Listen Up!

Was very interested in the article in the fall Mines magazine titled “Listen Up” concerning the Internet radio station at Mines. Back in 1948, spearheaded by John Morgan EM ’49, we built a carrier current station using a war surplus aircraft transmitter. The station was located in the basement of the gym. Our call letters were, of course, KCSM. The RF was introduced into the power AC via a capacitor. We covered most of Golden, although there were some dead spots due to the vagaries of the power company distribution system. Our goal was to broadcast football games, although we also did some basketball. Away games were played later, having been recorded on a tape recorder. We also played some music – at first there were many eager disk jocks, but the demands of studies whittled away some of the initial enthusiasm.

I regret that I cannot dredge up the names of some of the pioneer sportscasters (some were very good, too) but, alas, time has stripped them from my memory. I do not know how long the station lived. I left after graduation in 1950.

Daniel Butner EM ’50

Humanitarian Engineering

I read your article “Humanitarian Engineering” and I must correct Dr. Cecil on his perception of how the Peace Corps functions. He stated, “Unlike the Peace Corps or the U.S. Agency for International Development (USAID), Habitat’s global village projects do not import U.S. home-building materials and technology, but rather help the local homeowners and laborers with their designs and construction techniques based on locally supplied materials.”

I served in Peace Corps-Panama in 2002-2004. During my three-month training period, it was beat into my head that Peace Corps volunteers would become human resources where they served. In my village of 1,000 people, I became part of a group of women entrepreneurs who wanted to start an income-generating chicken project. I helped them access the value of their bamboo, mud and grass (which can be used in place of concrete), tools and labor. With this, we wrote a budget together that proved the community was investing more than half the value of the project. What was missing was the money to purchase chicks, their food and medicine. The women submitted this budget and proposal to USAID, which they wrote, and thus learned a valuable skill for future projects. The total they actually received from USAID was less than $300. USAID will only fund Peace Corps projects if the community shows that half of the amount needed is community-contributed.

The work of Peace Corps volunteers should never be depicted as unsustainable or culturally insensitive. My colleagues and I lived in these communities for two years, not two weeks. We truly understand the challenges our neighbors face in the developing world.

Whitney Trainor BSc Geop ’01

Correction: The thickness of the gold leaf on Guggenheim Hall is not .025 inches as reported last issue. It is actually much thinner, closer to .00025 inches.
New Grads Charged to Lead World Energy Future
December commencement speech by U.S. DOE's Office of Science director

About Cover: Dr. Raymond L. Orbach, director of the Office of Science for the U.S. Department of Energy, was the commencement speaker at Mines in December. He urged the new graduates to apply their creativity to solving the world's energy problems and outlined future possible energy solutions. "These are the opportunities for you to use your talents, learning and commitment to literally save the world," he told them. The complete speech starts on page 20.
"Mines is at the right place at the right time," says John Poate, the School's new vice president for research and technology transfer. He's referring to Mines' potential to expand its reputation as a leader in energy, earth resources, environment and materials as outlined in the strategic plan.

"There are excellent people here: faculty, staff and students," he says. "The four key focus areas outlined in the strategic plan are critical issues facing the United States and the world. Developing solutions will require innovative research and Colorado has unique strengths and advantages." The area already is home to the National Renewable Energy Laboratories (NREL), the National Institute of Standards and Technology (NIST), the National Center for Atmospheric Research (NCAR) and the new Fitzsimmons campus of the University of Colorado Health Sciences Center, among other key players. Plus, Colorado is an attractive location where innovators might want to set up business.

Poate said he sees his job as "enhancing where we are already, then growing the research area. The faculty, staff and graduate students will have to drive this." He continues, "My main role is to act as a catalyst for them. I want to build a research-friendly environment to facilitate the endeavors of the faculty. For example, I’ll work with them on proposal writing. I’ll help establish the right contacts within industry, labs and other schools."

Hiring and retaining outstanding faculty are essential to maintaining and enhancing the School's reputation. Poate says, "We will have to come up with competitive start-up packages and maintain competitive salaries to retain these stars. But once they're started, their research will primarily be covered by the grants they bring in. Research-intensive faculty create a sense of excitement about science and engineering for students. So many exciting things happen in the R&D arena that a technical institution would be a pretty dull place without vibrant research. There is nothing like the excitement of discovering or measuring something no one else has seen before. That's what it's all about." Currently Mines has 26 research centers on campus. "That seems a lot for an institute of Mines' size," says Poate. "What I will do is work with faculty and administration to focus on critical areas in energy, Earth resources, environment and materials and build a critical mass of internationally recognized centers. I expect a natural merging of research will occur. Large centers are needed to generate the funds for state-of-the-art equipment and the personnel to maintain them.

"At the same time I’ll be working with my U.S. and international friends in the industry and national labs and other universities to see how Mines fits in and develop joint programs. These are the sort of activities that will help me focus on the right ideas and help develop the tech transfer programs."

Before joining Mines in January, Poate was chief technology officer and vice president of Axellis Technologies, a leader in the manufacture of ion implantation machines for the semiconductor industry. Prior to that, he was dean of the College of Science and Liberal Arts at the New Jersey Institute of Technology. The bulk of his research career was at Bell Labs where he was head of the silicon processing research department. Poate holds a doctorate in nuclear physics from the Australian National University. He was the John Bardeen Award winner of The Metallurgical Society in 2002.

Research for Fun and Profit
An interview with Mines' new vice president of research

"The 20th century was the century of physics. The 21st century will be the biology century." Poate

"The 20th century was the century of physics. The 21st century will be the biology century," he said. Poate holds a doctorate in nuclear physics from the Australian National University. He was the John Bardeen Award winner of The Metallurgical Society in 2002. Research for fun and profit is Poate's philosophy. He takes this outlook from the then-vice president of research at Bell Labs, Nobel Laureate Arno Penzias, whose motto was "physics for fun and profit." Poate's broader, more inclusive outlook is more suited to Mines.

"Times have changed and so has research. "The 20th century was the century of physics. The 21st century will be the biology century," Poate says. "And how will Mines play in this arena? "Mines already has some excellent programs in biology such as biogeochemistry, environmental microbiology and biomaterials. Another burgeoning area is nanoscience and nanotechnology, where Mines also has some excellent research efforts."

"At the research level, we've got some excellent stuff going on," says Poate. "Now we've got to pull it all together."

By Maureen Keller

Students Participate in World Petroleum Congress

Ten CSM graduate students from six countries in the International Petroleum Economics and Management program, offered jointly by the Economics and Business Division and the French Petroleum Institute, attended the 18th World Petroleum Congress in South Africa in September.

"This was the first time in its 72-year history that the congress has been held in an African country, a reflection of the growing importance of Africa to the petroleum industry," says Donald Walker, a student organizer of the trip. The congress is held every three years by the World Petroleum Council. More than 3,000 delegates from the petroleum industry, government, academia and non- governmental organizations came together to discuss the future of the industry.

According to Walker, "The goal of the trip was two-fold. First, we wanted to learn as much as possible about the energy industry. Second, we wanted to expand our cultural awareness by learning about Africa." The congress' focus was on how the energy industry can partner with government, academia and civil society to meet the world's rapidly growing demand for energy while protecting the environment and operating in a way that is socially responsible.

The congress featured big-name speakers including Lord John Browne of Madingley, BP chief executive; Rex Tillerson, president of ExxonMobil; Total's exploration and production president, Christophe de Margerie; and Rex Tillerson, president of the World Petroleum Council.

In addition to hearing speakers, congress participants could choose from more than 100 special presentations or roundtables chaired by leading industry experts. "The idea of promoting transparency and fighting corruption was a significant focus of the congress," says Walker. Other issues addressed climate change, the role of technology and how to attract more young people to the industry.

While in South Africa, the 10 Miners also toured a coal-to-liquids plant, visited historic Johannesburg, Pretoria and Soweto (formerly home to Nobel Laureates Nelson Mandela and Desmond Tutu) and took a photo safari in a game preserve.

By Alejandro Nebreda

Omotayo Soyemi poses with a traditional Zulu warrior during a visit to the Lesedi Cultural Village. From left: Nicolas Jonard (France), Vikram Balasubramanian (India), Omotayo Soyemi (Nigeria), Matthew Denby (France), Benjamin Pope (USA), Delaby (France), Marie Mahesra (South Africa), and Delaby.
Short takes

December Commencement

Raymond Orbach, director of the Office of Science at the Department of Energy, was the speaker at the midyear commencement ceremony in December. Of the 273 degrees conferred, 142 were bachelor of science degrees, 109 were master’s degrees and 22 were doctorate degrees.

During commencement ceremonies, honorary degrees were awarded to Orbach, as well as to Meng Ersheng, retired chief geophysicist of China’s Bureau of Geophysical Prospecting, and to Thomas Petrie, co-founder of Petrie Parkman & Co. and former managing director and senior oil analyst of The First Boston Corporation. A Mines Medal was presented to Bryan Cooney, who has served Mines for more than 20 years as a curator of the paleontology collection for the Department of Geology and Geological Engineering and for the Geology Museum.

Kim Williams, an Engineering Leader

Kim Williams, associate professor in the Department of Chemistry and Geochemistry, was selected to participate in the Women in Engineering Leadership Institute in Anaheim, Calif., in November. Sponsored by the National Science Foundation, the institute is targeted at mid-career women engineering faculty who are prime candidates for assuming leadership positions in academia in the near future.

Amery Named IWRA Fellow

Hussein Amery, Liberal Arts and International Studies, has been appointed Fellow of the International Water Resources Association (IWRA). This is the highest rank of membership given to members, described by IWRA President Aly M. Shady as “among the best and brightest in the business of water science.” Amery has written extensively about water politics in the Middle East.

Fuel Cell Research

Mines has won a U.S. Department of Energy grant for approximately $1.5 million over five years to help develop commercially available hydrogen fuel cell vehicles.

Energy Secretary Samuel W. Bodman said, “Investments in fuel cell and hydrogen research today will enable America to lead the world in developing clean, hydrogen-powered automobiles that will reduce our dependence on imported oil.”

Andrew Herring, associate research professor in Chemical Engineering, will lead the team that conducts research on the polymer membrane, an integral part of a hydrogen fuel cell system, to advance membrane durability and extend shelf-life, while simultaneously bringing down the cost.

Mobile Science Show Accelerates

Mines has received a $500,000 Daniels Fund grant to support its Mobile Science Show (MSS) program, a K-12 educational outreach program that aims to improve teacher competency and student aptitude in science.

Sue Anne Berger MSc Min Ec ’82, MSS program director, created the program in 1991 to enrich science education through hands-on teacher training and student instruction throughout Colorado. “The Mobile Science Show is pleased to have the Daniels Fund as a partner in educating elementary teachers and students in the dynamic and vital field of science,” she said. “The funding will allow the program to bring valuable training and supplies to hundreds of area school children and teachers.”

During the 2005-06 school year, the Mobile Science Show will visit 10 Jefferson County elementary schools. The program will then extend into the 2006-07 academic year, increasing student competency in science while giving teachers exciting new ways to combine science instruction with other subject matter.
VP Knows Finance and Fourteeners

Hille Dais has been appointed interim vice president for finance and operations. She served as an associate vice president at Mines from 1999 to 2003. Prior to that, she was senior finance officer for the Colorado Commission on Higher Education, manager of administrative support for the Colorado Department of Revenue, analyst and associate staff director for the Colorado Joint Budget Committee, and an analyst in the Colorado Governor’s Office of State Planning and Budgeting.

An avid climber, Dais has reached the summits of all 54 of Colorado’s “fourteeners.” Born and raised in Hamburg, Germany, Dais earned degrees from Metropolitan State College of Denver and the University of Minnesota.

Hille Dais

CANstruction Project

At the Castle of Cans Food Drive in November, students, faculty and staff raised awareness about hunger in Colorado, donated nonperishable food for the holidays, and applied their engineering skills to a CANstruction competition. The drive resulted in 8,798 pounds of food, distributed in Thanksgiving Day boxes to members in need in the Mines community, and the rest donated to the Food Bank of the Rockies. Beta Theta Pi fraternity was the overall winner of the contest.

Hall of Fame

Arthur Lakes, a Mines geology professor from 1882 to 1891 after whom the library is posthumously named, was selected for the Jefferson County Hall of Fame in October. Lakes is best remembered for discovering the Jurassic dinosaur specimens at Morrison in 1877. In addition to his teaching role at Mines, he also founded the Geology Museum and established its mineral collection, and he wrote numerous technical papers on the geologic resources of the Front Range and Jefferson County. Lakes died in 1917.

Project of the Year Award

Environmental Science and Engineering Director Robert Siegrist has been presented with the Strategic Environmental Research and Development Program (SERDP) Environmental Restoration Project of the Year Award for his work on the Department of Defense project “Reaction and Transport Processes Controlling In Situ Chemical Oxidation of DNAPLs.” Other researchers on the project, selected from more than 60 others, were Michelle Crimi PhD Env Sc ’01, Tissa Illangasekare and Junko Munakata-Marr.

NSF Award

Jason Liu, assistant professor in the Mathematical and Computer Sciences Department, received a National Science Foundation CAREER award for his project “Immersive Large-Scale Network Simulations.” The prestigious award supports the “early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization.”

NSF Award

Representatives of the Northrop Grumman Corporation presented a large check last fall to the Florence Caldwell Scholarship Fund. Accepting the donation were members of Mines’ Society of Women Engineers (SWE) chapter. From left, Gary Repetto of Northrop Grumman, SWE President Katherine Mutanpaaugh, SWE adviser Candace Sutichok BSc BS ’01, SWE Vice President Ayga Dean BSc Eng ’04 and Stefanie Hall of Northrop Grumman.

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The Passage of Referendum C and Defeat of Referendum D: What it means for Mines

In November, the voters of the State of Colorado adopted Referendum C, but also rejected Referendum D. Referendum C will provide a temporary time-out from the revenue limits imposed by TABOR and allow the state to keep excess tax revenues above the TABOR-imposed limits for the next five years. It will also permit the state to spend these revenues on health care, public education (K-12 and higher education) and transportation. Finally, Referendum C will set the new TABOR base using the highest annual state revenue collections over the next five years as the new base for future TABOR limitation calculations.

Referendum D would have permitted the state to borrow up to $2.1 billion to be used for state infrastructure needs in transportation, K-12 and higher education buildings, and local fire and police pensions. It would have taken effect only if Referendum C was also approved and it would have increased the revenue that Referendum C allows the state to keep by $100 million each year into the future, beginning in Fiscal Year 2011.

As of early December, the School still did not know the specific impact on higher education in general or to the Colorado School of Mines in particular. It is believed that with the passage of Referendum C, the state will not be forced to cut its budget in FY 2006-07 and the state will have additional financial resources and funding options available to it, which would not have been available without the passage of Referendum C.

Higher education could see increased state funding in FY 2006-07 for the first time since 2001. Such funding could be in the form of (1) increased student stipend levels (currently $80 per credit hour); (2) additional state student financial aid; and/or (3) additional state funding support for “fee-for-service” agreements, which help fund graduate education and specialized educational services (i.e., high-cost engineering programs at CSM).

The state could begin to restore prior cuts made over the last four years to several state departments and services. For higher education, it is hoped that the state might begin to at least partially fund prior unfunded enrollments experienced by public higher education institutions since FY 2001. During this time, higher education enrollment grew by more than 20,000 student full-time equivalents (SFTE) with no additional funding from the state.

The ultimate decision on what levels of state funding might be available and how the state might allocate any new funding will be made during the upcoming legislative session, which begins in January. At this point, the impact of these possible changes in state funding, the CSM Board of Trustees’ final decisions on tuition levels for next year and the overall campus budget are still unclear. The CSM Board of Trustees have until Feb. 15 to submit its FY07 tuition proposal to the state legislature and will likely not finalize the overall campus budget until May or June.

By Dan Montez

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While much is unknown at this point, the 2006-07 state budget process has begun in earnest. In November, the governor presented his plan for spending the Referendum C revenue and outlined his FY 2006-07 budget request of $6.5 billion to the Legislative Joint Budget Committee. For the current 2005-06 fiscal year, the governor would like to spend the majority of the funds available from Referendum C on state transportation needs ($296 million). The Colorado Commission on Higher Education plans to request a supplemental fund for the current fiscal year of $495 million to partially cover unfunded enrollment in public higher education.

For the upcoming 2006-07 fiscal year, over $500 million is projected to be available in excess TABOR revenues. Some of the highlights of the governor’s FY 2006-07 budget proposal include distributing Referendum C dollars in equal parts to public funding in K-12 education, College Opportunity Fund vouchers for state college and university students and Medicaid premiums. He also wants to provide for a 3.64 percent performance-based increase in salaries for state classified employees, marking the first time the state has funded performance pay while excluding salary survey adjustments.

Also proposed is providing $4.8 million in additional general fund dollars for health, life and dental insurance benefits for state classified employees in order to bring the state to 75 percent of the average prevailing private sector employer contribution to benefits. Other items in this proposal include paying the Fire and Police Pension Fund the state might owe, restoring the Senior Homestead Exemption and providing $50.5 million for controlled capital projects. For higher education, the governor proposes to increase the College Opportunity Fund stipends from $2,400 to $2,580 (based on a 30-credit-hour load for a full year); increasing fee-for-service funding to colleges and universities by $29.1 million; increasing student financial aid by 6 percent ($4.7 million); and limiting resident tuition rate increases to 2.5 percent.

Overall, the governor’s budget request would boost general fund support for the Department of Higher Education by 10.2 percent in FY 2006-07 under his proposal. With the failure of Referendum D, the state will not be able to issue bonds and will not be able to begin several state capital construction projects immediately, but will have to deal with these infrastructure needs through the normal state budget process on a pay-as-you-go basis.

With Referendum C passing, the School is hopeful that it can secure enough additional state capital funding to complete the current Center for Technology and Learning Media (CTLM) capital project as it was originally designed. The School will request funding of about $2 million to help offset the higher-than-expected costs of construction, which have escalated since the original funding request was made several years ago due to the impact of national and world events such as Hurricane Katrina and rising oil prices.

The School will continue to keep the campus and alumni updated on major developments regarding the School’s state funding outlook for next year.
Mini-Grants at Mines: Endowing Excellence in Engineering Education

For Mines faculty, the return of the highly effective Curriculum Development Mini-Grant Program inspires creative new ways to think about engineering education. For funded programs, the mini-grant program helps ensure that their education will equip them with significant advantages as practicing scientists and engineers. The program awards up to $5,000 to faculty for undergraduate curricular reform projects to enhance student learning and more fully incorporate elements from multiple disciplines into teaching and learning models at the School.

Mini-grant funding brings educators’ most innovative curricular design ideas to fruition with wide-ranging benefits for the Mines community. Thanks to generous endowed gifts from President and Mrs. John Trefny, and Gerald ’68 and Tina Grandey, the seeds of innovation have once again borne fruit. “These mini-grants give the faculty some support for developing new ideas about how to teach and how to learn,” said President Trefny.

“The mini-grant program helped anchor the Writing Across the Curriculum (WAC) program at Colorado School of Mines. Prior to 1998, few CSM faculty members had participated in WAC workshops. Between 1998 and 2001, 38 Mines faculty members received stipends for participating in the summer workshops. The workshops gave faculty participants additional tools with which to design, implement and develop WAC-intensive courses. The workshops earned consistently high evaluations from faculty, and at least one representative from all CSM departments and divisions participated, making WAC a more integral component of program curricula at Mines.” — Dr. Jon A. Leydens, CSM Writing Program administrator and assistant professor, Liberal Arts and International Studies Division

Mini-Grants Move Mines Forward

Mines’ 18-year strategic plan sets forth ambitious goals for enhanced research, innovation and technology transfer — goals that the newly-revised mini-grant program will help the institution reach. Endowed support for the program ensures that curricular assessment and innovation remain central to the educational priorities of the School. Mines has become a major center for engineering education research, and mini-grants help sustain an under-graduate curriculum that serves as a distinctive model for similar institutions worldwide.

The creativity fostered by Mines’ culture of continuous improvement is evidenced not only by the mini-grant program but also by the Center for Engineering Education (CEE). Initially established in 2000 to serve growing faculty interest in engineering education research, the center has developed into one of the School’s most valued assets in just over five years. Ruth Streveler, CEE director, notes, “I am pleased that curriculum mini-grants have returned to CSM. The mini-grants not only help maintain the reform but also help to foster faculty discussion and excitement about improving student learning.”

President and Mrs. Trefny’s endowed gift helps further the School’s initiative to continually advance engineering education, ensuring its versatility and relevance in contemporary society. Gerald and Tina Grandey chose to support the mini-grant program improvements by designating their endowment gift for projects that help prepare the next generation of engineers for work in the increasingly global arena of natural resources. Such projects serve as powerful engines of change in engineering education at Mines.

Nigel Middleton, executive vice president for Academic Affairs and dean of faculty, has a strong commitment to the mini-grant program. Reflecting on its past success, he notes, “I had the privilege of being on the administrative side of the mini-grant program in the 1990s and saw the cumulative and highly beneficial effect of all of the grants on the institution-wide revision of the Mines curriculum. With this reinvestment of the mini-grant, “EPICS introduced me to the idea that engineering is an exercise in teamwork. This concept has been the underpinning of my educational experience at Mines. Last year, I had a reservoir engineering internship with BP Alaska and the technological and teamwork skills I learned at Mines integrated seamlessly into the business world. I was able to easily adapt to the technology used in the oil industry and my experience working on teams was useful in a variety of settings all summer long.” — Heather Fenrier, Class of 2007 instructional technology in the classroom. As a result of this crucial funding, every undergraduate benefits from an up-to-date, engaging EPICS curriculum that lays the groundwork for the rest of their educational experience at Mines.

Like EPICS, physics courses are required of all Mines students. When the mini-grant program began at the School, faculty were reorienting their approach from a lecture format to one that more fully engaged students. Mini-grant funding was critical to the development of this new approach, allowing Dr. Thomas Furtak to redesign Physics I, now a national model for “active-engagement teaching.” Summer mini-grant funding also enabled Dr. James McNell to conduct external research on physics curricula and improve the Physics II course at Mines. Advanced physics segments are now carefully integrated, providing students with a deeper understanding of the course content. These mini-grants impacted thousands of students, and Mines’ physics program is widely recognized for its successes.

Dr. Frank V. Kowalski of the Department of Physics received funding from the new mini-grant endowment in 2005 for his proposal, Differentiated Learning in a Laboratory Course. He will design lab curriculum that allows instructors to teach writing skills to those who need them most, while nurturing advanced experimental skills in those who already excel at writing. This visionary program will explore how to better meet the unique needs of each student, while ensuring all Mines students develop excellent communication skills.

Thanks to the pioneering efforts of President Trefny and other faculty members over the years, as well as philanthropic support from Mines’ community of donors, the renewal of the Curriculum Development Mini-Grant Program will help the School sustain continuous curricular improvement and maintain its leadership in engineering education now and into the future.
Successfully competing in a global economy is a major challenge of our time. Today’s students are much more likely to work for a company with an international base than they were 50 years ago. They are more likely to work abroad. And they’re more likely to have to compete on an international scale.

The petroleum industry provides a good example of how the world has changed. In the 1950s, oil companies usually made one-on-one agreements with oil-rich countries and were able to control prices. In the 1960s, a group of oil-producing countries formed the Organization of Petroleum Exporting Countries (OPEC) in order to influence oil and gas production and price. But today, the market is wide open. Oil has become a worldwide commodity that everyone needs. No one entity controls the market so it has become more important than ever to train students to understand how supply and demand works.

Mines has taken a step toward accomplishing this with its new Master of International Political Economy of Resources (MIPER) degree, first written about in the summer 2005 issue of Mines. Since then, the Colorado Commission on Higher Education has given its approval and the first new master’s degree could be awarded as early as May to DeAnn Craig BSc Chem ’73, BSc CPR ’80, MSc Min Ec ’02, PhD Interdisciplinary ’05, currently a member of CSM’s Board of Trustees and a longtime proponent of the School’s teaching international political economy.

The new degree is built around political and socio-economic studies of resource-producing and resource-consuming regions of the world, combined with quantitative studies in relevant statistical tools and in engineering technologies for resource development. As such, International Political Economy of Resources (IPER) is a multidisciplinary field that focuses on the analysis of the interaction and intersection of the state and the market on an interstate and global scale, with particular reference to the resource industries. Culture underpins and governs the political and economic universe, and IPER also stresses the importance of the actions of state and non-state actors across borders. It is ideally suited for educating global resources engineers and helping them acquire necessary political, economic, and cultural skills, sensitivity and appreciation to successfully compete in today’s global environment.

International political economy is a young discipline that has been around since the mid-1970s, but the degree from Mines will be the first in the world to explore the role of the state and the market on resources.

Philippe Dunoyer, a former Mines student, CEO of Total Petroleum North American and, for the past 10 years, adjunct professor in the School’s McBride Honors Program, says teaching students about international political economy gives them a roadmap to how the world works. It teaches them how to ask the right questions. It’s not an advanced scientific discipline, but more based on observation and common sense,” he says.

Dunoyer began his career as a geophysicist in the field but soon was promoted to corporate planning and management positions. “I would have had a much better learning curve if I’d known IPER first,” he notes. “I knew nothing about economics. The relationship between the state, markets and culture is the totality of what makes economies function.”

With the introduction of the MIPER degree, Mines is helping train future industry leaders. “We can no longer produce engineers who are just technical,” says Ed-So Pang, Liberal Arts and International Studies professor and one of the forces behind the creation of the new degree. “If our graduates’ knowledge is only technical, they will hit a ceiling [in their careers]. The attitude of oil and mining company executives is entirely different today than it was 10 years ago. Then, it was ‘if you have the technical knowledge, we’ll train you in our business.’ Today, they realize this doesn’t work. Businesses don’t want just an engineer. They want someone who can look at the big picture. They want someone who knows where the action will be in 30 years.”

Mines hopes to give its student an edge by giving them a global perspective. Pang and Dunoyer teach introductory courses in international political economy and say Mines students rapidly grasp its importance. “The whole world is one big marketplace today wherever you work,” says Dunoyer. “What happens in one part of the world is felt on the other side of the globe.”

Pang envisions expanding the program to include 20 to 30 students. “We want a third to be American and two-thirds to be international,” he says. “We want our students to start early in an international environment. It’s important for Americans to know their competitors.”

“And 21st century engineers need to understand how the world is put together,” adds Dunoyer.
In 20 years, the Reservoir Characterization Project has gone from an unconventional new approach to an established and vibrant consortium.

In the mid-1980s, when Tom Davis (PhD Geoph '74) decided to form a consortium to study reservoir characterization, the oil and gas industry was experiencing exploration successes. They didn’t care much about older, more difficult fields. Much of the “characterization” that did take place prior to drilling was done on large maps hanging across tables or tacked to walls. However, Mines liked the idea of interacting with industry and the industry liked the idea of supporting students at the School. The actual characterizing of reservoirs was a little less clear in terms of importance.

Now 20 years later, the oil and gas industry is interested in resources from hard-to-extract locations and CSM’s Reservoir Characterization Project (RCP) has become a model of community-based research. Mines graduate students study and provide answers for companies that are striving to enhance productivity in existing fields. As oil and gas supplies become more difficult to extract and consumption increases, it’s vitally important to figure out how to get the most from each reservoir. So far, the project has produced an enormous body of work in characterizing reservoirs in an attempt to explain and predict how each individual reserve will behave under production.

The concept of the RCP was for oil companies to offer up their fields for a two-year phase of study during which time numerous experimental things would be tried to better explain the behavior of the reservoir. Companies were encouraged to support the RCP with money and the donation of equipment, services and personnel.

But Davis and some of his colleagues sensed a change on the horizon. Even before the inception of the RCP, he joined CSM geology Professor Bob Weimer to team teach a class called Integrated Exploration and Development. Robert D. Benson (BSc Geoph ’78, MSc Geoph ’84, PhD Geoph ’97) joined the RCP as co-director in 1988. Davis credits Weimer with helping him focus on the framework of reservoir characterization through their work together on reservoir studies.

As exploration began to dwindle, oil companies realized they needed to focus more on production. It was time to develop ways to maximize production in existing fields. The RCP took up the challenge of studying and characterizing reservoirs in an attempt to explain and predict how each individual reserve will behave under production.

The first two-year phase of the project was the study of the Silo field in the Denver Basin. Amoco had found oil in 1983 but had problems with recovery. Initial production from wells was good, but fell off as much as 90 percent within a few months. No one could explain why. The Silo site became the RCP’s guinea pig. Using shear wave technology, the RCP gained an understanding of the complex reservoir and eventually determined that horizontal drilling would be the best way to develop Silo, which became the first horizontal field in the Rockies.

Since then, the RCP has progressed to Phases X and XI, developing a couple of patented technologies along the way and adding a vast amount of knowledge to the field of reservoir characterization. Recently, the national press reported that CO2 had been successfully injected into reservoirs as a way to enhance oil recovery and reduce greenhouse gases at the same time. That test took place as the RCP’s Phases VII and VIII in the Weyburn field in southeastern Saskatchewan, Canada.

The success of the Weyburn project could have incredible implications on reducing CO2 emissions and increasing America’s oil production, “U.S. Energy Secretary Samuel Bodman said recently in a speech he gave in the Middle East. Bodman added that if the process were used in all the oil fields of western Canada, “we would see billions of additional barrels of oil and a reduction of CO2 emissions equivalent to pulling more than 200 million cars off the road for a year.”

Rhonda Duey is exploration technology editor for Hart’s E&P in Houston.

The Reservoir Characterization Project has helped establish CSM as an involved participant in industry problems, not an “ivory tower” with few ties to the real world. President John Trefny says, “Feedback about RCP reflects that about the School as a whole. We are recognized as being in tune with and responsible to societal needs. The consortium approach to support for RCP is replicated throughout the campus… and brings several hundred industry leaders into advisory roles for the School; alumni working in the various industries add thousands more to these ranks. Collectively, these individuals help us remain relevant and effective.”

Rhonda Duey is exploration technology editor for Hart’s E&P in Houston.
I am delighted to be here with you this morning to honor the 273 degree recipients of this distinguished institution. For more than 130 years, Mines has pioneered in the application of the most sophisticated science to outstanding energy and environmental problems facing this nation and the world. You are blessed with a proud heritage and international renown. It is your opportunity to continue the proud traditions of this very special institution.

I am here to honor you, the graduates, and to suggest ways you can fulfill your mission in the discovery and recovery of the Earth’s resources, their conversion to materials and energy, their utilization in advanced processes and products, and the economic and social systems necessary to ensure their prudent and provident use in a sustainable global society. The Colorado School of Mines is committed to serving the people of Colorado, the nation, and the global community by promoting stewardship of the Earth upon which all life and development depend.

What a wonderful mission, one which could not be timelier and crucial. Of course, I am speaking about energy, once thought to be cheap, unlimited, and freely available to our nation. Today, all three aspects are in trouble. And so is our globe. Availability of sufficient environmentally friendly energy sources to meet the needs of a rapidly growing and developing world population is the most pressing problem our civilization has ever faced.

The world’s energy appetite will at least double by the end of this century (some claim it will triple). The environmental consequences could be catastrophic. Greenhouse gases are accumulating in our atmosphere at an alarming rate. For CO2 alone, the atmospheric concentration is approaching 400 ppm, 40 percent higher than when fossil fuels began to come from and how can it be carbon-free? The world therefore has a two-fold problem: Where will this new energy of this century.

At least four transformational technologies possess the potential for significant amounts of clean reliable economic energy: solar energy, fusion power and biologically derived fuels.

The world’s energy consumption is lost in waste or rejected heat. With less than 5 percent of the world’s energy consumption, not negligible, but far less than the doubling to tripling of the world’s energy consumption, the United States was to be 100 percent efficient in the use of energy, this would amount to but 15 percent of the world’s energy consumption, not neglectable, but far less than the doubling to tripling of the world’s energy consumption. Neither, when amplified globally, more efficient use of energy can play a major role.

Greatly diversify energy sources and create infrastructures for them.

At least four transformational technologies possess the potential for significant amounts of clean reliable economic energy. Solar energy utilization, advanced proliferation-resistant nuclear energy systems, fusion power and biologically derived fuels.

Solar energy utilization can be solar-to-electric, solar-to-fuels, or solar-to-thermal conversions. Sunlight provides by far the largest of all carbon-neutral energy sources. More energy from sunlight strikes the Earth in one hour than all the energy consumed on our planet in a year. Yet solar electricity provides less than 0.1 percent of the total electricity supply, and renewable biomass (sustainably grown) provides less than 0.1 percent of all total energy consumed.

In the area of solar-to-thermal conversion, solar radiation as a source of heat, using high-efficiency thermoelectric and thermal photovoltaic converters coupled to solar concentrators, have the potential to generate electricity at converter efficiencies of 25 percent to 35 percent. Chemical conversion sequences can convert focused solar thermal energy into chemical fuel.

In regard to the development of advanced proliferation-resistant nuclear energy systems. Current “once through” reactor policy leaves spent fuel rods with long-term heat loads and radioactive decay. Disposal of light water reactor waste must be included as a cost of energy generation from fusion reactors. Once-through spent fuel, subjected to chemical separation, offers many potential options for managing its constituent parts including transmutation of radionuclides in fast-spectrum reactors; recycling plutonium in existing light-water reactors advanced thermal reactors; stabilizing of fissile products in robust waste forms; and transmutation of long-lived fission products into longer lasting systems.

Two examples of biologically derived fuels are biofuels derived from plant cell walls, otherwise known as cellulose ethanol, and hydrogen produced from water using energy from the sun, known as biophotolytic hydrogen.

Under certain conditions, green algae and cyanobacteria can use energy from the sun to split water and generate hydrogen. Research to understand and develop predictive models of hydrogenase (the enzyme that cleaves water to produce hydrogen) structure and function, genetic regulatory and biochemical networks, and eventually entire microbes, can lead to an “ideal” microbial to use in hydrogen bioreactors, or the “ideal” enzyme-catalyst to use in bio-inspired nanotechnologies for hydrogen production.

These four examples of transformational change and disruptive technologies, if successful, will reduce the gap between energy demand and production, while at the same time stabilizing atmospheric CO2 at levels the Earth can live with. The combination of conservation and clean reliable energy production can lead to a sustainable, abundant energy future for our world.

These are the opportunities for you to use your talents, learning and commitment to literally save the world. Never before has the need been greater. You have been blessed with inquisitive and intelligent minds. Combined with the blessings bestowed upon you by this remarkable institution, you have been empowered to change the future of our world, for the better. The Department of Energy, your government, urges you to take the challenge. No better group of young scholars exists.

Dr. Orbach is director of the Office of Science at the U.S. Department of Energy.
**CSM Athletics winter 2006**

**Volleyball Team Qualifies for NCAA Tournament**

**First time in program history**

The Mines volleyball team enjoyed the best season in School history as it posted a single season School record 20 wins against 11 losses.

In addition, the Orediggers qualified for the RMAC tournament for the first time since 1997 and earned a berth in the NCAA Division II National Championships for the first time in the history of the program.

CSM opened the season by winning three matches in California and then posting a 3-1 record at its own tournament in Volk Gymnasium. The only loss was a 3-2 setback to nationally ranked Washburn.

Following a 3-2 win over University of Colorado-Colorado Springs on Oct. 2, CSM stood at 13-3 overall and had winning streaks of six straight and four straight matches. The Orediggers wound up going 19-9 to finish the regular season and went to the RMAC tournament as the No. 7 seed with an 11-8 mark in conference matches.

In the opening round, CSM handed second-seeded Mesa State a 3-2 loss before falling to third-seeded Metro State, 3-2, in the semifinals. Despite that loss, the Orediggers secured a berth in the national tournament, but fell in the opening round, 3-0, at Nebraska-Kearney, the top-ranked team in Division II for much of the season.

Junior middle blocker Amanda Rebol was a unanimous First Team All-RMAC selection, while sophomore setter Ashley Galloway and sophomore Craig Thompson were Second Team picks. Masaki Hemmi was honored as the RMAC Freshman of the Year.

The squad broke 15 School records as it posted a single season School record 20 wins against 11 losses.

**Men's Soccer Enjoying Dream Season**

The men's soccer team enjoyed the best season in School history as it earned a berth in the NCAA Division II National Tournament for the first time.

CSM finished the 2005 season at 13-7-4 overall with three of the losses going to RMAC rival Fort Lewis, who advanced to the NCAA Final Four.

CSM started the season with five straight wins. Following two straight losses, the Orediggers won four of their next five matches and also tallied a 0-0 draw with Fort Lewis College (FLC), who did not lose or tie another match all season.

Mines entered the RMAC tournament as the No. 3 seed and advanced to the finals on penalty kicks over Metro State before falling to FLC in the finals.

In the national tournament, CSM advanced to the second round on penalty kicks over Incarnate Word, but lost to Fort Lewis in the second round, 1-0.

Seniors Mike Dixon and Rafaer Ribeiro led the First Team All-RMAC honors, while juniors Daniel Lookley and Kevin Galloway and sophomore Craig Thompson were Second Team picks. Masaki Hemmi was honored as the RMAC Freshman of the Year.

Dixon tied the single season school record with 16 goals this season and led the team with 33 points.

**Mines Football Runs Into Record Books**

The Mines men's and women's cross-country teams competed at the 2005 NCAA Division II National Championships Nov. 19 at Prado Regional Park in Pomona, Calif., and each squad turned in its best performance in program history.

The Oredigger women, who placed 14th in the country two years ago, finished fifth among the 24 competing teams with 194 points on the 6-K course, while the men's squad, making its first appearance at the national championships in School history, finished sixth with 234 points on the 10-K course.

On the men's side, junior Joel Hamilton led the way as he placed eighth overall in 31:51.30 to earn All-American honors and six team points. Junior Larry McDaris, who competed at nationals as an individual last year, finished 36th overall in 32:56.90 to earn 27 points and also earned All-American accolades.

Rounding out the top five for the Orediggers were senior Ryan Miles who was 55th, junior Michael Rooney who finished 82nd and junior Clifton Oertli who was 162nd overall.

Seniors Hannah Davey and Heather Beresford once again led the women's team as they placed 34th and 37th, respectively, to earn 27 and 28 team points.

Davey finished in 22:35.30, while Beresford was right behind in 22:35.70. Each also earned All-American accolades.

Freshman Megan McKee was 53rd, senior Serena Gardiner was 54th and junior Melanie Peddle was 74th to round out CSM's female finishers.

**WMU Cross-Country Off to Good Starts**

Winter Sports

Off to Good Starts

**Mines Football Runs Into Record Books**

The Mines football team enjoyed its fifth straight winning season under Head Coach Bob Stitt as it finished the 2005 season at 6-5 overall and in second place in the RMAC at 6-2.

It is the first time in program history that CSM football has had five consecutive winning seasons.

CSM stood at just 1-3 four games into the season, but finished the season by winning five of its final seven games, including a 42-27 win over Adams State in the season finale to clinch a winning season.

A total of 13 players earned All-RMAC honors at the conclusion of the season, including senior Justin Gallas who was the RMAC Special Teams Player of the Year and Wide Receiver of the Year. Gallas was a First Team pick at wide receiver and kick returner and was a Southwest Regional Finalist for the Harlon Hill Trophy.

Senior Travis Yenne was a First Team selection and the RMAC Linebacker of the Year, while senior Jared Heath also garnered First Team honors and was named the RMAC Linebacker of the Year.

Running Back Ryan Flores was the other player to earn First Team All-RMAC honors.

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By Greg Murphy
Sports Information Officer
Study-Abroad Students Focus on Their Host Countries

Sixty-three photos were submitted for this year’s fall 2005 Education Abroad Photo Contest. About 12 to 15 percent of graduating CSM seniors have studied abroad for a semester. The photo contest is open to those students who studied abroad during the 2004-2005 academic year, as well as to international students who studied at CSM. These are some of the entries, which include Colorado and foreign locations.
Ken Larner Geop E ‘60, PhD Geop ‘70, who had been CSM’s Charles Henry Green Professor of Exploration Geophysics, retired last fall. That’s the official word, but CSM campus has hardly seen less of him.

In spring, he agreed to teach but planned to spend working. So, if in the next couple of years you have occasion to be in contact with this dedicated professor, you might very well find him at CSM.

Dave Hale has assumed the C.H. Green Professorship, but Larner took the comfortable path by moving his books and materials into the office just next door. Larner is adamant, however, that this semester he will not be at the School enough to justify having an office, so he is slowly vacating that office.

Since retiring, he has volunteered with several organizations. Evergreen Scholarship and Bootstraps, or ESBI, is an organization in his Evergreen/Conifer, Colo. community that collects and distributes scholarship money for college-bound high school kids in the area. Larner serves on the committee that selects eligible recipients. Larner also commuted to Lowry Air Force base to help the Salvation Army with Hurricane Katrina relief.

Throughout his career Larner earned numerous awards including the Maurice Ewing Award, the highest award of the Society of Exploration Geophysicists, in 1996. Also, he says, “It was very special that in the semester after I retired I was selected to be a CSM University Emeritus Professor.” Larner says this award was truly special because his association with Mines goes back 50 years when, as a junior in high school in Florida, the idea of getting to study geophysics at Mines became an obsession for him. Larner says he has never cared to display his awards. “You can’t sell them or give them away,” he smiles, so he boxes them up. “It’s nice if I receive an award but I forget about it almost immediately.”

Awards may not impress this hard-working geophysicist but a well-turned phrase certainly catches his attention. “I am in awe when I read a well-written novel,” he says. Currently reading the political novel Snow by Turkish author Orhan Pamuk, Larner says he particularly appreciates Ivan Doig because of his lyrical mastery of the English language. Another favorite writer is his wife, Nancy, who is currently looking for a publisher for her children’s book, The Mouse in the Rabbi’s Study, which was inspired by a dream she had about the mouse infestation in their Evergreen house last winter.

“I feel the CSM geophysics department is outstanding, with great talent and warmth among both faculty and students,” Larner says. This statement seems profoundly true based on how much of his retirement is otherwise been overlooked. The exercise brought home to those students the immense task that lies ahead in Iraq.

Davis is an associate professor in the Division of Economics and Business.

Undergraduates Assist with Iraqi Development Plan

By Graham Davis

Last spring, Professor Graham Davis was about to move into the final section in his undergraduate class, Economic Development, when a special call for help came in. Lt. Col. Robert Gilchrist PhD Min E ’99, a professor of economics at the U.S. Air Force Academy who is temporarily stationed in Baghdad to assist with the Iraqi reconstruction effort, asked Davis for help with prioritizing Iraq’s development needs as outlined in the National Development Strategy. “Ultimately, the goal is to assist the Iraqi government by suggesting emphases using a prioritized, time-phased plan for implementing the strategy,” Gilchrist wrote.

Davis challenged his class to take up this task. Each class member had already been working on a development strategy for a developing country of their choosing, but here was a chance to put theory to work in a live case. The class was divided into 10 groups, each taking a look at a specific development challenge within Iraq. After several class meetings, the group came up with a coherent set of priorities emphasizing Iraqi-led housing construction and construction-related job training as a core component of short-term development. This would simultaneously reduce the severe unemployment in Iraq, rebuild communities and provide a basic need, while providing a means by which small businesses in Iraq could be revitalized, either in the construction process itself or via supply to the construction effort. The class also determined that the Iraqis should have self-determination over the planning and design of their communities, to create a sense of ownership of the reconstruction process. Once trained in construction, this same Iraqi labor force could then be used in the massive reconstruction effort that will be needed to restore and rebuild Iraq’s infrastructure.

Last May, the class connected to Central Command at Camp Victory in Baghdad via a live two-way videoconference and presented their results. Gilchrist was delighted with the advice the students provided, noting that some of the ideas presented were priorities that might have otherwise been overlooked. The exercise brought home to those students the immense task that lies ahead in Iraq.

Davis is an associate professor in the Division of Economics and Business.

By Carolyn Hendrex

Retirement Doesn’t Keep Larner Away From Office

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Alumni notes & quotes

Sig Ep Reunion Planned
Richard LaPrairie BSc Min ’74, P.Eng., is planning a reunion for friends and family of the Colorado Delta Chapter of Sigma Phi Epsilon in Reno, Nev. in June. If you’d like to attend but haven’t been in contact with LaPrairie, visit www.lmiengineering.com/06party.html for more information. The 2002 and 2004 reunions drew about 50 alumni each from as far away as Australia.

Czarnowsky ’75 Pens Novel
Alan Czarnowsky BSc Min ’75 has written a novel, Dear Katy, Love Dad, published by Xlibris Corporation. It is the story of three generations of Mines graduates and much of the story takes place on campus and around Golden. As described on the book jacket, it “is a story about personal discovery. When Will Reed inherits the old hat box, he discovers a lifetime of letters from his grandfather to his mom. Letters from an estranged dad, who tried to cast influence to a daughter from across an ocean. As Will begins the examination of the letters, he figures to unearth his heritage, to learn more about his grandfather, and to garner a few family stories to share with his own 10-year old daughter. But Will discovers much more. Enough to change his life forever.”

Alumni Raise Money for Food Bank
Brian BSc ’99 and Mindy BSc Econ ’01 Arbuckle raised $2,114 for the Food Bank of the Rockies in November with their first annual Sun Salutation-A-Thon at the Green Mountain yoga studio they own. The studio’s students and teachers gathered sponsors to donate money for each sun salutation they could perform at one time over the weekend of November 11-13. Each sun salutation has at least 12 postures that move with the breath. The students performed at least 40 sun salutations each with the top performers completing 80 and 108 sun salutations. One hundred percent of the donations were given to the Food Bank to help feed the needy for the holidays. The Arbuckles founded their yoga studio last spring in Arvada, Colo.

Science, Technology and Ethics
The Encyclopedia of Science, Technology, and Ethics, published last August by Macmillan Reference, includes articles by 13 Mines professors. Carl Mitcham, professor in the Division of Liberal Arts and International Studies, was editor-in-chief. The four-volume set includes about 700 articles by 400 authors from more than 30 countries. The encyclopedia covers moral issues raised for humans since the earliest technologies through the scientific advances of today. Authors from Mines include Hussein Amery, Juan Bautista Bengoetxea, Maeve A. Boland, PhD Geol ’05, John Franchi, Tina Gianquitto, James Jessadaon, Jon Leydens, Jan Lucena, Carl Mitcham, Suzanne Moon, Barbara Oehl and Tai Soo Pang.

Alumni Reunion 2006

Things to do:
• Check website to see who’s coming and what’s being planned (www.alumnifriends.mines.edu, then click on “May reunion” at bottom left)
• Find Station
• Book hotel room
    Golden Hotel, 800 11th St., Golden. 800-233-7214.
    Sheraton West, 360 Union Blvd., Lakewood. 303-987-2000. Ask for CSE12A.
    Table Mountain Inn, 1310 Washington Ave., Golden. 303-277-9898. Ask for Alumni Reunion block of rooms.
• Mail in registration form, or register on-line (www.alumnifriends.mines.edu, click on “online Event RSVP”) then click on “May reunion” at bottom left)
• Find Stetson
• Check website to see who’s coming and what’s being planned


To CELEBRATE E-DAYS ’ROUND THE WORLD
Thursday, April 13, 2006 (Save the Date!)
Contact CSMAA@mines.edu to volunteer.

Young Alumni of Mines!
(Also known as Young at Heart)
Harry Campbell Donates Over $2 Million to Mines

Petroleum Engineering Department Head Craig Van Kirk and Harry Campbell

As a member of Mines’ 1939 undefeated football team and a petroleum engineering major, Harry Campbell PE ’42 understands the many important dimensions of a Mines education. With his recent gift of $2.2 million, Campbell’s generosity provides endowment support to help continue the School’s legacy of excellence in both academics and athletics.

Part of Campbell’s donation will endow a chair in professorship in the School’s world-renowned petroleum engineering department. A portion of his gift will also be allocated to Mines’ football team, adding to the Excellence in Football Endowment that Campbell established in 2001.

“Harry Campbell’s generous gift demonstrates his tremendous dedication to Mines. We are honored that he has chosen to make such a significant contribution to the School’s academic and athletic programs, and will apply these gifts to ensure that our students continue to benefit from a well-rounded and challenging college experience,” said Mines President John U. Trefny.

Campbell translated his own success in the classroom and on the football field to success in the oil fields, building a distinguished career with several oil companies before founding his own business in 1972. As he puts it, “My own experience at Colorado School of Mines was the foundation that has supported me,” said Campbell.

“With his recent gift of $2.2 million, Campbell’s support of Mines’ petroleum engineering major, Harry Campbell PE ’42, will add to the Excellence in Football Endowment that Campbell established in 2001. A portion of his gift will also be allocated to Mines’ football team, helping to continue the School’s legacy of excellence in both academics and athletics.

Campbell retired from the oil business in 1972. As he puts it, “My own experience at Colorado School of Mines was the foundation that has supported me,” said Campbell.

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

- Dr. Lonnie L. Abernethy established a charitable gift annuity with a donation of $100,000. The principal from the annuity will be added to the Lonnie & Gertrude Abernethy Fellowship in Ceramics and the Lonnie Lee Abernethy III Fellowship in Ceramics in honor of his parents and his son.
- Harry D. Campbell ’42 donated real estate with a value of $2,227,896 to establish an endowed chair in petroleum engineering, support curriculum enhancement and add to the Campbell Endowment for Excellence in Football.
- Steve ‘64 and Dolly Chesbro’ made a gift of $25,000 to support CSM Athletics.
- Marshall ‘67 and Jane Crouch made a $34,000 payment toward their $100,000 Transforming Resources campaign pledge. This gift will support The Mines Fund and the Geology Department, as well as provide discretionary funding for four professors in geology and geophysics.

In honor of his 50th reunion, Joseph R. Dunbar ‘56 made a generous gift of $100,000 in continued support of the Wyoming Scholarship Fund.
- Gerard ‘68 and Tina Grandery made gifts totaling $50,000 to support the Grandery Endowment in the McBride Honors Program. This gift will support The Mines Fund and the Geology Department, as well as provide discretionary funding for four professors in geology and geophysics.

S. Bruce ‘60 and Eleanor Heister made a $25,000 gift through the Arcos Charitable Foundation to support the McBride Honors Program in Public Affairs Fund.
- Ralph L. Hennebach ‘41 made gifts totaling $50,000 to support the Grandery Curriculum Mini-Grant Endowment Fund and The Mines Fund.

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

- Dr. Lonnie L. Abernethy established a charitable gift annuity with a donation of $100,000. The principal from the annuity will be added to the Lonnie & Gertrude Abernethy Fellowship in Ceramics and the Lonnie Lee Abernethy III Fellowship in Ceramics in honor of his parents and his son.
- Harry D. Campbell ’42 donated real estate with a value of $2,227,896 to establish an endowed chair in petroleum engineering, support curriculum enhancement and add to the Campbell Endowment for Excellence in Football.
- Steve ‘64 and Dolly Chesbro’ made a gift of $25,000 to support CSM Athletics.
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Recent corporate and foundation gifts of $25,000 or more to CSM include:

- The ARCS (Achievement Rewards for College Scientists) Foundation contributed $49,000 toward scholarships for nine students.
- BP contributed $26,600 to support the departments of Chemical Engineering, Engineering (Mechanical Specialty), and Petroleum Engineering; the Minority Engineering Program (MEP); and the Society of Women Engineers (SWE).
- The Burlington Resources Foundation contributed $25,000 to support the Petroleum Engineering Department.
- The Adolph Coors Foundation contributed gifts totaling $268,800 in support of the William K. Coors Distinguished Chair in Chemical Engineering and the Herman F. Coors Professorial Chair.
- The Viola Vestal Coulier Foundation contributed $35,000 to support the Coulier Chair in General Economics.
- The Daniels Fund contributed $50,000 to support the Mobile Science Show, benefitting K-12 schools in the Jefferson County area.
- The Halliburton Foundation contributed gifts totaling $43,000 to support 3-12 petroleum engineering education and an adjunct professorship in the Department of Petroleum Engineering.
- Landmark Graphics contributed $60,000 to support a graduate student studying under Dr. David Hale.
- The Li Foundation contributed gifts totaling $42,000 to support the Li Foundation Fellowship program.
- The Marathon Oil Company Foundation contributed $100,000, completing their $300,000 pledge establishing the Marathon Center of Excellence for Reservoir Studies.
- Newmont Mining Corporation contributed $30,000 to support improvements in the experimental Edgar Mine.
- Schlumberger contributed $25,000 in support of the Department of Geophysics’ Center for Petrophysics.
Anaheim, Calif.
Candy Sulzbach BSc BE ‘81, Sally Rautio BSc Pet ’00 and Lori Stucky BSc Eng ’97 were among those who attended the Society of Women Engineers convention in Anaheim in November.

Grand Junction, Colo.
About 40 alumni and friends held a tailgate party before the Mines-Mesa State game in late October.

Chino, Calif.
Miners in Southern California traveled to Chino to watch the Mines track team compete. The event was followed by a picnic.

Spokane, Wash.
Quite a few Miners showed up at the Northwest Mining Association breakfast in December.

The Importance of Establishing Developmental Relationships

In November, the Alumni Association invited students and alumni to a campus event on the importance of mentoring. Joe Mahoney ’86, founder of Just in Case Business Lighthouse, a consulting firm that helps companies explore and solve problems through the case-study method, led the group in an interactive exercise. Students in attendance outnumbered alumni three to one, and many of the young alumni present expressed interest in being mentored themselves. Our alumni population, with a deep breadth of knowledge from industries located worldwide, are in possession of a precious commodity: their own experience. Who better to share it with than a fellow alumnus/na or future graduate? This is a meaningful way to get involved with the Mines community, with bountiful rewards for both mentors and protégés alike.

Participants in this mentoring event were asked to fill out a questionnaire so that the Office of Alumni Relations can build a database of potential mentors and protégés and provide a conduit for budding networking or mentoring relationships.

Later in December, the Office of Alumni Relations staff, together with other key stakeholders in the campus’ Career Center, Office of Institutional Advancement, Athletics Department, Special Programs and Continuing Education office, as well as CSMAA board members and career specialist vendors, were invited to participate in a mentoring case study and brainstorming session. The diverse group generated many worthwhile ideas, and all agreed that the key ingredient in a well-executed mentor program is the human touch. This is where I call upon Mines’ greatest resource, its human resource, the Mines community, and you are an integral part of it.

Please consider offering your advice to a budding mind of either a student or another alumnus/na. Your location need not matter; with the proliferation of e-mail and accessible cell phones, relationships can bud and grow from a distance. If you would like to learn more, please send me an e-mail at aparisea@mines.edu or feel free to give me a call (303-273-3296). If you would like to share your ideas and feedback on how best to make this program work, I welcome them. My goal for this year is to find a successful mentor match for each of the students or young alumni who attended our mentoring session—that magic number is 40. May I count on your help?

With all the best for the happiest new year.

For the greater good of Mines,

Anita Pariseau
Executive Director
International

New Life Members

John H. Barney ’57
Lance R. Barron ’74
Marshall B. Belden Jr. ’69
Harry J. Briscoe ’70
Derek T. Brusno ’95
Samuel Chang ’98
William F. Clark ’77
Joseph E. Furtado ’81
Rebecca A. Furtado ’01
William Mark Hart ’97
L. Roger Hutson ’82
Robert E. Irelan ’68
Ronald R. Jones ’67
John T. McDonough Jr. ’69
Joann M. Meneghini ’91
Bryant M. Moon ’01
Anita Puriseau
Elizabeth J. Reagun ’00
Katherine A. Stachowiak ’97
John S. Stachowiak ’97
Gaynell O. Wagner ’95
Lois F. A. Wagner ’84

For the most up-to-date information on what alumni events are scheduled around the country and the world, go to www.alumnifriends.edu and click on “News and Events” at the top. Then scroll down to the calendar listings.

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RBC Dain Rauscher, the 8th largest full-service securities firm in the U.S., strives to stay one step ahead of the ever-changing investment world. We want the same for you. Our Wealth Management approach encompasses all stages of your financial life and integrates them into one holistic plan. We’ll look at ways to help you accumulate, protect, and transfer your wealth.

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Extraordinary in Nature

Announcing a one-of-a-kind travel-study opportunity through the Colorado School of Mines Alumni Association

July 22-27, 2006

Our adventure begins in Calgary, Alberta, where we will gather for our first journey through the foothills of the Canadian Rockies. We pass through Banff National Park en route to the spectacular setting of the Emerald Lake Lodge. Following a welcome dinner we will meet with the Burgess Shale Foundation for a two-hour interactive presentation on the world’s most significant fossil discovery. Take advantage of a full-day opportunity to hike the notable Burgess Shale or sightsee in Yoho National Park, Lake Louise and along the Icefields Parkway to Peyto Lake and Crowfoot Glacier. Leaving Emerald Lake, we set our sights on the remote Selkirk Range of the Columbia Mountains and helicopter to the Adamant Lodge for two and a half days strolling, hiking and exploring with knowledgeable mountain guides. Evening lectures by Mines geologist John Wenne complement the days’ hikes through the Adamant intutions, one of the largest intusions of black granite. This area is home to some of the oldest rock on earth — some theories date it back 3.8 billion years — and holds prime examples of both syenite and horn mountain structures. Following our exploration of the Adamants, we return to Calgary and then home on your own.

Call Audrey at Canadian Mountain Holidays directly for more information on this unique experience for the Mines community at 1.800.661.0252. Don’t delay as space is limited; the CSMA/RMAG Grand Canyon River Rafting Trip for 2006 sold out in a flash!

Tim Marsh BSc Pet ’76 (left) and Richard LaPrairie BSc Min ’74, former fraternity brothers, met up in Beijing in August. They hadn’t seen each other in at least 30 years. LaPrairie owns LMI Engineering in Reno, Nev.
In memoriam

CARL DAVID BAER EM ’52 died March 10 at age 75. His career spanned 45 years. He worked on base and precious metal and coal projects on all continents except for Antarctica. He was a life-long member of the Alumni Association and a strong booster of the mining industry. Baer is survived by his children, Diane, Dana, and Debbie.

RICHARD J. “RICK” CARLSON MET E ’69, MSC Min EC ’81, PhD Min EC ’04 of Golden, Colo., died Oct. 19. He was 57. Carlson was born in Oregon and moved to Colorado at age 9. After graduation from Mines, he served as a second lieutenant and combat engineer in Germany from 1969 to 1972. In 1983, Carlson moved to South Africa, where he worked underground as a certified explosives specialist. He once escorted a caravan of cars through war-torn Mozambique. He also worked in corporate roles for companies like BHP Billiton and Newmont. Carlson is survived by his widow, Mary; a daughter, a son, three grandchildren and a sister.

JOHN CHARLES “JACK” DINGMAN JR. PRE ’52 of Houston died July 30 at age 77. After graduation from Mines, Dingman went to work for Jefferson Chemical. He retired from the company as a certified explosives specialist. He once escorted a caravan of cars through war-torn Mozambique. He also worked in corporate roles for companies like BHP Billiton and Newmont. Dingman is survived by his family.

DINGMAN was an active member of Memorial Drive United Methodist Church, a veteran of the U.S. Navy, and was one of the founders of SIEBSQSA, a group that promotes barbershop quartets, in Austin, Texas. He is survived by his widow, Marry, a daughter, a son, three grandchildren and a sister.

FRANK D. HOTTER GEOE ’59 died of cancer June 18 in Belleville, Ill. He was 68. Hotter was born in Greeley, Colo., and after graduation from Mines, joined the U.S. Air Force. He retired as a lieutenant colonel in 1982. During his time in the military, Hotter earned a master’s degree from Ohio State University. He also pursued advanced studies in geologic science. After retirement, he became a design engineer for advanced systems of macrocrystalline feathers (now Boeing). He retired in 1992. Hotter was a member of the Masonic Lodge, Scottish Rite and Shriner’s Hospital for Children. He is survived by his wife of 48 years, Bonnie, two daughters and seven grandchildren.

BENJAMIN F. RUMMERFIELD SE GEOE G ’40 died of natural causes at home in Tulsa, Okla., Aug. 31. He was 87. In addition to his Mines degree, he earned an Advanced Management Program certificate from Harvard Business School. Through the Mountain Stream Association, Rummerfield was instrumental in the design and manufacture of newly miniaturized and portable seismic and well logging equipment for use in the field. This instrumentation was used in Rome for the detection and discovery of St. Peter’s tomb within the Vatican. In 1980, Rummerfield founded GeoData Corporation and worked domestically and internationally in recording, mapping, brokering and storing hydrocarbon and minerals exploration data. In 1963 he took part in the early success of indirect geophysical detection by the U.S. government of secret underground nuclear bomb tests in the former Soviet Union. Rummerfield earned numerous awards and accolades including Honorary Life Membership from the Society of Exploration Geophysicists, Outstanding Service Award from the Metropolitan Tulsa YMCA and the Distinguished Achievement Medal from CSM. Rummerfield was a leader in many civic and professional organizations. He was a past-president of CSMAA. Rummerfield also was a painter and one of his paintings was reproduced for the cover of Mines magazine in 1980. Rummerfield is survived by two daughters, two sons, a brother, three grandchildren, one great-grandchild and two stepchildren.

FRANK M. STEPHENS JR. MET E ’42 died July 1 at age 84. A native of Colorado, Stephens was happiest in sight of mountains and streams. He was a retired geological engineer. Van Horn was both a surficial mapper and a landslide expert. He produced numerous reports on the geology, sedimentary deposits and landslides of the Denver-Golden area. He also conducted similar studies in Utah along the Wasatch Front, and participated in the U.S. Geological Survey effort to map the geology of the State of Kentucky. Before attending Mines, Van Horn served in the U.S. Army Corps of Engineers. He was a member of The American Association of Petroleum Geologists, Association of Engineering Geologists, Utah Geological Association and the Mines Alumni Association. His hobbies included skiing, golfing, swimming, canoeing, dancing and hiking. He was a Boy Scout cub master and scout master and an Explorer adviser. He wrote or co-wrote more than 100 geologic reports and gave many geologic talks to school children, adult groups and professional societies. He and his wife, Alice, who predeceased him, had five children.

DONALD J. VANORDEN GEOE G ’56 of Midland, Mich., died Sept. 19 at age 74. VanOrden served as a first lieutenant in the Army Corps of Engineers during the Korean Conflict. In 1956, he joined Sun Oil Company and worked in various production engineering assignments until 1973. Later assignments were as district engineer in California and chief operations engineer in Dallas. VanOrden retired in 1987. He was a Registered Professional Engineer and a member of the Society of Petroleum Engineers. He also was a member of the American Petroleum Institute, Industry Advisory Committee at CSM and on the board of directors of the Michigan Oil and Gas Association. VanOrden is survived by his wife of 38 years, Charli, two sons, four grandchildren, a great-grandchild and a sister.
John R. Smith PE is an executive director of Quantum Resources Inc. in Santa Barbara, Calif.

1967

Joe D. Stewart RME PE, MSc Min Ec '79 is a senior petroleum engineer for Berry Petroleum Company in Denver.

1968

Charles E. Brooks III MSc E, MSc Met E '78 is a senior manager for Statoil USA Inc. in Golden, Colo.

John R. McMillan PE is a field safety auditor for Orbita Resources Inc. in Aurora, Colo.

1969

Joseph H. Sullivan Met E is executive director for Sacramento Teachers League in Sacramento, Calif.

1970

Larry A. Cramer Met E is a consultant for Coherent Consulting in Limpopo, South Africa.

Robert L. Drusner BSc Met is a project manager for Teta Tech EC Inc. in Lakewood, Colo.

1971

Joseph H. Kent Met E is retired in San Antonio, Texas.

1975

Edward E. Repp Del PE is retired in Naperville, Ill.

Lloyd R. Pavlik Met E is a senior petroleum engineer for Statoil ASA in Bergen, Norway.

1976

Robert E. Brady Jr. BSc Chem is retired in Lakewood, Colo.

Nicholas J. Cavenoh PE is an independent consultant in Longmont, Colo.

1977

Larry J. Hepple Met E and wife Cheryl operate Transcontinental Oil and Brandon in Frisco, Idaho. Their daughter would have Mines alumni visit the store.

Stanley M. Lukin Met E is retired in Lakewood, Calif.

1978

Gary S. Williams Met E is a safety and health inspector for the U.S. Department of Labor in Abilene, Texas.

Garett H. Smith Met E is an associate professor in the Mackay School of Earth Sciences and Engineering at University of Nevada in Reno.

1979

Edwin Darling Phy E is director of Arrowhead Resources in Anchorage, Alaska.

1980

Patrick J. Early PE is retired in Denver. Colorado.

1981

Benson L. Joseph Met E is retired in Reno. Nevada.

1982

Robert J. Koch BSc Min E is retired in Salt Lake City.

John R. Green BSc E is a corporate economist for the World Bank.

1983

Robert L. Davison BSc Met is a project manager for Teta Tech EC Inc. in Boulder, Colo.

Howard E. Inman Met E, MSc Met '77 is a senior petroleum engineer for Marathon Oil Company in Denver.

Timothy J. Conjans BSc Met is the chief executive officer for Endeavour Silver Corp. in Coeur d'Alene, Idaho.

James J. Emme MSc Geol is an engineering manager for W.W. Grumman in Boulder, Colo.

1984

James J. Stinner BSc Met is a project engineer for Northern Mineral Resources Inc. in Anchorage, Alaska.

1985

David A. Thompson BSc Pet is a vice president for Schlumberger in Houston.

1986

Richard J. Laman BSc Math is principal of Tittes Construction Shop.

1987

David A. Thompson BSc Pet is a vice president for Schlumberger in Houston.

1988

John R. Green BSc E is a principal consultant for corporate strategic planning for Chevron in San Ramon, Calif.

Thomas L. Young BSc CPR is a senior staff geophysicist for Chevron in San Ramon, Calif.

Kim S. Moon BSc Met is an engineering manager for Marathon Oil Company in Houston.

1989

Ronald L. Brinkman BSc Met is an electrical distribution engineer for Platte River Power Authority in Grand Junction, Colo.

Paul M. Brunner BSc Met is president and chief executive officer of Consolidated Pacific Ray Minerals Ltd. in Vancouver, British Columbia, Canada.

1990

James J. Emme MSc Geol is an independent consultant in Des Moines, Iowa.

1991

William R. Wilson Met E is retired in Lakewood, Colo.

1992

Lloyd J. Nordhausen PRE is a retired engineering manager for Honeywell Inc. in Cheyenne, Wyo.

1993

Bruce E. Ferguson BSc Met is a divisional process improvement manager for Atlas International Inc. in Minneapolis, Minn.

1994

David L. Spalding BSc Met is an engineering professor for Curtin University of Technology in Western Australian School of Mines.

1995

John R. Smith PE is a retired engineer for Aspen Consulting Inc. in Anchorage, Alaska.

1996

Larry A. Cramer Met E is retired in Daysboro, Ala.

1997

Alex M. Crespi BSc Met is a vice president for advanced services manager for Smith International Inc. in Houston.

1998

Rex A. Bigler BSc Pet is a director of the Advanced Joining Technology Lab at the University of Wisconsin at Madison.

1999

John A. Bettridge BSc Pet is an executive with Hitchner Manufacturing in Denver.

2000

Ronald L. Brinkman BSc Met is a project manager engineer for Marathon Oil Company in Houston.

James J. Stinner BSc Met is a chief engineer for Devon Energy in Houston.

2001

Bruce E. Ferguson BSc Met is chief engineering officer for Comstock Energy Inc. in Colorado.

2002

Larry A. Cramer Met E is a retired manager for Marathon Oil Company in Houston.

2003

James J. Stinner BSc Met is a chief executive officer for Denali Alaska Inc. in Anchorage, Alaska.

2004

John R. Green BSc E is a chief executive officer of London Mining Group in London, U.K.

2005

James J. Emme MSc Geol is a principal consultant for corporate strategic planning for Chevron in San Ramon, Calif.

2006

Eugene J. Harras BSc Met is an engineering manager for Marathon Oil Company in Houston.
1984
Michael E. Baldwin BSc, CPR is a consultant in Florence, Diamante Rock BSc, Met is a network analyst for HBNT Corp in Austin, Texas. Jeffrey Chilski BSc, Pet is the commercial director for GMX Exploration with BP North America in Houston. Muneer Fakih BSc, Geochemistry is a senior consultant for Shell in Luletta, Colo. Perry Remote Sensing Ltd in Englewood, Colo.

1987
John Andrew Kurtz BSc Geol is a program director for CH2M Hill Constructors Inc in Steamboat Springs, Colo. John Jambor BSc Eng is an Arvada, Colo., police officer. Thomas J. Harris Jr. BSc Eng is president of Three Sixty Engineering Inc. in Arvada, Colo. Wendy Beggs BSc Eng and Rich Beggs BSc Eng 1994 Duncan vacationed with their children in Canada last summer.

1992
John J. Dugas BSc, CPR is manager of network implementation for Geokin in Washougal, Wash. Lisa L. Fisher MSc, Geol is vice president of Tomahawk Minerals & Energy in Golden, Colo. Berkeley Hills BSc, Pet is president of the Las Vegas Sands Corp in Las Vegas, Calif.

1993
Heather Grear BSc Eng married Mike Putterbaugh last June. The couple resides in Oak Park, Ill., where he works for UPS. C. Wex Dillisk BSc, Geol is a geological engineer for John P. Nugen Engineering Partnership in Terre Haute, Ind. Denise M. Bille BSc, Geol is president of Three Bay Engineering Inc. in Arvada, Colo. Wendy Beggs BSc Eng and Rich Beggs BSc Eng 1994 Duncan vacationed with their children in Canada last summer.

1995
Antonius W. Vervloet BSc Eng is an Arvada, Colo., police officer. Daniel H. Thornton BSc, CPR is vice president of Geokin in Washougal, Wash. Mark J. Jachimiak BSc CPR, M Eng is a project manager with Noble Drilling in T exas.

1996
Peter McCoy Jr. BSc, CPR is the managing director of Petrolumex Resources LLC in Houston. Matthew D. Holecek BSc Eng and

1988
Patrick Gillis Chambers BSc CPR is executive director of Blue Sky Bridge in Boulder, Colo. Anthony W. Fabrizio BSc, Phy has a masters degree in petroleum engineering from the University of Illinois in Chicago. Kelly M. Todd BSc, Pet is a resident for Colorado Springs, Colo. Gregory P. Piper BSc, Geol is a senior executive for Prima Energy International in Houston.

1989
Karen L. Weidt BSc, CPR is the founder and president of AverX Inc in Denver. Richard J. Murtland BSc Eng is a professor and head of Programming for California Saw & Knit Works in San Francisco. Lance A. Jung Bsc, Geol is a staff geologist at Pioneer Natural Resources in Denver. Don J. Pinto BSc, Geol is a wellsite supervisor for Apache Corporation. James F. Mattern BSc Geol is an Arvada, Colo., police officer. Mark J. Jachimiak BSc CPR, M Eng is a project manager with Noble Drilling in T exas.

1990
David E. Putterbaugh BSc, Geol is president of Three Bay Engineering Inc. in Arvada, Colo. Wendy Beggs BSc Eng and Rich Beggs BSc Eng 1994 Duncan vacationed with their children in Canada last summer.

1991
Gerald S. Gaidabek BSc, Eng is operations manager of West Africa and the Mediterranean for Global Industries Ltd. in Houston. Carl A. Laker BSc, Pet is a sustaining engineer for Sidrap Gerber Energy in Radiam, Thailand. Joseph M. Medley BSc, Eng, MSc, Ect '84 is a safety engineer with the Colorado Public Utilities Commission, pipeline safety section, in Denver. James D. Parry BSc, Pet is a regional operations manager for Indigo Petroleum in Duxford, Uk. Edgar L. Sebastian BSc, Geol is a registered architect in Denver. Murray L. Lortie BSc, Geol is a senior field supervisor with Newold Hydro Exploration and Production in Texas. Whitney A. High BSc, CPR, M. Eng is a medical doctor in Aurora, Colo. Richard J. Houghton BSc, CPR is an attorney for Wind & Rain in Denver.

1992
Debra M. DeCrausaz BSc Eng is a medical doctor in Aurora, Colo. Jeddah, Saudi Arabia.

1993
At right is Jambor with his wife and their newborn twins Luke and Henry.

1994
William S. Davis III BSc Geop is president of Black Diamond Engineering in Portland, Ore. Lisa M. Porter BSc, CPR is an Arvada, Colo., police officer. Robert A. Todd BSc, Pet is a resident for Colorado Springs, Colo. John Jambor BSc Eng is an Arvada, Colo., police officer. Thomas J. Harris Jr. BSc Eng is president of Three Sixty Engineering Inc. in Arvada, Colo. Wendy Beggs BSc Eng and Rich Beggs BSc Eng 1994 Duncan vacationed with their children in Canada last summer.

1995
Robert E. Moore BSc, CPR is an engineering director for Valero Energy in Houston. Sandra L. Perry MSc, Geol is president of Perry Imaging Ltd in Englewood, Colo. Karen L. Weidt BSc, CPR is a partner of Pallatine LLC in Arvada, Colo. Daniel S. Wilkinson BSc, Geop is president of Wilkinson Research Inc in Lakewood, Colo. Carey L. Shes MSc, Min is the vice president of Austin Technical Financial in Minneapolis. Mark K. Leveson MSc, Geol is a senior hydrogeologist for the US Corporation in Denver. Deni M. Lytle BSc, Pet is a senior evaluationist for CDG Gas in Denver.

1996
Brian E. Holland BSc, CPR is an engineering director for Whiting Oil and Gas in Denver. Margaret C. Gilley BSc, CPR is president of Energy Compliance Associates LLC in Richmond, Va. Debra M. DeCrausaz BSc Eng is an Arvada, Colo., police officer.

1985
Suzanne (Lewis) V aupel BSc CPR is the managing director of Petrolumex Resources LLC in Houston. Robert E. Moore BSc, CPR is an engineering director for Valero Energy in Houston. Sandra L. Perry MSc, Geol is president of Perry Imaging Ltd in Englewood, Colo. Karen L. Weidt BSc, CPR is a partner of Pallatine LLC in Arvada, Colo. Daniel S. Wilkinson BSc, Geop is president of Wilkinson Research Inc in Lakewood, Colo.

1988
Patrick Gillis Chambers BSc CPR is executive director of Blue Sky Bridge in Boulder, Colo. Anthony W. Fabrizio BSc, Phy has a masters degree in petroleum engineering from the University of Illinois in Chicago. Kelly M. Todd BSc, Pet is a resident for Colorado Springs, Colo. Gregory P. Piper BSc, Geol is a senior executive for Prima Energy International in Houston.
CPR Inc. in Loveland, Colo. operations engineer for Mayne Pharma 2001
Gayle C. DiRienzo BSc CPR married Michael P. Diederich BSc Econ, BSc
southwest Colorado.

Chad M. Ibarra BSc Chem Eng is a research engineer for Colorado School of Mines in Golden, Colo. Emily L. M. Bostwick-White BSc Chem Eng is a research assistant at the Chemical Engineering Department at the University of Texas at Austin. Becky Frega BSc Geoel and Roon Kowalick BSc Geol’02, MSc Geol’04
were married Sept. 17, in Golden, Colo. Becky is a geology technician at Yates Petroleum and Roon is a staff engineer/ geologist at Kleinfelder. The couple resides in Lakewood.

Chad M. Ibarra BSc Chem Eng is a research engineer for Petroleum Evaluation and Engineering in Denver.

Michele L. Powis BSc Eng, MSc Eng & Tech Mgmt is a solutions engineer for Halliburton in Delta, Colo.

Joseph M. Torres BSc Eng is an engineer for Lockheed Martin in Golden, Colo.

Michael A. Torres Jr. BSc Math & Comp Sci is a software engineer for Northrop Grumman in Englewood, Colo.

Andrew A. Van Der Vollen BSc Eng is a U.S. Air Force second lieutenant in Colorado Springs, Colo.

Jesse L. Kuchinski BSc Chem Eng is an engineer for Chevron in San Ramon, Calif. Eric S. Williams BSc Eng is an associate technical professional for Fast Enterprises in Boulder, Colo. Eric S. Williams BSc Eng is an associate technical professional for Fast Enterprises in Boulder, Colo.

Scott M. Washington BSc Eng is an environmental engineer for Legacy Southwest Cement Company in Redding, Calif.

Brian J. Zadler PhD Appl Phy is a laser scientist for Quantronix in Boulder, Colo. Brian J. Zadler PhD Appl Phy is a laser scientist for Quantronix in Boulder, Colo.

Christopher J. Krier BSc Chem Eng is a research chemist for American Science and Engineering in Lowell, Mass.

Shawn S. Winter BSc Chem Eng is a process engineer for Chevron in San Ramon, Calif.

Andrew D. Slaby BSc Math & Comp Sci is a software engineer for Northrop Grumman in Colorado Springs, Colo.

Andrew D. Slaby BSc Math & Comp Sci is a software engineer for Northrop Grumman in Colorado Springs, Colo.

Ken A. Beaver BSc Math & Comp Sci, MSc Math & Comp Sci is a software engineer for National Instruments in Austin, Texas.

Chad M. Ibarra BSc Chem Eng is a research engineer for Petroleum Evaluation and Engineering in Denver.

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Michele L. Powis BSc Eng, MSc Eng & Tech Mgmt is a solutions engineer for Halliburton in Delta, Colo.

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The Demise of College Yearbooks—a Growing Trend

By Robert Sorgenfrei

The last time Mines published a yearbook was for the 2000-01 school year. The lack of a yearbook to document the school year and serve as memorabilia for graduating seniors is not something unique to Mines. All over the country at both large universities and small colleges, the demise of the college yearbook is a national trend. For example, at the University of Arizona, the yearbook was discontinued in the late 1990s. Two years ago, the students there tried to revive it, and for all their efforts, could only sell 450 copies. This was on a campus with an enrollment of more than 34,000. In the Computer Age, the medium of print is less appealing to today’s students, and the average price of a yearbook at around $85 no doubt puts off many students. The yearbook seems a dated and expensive purchase in an era of instant messaging.

The Mines yearbook, The Prospector, was first published in 1913. It soon became a campus institution with an editorial staff in charge of producing one at the end of each school year. In 1924, The Prospector was not published because of alleged mismanagement and mishandling of funds. This caused a big uproar and shows how important to the student body the yearbook had become. Yearbooks were published during the first years of World War II, but as enrollment shrank, so did the yearbook. The 1944 Prospector was a thin plastic spiral bound book of only 50 pages. In 1945, there was no yearbook at all. In 1946, The Prospector resumed publication and grew in size each year as enrollment skyrocketed with veterans on the GI Bill entering Mines.

The yearbook of 50 years ago is typical of the ones produced by Mines, year in and year out. In 1955, the uranium boom was in full swing and the yearbook reflected this with artwork on the cover showing an old-time prospector with pan, pick and shovel along with a Mines student climbing a rock outcropping holding a Geiger counter. This theme of linking the mining past with the present was depicted in drawings on several other pages in the book. Photographs of the administration, the undergraduate classes, fraternities, social clubs and athletics feature prominently in the book. Various campus events such as Homecoming, E-Days, Faculty Follies, and an event called Mines on Television, dealing with the uranium boom and are documented. Dean Martin and Jerry Lewis chose the Prospector Queen for the year. Aside from photographs of buildings, students and athletic events, the advertisements the local merchants placed in the back of The Prospector are interesting. In the ads are photographs of places in downtown Golden long vanished and thriving businesses that are just memories now.

College yearbooks are for the most part a relic of the past. There will not likely be a way to bring them back, and with their passing, something is being lost. Unlike the class of 1955, the class of 2005 will not have a document preserved in archives or on their home bookshelf that serves as a visual and printed record of places and events that marked their last school-year and their passing from Mines into the professional world. The old-fashioned print yearbook, for all its anachronisms, does preserve a moment in time in a way that new technology does not.

The Asian Student Association holds a festival each January. This year is Year of the Dog.