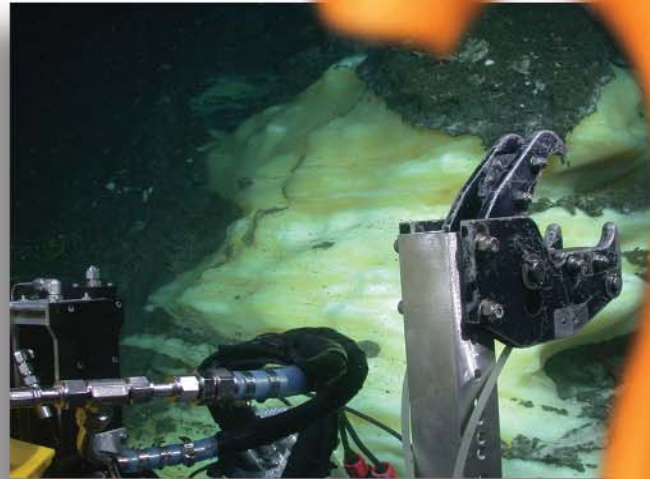
By Maureen Keller

The burning snowball on the cover of the magazine could be the source of our future energy needs. It is a hydrate formed on the sea floor under high pressure and low temperature conditions. Water molecules form a cage that traps natural gas molecules such as methane, ethane or propane inside. When brought up to the surface, the hydrate begins to melt, and the trapped gases are released. "It feels like ice but it fizzes and pops in your hand," says Simon Davies, one of the PhD candidates working on hydrates at Mines.

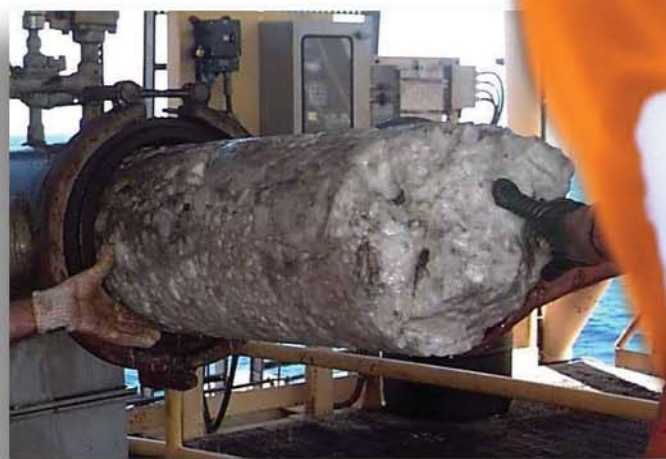
In the 1960s, naturally occurring hydrates were discovered beneath the permafrost of Siberia, and in the 1980s hydrates were also found on the ocean floor. PhD candidate **Keith Hester BSc Chem Eng '02** concentrates on those naturally occurring hydrates. These hydrates are of increasing interest due to their potential as a future energy resource and their role in seafloor stability and global climate change. On a recent trip to Barkley Canyon off the coast of Vancouver, Hester recovered samples of hydrates at a water depth of 850 meters. "In collaboration with the Monterey Bay Aquarium Research Institute (MBARI), we have been able to deploy Raman spectroscopy subsea to determine the geochemical composition in these hydrate mounds," Hester says. India has found hydrates in the Andaman Sea and is currently trying to recover these hydrates as a potential replacement for conventional fossil fuels.

Another potential use of these natural hydrates would be to sequester CO₂ while simultaneously recovering the natural gas. It might be possible to release the natural gas trapped inside the hydrates and use it for our energy needs by replacing it with the unwanted CO₂ from the burning of fossil fuels and maintain the CO₂ hydrate on the ocean floor.

Hydrates in nature store natural gas, but they can also be synthesized to store hydrogen, as featured in a recent article in *Science*. These hydrates, storing hydrogen, could serve as a potential fuel for mobile applications, explains Dr. Laura Rovetto, a post-doctorate fellow. In simple terms, she explains, "Hydrogen hydrate in a refrigerated compression chamber might someday replace the fuel tank in your car. When the hydrogen stored in the hydrate is



Hydrate mound several meters high at a water depth of 876 m in the Barkley Canyon



Pipeline blockage by hydrate formation. (Petrobras)

burned, it produces energy to run your car and instead of generating CO₂ (greenhouse gas), the only by-product will be water." **Tim Strobel BSc Chem '04**,

also a PhD candidate, is creating hydrogen hydrates in the lab at pressures about 4,000 times the pressure on the surface of the earth. Raman spectroscopy is being used to study these hydrates' characteristics and behavior. Hydrogen hydrates as a storage mechanism could enable our transition to a hydrogen economy.

In 1934, it was recognized that hydrates could form in oil and gas pipelines causing blockages that could result in major safety and economic problems. This led to the beginning of research into the formation of hydrates and the regulation of water in oil and gas lines. Simon Davies specializes in flow-assurance research and together with John Boxall, **David Greaves BSc Chem Eng '06**, Joe



Hydrate group

Nicholas and Patrick Rensing, are developing state-of-the-art models that can help engineers simulate hydrate formation and dissociation in pipelines. Although their work is part of an ongoing program, it is already being used by the industry, and has helped to save Chevron \$30 million in one project alone.

The work being done at Mines' Center for Hydrate Research is funded (more than \$1.3 million per year) by an industrial consortium of eight energy companies – BP, Chevron, ConocoPhillips, ExxonMobil, Haliburton, Petrobras, Schlumberger, and Shell – and government agencies such as the Department of Energy, the National Science Foundation and the National Undersea Research Program. The strengths and talents of students and researchers at the Center are outstanding. Many have won national awards and are the best in their fields.

Mines' Center for Hydrate Research, with Dendy Sloan as director and Carolyn Koh as co-director, is the largest such center in the western hemisphere with four professors, three post docs, eight PhD candidates, two master's candidates and four undergraduate students.

"Dendy's group is clearly a world leader in this area of great importance in the worlds of energy and environment," says John Poate, CSM's vice president of research. "These hydrates are fascinating materials requiring sophisticated analytical and modeling techniques to determine their properties."

As Sloan notes, "There is twice as much carbon stored in hydrates than in all the conventional fossil fuels in the world combined." Understanding hydrates could open the door to many applications and reduce our reliance on other fossil fuels.

"We have such high caliber people working here that the professors have to run to keep up," says Sloan. "Seeing them develop to their potential is one of the joys of teaching. It gives me hope and confidence in the future."

Whatley keeps learning long after Mines

By Shannon Sharkey

Mitch Whatley BSc Pet Eng '77 nearly forgot about his first semester at CSM. He was working at his father's drilling company when he realized he needed to be in Golden for the start of school in three days. Without a car and stuck in Utah's Lisbon Valley, Mitch's father, Leon, resolved to get his son off to college one way or another. Leon thought quickly and before Mitch knew it, he had hitched a ride with a mud engineer to the airport, was on a plane to Phoenix where he'd left his car, and finally was on the road to Golden. Before he left his dad behind, Mitch recalls, "We shook hands and that was that." Thus the beginning of higher education for Mitch, something he would make a life-long pursuit.

Choosing CSM over an Air Force Academy appointment and an Air Force ROTC scholarship to any university with the program, Mitch decided to study petroleum engineering, a family tradition. Mitch's father had established Whatley Drilling Company in 1952 and Mitch worked as a roughneck for his father during his summer vacations. "Having grown up in this environment, my decision to attend CSM and pursue petroleum engineering could not have been more natural," Mitch remembers.

Soon after graduation, Mitch began working as an associate drilling engineer for Marathon Oil Company in Louisiana. Eight years with Marathon had Mitch managing projects on land and sea, such as air drilling deep gas wells in Texas and deep-water exploration in the Gulf of Mexico. By the time Mitch turned 26, he had become the youngest district drilling engineer in the company's history. He was happy in his career at Marathon Oil. Yet a youthful interest and a ticking clock made him reexamine his goals.

Many years earlier as a junior in high school, Mitch began to seriously consider a job as an Air Force fighter pilot. His interest in the military sprouted from his respect for the principles the United States is founded on and his desire to protect those principles. Also, he says, he was confused by "the torrent of negative press the military received after Vietnam. I wondered whether the United States armed forces were as inept as the press made them out to be." These thoughts hounded Mitch as he inched closer to his 27th birthday; the Air Force does not accept pilot candidate applications after the age of 27 1/2.

As the age deadline approached, Mitch began meeting with Air Force recruiters and taking the necessary tests to be considered for a pilot slot. "I did not want to be 45 years old sitting in my office with any regrets about not pursuing my dreams. I knew I had to give it my best shot," Mitch recalls. His hard work was rewarded in 1982 with the realization of his dream: he became a fighter pilot for the Louisiana Air National Guard.

It was the beginning of 24 years, and counting, in the sky. Mitch's inaugural plane was the McDonnell-Douglas F-4 Phantom II and he soon learned that his unit had been selected to fly the F-15 Eagle. Ultimately, the opportunity to man the F-15 ended his career at Marathon Oil. Until this point, Mitch believed he could juggle both engineering and aviation. But the complexity of piloting the F-15 proved otherwise. He remembers deciding to give up engineering as the most difficult choice he has ever made. "That decision was driven solely by my immediate goal of mastering the F-15; I simply needed a more compatible profession to accomplish that goal." He found a more accommodating profession as a pilot in the commercial airline industry.

Whatley DRILLING CO.

... is a newcomer to the mining industry ... just under 20 years in operation in a field of numerous century-old companies. Yet this has proved to be an advantage for Whatley Drilling Company. To date, all challenges have been mastered ... even those that seemed at first impossible. Whatley Drilling Company has learned that there is no such word as "impossible" when it comes to mineral exploration or rotary and down-the-hole hammer drilling. Name the challenge — Whatley will take it.

LEON WHATLEY
In the field, in the shop or in the management conference room, Leon Whatley puts his 20-year experience conscientiously on the line. He learned about drilling the hard way ... starting in the plains country of Montana and moving back to the mountain area of his native Colorado. He had an early understanding of land as a youngster on a cattle ranch in southwestern Colorado and studied it further at Colorado State University. This knowledge was refined in the field as his drilling company was organized.

Today, in Tucson, Arizona, copper capital of the world, Whatley heads an organization of two dozen rugged individuals, ready to explore and drill anywhere ... from below sea level to the highest mountain ranges.

EVAN WHATLEY
Supervising Whatley jobs in northern Nevada, Utah and California is Evan Whatley, who maintains his residence in Yerington, Nevada. Evan Whatley has been drilling superintendent for over ten years.

J. A. (JIM) ROSE
Now with Whatley Drilling Company since early 1968, he has been associated with oil and gas drilling for nearly a decade in Colorado, Utah and Arizona. Prior to specializing in drilling, Rose was an engineer for a major mud company. He studied business administration at Osachia College, Arkansas, and lived in Grand Junction, Colorado, prior to moving to Tucson.

The entire service shop operation is under the joint direction of John Allen and Carl Robinson.

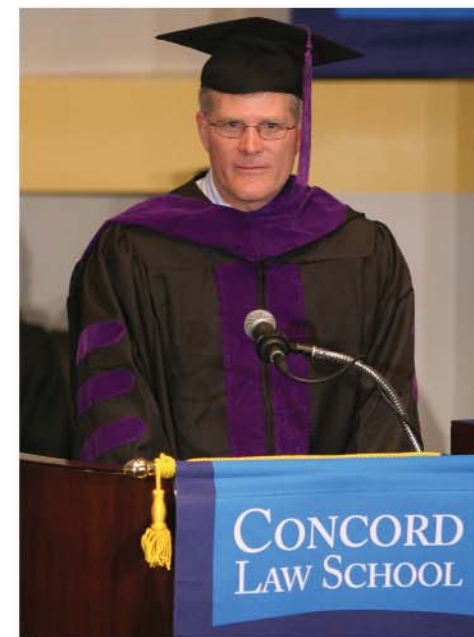


The switch to flying professionally and for the Air National Guard took Mitch to far-off destinations and offered thrilling and memorable experiences. He remained in the Guard until 1990 and still flies commercially. He is an international captain of a Boeing 737-800 with American Airlines based out of Dallas-Fort Worth International Airport. He usually stays in the western hemisphere, flying to Central America, the Caribbean, Mexico and northern countries in South America.

In 2001, amid countless hours in the sky, Mitch realized he still craved further educational advancement. Once again, Mitch was inspired by the origins of the American government and how it has evolved over time. He determined the best way to study this evolution was to attend law school. As a full-time airline pilot, Mitch needed to find a law school flexible enough to deal with his busy schedule. He found this in Concord Law School, the nation's first institution to offer a juris doctor degree online. He enrolled in January 2002. Despite the school's flexibility, acquiring a juris doctor was a daunting task. "For four years I studied every waking moment and read thousands of pages of law. I

carried books and flash cards everywhere I went. I studied on every layover." Hitting the books paid off. Mitch recently passed the California Bar Exam and, last July, participated in an induction ceremony that officially recognized him as an attorney. Eventually Mitch would like to practice patent law, which taps the engineer in him. During a semester's exposure of patent law at Concord, he discovered, "the technical knowledge and engineering background required for patent law fit squarely within my areas of expertise and interest." Mitch explains that "a hard science or engineering degree is required to sit for the patent bar exam, so my Mines education will serve a purpose I did not foresee when I graduated."

From petroleum engineering to military and commercial aviation to patent law, Mitch Whatley has never stopped exercising his mind. He states, "As with many engineers, I have always been enamored with the question, 'Why?' For me, seeking the answer to that question cuts across many disciplines." It will be interesting to learn which discipline Mitch will explore next.

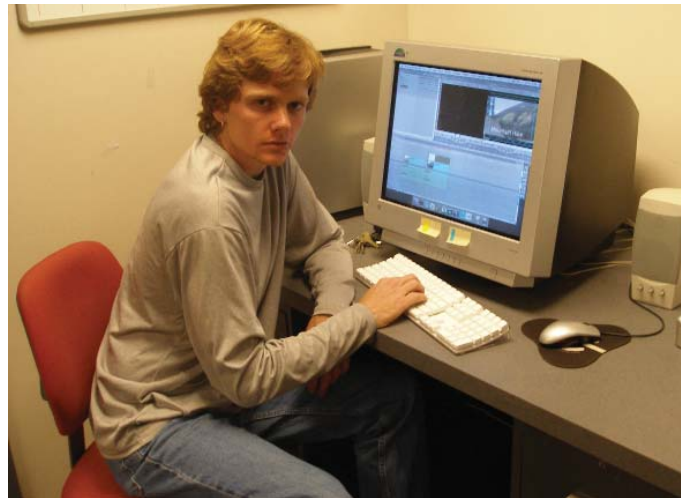


Shannon Sharkey, a recent graduate of the University of Colorado, is an intern for Mines magazine.

A DVD is Worth 1,000 Words

By Hilary Brown

Ever thought about being in the movies or experiencing your 15 minutes of fame? Well the opportunity has come to Mines students. The *Prospector* is being resurrected and will make its debut next spring, this time as a DVD. For the first time since 2001, the *Prospector* is back in action with a new staff and a new look. But rather than creating the traditional print version of the yearbook, the staff has decided to create an electronic version.



Ian Storz, a junior majoring in electrical engineering and economics, and Andrea Romine (not pictured), a senior in metallurgical and materials engineering, head up the efforts to produce a DVD yearbook this year.

The DVD format was chosen because of its appeal to Mines students and its low cost, according to Jenifer Doane, assistant director of student activities. Each DVD will cost \$8.

The DVD will be split into sections including sports, clubs, campus life and special events, but it won't include headshots. When the DVD is played, it will open to a menu page. Viewers can select which section to watch or choose to play the entire DVD as a seamless movie.

Each section of the DVD will comprise several different features. The sports section, for example, will showcase varsity and club athletics. Different features stories could describe the football team, the women's soccer team or the volleyball team. A feature, about three minutes in length, will tell a story by incorporating video, photos and interviews. "With the old yearbooks you saw pictures. But with the DVD you can actually experience it," said yearbook staff member Sarah Casias, a senior in economics.

Prospector staff members volunteer between two and 20 hours per week to get the job done. To create the yearbook, students are using a Sony MiniCam and Apple iMac purchased with money from CSM's technology fee revenues. Video Yearbooks of the Rockies will help produce the yearbook and conduct the mastering of the video. Students will record footage for most segments. Professionals will film major events like E-Days and Homecoming. Most of the editing and mixing will be done by students. Advisers will oversee the compiling, authoring and printing of the DVD. "This is a growing year," says Doane. "The students are learning as they go."

Reprinted with permission from *The Oredigger*. Brown is the newspaper's features editor.

A Whole New Ball Game at Darden Field

By Erica Siemers

During his 38-year career at Colorado School of Mines, baseball and basketball coach Jim Darden made a broad and lasting impact on the student-athletes whose lives he touched. To honor his legendary contributions to the Mines community, Mines' baseball field was dedicated as Jim Darden Field in a ceremony held on October 21. Featuring new lights, a new press box, perimeter fencing, a backstop, an irrigation and drainage system, and restored flagstone seating, Darden Field is a fitting tribute to a coach who devoted his career to turning his players into hard-working engineers with outstanding character.

Three former players and friends of Coach Darden, Rob McKee PE '68, Steve Chesebro' PE '64, and Bob Irelan PE '68, have stepped up to the plate along with Jim's widow, Genny, to fund a sizeable part of the cost of renovating Mines' baseball facilities. Together, this group has contributed \$500,000, leaving an additional \$150,000 to be raised to complete the project.

"Mines' primary purpose, of course, is to develop graduates with expertise in science and engineering," said Chesebro', describing why he chose to give to Darden Field. He continued, "However, extracurricular activities like varsity athletics develop an individual's sense of teamwork and commitment, which are also tremendously important attributes for building a successful career."

McKee and Irelan agree that playing varsity baseball for Jim Darden was a central part of their outstanding college experiences, providing them with a great outlet for physical activity to balance Mines' academic rigor. Darden expected the same work ethic and level of commitment from his players as he expected of his own teammates when he played professionally for the original Denver Nuggets in the 1940s. "Work hard and give your best effort. Give it all you got and never give up. These are the life lessons Darden instilled in his athletes," said Irelan.

Beyond the pure thrill of playing ball under the lights, the ability to play night games will eliminate conflicts with students' class schedules. Home double-headers have typically started at 2 p.m. to allow for sufficient daylight, causing student-athletes to miss afternoon classes. As another major benefit, the new perimeter fencing will conform better to current standards for playing collegiate baseball.



From left: Vice President of Student Life Harold Chevront, Gwen Irelan, Steve Chesebro', Rob McKee, Warren Irelan, Genny Darden, President Bill Scoggins, Matt Thome, Joel D'Cristina, John Naccarato, and Director of Student Life Bob Francisco

"The improvements to the baseball field are part of a campus-wide commitment to provide our students with the highest-quality facilities for both academics and athletics," remarked Mines' athletic director Tom Spicer. He continued, "The generosity of Colorado School of Mines alumni never fails to impress me, and I encourage others to follow Rob, Steve and Bob's lead in supporting this project in honor of Jim Darden, a legend in Mines athletics."

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Engineering Leadership – Problem Definition and Solution

By Dr. Juan Lucena and Dr. Gary Downey

Quality engineering education can best be described as producing professionals who possess core competencies in engineering problem solving as well as in engineering problem definition. Efforts to call attention to the issues of globalization and diversity are important because the challenges these pose to engineering education overlap with one another as well as with a more fundamental challenge now facing the profession as a whole – the prospect of a decline in status and loss of opportunity for societal leadership. Thus, from the point of view of existing structures of engineering education, globalization, diversity and leadership are variations of the same problem. All require engineers to work effectively with people who *define* problems differently than they do.

Engineers around the world have long measured their contributions to society primarily through technological outcomes and have defined quality education as technical preparation for technological innovation. Being labeled a “problem solver” is a distinctive strength of engineers. This identity remains at the heart of challenging proposals and models for engineers in the future. *The Engineer of 2020* report issued by the U.S. National Academy of Engineering asserts that technology is the outcome of engineering. It explains that engineering “has been a key force in the improvement of our economic well being, health and quality of life through its role in the creation and implementation of technology.”

Crucial to this image is the idea that engineers *respond* to calls from society as technical problem solvers, much as a consultant responds to clients. The report includes numerous examples of engineers being *asked* or *called* or *needed* to take some particular action to help society, prevent catastrophe, and so on. As historian Ken Alder put it in an analysis of the origins of French engineering, engineers are problem solvers who are “designed to serve.”

Advocates for engineers have long celebrated the identity of technical problem solvers, claiming that service through technical problem solving defines pathways to societal leadership.

However, might contemporary challenges to the engineering profession actually be undermining its chances for societal leadership by emphasizing competencies that extend beyond technical problem solving? Might the still-dominant focus on technical problem solving be limiting the ability of the engineering profession to adapt to a changing world?

In today’s world of globalization, diversity and leadership, engineers are challenged to work effectively with people who define problems differently than they do. This challenge is not new. The work of problem definition in collaboration with others has always been an important component of quality engineering practice. But engineering educators have been able to deemphasize or ignore

teaching problem definition because engineers have not had competition for their claim to being creative sources of technological innovation. While problem solving is seen as wholly technical, problem definition is seen as wholly non-technical, so problem solving has a core position in engineering education, mainly in the engineering sciences, while problem definition remains peripheral at best. To fully address the issue of globalization and diversity, engineering students need to learn both.

Over the past decade, reform in engineering education has addressed some of these world changes by making it clear to students that they can solve engineering problems in more than one way. Key efforts have involved increasing the amount of design content in the curriculum, shifting from “design-to-specification” to more open-ended problem solving, and increasing attachments to industry.

Since engineering problems do not solve themselves, once the role of people in the problem-solving situation is made apparent, the process takes on non-technical as well as technical dimensions. Since problem definition begins before problem solving, collaboration among people who define problems differently occurs before the technical work begins and involves more than the identification of requirements and constraints. However, the technical five-step engineering method (Given, Find, Diagram, Equations, Solution) still taught in most engineering science courses includes no mechanism for addressing non-technical problem definition with people who think differently.

Because of globalization, the freedom that has enabled engineers to construe technological service to society as leadership is now eroding. Other fields and professions are laying claim to technological development as a significant component of their work. As a result, an engineering profession that defines its core as consisting only of technical problem solving faces the real risk of declining into technical support.

This is happening because other fields of science have turned toward technology. For example, the numbers of patents awarded to universities have increased from 250-350 patents per year in the 1970s to more than 3,200 in 2001. This growth was centered not in engineering but primarily in the life sciences and biotechnology. Also, the U.S. National Science Foundation stopped designating applied science as a separate funding category in the 1980s and introduced the Science and Technology Centers in 1987 to “respond to rising global competition.” By the 1990s, it had rewritten program descriptions to include technological developments as desirable outcomes and recently added the requirement that project summaries demonstrate not only “intellectual merit” but also “broader impacts.” Scientists applying for federal funding now have to prove the usefulness of research to society. Finally, the shift of emphasis from the physical sciences to the life sciences and information technology has reduced the time delay between



the creation of new scientific knowledge and its appearance in technology.

Another challenge to the claim of technological leadership for engineers is the mass production of engineers in such countries as Egypt, India, the Philippines and China. These countries are effectively producing engineers as technical support personnel who work for low salaries in support positions.

A third challenge is the explosive growth in information technology certifications awarded to students who complete a single test. Easy use of the term “engineer” in such titles as Novell’s Certified Engineer illustrates the potential risk of devaluation associated with defining the engineering profession purely as technical problem solving for clients.

A final challenge comes from the emergent emphasis on teamwork in industry. Such teamwork increasingly puts engineers at the table sharing responsibility for creating new technologies with non-engineers. While engineers remain essential because they possess needed technical knowledge, limiting themselves to technical problem solving risks their erosion into technical support for these interdisciplinary teams.

In the context of these challenges, it is time to rethink the characteristics of effective societal leadership. Most efforts to inspire engineers to become leaders emphasize creative problem solving and construe leadership in terms of technical innovativeness and organizational entrepreneurship. While such efforts are laudable, the bulk of engineers will be working within organizations rather than leading them. The problem of leadership for engineers is one of leading stakeholders of all sorts and at all levels, including both engineers and non-engineers, in routine processes of technological decision making.

There are several ways to meet this new challenge. Courses could be designed to explain not only what they are intended to teach, but also what they are not. Another technique might be to ask students not only to solve problem sets but also to classify them. Another strategy would be to establish separate technical electives on problem definition with cases that focus on examples of disagreement and conflict both among engineers and non-engineers. Or, engineering education could be restructured along tracks where each track prepares the student for a specific career path. For example, the currently dominant model could be repositioned as an engineering science track that would prepare students for research positions or graduate school. An engineering design track would prepare engineers specifically for careers in design. An engineering and management track would prepare

engineers for problem definition work in private industry, including understanding and anticipating how other managers think and work. An engineering and society track would prepare students especially for work in government or in non-profit sectors as well as for mediating positions in all sectors.

While international enrollments, projects, work placements and field trips are valuable methods for enabling students to take steps toward competency in working with diverse populations, participation in these methods is limited to 5 to 6 percent of U.S. engineering students. In Europe, participation is barely 2 percent. Therefore, the work of informing students about ways of thinking about engineering in other countries and preparing them to work effectively with people who define problems differently must be taught at home. We have taken a step in this direction by developing and offering a course titled *Engineering Cultures* with the goal of teaching students to acquire the knowledge, skills and predisposition to understand, analyze and value perspectives in problem definition other than their own. This course includes modules on engineers in Brazil, Britain, Colombia, Egypt, France, Germany, Japan, Mexico, Russia, and the U.S. This course is available in classroom format at CSM and Virginia Tech, and online at www.cpe.vt.edu/engcultures/.

Strategies at any level that integrate problem definition into engineering education would help call attention to the practice of technical mediation as an integral dimension of leadership in engineering work. It would make visible and legitimize the human and organizational dimensions of problem definition alongside technical problem solving. Such moves could help engineering as a profession respond to threatened loss of control over technology, and also enable engineering education to better prepare students for what has always counted as quality work by the best engineers.

This article has been adapted from a Distinguished Lecture given at the 2006 American Society for Engineering Education Annual Conference in Chicago, June 2006. A complete version of this lecture can be viewed online at www.asee.org/conferences/annual/2006/2006Highlights.cfm.

Juan Lucena (jlucena@mines.edu) is associate professor in the Division of Liberal Arts and International Studies. Dr. Gary Downey (downeyg@vt.edu) is professor of Science and Technology Studies at Virginia Tech. They are 2005-2006 Boeing Senior Fellows in Engineering Education at the U.S. National Academy of Engineering.

Bob Weimer: Legendary Geoscientist and Lifelong Educator

“What greater joy can one have than to know that your work has had an impact on people’s lives?”

Dr. Robert J. Weimer, Professor Emeritus, Colorado School of Mines

Over the past 50 years, Bob Weimer has cultivated the kind of joy that comes from creating new knowledge and helping others. An internationally respected authority on stratigraphy and sedimentary geology, his work as a professional geologist has made major contributions to the growth of the field and its application to oil and gas exploration. More significantly, he has influenced thousands of students as an esteemed teacher and treasured mentor. Bob continues his tireless service to the School as emeritus professor, contributing to the Reservoir Characterization Project and various advisory committees, and leading tours on the Mines Geology Trail, which he personally designed and funded. Bob and his wife, Ruth, also sustain a remarkable philanthropic commitment to Mines, having donated every year since making their first gift in 1966. From 1979 to 1983, Bob was chairman of the Faculty Gift Committee for the *Resource Fund*, Mines’ first capital campaign.

Geologist, Teacher and Mentor

From a young age, Bob was attracted to the teaching profession: “In the small eastern Wyoming town where I was raised, teachers were leaders to all of us, the people we most wanted to emulate—role models in present lingo. They gave us a view of the outside world through books and by the example of their own lives that was a window to the future.”

Bob’s own future would take a focus on the Earth’s past, with his chosen pursuit of a career in geoscience. He earned his B.A. and M.A. in geology from the University of Wyoming and a Ph.D. in geology from Stanford University. Bob and his wife, Ruth, later moved to the Denver area, where Bob worked as a consultant. When he was offered a position in 1957 in Mines’ Department of Geology and Geophysical Engineering, Bob was thrilled to be able to fulfill his lifelong aspiration to teach.

As he developed his expertise in petroleum geology and the Upper Cretaceous stratigraphy of the Western U.S., Bob earned a reputation in the geology field for his broad, visionary work. Not only was he an outstanding researcher and valuable mentor to his undergraduate and graduate students, his workshops for industry professionals also helped establish Mines’ continuing education program, now known as Special Programs and Continuing Education (SPACE).

“The number of times Bob Weimer is cited is unbelievable,” says **Steve Sonnenberg PhD Geol ’81** when asked to describe his former professor’s influence on the geology profession. “His work continues as the guiding light for stratigraphy and sedimentation in the Rocky Mountain region.”

The extent of Bob’s work has been recognized with awards from numerous international professional organizations including the 1996 Distinguished Educator Award from the American Association of Petroleum Geologists and the 2006 Legendary Geoscientist Award from the American Geological Institute. In addition, he is included among the nation’s elite scientists as a member of the National Academy of Engineering.

The School has awarded Weimer the Mines Medal (1983), the Brown Medal (1990) and the Coolbaugh Memorial Award (1995). He was also recognized as an Honorary Member of the Colorado School of Mines Alumni Association, an honor reserved for a select few faculty members.

When asked to reflect on his most important honor, Bob Weimer responds in a way that his former students might predict: “I have been privileged that my career achievements have been recognized by the many geological societies I have worked with. However, being an educator first and foremost, I think when my former

students organized WeimerFest, that was the ultimate honor.”

Organized in 2004 by Steve Sonnenberg and **Jim Emme MSc Geol ’81**, WeimerFest brought together nearly 200 of Dr. Weimer’s former students to celebrate the career of the venerable teacher. The three-day event featured sessions on geoscience topics presented by a spectrum of earth scientists who had been privileged to study with Bob. WeimerFest also provided a forum for former students to tell stories about the positive influence Dr. Weimer has had on their lives.

Jim Weber MSc Geol ’71 remarks that even though Dr. Weimer is a world-renowned leader in his field, “He was never intimidating and encouraged his students to engage in a cooperative scientific effort toward learning the truth” when faced with a problem. Weber also reflects on Bob’s talent for connecting with a wide variety of people, from college freshmen to CEOs: “When you’re talking with Bob, he makes you feel that you are the most important person to him at that moment. You can have a real dialogue, which is rare today.”

Former Colorado School of Mines Trustee **Don Henderson Geol E ’61, MSc Geol ’63** gives Bob Weimer much credit for the training that resulted in his contributions in the industry and at Mines. “Bob and other great professors at Mines gave me the basic skills and confidence so that I had no doubt that I could explore for and find commercial quantities of minerals anywhere in the world.”

Bob makes a point of noting that his lifetime achievements have been made possible by significant behind-the-scenes support from Ruth, “the silent second worker.” When Mines hired him, he says, “They got two for the price of one.” The couple met as undergraduates at the University of Wyoming, where she majored in journalism. They were married while

By Erica Siemers

each worked on their master’s degree at UW. At Mines, Ruth joined the Faculty Women Club and served as its president in 1971. She also hosted many student dinners at their home, helping to make Bob’s students feel like a valued part of their family.

A Philanthropic Commitment to Mines

While acknowledging that committed teachers and engaged students are the most essential elements of a rewarding education, the Weimers also understand first-hand the impact of financial resources in sustaining a vibrant community of learning.

The couple established the Loren Weimer Memorial Scholarship as a memorial to a son who lost his life in a climbing accident in 1971. The scholarship is designated for graduates of Golden High School who attend Mines. According to Bob, “It is important for Mines to have a strong relationship with the high school in its own community and to actively encourage local students to pursue engineering and science. This scholarship program is one effective way to accomplish that.” Through investment income and additional contributions from the Weimers over many years, the scholarship has grown from a one-year award to a four-year award, covering half the cost of tuition.

Their other three sons are graduates of Golden High. As a natural resource engineer, Tom is an assistant secretary for the U.S. Department of Interior; Paul occupies the Bruce D. Benson Chair in Petroleum Geology at the University of Colorado; and Carl is a physicist and technical manager for Ball Aerospace in Boulder.

Bob and Ruth have also extended their generosity to the Department of Geology. The Robert and Ruth Weimer Fund for



Sedimentary Geology helps to cover staffing expenses associated with the management of the Core Laboratory and provides scholarships. The Core Laboratory supports both graduate and undergraduate instruction in petroleum geology, subsurface sedimentary geology, petroleum geophysics and petroleum engineering.

Most recently, Bob and Ruth donated a parcel of real estate with a value of \$520,000 to the CSM Foundation. Eighty percent of the gift established a charitable remainder trust and the other 20 percent was given to the Loren Weimer Memorial Scholarship and the Weimer Fund for Sedimentary Geology.

“From several points of view,” noted Dr. Weimer, “creating a charitable remainder trust through the sale of this piece of real estate, which was a non-producing asset, made perfect sense for us at this point in time.” A charitable remainder trust distributes income to a donor or other beneficiaries for life or for a specified term of years, with the balance of the assets released to charity upon termination of the trust.

In October, the Weimers were inducted into the Silver level of the Mines Century Society in recognition of their extraordinary philanthropic leadership. Their dedication and close association with the School, says Mines President Bill Scoggins, “demonstrates deep confidence in the future of Colorado School of Mines. We are especially proud to count Bob and Ruth Weimer among the School’s most generous and loyal supporters.”

“Ruth and I have chosen to support Mines, not only with our time and energy, but also with our philanthropic support,” explains Bob, “because, in the end, if you’re going to be an educator, it’s all about the students.”

Dr. Robert J. Weimer Selected Accomplishments

- National Academy of Engineering Member, 1992
- Fulbright Lecturer, University of Adelaide, Australia, 1967
- Twenhofel Medal, Society for Sedimentary Geology (SEPM), 1995
- Sidney Powers Medal, American Association of Petroleum Geologists, (AAPG), 1983
- International Distinguished Lecturer, AAPG and Society of Petroleum Geologists (SEG)
- Hall of Fame, Independent Petroleum Association of Mountain States (IPAMS)
- Legend of the Rockies Award, Rocky Mountain Association of Geologists (RMAG)
- Ben H. Parker Medal, American Institute of Professional Geologists
- Honorary Member, AAPG and SEPM
- Honorary Member, RMAG and Colorado Scientific Society
- Hollis D. Hedberg Award in Energy, Institute for the Study of Earth and Man at Southern Methodist University, 2001
- Sloss Award, Geological Society of America, 2003
- Honorary Member, Canadian Society of Petroleum Geologists, 2004
- Carla Coleman Conservation Award from CCLC, in recognition of outstanding contributions to land preservation in Clear Creek Canyon near Golden, 2005; President, Northwoodside Foundation
- Legendary Geoscientist Award, American Geological Institute, 2006

CSM Athletics Inducts 11th Annual Hall of Fame Class

The Colorado School of Mines Department of Athletics inducted its 11th Annual Hall of Fame class Sept. 15 at a dinner and banquet in the Ben Parker Student Center. The group was recognized at halftime the following day at the CSM football game. Following are the inductees of the 11th Athletics Hall of Fame class.

Anne (Ralph) Bevington

Anne (Ralph) Bevington BSc CPR Eng '91 lettered in women's basketball from 1987-91 and was a three-time all-conference honoree. She led the RMAC in scoring (16.6 ppg) in 1987-88 and that total ranks as the fourth highest in a single season at CSM. Her career average of 14.2 points per game ranks third all-time at CSM and her 8.5 rebounds per game is fourth all-time in a career at CSM. During the 1987-88 season, Bevington dished out 95 assists which ranks fifth on the CSM single season list.



Mike and Cathy Carr

Mike PE '57 and Cathy Carr were inducted as Outstanding Supporters of CSM Athletics. The couple established the Michael E. Carr Scholarship Endowment in 1983, which has helped the football program grow to contend in the RMAC and win the 2004 RMAC title and a berth in the 2004 NCAA Division II national playoffs. Mike

was a three-year letterman in football and graduated in 1957 with a degree in petroleum engineering. He was a member of the M-Club, Intramural Club Sports and Kappa Sigma. Mike and Cathy are active members of the Community Hospital Health Foundation in Oklahoma.

Scott Goodale

Scott Goodale BSc CPR Eng '96 is one of the most decorated grapplers in CSM history. He is a three-time All-American and earned Academic All-American honors in 1996. In 1994, Goodale placed seventh at the NCAA Division II National Championships. He followed that with a fourth place showing the next year before winning the



Scott accepts his Hall of Fame plaque with Athletics Director Tom Spicer and Associate AD and former wrestling coach Dan Lewis

national title at 118 pounds in 1996. His national championship helped CSM to a seventh-place finish in the team standings. A team captain in 1995 and 1996, Goodale was the RMAC and West Regional Champion in 1996.



The 1980-81 Men's Basketball Team

The 1980-81 men's basketball team, led by the late CSM Hall of Fame Coach Jim Darden and Bob Pearson PE '59, posted the best record in School history at 21-6. The squad advanced to the NAIA District 7 Tournament and went 2-1 with wins over Fort Lewis and Denver University. The team lost to Western New Mexico in the District Championship game, but had defeated WNMU two times during the regular season. In addition, Darden led the team to a win over Division I Northern Arizona, 79-77, in Flagstaff, Ariz., on Dec. 8. Bert Fleck BSc Met Eng '82, MSc Met Eng '84 and Tim Hermann BSc Geol Eng '82 both averaged more than 18.0 ppg, while Jeff Rhoades averaged more than 11 rebounds per game. The three were named to the All-RMAC Team, while Fleck and Rhoades were named to the NAIA District 7 All-Star Team.



Russ Truby

Russ Truby BSc Pet Eng '79 earned four letters as a defensive tackle on the football team from 1971-73 and 1975-76. During his senior season, Truby earned NAIA First Team All-RMAC, All-District VII and All-American accolades. In 1975 and 1976, Truby served as team captain and was named Outstanding Team Defensive Player. He was the Team MVP as a senior and was also named the Most Outstanding Freshman.

Russ listens as his father, Les '48, presents him as a member of the CSM Hall of Fame.

By Greg Murphy, Sports Information Director
Photos by Joel Bach

Fall Sports Updates

FOOTBALL: The Orediggers are 1-3 overall and 0-2 in conference play through four games of the 2006 season. The team opened with a loss at nationally ranked Washburn before knocking off Fort Hays State in the home opener. CSM then dropped games to Adams State and Chadron State. Junior Derek Dykstra has caught 28 passes for 309 yards and two touchdowns, while senior Bryan Florendo has 301 total yards from scrimmage. Junior Marin Richardson has posted 23 tackles, including a team-best 3.5 sacks.

VOLLEYBALL: The Oredigger volleyball team stands at 8-8 overall and 4-3 in the RMAC. CSM was 3-5, but rebounded to win five of its next eight to get back to .500. Included in that win total was a 3-2 triumph at 22nd-ranked Nebraska-Kearney. It marked the first win over UNK in program history (1-26). Junior Ashley Pagel has posted 636 assists, 99 kills and 207 digs to lead the squad. Senior Amanda Rebol has recorded 175 kills, 182 digs and 83 blocks, while freshman Kaity Edmiston, the Preseason RMAC Freshman of the Year, has tallied 145 kills.

MEN'S SOCCER: The men's soccer squad stands at 7-3-1 overall and in second place in the RMAC at 5-2. After opening the season with a loss to Northeastern Oklahoma and a tie with SIU-Edwardsville, the Orediggers have gone on to win seven of nine matches. One of the losses came at the hands of the defending Division II National Champion, Fort Lewis (1-0). Junior Craig Thompson is tops on the team with 16 points and seven goals. Junior defender Brian Law has tallied 13 points on six goals and one assist, while senior goalkeeper Kevin Galloway has recorded three shutouts.

WOMEN'S SOCCER: The CSM women's soccer team is in its second season of play and first in the Rocky Mountain Athletic Conference. The team is 4-4-3 overall and 1-3-2 in conference play. The team is currently in sixth place out of nine teams. Freshman forward Kayla Mitchell leads the team with 10 goals, three assists and 23 points, while sophomore Mikayla Buenger has recorded 10 points on four goals and two assists.

CROSS COUNTRY: Both the men's and women's teams have gotten off to outstanding starts. The men's squad is ranked sixth in the country and won the Woody Greeno Invitational in Lincoln, Neb., on Sept. 16. The team defeated 27 other schools, including several Division I teams. Senior Joel Hamilton won the overall event, while senior Greg Reindl was third. The Orediggers also had three others in the top 12. The women's team began the season ranked 17th in the country and placed 12th at the event in Lincoln. Seniors Serena Gardiner and Melanie Peddle led the women's squad.

The sport summaries are for games concluded through Sept. 25. For complete results, standings, statistics, schedules and rosters, please visit the Colorado School of Mines athletics website at <http://athletics.mines.edu>

Winter Sports Schedules

MEN'S BASKETBALL		
Nov. 17	Northwest Nazarene	8 p.m.
Nov. 18	Caldwell College	8 p.m.
Dec. 1	S.D. Tech	7 p.m.
Dec. 15	N.M. Highlands*	8 p.m.
Dec. 16	Western N.M.*	8 p.m.
Dec. 30	St. Francis	6 p.m.
Jan. 12	CSU-Pueblo*	8 p.m.
Jan. 13	Adams State*	8 p.m.
Jan. 23	Johnson & Wales	7 p.m.
Jan. 26	Chadron State*	8 p.m.
Jan. 27	Nebraska-Kearney*	8 p.m.
Feb. 2	UC-Colorado Springs*	8 p.m.
Feb. 3	Regis*	8 p.m.
Feb. 23	Colorado Christian*	8 p.m.
Feb. 24	Metro State*	8 p.m.

WOMEN'S BASKETBALL		
Nov. 22	South Dakota	6 p.m.
Dec. 9	Colorado College	6 p.m.
Dec. 15	N.M. Highlands*	6 p.m.
Dec. 16	Western N.M.*	6 p.m.
Dec. 29	Biola	4 p.m.
Dec. 30	Kansas Wesleyan	4 p.m.
Jan. 12	CSU-Pueblo*	6 p.m.
Jan. 13	Adams State*	6 p.m.
Jan. 26	Chadron State*	6 p.m.
Jan. 27	Nebraska-Kearney*	6 p.m.
Feb. 2	UC-Colorado Springs*	6 p.m.
Feb. 3	Regis*	6 p.m.
Feb. 23	Colorado Christian*	6 p.m.
Feb. 24	Metro State*	6 p.m.

WRESTLING		
Nov. 18	Jack Hancock Invitational	9 a.m.
Jan. 18	Nebraska-Kearney	7 p.m.
Feb. 3	N.M. Highlands*	7 p.m.
Feb. 14	Chadron State*	7 p.m.
Feb. 25	RMAC/NCAA II Regional	All Day

INDOOR TRACK AND FIELD		
Jan. 20	Joe Davies Open	8:30 a.m.
Feb. 10	CSM All-Comers	8:30 a.m.
Feb. 16	CSM Twilight Open	3 p.m.
Feb. 23-24	RMAC Championships	All Day

SWIMMING AND DIVING		
Nov. 11	Colorado College with Mesa State (women)	Noon
Mar. 3	CSM Rocky Mtn. Invite	10 a.m.

* RMAC game

Mines Key Cards Go High-Tech *By Shannon Sharkey*

Mines students no longer need to scavenge their dorm rooms for loose change or await the care package from home with that precious roll of quarters. With a BlasterCard in the possession of every Mines student, laundry can get done with a quick swipe of a card!

The BlasterCard, appropriately named for Mines' mascot, is the official identification card for CSM and it packs a lot of utility. The system has been in use for just over a year, but took five years to plan. Other college campuses across the nation have been using card systems that allow for door access and food and book purchases. The old Mines ID card could do nothing more than identify its user. Even at its minimum, the BlasterCard is more advanced.

The BlasterCard is still an ID card, but now the card can open locked doors to dormitories or academic buildings simply by holding the card three inches away from a proximity reader. The card grants admission to certain athletic games or special educational events (provided student activity fees have been paid). The BlasterCard will also keep perfect track of a student's meal plan and it can be used for purchases. Most students opt to establish a BurroBucks account on their BlasterCard. A BurroBucks account is a fund that holds money deposited by way of a credit card, debit card or cash. Money can be deposited by a student or his or her parents, either at a card management center on campus or online. By doing this, the BlasterCard functions like a debit card does, provided it is used at places that accept it. The laundry facilities in the dorms and Mines Park accept the BlasterCard, as well as most copy machines. The card will buy a student a meal at all three eateries in the Student Center or an after class snack at any of the 50 vending machines at Mines. The student bookstore will take the BlasterCard, as will some of downtown Golden's merchants. Each time the card is swiped, money is deducted from the BurroBucks account. Who knows what may be BlasterCard's next convenient utility?



JOY TURBO COMPRESSOR FOR SALE

Great Buy!

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- ✓ Model 4MSGP-12 hz
- ✓ Serial # BF-6496
- ✓ Only 1,460 hr of operation
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- ✓ Removed from service in 1993

This is a four-stage centrifugal compressor designed to compress 22,500 scfm of air to 200 psig with a 5,500-hp motor. The unit will be sold as a complete system and will include motor, control system, inlet valve, inlet filter, lube oil system, bypass valve, exhaust silencer, and motor breaker. This compressor has been stored dry, is in excellent condition, has very low hours, and this model is still manufactured by Cooper.



For more information, contact: MSE Technology Applications, Inc. (406) 494-7420, email steve.bryson@mse-ta.com

Why Pay Taxes on IRA Distributions You Don't Want?

Are you forced to pay income taxes on "minimum required distributions" from your Individual Retirement Account—even though you don't need or want the income? Thanks to a new law, you may now be able to make charitable gifts from your IRA while decreasing your taxable income from the account. Consider the following:

- If you are 70 1/2 and older, you may transfer up to \$100,000 per year from an IRA directly to qualifying charitable organizations such as the Colorado School of Mines Foundation.
- Unlike normal withdrawals, the amount you donate is excluded from your taxable income—*provided that it is distributed directly from the account to the charity.*
- The charitable distribution counts against your "minimum required distribution," so you can reduce your taxable income from the account for the year.

Although you don't receive a charitable deduction for the gift, you don't need one—because your gift has been excluded from taxable income in the first place. Your tax benefit is assured from the outset.

Several conditions apply, so please contact Mines or your advisor before taking action. But don't wait too long—qualifying distributions are allowed for 2006 and 2007 only.

For further information, contact:

Chris Wenger
Director,
Planned Giving
(303) 273-3140
cwenger@mines.edu

Susan Delahunt
Planned Giving Officer
(303) 273-3709
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Mines Acknowledges Individual, Corporate and Foundation Donations

Recent individual gifts of \$25,000 or more to Colorado School of Mines include:

Hugh '49 and Ann Evans donated appreciated securities with a value of \$25,000 to the John U. and Sharon L. Trefny Endowment for Curriculum Advancement.

John W. and Pamela K. Grubb made a \$50,000 gift to support improvements to the ventilation laboratory in the Mining Engineering Department.

James H. Johns, Jr. '56 made gifts totaling \$25,008 to create the Johns Family Scholarship Fund. This scholarship will support an undergraduate student in metallurgy or mining.

Keith '52 and Mary Ann Kvenvolden donated appreciated securities of \$28,424 to the Mines Pooled Income Fund. The gift honors John and Sharon Trefny and marks the 55th year reunion for the Class of 1952.

Laurence S. '39 and Dorothy Melzer continued their support of the William and Grace Waldschmidt Scholarship Fund with a \$30,000 gift.

Tom '53 and Mary Rollins added \$68,695 to the Rollins Scholarship Fund and donated \$20,000 to the Trefny Endowment for Curriculum Advancement in honor of John and Sharon Trefny.

Katherine K. Stuart contributed securities of \$36,342 to the Herbert Z. Stuart Memorial Endowed Scholarship Fund in honor of her late husband.

A cash distribution of \$16,308 and a remainder interest in a personal residence valued at \$405,000 were received from the estate of **Fil Van Voris '39**.

Recent corporate and foundation gifts of \$25,000 or more to Mines include:

Apache Corporation contributed \$36,721 to support graduate student research at Mines.

ARAMARK Corporation contributed \$200,000 to the construction of the new Student Recreation Center.

DuPont AirProducts NanoMaterials gave \$27,700 in continuing support of the Chemistry and Geochemistry Department.

EnCana Oil & Gas (USA) Inc. made a pledge of \$2,000,000 to support the construction of Marquez Hall, a new, state-

of-the-art petroleum engineering building at Mines.

Energy Cup made a \$30,000 gift to continue the Energy Cup Scholarship, which supports students in Mines' Department of Petroleum Engineering.

ExxonMobil Corporation made gifts totaling \$27,000 in continuing support of the Division of Engineering and the Departments of Chemical Engineering, Geophysics, Geology and Petroleum Engineering at Mines.

Fujimi Corporation gave \$27,700 to support research in the Chemistry and Geochemistry Department.

Infiltrator Systems, Inc. continued its support of the research and educational activities of Dr. Robert L. Siegrist in the area of on-site and alternate wastewater technologies with gifts totaling \$50,400.

Intel Corporation gave a gift of \$27,700 to support the Chemistry and Geochemistry Department.

The Torrey Foundation contributed \$100,000 in continued support to the research activities of Professor Jeff Squier in Mines' Physics Department.

EnCana Oil & Gas (USA) makes a \$2 million gift to support the construction of Marquez Hall.

EnCana Oil & Gas (USA) has given \$2 million toward the construction of Marquez Hall, the new, state-of-the-art Petroleum Engineering building planned at Mines. The gift, to be made in annual payments of \$400,000 during the next five years, bolsters the School's current campaign to raise \$40 million to secure funding for the new facility and endowments for operations and scholarships. The School will honor EnCana's gift by naming two laboratory facilities within the 75,000 square-foot building for the company.

"EnCana is excited to participate in the construction of this new, world-class facility and believes it will enhance the School's fine petroleum engineering program, better serving the needs of students, the School of Mines and the oil and gas industry for years to come," says Jeff Wojahn, president of EnCana Oil & Gas (USA).

EnCana USA is an exploration and production subsidiary of the EnCana Corporation, based in Calgary. With headquarters in Denver, EnCana explores for and produces oil and gas in Colorado, Texas and Wyoming, including the Piceance Basin of Western Colorado.

Mines President Bill Scoggins says, "EnCana's generous gift will help us to build on our track record for success in generating outstanding graduates with top-notch research in the critical field of energy. We are truly honored to count EnCana among Mines' strongest philanthropic partners." EnCana's gift helps ensure Mines' leadership in the exploration and production of energy resources for the future.



New Century Society Members

The Mines Century Society honors those individuals who have distinguished themselves through a lifetime of extraordinary philanthropic support for the School. Alumni and friends whose cumulative gifts to the School total \$100,000 or more are recognized through society membership and their names permanently displayed in the Ben H. Parker Student Center. This year, 13 new nameplates were added to the Donor Wall and seven previous members of the Century Society raised their lifetime giving to a new level.

Gold Level

\$1,000,000 to \$2,999,999

Charles and Eileen Bruce ●
Harry D. Campbell ◆

Silver Level

\$500,000 to \$999,999

Ben L. Fryrear ◆
The Norbert Hannon Jr. Family ◆
Timothy M. and Bernadette Marquez
Robert G. Piper ◆
Charles E. and Louanne Shultz ◆
Fil E. Van Voris
Robert J. and Ruth A. Weimer ◆

Copper Level

\$100,000 to \$499,999

Lonnie L. Abernethy
Leo N. and Patricia Q. Bradley
Marshall C. III and Jane Crouch
James H. and Jane Z. Gary
Harold M. and Patricia M. Korell
Robert A. Lame
Lawrence A. McPeck
Lester B. and Iola S. Roberts
Frank A. Seeton
Herbert Z. and Katherine K. Stuart
Richard and Janice Veghte
Anonymous (1)

◆ Previously a Copper Century Society Member
● Previously a Silver Century Society Member

Correction: Ben E. Mares '73 of Littleton, Colorado, made gifts totaling \$5,000 to Mines during the 2006 fiscal year, entitling him to annual membership in the Nathaniel P. Hill Society of the President's Council. The Office of Institutional Advancement erroneously printed Mr. Mares' name in the Francis M. Van Tuyl Society listing in the 2005-2006 President's Council Directory of Membership.

What Professors Do When They Aren't On Campus

Every semester, a number of Mines faculty members spend time away from their routines on campus. Some stay close by and others travel across the world. What are they doing? Research, gaining new perspectives, furthering their scholarship and promoting the School. They're good to go and more valuable than ever when they return.

Working with the NSF

Barbara Olds, associate vice president for educational innovation, has just returned to Mines after three years with the National Science Foundation in Washington, D.C. Studying how people learn, from childhood through adulthood, has become a serious



Barbara Olds, by D.C.'s famous cherry blossoms, spent three years at the NSF.

discipline. "We're seeing less of one teacher coming up with an idea and trying it to see if it works. That's being replaced with much more sophisticated evaluation techniques of how students learn," she says. Purdue, Virginia Tech and Utah have already started offering degrees or diplomas in educational innovation.

Olds' work at the NSF was related to understanding how people learn, specifically how they learn math, science and engineering. About 50 percent of the staff at NSF are academics appointed for up to four years in what is referred to as an intergovernmental personnel action. The NSF pays the salaries of its visiting academics to the schools they come from so that the professors keep their benefits and seniority. It's how the governmental agency stays on top of the latest research and technology.

Olds served as director of education and human resources for a division of NSF concerned with research, evaluation and communication. As division director she was able to help set the tone and goals for the group and oversaw rethinking of program solutions. "That's how the NSF influences the sciences," Olds explains. "It designs its request for proposals in order to guide solicitations in a certain direction."

Many government agencies are interested in understanding or promoting science education. The Department of Education's Title 1 program gives funding to schools that have a high concentration of poor kids, but have mainly focused on reading. They would like the focus to expand to include math and sciences. So the Department went to the NSF for expertise on how kids learn those subjects.

The State Department was interested in exporting science and technology education to the Muslim world, so it too approached the NSF for information. It wanted Olds' group to provide materials that could easily and inexpensively be translated into Arabic and would draw on cutting-edge knowledge. The idea was that exporting education would be a non-threatening way of exerting some influence in the Arab world.

The NSF brings together academics from all disciplines and creates opportunities for various governmental agencies to work with them. "As a governmental bureaucracy, things move slowly," says Olds. "But in other respects, it's like being in the best graduate school in the world."

Antarctica as Laboratory

Antarctica is the perfect laboratory to study how streams interact with streambeds and how that affects water quality. Mike Gooseff, assistant professor of geology and geological engineering, has been



Mike Gooseff, left, and graduate student Melissa Northcott measure soil moisture in Antarctica.

traveling to the cold continent to study the dynamics of water movement and its influence on ecosystem processes.

Gooseff uses the Taylor and Wright Valleys of Antarctica as natural environmental laboratories. "The absence of precipitation and aquifers allows us to focus on a couple of key processes," he says. "We look at the soils adjacent to the water to gain an understanding of how the movement of water through soil affects

the microbiological communities. Because the soils are pretty static and there is almost no precipitation, the streams provide the only vector for moving nutrients from the landscape to the lakes. Also, we can study how the streambed materials break down the minerals that make up the streambeds. Understanding the fundamentals helps us transfer the knowledge to more complex systems."

Once scientists gain an understanding of how a simple system works, they can apply it to what might be happening in a more complex environment, such as Clear Creek in Golden, where other factors such as vegetation and precipitation play a role. "An ecosystem is very sensitive to small changes in climate. If we know how a system works, we can potentially know how to respond to changes. We're trying to develop a simple conceptual model of how hydrogen microbial ecology and biogeochemicals function across riparian zones."

The Tallest Structures on Earth

Civil Engineering Professor Vaughan Griffiths spent a half-year sabbatical at the University of Sydney in Australia, supported by a Coffey Geotechnical Scholarship. Griffiths conducted research on foundations for off-shore oil and gas platforms that are the tallest



Vaughan Griffiths in Sydney, across the bay from the famous opera house.

structures on earth. "At more than 3,000 feet above the sea floor, they are over twice the height of the Sears Tower in Chicago," he says. Griffiths worked on finite element models of stresses and deflections due to wave and wind forces on the platforms. "Some of the most challenging problems in geotechnical engineering lie in the foundations of off-shore structures. We're going deeper and deeper to find oil."

The last five weeks of Griffiths' sabbatical was spent as an Erskine Fellow at the University of Christchurch in Canterbury, New Zealand, which included teaching an advanced geotechnical engineering course to graduate students. "A sabbatical enables you to get exposure to other ideas," says Griffiths on the value of sabbaticals away from Colorado. "You gain new perspectives that are brought back to your home institution."

By Maureen Keller

Where are the Women in Computer Science?

Associate Professor of Computer Science Tracy Camp spent her sabbatical earlier this year as a Fulbright Scholar at the University of Canterbury in Christchurch, New Zealand. "Primarily I was there for technical research, to work with an internationally known expert in the field of computer network simulation," she says. Camp's research project was titled Credibility of Network Simulations. "It was my first sabbatical in 12 years of teaching and I was starting to get burned out. It was good to get away and become refreshed."

In addition to her technical research, Camp also promotes women in the computer sciences. "The percentage of women going into math, science, and engineering fields has been going up for years, but the percentage of women going into computer science has been going down significantly," says Camp. "We currently have the lowest percentage in 20 years and it's expected to go down even more."



Tracy Camp, far left, and her family at Lake Pukaki in New Zealand last March.

As a response, last year Camp formed a Mines student chapter of the international organization Association for Computing Machinery, Committee on Women in Computing (ACM-W). She formed this ACM-W Chapter at CSM because "women in computer science need mentors, role models, and other women in their field to form connections." Part of Camp's Fulbright project in New Zealand addressed this issue; she studied the country's demographics and presented six changes New Zealand universities should make to encourage more women in the field. As a Fulbright Scholar, she gave 11 lectures at universities in New Zealand, half of which were on her technical research and half of which were on women in computing.



CSM Alumni Association

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Welcome to the CSMAA's New Associate Director

The Alumni Association has a new full-time associate director of geographic and special programs, Serena Aernie, as of Sept. 18. She will be responsible for developing section events and volunteers as well as the Student-Alumni Association's mentor program. She replaces Bob Pearson, who retired as a half-time staff member on June 30. We asked her to introduce herself to alumni.

What are your plans for the Mines Alumni Association?

In my role at Colorado School of Mines, I will be working with sections and affinity groups around the world. In addition, I will have the opportunity to work with Mines students and alumni in the newly created Alumni-Student Mentoring Program. There are a lot of alumni in the Mines community who are eager to be involved and my job is to make that happen! From San Francisco to Lima, Peru, there are many ways for alumni to stay engaged with Mines.



How do you plan to approach the job?

In my opinion, there are three main strategies: to keep alumni engaged with School of Mines; to partner alumni with alumni; and to facilitate meaningful interaction between graduates and students. When all of our programs fall within these parameters, our Alumni Association will be unstoppable!

I have heard it said many times in alumni relations that the strength of an alumni organization is in its chapters/sections. That's because the best recruiting agents are graduates! I will work with Admissions to involve alumni in the admissions process. In addition, our sections will add value to CSM by becoming ambassadors at the

local level. One of my goals is to equip section leaders and alumni volunteers with current CSM information. Another priority is to build a vibrant networking community in our key section areas.

What a talented alumni association we have at Mines! As we continue to build the mentoring program, it will be remarkable to see how students' lives are enhanced by the partnership they share with Mines alumni.

What relevant experience do you bring to Mines?

I was the director of alumni and donor relations at Avila University in Kansas City, Mo., and the regional development director at the United States Air Force Academy in Colorado Springs.

What is your educational background?

I received my undergraduate degree from Hannibal LaGrange College in Christian education. My education helped prepare me for a career in alumni relations because I learned to build programs that mobilize volunteers to accomplish a mission.

We're very pleased to have you here. In closing, do you have a message you'd like to share with alumni?

I look forward to engaging as many alumni as I can. Together we can work to make Mines a stronger world-wide community. Feel free to write, call or visit with your ideas!

For more information about becoming a mentor or a section volunteer, contact Serena at 303-273-3290 or 800-446-9488, ext. 3290. E-mail her at serena.aernie@is.mines.edu or stop by the alumni office in Golden at 1600 Arapahoe Street.

Metro-Denver



Perfect weather in Golden made Homecoming a great success, even though the Orediggers lost their game in the last few seconds. Alumni, friends, family and students celebrated all day with a pre-game luncheon and an after-game get together at the Coolbaugh House.



Twenty one of the 33 students who received legacy grants this semester from the Alumni Association posed after receiving their awards. Front row from left Ryan Merion, Robbie McGourty, Pam Mencin. Second row: Amanda Barngrover, John Rose, Jacob Biller. Third row: Hans Mueller, Kathryn Chinn. Fourth row: James McCloskey Jr., William Hodder, Erin Griggs. Fifth row: Sara Bisque, Scott Cochran, Jakob Regalado, Chris Beach, Jennifer Crites. Sixth row: Jason Underhill, Andrew Vawter-Beaird, Top row: Nathan Ostrander, Laura Lunsford, Logan Smith.



Members of the 1979-1982 basketball team held a 25th reunion at the home of Greg Larrabee BSc BE '82 over the summer and then shared a friendly round of golf.



← Glenwood Springs



Spokane →

Tacoma ↓



Alumni gathered in Glenwood Springs, Spokane and Tacoma for "send-off parties" in honor of new freshmen. More than 880 freshmen and transfers started classes in August.

In memoriam

MARION S. "JACK" BELL MET E '49 died July 26 at home surrounded by his family. He was 84. The Denver native attended South High where he won the state wrestling championship in his weight class. He cut short his studies at Mines to enlist in the Marine Corps and was a pilot in the Pacific during World War II. After his tour, he returned to Mines and married Annette Koerner and they had two children. After graduation, Bell joined Phelps Dodge, working his way up to president of the Phelps Dodge Refining Corporation. CSM honored Bell in 1963 by awarding him the van Diest Gold Medal for outstanding achievement. Active in many civic and professional organizations, he served as president of the United Way of El Paso, Texas, from 1975-76. El Paso honored him with its Conquistador Award. Bell was a lifelong sportsman and an avid aviator who found time to fly with the Skytypers all over the country. After retirement, he volunteered at the War Eagles Air Museum. He was elected to the El Paso Aviation Hall of Fame in 2002. Bell is survived by his widow, a daughter, a son, four grandchildren and a brother.



JOHN J. CHAPMAN GEOL E '41, MSC GEOL '48 died at home in Sylva, N.C., March 21. He was 87. After attending Mines, Chapman earned a PhD from University of Illinois in 1953. He worked as a topographic engineer for the U.S. Geological Survey from 1941-44, served in the U.S. Army in Europe from 1944-46 and worked for the Creole Petroleum Corp. of Caracas, Venezuela, from 1948-50. Chapman taught geology at Southern State College in Magnolia, Ark., and also served as department head and chairman of the division of natural sciences. In 1968 he became head of the Department of Earth Sciences at Western Carolina University,



where he taught until his retirement in 1985. Chapman was a fellow with the Geological Society of America, a certified professional geologist, a member of the American Association of Petroleum Geologists, the founder of Friends of Elmer, served on the board of directors of the Foundation for the Improvement of Justice and was a member of the Georgia Salzburger Society. As a member of the First Baptist Church of Sylva, he served multiple stints as a deacon and Sunday school teacher. Chapman's wife of 49 years, Dorothy, predeceased him. His children, Martha Ann, Louisa Elaine, John Jr. BSc Geol '81, Davis, their spouses and seven grandchildren survive him.

LORENZ J. "LARRY" GOETZ EM '56 of Seadrift, Texas, died June 22 of cardiac failure at age 71. Goetz was born in New Jersey and attended school in Connecticut. He was awarded a state tuition scholarship to attend Mines. While at Mines, he met Luanna Mount of Bloomfield, Ind., who was attending Colorado Women's College and later, University of Denver. They were married in 1955. Goetz was a member of Sigma Nu, Tau Beta Pi, Sigma Gamma Epsilon, Scabbard and Blade and the Press Club. After graduation, Goetz worked briefly for the Oliver Iron Mining Company in Minnesota before serving in the U.S. Army. Following his Army service, he worked for Westinghouse Electric Corp., and Bettis Atomic Power Division, in Pittsburgh. He also earned a bachelor of science degree in metallurgical engineering from Carnegie Institute of Technology. At Westinghouse, Goetz was a process development engineer specializing in processes for fuel and fuel element manufacturing for the Navy's nuclear-powered vessels. In 1963, he joined General Electric in Ohio to work on refractory metals process development and, subsequently, exploration for tungsten in the United States. In 1977, he transferred to a General Electric affiliate in San Francisco. In 1978 he joined Exxon Minerals Company in Houston, retiring in 1999. Goetz' hobbies included golf, fishing, hunting and traveling. His is survived by his widow, three children and one grandchild.

THOMAS I. JONES MET E '49 died at his home in Denver June 20. Before attending Mines, Jones served in the United States Army Air Corp during World War II. After graduation, he was employed by the Los Alamos Scientific Laboratory for 36 years. He was active in Kiwanis and in United Church. Jones was a lifelong student of the Bible, cooking, coins, reading and writing. He also was a volunteer for Friends of Man in Denver for 10 years. His wife of 59 years, Barbara, two daughters, eight grandchildren, 10 great-grandchildren and a nephew survive him.

ROBERT "BOB" LANGE EM '54 died June 20 in Tulsa, Okla. He was 74. Lange grew up in Chicago and graduated from Morgan Park Military Academy. While at Mines he was a member of Pi Kappa Alpha and during his student years, he also met his wife, Clara.



EDMUND F. PETERSEN JR. EM '37, died April 21 in Sarasota, Fla. Born March 15, 1914, in Muskogee, Okla., he grew up in Texarkana, Ark., and Kansas City, Mo. After his graduation from Mines, Petersen began his professional career in 1937 with the Kennecott Copper Company in El Teniente, Chile. He worked for more than 30 years in South America, primarily for Bethlehem



EDMUND F. PETERSEN JR. EM '37, died April 21 in Sarasota, Fla. Born March 15, 1914, in Muskogee, Okla., he grew up in Texarkana, Ark., and Kansas City, Mo. After his graduation from Mines, Petersen began his professional career in 1937 with the Kennecott Copper Company in El Teniente, Chile. He worked for more than 30 years in South America, primarily for Bethlehem

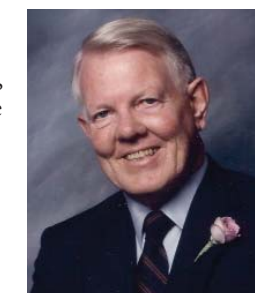
DUANE O. "SWEDE" NELSON PE '51 died July 14 at home in Atherton, Calif., after suffering a ruptured aneurysm. He was 74. Nelson grew up in Minnesota as an outstanding student and basketball player, once holding the Minnesota state record for most consecutive free throws. After attending University of Minnesota on a football scholarship, he attended Mines on an academic scholarship. After graduation, Nelson worked for the Arabian American Oil Company in Saudi Arabia, where he learned Arabic. In 1963, he transferred to Standard Oil of California, was sent to South America and became fluent in Spanish. He served as vice president of operations for Chevron

Lange's professional designations included Society of Mining Engineers, International Institute of Rock Mechanics and Institute of Shaft Drilling Technology. The time he spent in the West provoked a lifelong love, appreciation and respect for the outdoors. His early professional life was spent at underground hard rock Arizona copper mines, including the extremely hot Magma Mine, and in underground uranium mines in New Mexico. In 1963 he joined Fenix & Scisson and PB-KBB and worked in construction of mined underground caverns for storage of petroleum products. His mining engineering career gave him the opportunity to travel worldwide as he pursued his profession with zeal and dedication. Lange's many hobbies included tennis, hiking, fishing, hunting, knife-making and biking. He was a regular on Free Wheel. His volunteer activities included The Irongate Kitchen, Oxley Nature Center and Project Early Settlement. Lange is survived by his widow, four children and three grandchildren.



Steel Corporation in Chile, eventually becoming vice president and general manager of the company's Chilean iron ore mining operation. He was one of the founders of the Club de Deportes La Serena, one of Chile's professional soccer teams. Petersen had a great affection for Chile, a country that he loved almost as much as his own. Following his retirement in 1971, he and his wife moved to Sarasota where he lived until his death. He was a longtime member of the Sarasota Power Squadron where, for over 20 years he taught celestial navigation, and of the Bird Key Yacht Club, where he served as commodore in 1984-85. Petersen was preceded in death by his wife, the former Harriett Hagelin of Jamestown, N.Y. He is survived by his two sons, Edmund F. III of Palo Alto, Calif., and Charles C. of Wynnewood, Pa.

DUANE O. "SWEDE" NELSON PE '51 died July 14 at home in Atherton, Calif., after suffering a ruptured aneurysm. He was 74. Nelson grew up in Minnesota as an outstanding student and basketball player, once holding the Minnesota state record for most consecutive free throws. After attending University of Minnesota on a football scholarship, he attended Mines on an academic scholarship. After graduation, Nelson worked for the Arabian American Oil Company in Saudi Arabia, where he learned Arabic. In 1963, he transferred to Standard Oil of California, was sent to South America and became fluent in Spanish. He served as vice president of operations for Chevron



Colombia and in 1965 he moved to Venezuela to serve as president of Chevron Venezuela. He returned to San Francisco in 1969 to become the first president of the newly formed subsidiary, Chevron Overseas Petroleum Inc., directing Standard Oil of California's overseas operations. In that capacity, he negotiated oil concessions with heads of state from China, Indonesia, the Sudan, Nigeria, the Philippines and Ethiopia, where he survived a 1973 hijacking when a grenade exploded during flight. One of his proudest achievements was spearheading the development and launch of the first offshore production platform in the North Sea. Following the discovery of oil in the Sudan, for which Nelson was principally responsible, he headed the U.S.-Sudan Business Council and helped the Sudanese government produce this discovery. In 1976, he was awarded the Colorado School of Mines Distinguished Service Medal for individual merit. After retiring in 1980, Nelson went into the independent oil business in Tulsa, Okla., then to Houston, then San Francisco. His contacts around the world led to work in Latin America, Canada, France and Africa, including contract negotiations on behalf of several foreign governments. While living in Geneva in the mid '90s, he commuted to Moscow and Siberia where he assisted in the development of Russian oil fields. He was actively involved in international oil and other business until his death. When he wasn't working, Nelson was a voracious reader, a better-than-average-golfer, a lover of music and the arts, a sports fan and a faithful follower of San Francisco's sports teams. Nelson is survived by his widow, Alice, a son Mark BSc Pet Eng '84, a daughter, a stepson and many friends.

Also in Memoriam

JOHN H. ARMSTRONG MET E '39	JANUARY 2006	CARTER R. KELLY MET E '56	UNKNOWN
RICHARD A. CHAMBERLIN EM '57	UNKNOWN	HOWARD W. MILLER PRE '50	SEPTEMBER 2005
ARTHUR S. DOAN JR. DSC MET ENG '63	UNKNOWN	DANIEL OAKLAND MET E '49	JUNE 18, 2005
WILLIAM H. EVERETT MET E '50	UNKNOWN	WILLIAM W. OWENS PE '47	JANUARY 2006
SCHULYER HERRES MET E '39	APRIL 2, 2006	WALTER L. PATTY EM '41	JUNE 21, 2005
HARRY D. HOSKINS JR. EM '37	UNKNOWN	JULIAN K. PAWLEY GEOL E '40	DEC. 17, 2005
WAYNE H. JACKSON GEOP E '51	UNKNOWN	STEPHEN H. PILCHER PHD GEOL '68	UNKNOWN
F.K. KABBANI DSC MIN ENG '54	NOVEMBER 2001	PHILIP M. ROOKE PRE '65, MSC PRE '67, DSC PRE '69	UNKNOWN
JEFF ZEV KAMIN PE '57	UNKNOWN	RICHARD V. SAUSA MET E '39	DEC. 8, 2005



The Many Faces



of Stratton Hall

From his window in Hill Hall, David Matlock, Mines professor of metallurgical and materials engineering, looks out at Stratton Hall and has photographed it in every season. Built in 1902, Stratton Hall today houses the Liberal Arts and International Studies (LAIS) Division. It was named in honor of Winfield S. Stratton, a prominent Colorado Springs mining and construction industrialist, who had donated \$25,000 to the School. Stratton made his fortune prospecting in the Cripple Creek area of Colorado.



Stratton Hall was carefully renovated in the mid 1980s to maintain the historic external appearance while completely updating the internal space. Every student who has graduated from CSM since 1902 has probably passed through this building as it has housed many departments and campus activities, including the Basic Engineering Department (now the Division of Engineering), Math Department (now the Department of Mathematical and Computer Sciences), labs for metallurgy and drafting, and LAIS.



1936

Maynard H. Jameson Geol E, MSc Geol '37 is retired in Las Vegas, Nev.

1938

R. J. Price Met E lives in Rocklin, Calif.

1939

Robert J. Blair EM is retired in Houston.

1943

Tom Cole EM and Roland Fischer Met E '42 had the pleasure of meeting in the July 4th Veterans Parade in Aspen, Colo.

1948

Donald A. Craig Met E is retired in Aurora, Colo.

1950

William L. Payne Jr. PRE is retired in Englewood, Colo.

1957

Robert M. Jones EM is a consultant for Time Asphalt Ridge LLC in Vernal, Utah.

Harry M. Losee Jr. Geop E lives in Monroe, N.C.

1958

Ian Achong PE is semi-retired in Lauderhill, Fla.

1963

Fred J. Hilterman Geop E, PhD Geop '70 is chief scientist for Geophysical Development Corporation and a full professor at the University of Houston.

Graham W. Howard Jr. Met E is vice president of national accounts for Environmental Support Solutions Inc. in Tempe, Ariz.

1964

Leroy P. Berti PRE, MSc CPR Eng '66, DSc CPR Eng '68 is senior consultant for Continuous Learning Group in Coraopolis, Pa.

Edward A. Faeth Met E owns Trophy Town in Paso Robles, Calif.

1968

Edward J. Briggs EM is senior quality assurance engineer for Washington Group International in Carlsbad, N.M.

Frederick W. Paddock Jr. EM is a project engineer for Tetra Tech in Longmont, Colo.

Alejandro Rodriguez-Gratacos MSc Met Eng, PhD Met Eng '74 is retired in Orlando, Fla.

Theodore A. Smith EM is senior mine development engineer for Mosaic Fertilizer LLC in Mulberry, Fla.

Bernard J. Steblay ME Phy is software architect for Steblay Software and Instrumentation in Lakewood, Colo.

John S. Timmons EM is general manager of Tuprag Metal Madencilik in Ulubey-Usak, Turkey.

1969

Robert L. Baumann Met E is quality assurance manager of the primary facilities for Mittal Steel at Sparrows Point, Md.

Raymond F. Stewart Geop E is president of Quake [not Quaker as previously reported] State Oil Company in Bakersfield, Calif.

1970

Dale E. Bingham BSc Met Eng is a manager for Motorola Inc. in San Diego.

Lee A. Turner ME Phy is vice president of quality, health and environment for M-I SWACO in Houston.

1972

Michael G. Long BSc Pet Eng is executive vice president of Nations Energy Company Ltd. in Aktau, Kazakhstan.

Raymond L. Lowrie MSc Min Ec is president of Carbon Energy Holdings Inc. in Denver.

1973

Hamza T. Mabruk BSc Min Eng is retired in Tripoli, Libya.

Donald E. McLaughlin BSc ME Math is retired in Cypress, Texas.

Robert C. Mengis BSc ME Math, MSc Math '80 is systems analyst for Bear Creek Operations Inc. in Medford, Ore.

1975

Mark S. Foxwell BSc Pet Eng is rig manager for ENSCO Offshore Company in Broussard, La.

S. Arthur Stewart BSc Pet Eng is a drilling engineer for the Sacramento Basin for Venoco Inc. in Denver, Colo.

1976

Andrew W. Extract BSc Min Eng is district inspector of mines for Western Australia Department of Consumer & Employee Protection in East Perth, Western Australia.

Samuel I. Vera BSc Min Eng is drilling engineering supervisor for the ExxonMobil Corporation in Yuzhno, Skahalinsk, Russia.

1977

James P. Koffer BSc Min Eng, M Eng Appl Mech '89 is a senior mine engineer for Chevron-Molycorp in Questa, N.M.

Kendall D. Olander BSc CPR Eng is refrigeration maintenance engineer for Aberdeen Woods Conference Center in Peachtree City, Ga.

1978

Thomas J. Fronapfel BSc Met Eng, P.E., is administrator of the field services division for the Nevada Department of Motor Vehicles in Carson City.

Mark H. Hilliard BSc Geop Eng is a geophysicist for ConocoPhillips in Houston.

Kenneth J. Litle BSc BE is vice president of KCA Engineers Inc. in San Francisco.

Deborah A. Peacock BSc Met Eng is president of Peacock Myers P.C. in Albuquerque, N.M.

Dwight V. Smith BSc Geop Eng is program manager for Schlumberger Ltd. in Houston.

Steven K. Westendorf BSc CPR Eng is manager of Treat & Ship, Indonesian business unit for Chevron International Exploration and Production.

Mark H. Wood BSc Min Eng is mine manager of the Akyem Mine for

Newmont Mining Corporation in New Abirem, Ghana.

Douglas H. Woodul BSc Pet Eng is vice president of operations for Range Resources in Houston.

1979

Alana Harness BSc Geol Eng is a financial adviser for Krumme, Krumme & Assocs LLC in Fairbury, Neb.

Wendy A. Klein BSc Geol Eng is a consultant for SGP Oil & Gas in Greenville, N.C.

Lark A. Lundberg BSc Met Eng is senior program director for Haselwood Enterprises Inc. in Oak Ridge, Tenn.

John Bradley McGahan BSc Min Eng is director of lignite fuels for Cleco Power LLC in Mansfield, La.

Elizabeth E. R. Niemtschik BSc Pet Eng is staff engineer for Cimarex Energy Co. in Denver.

Susan Howarth Rhodes BSc ME Math, M Eng Pet E '84, PhD Pet Eng '87 is manager of international ports and maritime security for Sandia National Laboratories in Albuquerque, N.M.

Gary P. Sotack BSc Pet Eng is general manager for RE-Fine LLC in Golden, Colo.

1980

David Holligan BSc CPR Eng is general manager of assets for Chevron Thailand.

Loren R. Lasky MSc Geol is a case manager for the New Jersey Department of Environmental Protection in Trenton.

Kennon M. Lebsack BSc Met Eng is mill operations superintendent for Phelps Dodge Corporation in Green Valley, Ariz.

James V. Mahoney BSc CPR Eng is vice president of projects for Nations Energy Co. Ltd. in Houston.

Michael R. McReynolds BSc BE is team manager for Metropolitan Water District of Southern California in Los Angeles.

Aaron A. Olivias BSc Met Eng is a water reclamation operator for the City of Mesa, Ariz.

M. Lee Renegar BSc Min Eng and Tona Bjorkland were married May 27 in Tonopah, Nev., in the shaft hoist room of the 100-year old mining camp Mizpah.



Judge John E.P. Davis EM '56 officiated. Bill Wahl EM '58 and Bonnie Colgan were witnesses. The bride and groom reside in Amargosa Valley, Nev.

Bryan P. Vaughn BSc Met Eng is plant manager of Irvin Operations for the United States Steel Corporation in Dravosburg, Pa.

David B. Wrenshall BSc Met Eng is principal engineer for Ball Metal Container in Broomfield, Colo.

1981

Nicholas W. Atencio BSc Pet Eng is senior vice president for the Mondoil Corporation in Cypress, Texas.

John G. Campbell BSc CPR Eng is manager of automation for Biogen Idec Inc. in Research Triangle Park, N.C.

John J. Chapman Jr. BSc Geol Eng is exploration manager for EOG Resources Inc. in Midland, Texas.

Arlo E. Ellison BSc CPR Eng is owner and manager of First Tracks Equity Ventures LLC in Westport, Conn.

J. Scott Jones BSc Min Eng is an underground mine manager for BHP Billiton San Juan Mine in Waterflow, N.M.

David L. Lange Jr. BSc CPR Eng is managing director for the Federal Express Corporation in Memphis, Tenn.

Margaret A. Lessenger BSc Geop Eng, MSc Geop '88, PhD Geol '93 is a staff geoscientist for Williams Production RMT Company in Denver.

Michael D. McGehee BSc Pet Eng is a project manager for Williams Construction in Pryor, Okla.

Kenneth J. Mobley BSc ME Phy is principal design engineer for ZettaCore Inc. in Englewood, Colo.

Gary R. Pekarek BSc Geop Eng is geophysical product marketing manager for GX Technology in Houston.

Michael L. Ruggiero BSc CPR Eng is manager of project services for BP in Houston.

Scott S. Smith BSc Pet Eng is a reservoir engineer for Occidental of Russia.

Chuck A. VanAllen BSc Pet Eng is vice president of the Hess Corporation in Houston.

Dana G. Vandersarl BSc CPR Eng is principal engineer of propulsion/hydro for Boeing in Trinity, Ala.

Glenn M. Vangolen BSc CPR Eng is president and general manager of Occidental Oman for the Occidental Petroleum Corporation in Al-Athaybah.

1982

Winthrop D. Childers BSc ME Phy is new business development manager for the Hewlett-Packard Company in San Diego.

Lauren E. Evans BSc Geol Eng was elected secretary/treasurer to the American Council of Engineering Companies of Colorado.

Michael J. Foley BSc Geop Eng is area exploration manager of Southeast Asia for Sarawak Shell Berhad in Miri, Sarawak, Malaysia.

Nadine M. Stacks BSc Pet Eng is a nurse at Borgess Medical Center in Grand Junction, Mich.

1983

Mobashir N. Ahmad BSc Geop Eng is an independent environmental consultant in Reno, Nev.

John N. Cevaal BSc BE is area manager for MWH Constructors in Broomfield, Colo.

Jeffery B. Frayser BSc ME Math is client services manager for SAP America Inc. in Irving, Texas.

Kent A. Friesen BSc Geol Eng, MSc Geochem '90 is principal consultant for Wyoming Environmental Consulting LLC in Cheyenne.

Marc L. Gesink M Eng Geol E is a senior hydrologist for MWH in Novi, Mich.

Thomas L. Hathaway BSc Min Eng is president of Solar Home & RV Inc. in Steamboat Springs, Colo.

Brian J. Lindsey BSc Geop Eng is a geophysicist for Anadarko Petroleum Corporation in Houston.

Crystal V. Long BSc Pet Eng is an independent computer consultant in Kane, Pa. Earlier this year, she received a Microsoft MVP (most valuable professional) award.

Brian W. Martin BSc Met Eng is a project engineer for Perryman Co. in Houston, Pa.

Walter A. Moore BSc CPR Eng is senior customer quality manager for ADIC in Englewood, Colo.

Ron Niesen BSc Pet Eng has been named principal by the Philadelphia-area office of the North Highland Company, an independent management and technology consulting serves provider.

Gregory E. Pettine BSc Met Eng is senior associate for CB Richard Ellis in Denver.

Thomas P. Repoff MSc Math is a research scientist/mathematician for General Electric Global Research in Niskayuna, N.Y.

Timothy A. Rosener BSc Geop Eng is president of EXN Consulting in Lakewood, Colo.

Kent J. Simmons BSc BE is an investment representative for Edward Jones in Cedar Park, Texas.

Edward S. Smida BSc Geol Eng, MSc Min Ec '88 owns Smida Land & Exploratory Company LLC in Red Lodge, Mont.

Ronald J. Toland BSc Geop Eng is market analytics manager for General Electric Healthcare in Pagosa Springs, Colo.

Cynthia A. Truby BSc Geop Eng is advanced senior environmental professional for the Marathon Oil Company in Houston.

David L. Wayman BSc Pet Eng is chief operating officer for Pepperdine's Marking Products LTD. in Denver.



Michael J. Weis BSc Met Eng, MSc Met Eng '87 is deputy office manager for the Department of Energy in Richland, Wash.

Stewart L. Witter BSc Met Eng is director of operations for Oryx Advanced Materials in Fremont, Calif.

1984

W. Charles Allen BSc Geop Eng is a geophysical data acquisition manager, worldwide exploration, for the Occidental Oil and Gas Corporation in Houston.

Douglas O. Buckland BSc Pet Eng is an independent consultant in Steamboat Springs, Colo.

R. Scott Tracy BSc Min Eng is senior software manager for Sun Microsystems Inc. in Golden, Colo.

Stuart L. Wilson BSc Met Eng is staff metallurgical/welding engineer for ConocoPhillips in Houston.

1985

Scott R. W. Dailey BSc Pet Eng owns Dailey Consulting in Menlo Park, Calif.

Dorthea L. Hoyt BSc Geol Eng, MSc Ecol Eng '92 is project manager and senior environmental engineer for Pacific Western Technologies Ltd. in Lakewood, Colo.

James V. Ierubino M Eng Pet E is venture technical manager for ExxonMobil Qatar.

Mitchell J. Kruse BSc Eng is product manager for the Microsoft Corporation in Redmond, Wash.

Daniel M. Larson BSc Geop Eng, MSc Geop '87 is IT manager for Hunt Oil in Dallas.

Troy M. Sniff BSc Eng is lead senior estimator for Hensel Phelps Construction Company in Orlando, Fla.

1986

Stephen F. Biagiotti Jr. BSc Met Eng, MSc Met Eng '94 is an associate for Structural Integrity Associates Inc. in Centennial, Colo.

Curtis G. Glenn BSc Met Eng, MSc Met Eng '89 is chief metallurgist for Nucor Steel Kankakee Inc. in Bourbonnais, Ill.

Kirsten L. King BSc CPR Eng is manager of Colorado Department of Public Health and Environment in Denver.

James D. Spencer BSc CPR Eng is director of engineering for New Belgium in Fort Collins, Colo.

Mark D. Swisher BSc Pet Eng is president of Ambassador Petroleum Inc. in Katy, Texas.

1987

Michael J. Hurley BSc Min Eng mines aggregates along the Russian River in the wine country of California by reclaiming the mine pits to vineyards. He also is a mining engineer for Syar Industries Inc. in Napa, Calif.

Jeong Han Kim MSc Met Eng, PhD Met Eng '93 is executive director of the Incheon Research Center at the Korea Institute of Industrial Technology.

Mark E. Levin BSc ME Math, MSc Ecol Eng '92, M Eng EM '94 is manager of Mining & Environmental Services in Idaho Springs, Colo.

Michael D. Thomas BSc CPR Eng is president and chief executive officer for VME Process Inc. in Tyler, Texas.

Thomas W. Wells BSc Eng is a program manager for Science Applications International Corporation in Germany.

Steven C. Wood BSc Geop Eng married Jennifer Wing Nov. 26, 2005, in Iowa. He is director and head of natural resources investment for CIMB - Standard Strategic Asset Advisors in Singapore.

1988

Andrea J. Gallagher BSc Geol Eng is a senior scientist for Photon Research Associates Inc. in Albuquerque, N.M.

Scott D. Hendrick BSc Math, BSc Eng Phy is a project manager for CQG Inc. in Denver.

David R. Kennar BSc CPR Eng, MSc CPR Eng '90 is a project engineer for Chevron in El Segundo, Calif.

Lisa E. Kolp BSc Met Eng is a corrosion/materials engineer for Shell in Deer Park, Texas.

Tony F. Lucero BSc Pet Eng is president of CFR Resources Inc. in Lakewood, Colo.

1989

John Alec Gimurtu BSc Geol Eng is solutions architect for InterComponent Ware Global in San Mateo, Calif.

Ross L. Macfadyen BSc Pet Eng is a production engineer for Occidentla Mukhaizna LLC, a subsidiary of Occidental Petroleum Corporation, in Muscat, Oman.

Scott T. Schamp BSc CPR Eng is director of process and project engineering for Kahuna Ventures in Broomfield, Colo.

Paul M. Veatch BSc CPR Eng is vice president of St. Mary Land & Exploration Company in Tulsa, Okla.

Tracy L. Vowel BSc CPR Eng married Einar Helland in Norway October 2005. She is a trader for Ferrell International in London.

1990

Christine A. Arthur BSc Geol Eng is senior Oracle DBA/Unix system administrator for CH2M Hill Inc. in Englewood, Colo.

Nicholas J. Battagliano III BSc Geop Eng is geophysical data acquisition manager for Occidental Oil and Gas Corporation in Houston.

William W. Leslie PhD Geop is senior development geophysicist for Woodside Energy Ltd. in Perth, Western Australia.

1991

Juan C. Aldana BSc Pet Eng is account manager for Schlumberger Oilfield Services in Bogota, Colombia.

Tony C. Anast BSc Met Eng is director of marketing and strategy for SkyeTek in Westminster, Colo.

Russell W. Bailey MSc Min Ec is project manager for Hewlett-Packard Company in Fort Collins, Colo.

Michael A. Fleming BSc Min Eng is manager of technical services for ASARCO Inc. in Hayden, Ariz.

Robin Helburn PhD Appl Chem is an assistant professor of chemical and physical sciences at Pace University in New York.

Nicholas D. Hickson BSc Min Eng is project manager for Phelps Dodge Mining Company in Safford, Ariz.

Myron D. Uecker BSc Math is an IT specialist for the IBM Corporation in Denver.

1992

Robert E. Arlen MSc Min Res Ecol is an information technology specialist for the Wyoming in Casper.

Scott C. Burdick BSc Eng is a software engineer for Northrop Grumman in Aurora, Colo.

Patrick S. Carlin BSc Eng is senior engineer at AG Wassenaar Inc. in Denver.

Michael J. Carstens BSc CPR Eng '93 is plant manager for Archer Daniels Midland in Lubbock, Texas.

Jorge A. Martinez BSc CPR Eng is managing director for Zenit Trade, S.L. in Valencia, Spain.

Penny J. Pettigrew BSc Chem is a senior verification engineer supporting the Crew Launch Vehicle (the eventual replacement for the Shuttle) First Stage at NASA's Marshall Space Flight Center.

Elviera T. Putri MSc Min Res Ecol is safety, health and environment manager for ExxonMobil Oil Indonesia, Inc. in Jakarta.

Rick V. Rosser Jr. BSc Eng is plant manager for Harley-Davidson in Tomahawk, Wis.

Timothy R. Yearous BSc CPR Eng is special projects manager for Valero Energy in Houston.

1993

Dean R. K. Bell BSc Pet Eng is technical manager of Europe, Caspian, and Africa for Schlumberger Drilling and Measurements in La Defense Cedex, France.

Kenneth J. Esposito MSc Geol is vice president and senior chemist for Telesto Solutions Inc. in Fort Collins, Colo.

Mark R. Gwaltney BSc Met Eng is in regional corporate sales for Thomas Tools in Denver.

Angela Archer Martino BSc CPR Eng is a regulatory/senior HSE specialist for Mariner Energy in Houston.

Michael D. Martino BSc Geop Eng is senior project leader for CGG Americas Inc. in Houston.

Amanda M. O'Connor BSc Eng is a project manager for Matrix Design Group Inc. in Denver.

Khanh Q. Vu BSc CPR Eng is director of the Minority Engineering Program at Mines.

Julie D. White BSc CPR Eng is a process engineer for Chevron in Kingwood, Texas.

1994

Robert N. Ball BSc Eng is PMO manager for Cargill Inc. in Minnetonka, Minn.

Terrance E. Burks BSc CPR Eng, MSc Math '96 is an assistant chemist for the Department of Environmental Protection in Wards Island, N.Y.

Victoria L. Cooney BSc CPR Eng is training manager for General Mills Inc. in Wellston, Ohio.

Joseph G. De Almeida BSc Pet Eng is project engineer for Acergy in Rio de Janeiro, Brazil.



Brenda Eckles BSc Geop Eng married Mark Head April 14 in Scotland.

Geoffrey S. Ellis MSc Geochem is a research geologist for the U.S. Geological Survey in Lakewood, Colo.

Svein Hellvik BSc Pet Eng is drilling supervisor for AGR-DPT A/S in Oslo, Norway.

Eric J. Mulder BSc CPR Eng is a quality engineer for Medtronic Inc. in Columbia Heights, Minn.

Robert W. Patlovan MSc Env Sci & Eng is power plant engineer for Adam Aircraft in Westminster, Colo.

Andrew M. Ross BSc Geol Eng is domestic wastewater manager for the Colorado Department of Public Health and Environment in Denver.

Herb Spann BSc Eng '03 and his wife, Rachael, announce the birth of daughter Josette Mun, born April 2005 in Boston. Herb is a design



engineer for Snyder Industries in Lincoln, Neb.

Christopher J. White BSc Eng is lead operations engineer for ConocoPhillips Indonesia in Jakarta.

1995

Patricia A. Hyman MSc Env Sci & Eng is a quality assurance specialist at Severn Trent Labs in Arvada, Colo.

Nichole L. Matthews BSc CPR Eng is a business analyst for the Hewlett-Packard Company in Houston.

Jamie L. Schlottmann Norvell MSc Geol is retired in Edmond, Okla.

Brian P. Scott BSc CPR Eng is a DLP process engineer for Texas Instruments Inc. in Dallas.

Bradford J. Sinex III BSc Geop Eng, Pro M Pet Res Sys '06 is a geologist for Chevron in San Ramon, Calif.

Brian L. Tothero BSc Geop Eng is a lieutenant commander for the U.S. Navy in Pearl City, Hawaii.

1996

Anthony C. Blakely BSc Eng is a software engineer for Freescale Semiconductor in Austin, Texas.

Jason B. Burford BSc Eng, MSc Math & Comp Sci '06 is senior systems engineer for Lockheed Martin Corporation in Littleton, Colo.

Christopher W. Clark BSc Pet Eng is a production engineer for Newfield Exploration Company in Denver.

Robert A. Ferrera BSc CPR Eng is a project engineer with Kahuna Ventures in Broomfield, Colo.

Peter A. Frazier BSc Eng is senior financial analyst for Apple Computer in Cupertino, Calif.

Robert W. Johansson BSc Met Eng is a material and process control engineer for Ball Aerospace & Technologies Corp. in Westminster, Colo.

Kjell Moe BSc Geol Eng and Cindy (Marshall) Moe BSc Eng '98 announce the birth of their twins, Stefan Byron and Ian Kris, on May 17.



Ryan D. Ricks BSc Eng 1996 is an engineer with Lexmark International in Lexington, Ky.

Scott G. Van Sickle BSc Math & Comp Sci is a financial representative for Northwestern Mutual in Lakewood, Colo.

Gerald T. Velarde MSc Met Eng is quality manager at Trane in Pueblo, Colo.

Scott R. Walker BSc Geol Eng is a senior engineer for Shannon & Wilson Inc. in Denver.

Asher Allyn Woolverton BSc Eng Phy, PhD Mat Sci '01 is program manager for Research-Electro Optics in Boulder, Colo.

1997

Shawn E. Cheney BSc Eng is vice president and branch manager of Ingersol Rand Equipment & Services in Elkridge, Md.

Tyler K. Faulk BSc Eng is a major and program manager for the U.S. Army Corps of Engineers in Turkey.



Skye (Stock) BSc Geol and Pat MacCarthy BSc Eng '98 announce the birth of their first child, James Patrick, born December 27, 2005. James is also the first grandchild of Dr. Patrick MacCarthy of the Chemistry Department. Pat is a senior product manager for Olympus in Bethlehem, Pa.

Colin M. Matheson BSc Min Eng is president of Matheson Mining Consultants Inc. in Golden, Colo.

Garry S. Pape BSc Eng married Ryan Cunningham Sept. 17, 2005. Garry is a project manager at Withers & Ravenel in Wilmington, N.C.

Joshua E. Pedigo BSc Eng is market pricing manager for Square D - Schneider Electric in Nashville, Tenn.

Paul D. Roamer MSc Met Eng is president of Roamer Enterprises Inc. in Evergreen, Colo.

Dustin G. Ruehle BSc CPR Eng is senior software engineer for ManiaTV Inc. in Denver.

Robert M. Widhalm BSc Eng is a teacher at Moanalua High School in Honolulu.

1998

Robert C. Busse BSc Eng is an applications developer for Texas A&M University in College Station.

James Allen Casey BSc Eng Phy is a new materials process development engineer for Dow Corning in Midland, Mich.

Alexis M. Dodin MSc Min Ec is adjunto a la direccion general for Total Gas y Electricidad in Buenos Aires, Argentina.

Frank BSc CPR Eng and Natalie (Beth) Lousberg BSc CPR Eng '00



announce the birth of their first child, Paige Mackenzie, born April 8.

Travis T. Moore BSc Eng is lead electrical engineer for the Black & Veatch Corporation in County Dublin, Ireland.

Cesar Orellana Conroy MSc Min Ec is a costs sub manager for Minera Aurifera Retamas SA in Lima, Peru.

Todd Perry BSc Econ was married in Lone Tree, Colo., May 20. His wife, Vicky, is a veterinarian. Todd is a project controls and scheduling engineer for Ball Aerospace & Technologies Corp. in Golden, Colo.

Lisa B.A. Ryan MSc CPR Eng is a PhD candidate in the School of Geography at University College Dublin in Dublin, Ireland.

Morgan B. Sykes BSc Eng is senior project manager for Kirkham Michael Consulting Engineers in Omaha, Neb.

1999

Camron H. Azadan BSc CPR Eng is account manager for Air Liquide USA LLC in Baton Rouge, La.

Russell BSc CPR Eng and Jaymie BSc Eng Brain announce the birth of their first child, Emeley Jaymes, Feb. 9. Russell is a graduate student at University of Hawaii.

Samuel M. Brubaker BSc Eng is area manager, maintenance support, for Holcim (US) Inc. at Holly Hill Cement Plant in Holly Hill, S.C.



Ryan Thomas, born Feb. 5. Ryan joins older brother Esten, 3.

Danna Turner Eckerty BSc CPR Eng is senior engineer for ExxonMobil Corporation in Houston.

Christopher A. Jarratt BSc Eng is senior director of the Western Air Defense Sector for the U.S. Air Force at McChord Air Force Base, Wash.

David J. Marr Jr. BSc Eng is a project engineer for Power Systems Manufacturing in Jupiter, Fla.

Matthew J. Sands BSc Eng is reliability engineer for Shell Exploration & Production Company in Denver.

Jason J. Spice BSc Met & Mat Eng, MSc Met & Mat Eng '02 is a research engineer for Mittal Steel in East Chicago, Ind.

Robin L. Swank MSc Geol Eng is a staff geologist for Berry Petroleum Company in Denver.

2000

Faisal A. Al-Jalahmah BSc Pet Eng, M Eng Pet E '06 is assistant professor for the Public Authority for Applied Education and Training (PAAET) in Safat, Kuwait.

Ryan BSc Pet Eng and Sabrina (English) BSc Pet Eng Binkley announce the birth of Simon O'Douglas Binkley born on Feb. 14.



Charles D. Carwin BSc Math & Comp Sci is ALM analyst for Conning Asset Management in Hartford, Conn.

Stanislav I. Chervyakov M Eng Pet E is a reservoir engineer for BP Canada Energy in Calgary, Alberta.

Nael Dajani MSc Min Ec is a financial analyst for the Saudi Aramco Company in Dhahran, Saudi Arabia.

Katja Freitag PhD Geol is mining specialist for McKinsey and Company in Johannesburg, South Africa.

Jason E. Gumble BSc Geop Eng is a geophysicist for BP America Inc. in Houston.

Richard E. Kopp BSc Eng is a consultant for Accenture LLP in Denver.

Erica L. Lekawski BSc CPR Eng is a financial analyst for IBM in Highlands Ranch, Colo.

Heidi L. Morrow BSc CPR Eng is a process engineer for VECO in Boulder, Colo.



Jacob Perkins BSc Eng and his wife, Lela, announce the birth of their first child, Samuel Jacob, born March 22 in Denver.

Eric S. Potter BSc Eng is electrical project engineer for Case New Holland in Wichita, Kan.

Dax C. Routh BSc Pet Eng is senior drilling engineer for the Hess Corporation in Houston.

Kelly T. Taga BSc Chem is business process analyst for Pulte Homes Inc. in Englewood, Colo.



Mary Larson Troxell BSc Eng and **Hobie Troxell BSc Eng** graduated with master of business administration degrees from the University of Texas at

Austin. Mary is a project manager for BAE Systems and Hobie is a gas and chemical cost manager for Freescale Semiconductor.

2001

Robert A. Aikman II BSc Eng is a captain in the U.S. Air Force in Spokane, Wash.

Adam E. Douglas BSc Eng is a senior electrical engineer for Lockheed Martin Corporation in Denver.

Shannon S. Freeman BSc Eng is a mechanical engineer for MKS Instruments in Boulder, Colo.

Andrew M. Haney BSc Pet Eng is a reservoir engineer on the Jonah Development Team for Encana Oil & Gas (USA) Inc. in Denver, Colo.

Jaclyn B. Haney BSc Chem Eng is a facilities engineer for Shell Unconventional Resource Energy of Shell Exploration and Production Co. in Denver.

Carlos J. Ochoa BSc Pet Eng, M Eng Pet E '02 is a corporate reservoir engineer for St. Mary Land & Exploration in Denver.

Craig W. Sabol BSc Math & Comp Sci is a business analyst for the Corporate Executive Board in Washington, D.C.

Corey A. Scheele BSc Eng is a consultant for Accenture LLP in Atlanta, Ga.

Jake J. Taylor BSc Min Eng is project engineer for Kenny Construction in Bothell, Wash.

Jake J. Taylor BSc Min Eng is project engineer for Kenny Construction in Bothell, Wash.

2002

Ijea Alfred BSc Eng was a keynote speaker at the 25th annual awards banquet for the Colorado Association of Black Professional Engineers and Scientists in May. She is lead electronics analyst for the Department of Defense.

Cody M. Allen - BSc Math & Comp Sci is web contact administrator for Apollo Group, Inc. in Littleton, Colo.

Mohammad F. Al-Matrouk MSc Pet Eng, PhD Pet Eng '06 is research assistant at the Kuwait Institute for Scientific Research (KISR).

Eric A. Bergstrom BSc Geol Eng, MSc Geol Eng '06 is a geotechnical engineer for Tetra Tech RMC in Longmont, Colo.

Eric A. Bergstrom BSc Geol Eng, MSc Geol Eng '06 is a geotechnical engineer for Tetra Tech RMC in Longmont, Colo.

Eric A. Bergstrom BSc Geol Eng, MSc Geol Eng '06 is a geotechnical engineer for Tetra Tech RMC in Longmont, Colo.

Adam L. Berig BSc Chem Eng, MSc Eng & Tech Mgmt '03 is a project manager for Cordilleran Compliance Service Inc. in Arvada, Colo.

Jeffrey Blanz MSc Met & Mat Eng is a materials engineer for W.L. Gore & Associates in Flagstaff, Ariz.

David M. Borowski BSc Eng is an account representative for business development for Halliburton Energy Services in Denver.

Amir Hossein Chaghajardi PhD Eng Sys is a senior design engineer for LSI Logic in San Jose, Calif.

Randall N. Christiansen BSc Eng is a substation engineer for Xcel Energy Inc. in Denver.

Sean M. Clark BSc Chem Eng is a zone engineer for Air Liquide USA LLC in Houston.

Nathan R. Dutzmann BSc Math & Comp Sci, M Intl Pol Econ Res '06 is a consultant for Princeton Consultants in Princeton, N.J.

Terri L. Erb BSc Pet Eng is a drilling and completions engineer for EnCana Oil & Gas (USA) Inc. in Denver.

Nathaniel J. Gilbertson BSc Geol Eng, MSc Geol '06 is a geologist for Newfield Exploration Company in Lakewood, Colo.

Christopher R. Hammitt BSc Eng, BSc Econ, MSc Eng & Tech Mgmt '05 is a systems analyst for Fast Enterprises LLC in Helena, Mont.

Robert M. Marquez BSc Eng, MSc Eng Sys '04 is project engineer for Civil Design Group Inc. in Denver.

Jose M. Mogollon BSc Geol Eng is a PhD candidate at Utrecht University in The Netherlands.

Elizabeth M. Moore BSc Chem Eng is a lab technician for Tiorco Inc. in Cherry Hills Village, Colo.

Michelle A. Puca BSc Geol Eng is a project engineer for HCR in Delray Beach, Fla.

Michelle A. Puca BSc Geol Eng is a project engineer for HCR in Delray Beach, Fla.

2003

Jason A. Alter BSc Eng is an electrical engineer for Lockheed Martin Corporation in Kabul, Afghanistan.

Kathleen L. Baker BSc Geop Eng, MSc Geop '06 is a geophysicist for Chevron in Houston.

Kathleen L. Baker BSc Geop Eng, MSc Geop '06 is a geophysicist for Chevron in Houston.

Adetayo Suleiman Balogun BSc Pet Eng, BSc Econ, MSc Pet Eng '05 is a reservoir engineer for Shell in Conroe, Texas.

Matthew C. Balzer BSc Chem Eng is vice president of sales for MMS WEST in Denver.

Christina L. Clarke BSc Math & Comp Sci is a database manager for Kaiser Permanente in Denver.

Margaret E. Dodds Osbourne MSc Geochem is an environmental scientist in at the U.S. Environmental Protection Agency in Dallas.

Britania N. Eustice BSc Eng is an electrical engineer with ABS Consultants in Denver.

Kimberly L. Good BSc Eng is an engineer for NCI Engineering in Great Falls, Mont.

Jamie Lee Headley BSc Eng is a civil engineer for the U.S. Environmental Protection Agency in Washington, DC.

Chelsey L. Mead BSc Chem Eng is an engineer with IM Technologies in Lehi, Utah.

Mohammed A. Meetani MSc Chem, PhD Appl Chem is an assistant professor for the United Arab Emirates University in Al-Ain.

Jeremy L. O'Brien BSc Eng is a mechanical project engineer for M-E Engineers Inc. in Colorado Springs, Colo.

Montgomery C. Rivers BSc Eng is a graduate student at University of California at Irvine.

Allison Grace Schrenk was born Aug. 9 to **Amy (Bean) BSc Geop Eng** and Lieutenant Junior Grade **Brandon**

Allison Grace Schrenk was born Aug. 9 to **Amy (Bean) BSc Geop Eng** and Lieutenant Junior Grade **Brandon**



Schrenk BSc Chem Eng '02, in Gulfport, Miss. Brandon made it home from Kuwait 18 hours prior to delivery!

Timothy S. Sorensen BSc Geol Eng, Pro M Pet Res Sys '05 is a field researcher for IHS Inc. in Houston.

Timothy S. Sorensen BSc Geol Eng, Pro M Pet Res Sys '05 is a field researcher for IHS Inc. in Houston.

Herbert H. Spann BSc Eng is a design engineer for Snyder Industries in Lincoln, Neb.

Tor A. Vestad BSc Chem Eng, MSc Chem Eng '05 is a design engineer for Metafluidics Inc. in Arvada, Colo.

2004

Matthew C. Collins BSc Min Eng is mine manager for Mount Royale Ventures LLC in Boulder, Colo.

Agata K. Dean BSc Eng, MSc Math & Comp Sci '06 is an adjunct instructor at Mines.

Adam T. Dressel BSc Eng is an installation engineer for Boeing Company in Wichita, Kan.

Ross D. Harkrider BSc Eng is a petroleum consultant for Apex Petroleum Engineering in Englewood, Colo.

Brian R. Hilgers BSc Eng is a petroleum engineer for Noble Energy Inc. in Denver.

Amoret Margaret Lambrecht BSc Met & Mat Eng, MSc Met & Mat Eng '06 is a metallization process engineer for CoorsTek Inc. in Golden, Colo.

Roy C. Larson BSc Eng is a project engineer for Kahuna Ventures in Broomfield, Colo.

Larysa Viktorovna McGookey MSc Min & E Sys Eng is a software support engineer for Runge LTD in Brisbane, Queensland, Australia.

Sara E. McKay BSc Geol Eng is a staff geotechnical engineer for Yeh and Associates Inc. in Denver, Colo.

Kamyar Karimi Mohager BSc Math & Comp Sci is a software developer for MySpace.com in Beverly Hills, Calif.

Yris Olaya MSc Min Ec, PhD Min Ec '06 is an assistant professor at Universidad Nacional de Colombia in Medellin.

Michelle L. Powis BSc Eng, MSc Eng & Tech Mgmt '05 is a flight test engineer for Adam Aircraft in Englewood, Colo.

Alexi K. Rothschild BSc Eng is an engineer for Bechtel Group Inc. in Frederick, Md.

Megan A. Smith BSc Chem Eng is an associate process engineer for Rio Tinto Minerals in Three Forks, Mont.

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Megan A. Smith BSc Chem Eng is an associate process engineer for Rio Tinto Minerals in Three Forks, Mont.

Christine L. Szymanski BSc Pet Eng is a petroleum engineer for Noble Energy Inc. in Denver.

Craig J. Taylor BSc Chem Eng, MSc Chem Eng '06 is a process engineer for Shell Oil Company in Houston.

Christopher Michael Thompson BSc Eng is an engineer lead for IM Technologies in Lehi, Utah.

Tyrel R. Woodworth BSc Pet Eng, MSc Pet Eng '06 is an operations engineer for Williams in Grand Junction, Colo.

2005

Justin D. Anderson BSc Min Eng, MSc Min Ec '06 is a mining engineer and mineral economist for Marston and Marston Inc. in Lakewood, Colo.

James M. Arthurs BSc Geol Eng is a geology graduate student at the University of Auckland in New Zealand.

Ryan M. Briggs BSc Eng Phy, MSc Eng Sys '06 is a PhD candidate at the California Institute of Technology in Pasadena.

Colin W. Davis BSc Met & Mat Eng is a materials science engineer for Rocky Mountain Laboratories Inc. in Golden, Colo.

Byron R. Evans BSc Geol Eng, MSc Eng & Tech Mgmt '06 is a field engineer for Bechtel Corp. in Las Vegas, Nev.

Stephen Geer BSc Eng is a field engineer at BCI Wireless in Boulder, Colo.

Brian D. Grade BSc Geop Eng is a processing geophysicist for Vector Seismic Data Processing Inc. in Houston.

James R. Hutchison III BSc Eng is a manufacturing engineer for Adam Aircraft in Englewood, Colo.

Kjetil Jansen MSc Geop is a geophysicist for Occidental Oil and Gas Corporation in Tupman, Calif.

Kira L. Kent BSc Chem Eng, MSc Eng & Tech Mgmt '06 is an engineer for Chevron Phillips Chemical Company LP.

James E. Kopp BSc Eng is an environmental specialist with Whiting Oil and Gas Corporation in Denver.

Amy M. Kurtz BSc Eng, MSc Eng Sys '06 is an assistant engineer on the water resources team for Olsson Associates in Lakewood, Colo.

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Amy M. Kurtz BSc Eng, MSc Eng Sys '06 is an assistant engineer on the water resources team for Olsson Associates in Lakewood, Colo.

Michael A. Martinez MSc Min Ec, PhD Min Ec '06 is a major in the U.S. Air Force in Highlands Ranch, Colo.

Jennifer A. Nekuda BSc Met & Mat Eng, M Eng Met & Mat Eng '06 is pursuing her PhD at Mines.

Vinh The Nguyen MSc Chem is a research chemist for TDA Research in Golden, Colo.

Kyle E. Olson BSc Eng is an electrical engineer for Cator Ruma & Associates in Lakewood, Colo.

Anthony J. Ranalli PhD Geochem is a hydrologist for the United States Geological Survey in Lakewood, Colo.

Gretchen M. Miller Sauer BSc Eng is an associate engineer for the Parsons Corporation in Lakewood, Colo.

David C. Schneider BSc Eng is an electrical engineer for Cleveland-Cliffs Inc. in Eveleth, Minn.

Nathaniel S. Smith BSc Eng, MSc Eng & Tech Mgmt '06 is a nuclear engineer for Puget Sound Naval Shipyard in Washington.

Lauren L. Stankewicz BSc Eng is a structural engineer for MNA Inc in Denver.

Noble Varughese BSc Math & Comp Sci, MSc Math & Comp Sci '06, BSc Econ '06 is a software engineer for Avaya in Westminster, Colo.

Byron R. Evans BSc Geol Eng, MSc Eng & Tech Mgmt '06 is a field engineer for Bechtel Corp. in Las Vegas, Nev.

Stephen Geer BSc Eng is a field engineer at BCI Wireless in Boulder, Colo.

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Amy M. Kurtz BSc Eng, MSc Eng Sys '06 is an assistant engineer on the water resources team for Olsson Associates in Lakewood, Calif.

John S. Bailey BSc Eng works for Chevron Phillips in Memphis, Tenn.

David R. Balogh Pro M Pet Res Sys is a senior geophysicist for Prism Seismic in Centennial, Colo.

Kyle J. Beam BSc Pet Eng is an engineer with EnCana Oil & Gas in Denver.

Christopher A. Beaudreau BSc Eng, BSc Econ owns IntelliHome LLC in Fort Collins, Colo.

Robert Nichols Benson BSc Met & Mat Eng is a nuclear engineer for Puget Sound Naval Shipyard in Seattle.

Marc W. Bird BSc Met & Mat Eng is a project engineer for Hughes Christenson in Houston.

James E. Bland BSc Pet Eng is a drilling engineer for Devon Energy Inc. in Oklahoma City.

Brian J. Boudreau BSc Chem Eng is a process engineer for FMC in Philadelphia.

Zachary R. Brown BSc Eng is an engineer-in-training for the Los Angeles County Department of Public Works.

Eric V. Bukovsky BSc Chem is a senior scientist for Dynamic Science Inc in Maryland.

Ryan J. Bush BSc Chem is a nuclear propulsion officer candidate for the U.S. Navy.

Brian J. Callaghan BSc Eng is a graduate student at CSM.

Luis A. Casas MSc Pet Eng is a reservoir engineer for ConocoPhillips in Houston.

Andrew N. Cavendor BSc Met & Mat Eng is a graduate student at CSM.

Eloy Celis BSc Eng is a machinery engineer for ExxonMobil Corporation in Baton Rouge, La.

Marissa L. Chambers BSc Chem Eng is a process engineer for Washington Group International in Denver.

Kobchai Changklungdee BSc Pet Eng is a field engineer for Schlumberger.

Jinbok Cho MSc Min Ec is manager of Korea Gas Corp. in Seongnam.

Kevin L. Clark BSc Math & Comp Sci is a software developer for Avaya in Westminster, Colo.

Graden C. Colby BSc Min Eng is an engineer with Newmont Mining Corp.

Andrew M. Colclasure BSc Eng is a graduate student at Mines.

Kimberly D. Conner BSc Met & Mat Eng is an engineer with Phelps Dodge in Safford, Ariz.

Lauren A. Cooper BSc Eng is a graduate student at University of Colorado.

Grant L. Cope BSc Eng, BSc Econ is an engineer for Samsung Austin Semiconductor in Austin, Texas.

Franklin T. Cossio MSc Min Ec is a business analyst for Newmont Mining Corporation in Denver.

Lisa A. Costanzo MSc Geol is a geologist for Shell Exploration & Production Company in Houston.

Chad L. Crabtree BSc Eng is a design engineer for Jehn Engineering in Arvada, Colo.

Brandon C. DeHamer BSc Math & Comp Sci is a solutions developer for Avande Inc. in Highlands Ranch, Colo.

Peter A. Del Duca II BSc Eng is a coal mine safety and health specialist for the Mine Safety and Health Administration.

Tyler N. Denham BSc Eng is a design engineer for Weatherford in Durango, Colo.

Victor G. deWolfe III MSc Geol Eng is a geological engineer for Deere & Ault Consultants Inc. in Longmont, Colo.

Patrick A. Disher BSc Geol Eng works for Apache Corporation in Tulsa, Okla.

Mark E. Donnelly BSc Eng is a project engineer for OPE Inc. in Houston.

Huub Douma PhD Geop is postdoctoral research fellow in the Department of Geosciences at Princeton University.

Azuka C. Enenmo MSc Min Ec is a graduate student at Mines.

Heather S. Eppler MSc Min & E Sys Eng is a staff engineer for Briery Associates in Littleton, Colo.

Engelbertus R. Esomar Pro M Pet Res Sys is a geoscientist for Chevron Indonesia.

Stephen A. Esquibel BSc Eng works for Labjack in Lakewood, Colo.

Bryce G. Farber BSc Met & Mat Eng is a CSM graduate student.

Bryan T. Farchone BSc Eng is a technician for Ball Aerospace in Golden, Colo.

Cathy E. Flaherty BSc Math & Comp Sci is a computer systems design engineer for Lockheed Martin in Denver.

Matthew J. Ford BSc Chem Eng is a process engineer for Chevron Phillips in Borger, Texas.

Laurence P. Forsythe Jr. BSc Eng is an engineering intern for AMCI in Golden, Colo.

Anthony S. Franzone M Eng Pet E is a drilling engineer for Occidental Petroleum Company in Liberal, Kan.

Gustave M. Friesen BSc Min Eng is a mine engineer for Rio Tinto.

Megan H. Fry BSc Chem Eng is a manufacturing engineer for ATK Thiokol in Brigham City, Utah.

Emory A. Gallavan BSc Eng is a field engineer for Archer Western Contractors.

Leonard R. Gardner III MSc Min Ec is a consultant for Risk Capital Management in New York City.

Cassandra A. Gauthier MSc Env Sci & Eng is a research associate for Array BioPharma in Boulder, Colo.

Nicholas S. Gilbreath BSc Eng is an engineer for Jack Johnson Company.

Daniel T. Gonzales BSc Eng is a graduate student at Stanford University.

David L. Graham BSc Eng is an electrical engineer for ConocoPhillips in Rodeo, Calif.

Scott M. Greenburg BSc Econ is an asphalt estimator for Avery Asphalt in Colorado Springs, Colo.

Steven P. Greene BSc Chem Eng is a resource engineer for EnCana Oil and Gas.

Abraham J. Hachmann BSc Eng is a structural engineer for Henderson Engineering in Parker, Colo.

Logan Hackett MSc Geochem is a geologist for Tetra Tech EMI in Boulder, Colo.

J. David Hanley Jr. BSc Eng is a design engineer for Merrick and Company.

Thomas H. Harris BSc Eng is a design engineer for S. A. Miro in Denver.

A. Scott Harrison BSc Eng is a graduate student at Mines.

John W. Haynes III BSc Min Eng is an engineer with Washington Group International.

Kevin D. Heersink BSc Chem Eng is an engineer for ForeRunner Corporation.

Joseph F. Hemelt BSc Eng is a design engineer for Vision Land Consultants.

Eric A. Henderson BSc Eng is a structural engineer for Samuel Engineering.

Glenn O. Henkel MSc Math & Comp Sci is a software engineer for Lockheed Martin Integrated Systems & Solutions in Littleton, Colo.

Annia G. Hincks BSc Eng is a mechanical engineer for Utility Engineering in Denver.

Alex Holtzapple BSc Met & Mat Eng is a metallurgist for the Phelps Dodge Mining Company.

Kimberly A. James BSc Eng is a nuclear engineer for the Puget Sound Naval Shipyard in Bremerton, Wash.

Nichole M. Janisch BSc Met & Mat Eng works for Lafarge.

Jonathan A. Janssen BSc Math & Comp Sci works for Avande.

Alicia C. Jessop BSc Econ is a graduate student at Chapman University in California.

Erik C. Jones BSc Min Eng is a mine engineer with SunCor Energy.

Dmitriy L. Kamenetskiy BSc Econ is a graduate student at CSM.

Kong Kamollertvara BSc Eng is a project engineer for Asia Group 1999 in Bangkok, Thailand

Jessica R. Kent BSc Eng is a design engineer for Vision Land Consultants.

Ahmad R. Khosravi MSc Pet Eng is supervisor for the National Iranian Oil Company (NIOC) in Tehran.

Zachary J. Kimball BSc Chem Eng is a project pngineer for Compliance Partners Inc. (ad next page)

Aaron S. Kofford BSc Eng is a CSM graduate student.

Kristopher A. Lasnik BSc Eng is a test bay technician for Community Power Corporation.

Mimi V.K. Le BSc Eng works for Western Area Power Administration in Lakewood, Colo.

Kyra R. Lee BSc Chem Eng is an assistant hazards analyst for AlphaTRAC Inc. in Westminster, Colo.

Joseph W. Ley BSc Chem Eng is group manager for Anheuser Busch in St. Louis, Mo.

Joseph R. Maddux BSc Eng is a design engineer for Adaptive Innovations Corporation in Lakewood, Colo.

Elizabeth R. Major BSc Math & Comp Sci is an exploitation cryptoanalyst for a Department of Defense contractor.

Mohamad F. Malik BSc Pet Eng is a petroleum engineer with Petronas.

Richard P. Martin BSc Math & Comp Sci is a software engineer for Western Geco.

Scott A. Maxson BSc Met & Mat Eng is a graduate student at Clemson University.

Lisa K. McDowell BSc Pet Eng works for EnCana Corporation.

Meghan R. McKee BSc Eng is a development engineer for ConocoPhillips in Anchorage, Alaska.

Brittany D. McKenzie BSc Eng is a systems engineer for Lockheed Martin Corporation in Highlands Ranch, Colo.

Justin S. McMillan BSc Math & Comp Sci is a second lieutenant in the U.S. Army.

Ian D.T. McQuade BSc Eng is a field engineer for M.A. Mortenson in Denver.

Adam J. Meininger BSc Met & Mat Eng is a technical sales engineer for Hunting Energy Services in Houston.

Andrew Miller MSc Env Sci & Eng is pursuing his PhD in environmental science and engineering at Mines.

Nathaniel W. Miller BSc Math & Comp Sci is a second lieutenant in the U.S. Air Force.

Ryan C. Miller BSc Eng is a second lieutenant and a civil engineering officer in the U.S. Air Force.

Devin J. Mills BSc Pet Eng is a drilling engineer for Oxy in Elk Hills, Calif.

more in next issue...

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