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Letters to the Editor

Mine Safety

I have often wondered how new proposals are dealt with regarding mining safety technology and as an avid technologist myself, I was struck by the seeming lack of modern computer technology development in recent and proposed mining safety standards. Your recent exposure on CNN after the Sago mine incident and my concern prompted me to submit the following proposal for comment and consideration.

To me, one thing that stands out is that this old mining communication and security technology seems totally outdated. It is important to WalMart to keep track of bars of soap with cheap new embedded radio chips, I cannot see why it would not be even more important to mining corporations, the miners and the community to keep track of human operators within these facilities with data chips as well.

Since normal radio transmission doesn’t work reliably around bends underground and satellite signals cannot penetrate, the obvious solution is a daisy-chained series of both WiFi radio and wired networked communication and monitoring sentry workstations. Such a simple computer network based on low cost, overlapping WiFi laptops or PDA computers – each with an electronic chip detector/sensor that is chained along corridors located at strategic points to function as overlapping WiFi communication network access points and a sensing and telemetry system that continuously and automatically records and reports all movement of employee badges with embedded microchips, as well as collecting and reporting other atmospheric and operational telemetry – should replace the antiquated field telephones now in vogue.

Thus, not only could data and communication such as real-time video, audio and atmospheric telemetry replace the antiquated field telephones now in vogue.

Correction: In last issue’s Short Takes, Beta Theta Pi was named the overall winner of the castle of cans contest. The actual winner was Sigma Lambda.

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Introducing the Mines Power Network
A New Tool That Connects Mines to the Nation’s Capital 14

Notes & Quotes 15
Dean Burger Fund Helps Students Reclaim their Focus on the Future 16

People Watch
Singing for Her Supper 18
Sports Camp in Africa

Power Engineering Education:
A Powerful Program
Mines’ program is one of the best 20

Gasoline Prices: A Highly Volatile Topic
Why prices at the pump fluctuate 12

Physics is Fun!
New teaching methods improve student success 26

Mine Safety
Students pull insight from 1870s mine 28

Engineering his own Fun
Graduate student not starving for attention as mascot 30

Philanthropy at Mines 31
In Memoriam 34
Staying Connected 36
The Mystery of the Stetson 39
On the Move 40

About Our Cover: President John U. Trefny and his wife, Sharon, retire in July after 29 years of service to the School. To read more, see the article on page 6. Photo by Tom Cooper.
Retirement

They have formed links everywhere. Around the campus, around the world. In teaching and research, administration and public service, John and Sharon Trefny have advanced their vision of an effectively connected learning community, committed to excellence and driven by a noble purpose. In partnership with one another, they helped establish the first tri-partnership in Colorado among a corporation, a public school district, and a university—Mines. It was the first of the Trefny’s many successful collaborations in support of education.

With a Ph.D. in physics from Rutgers University, John Trefny came to Mines in 1977 as an assistant professor of physics. He was appointed head of the Physics Department in 1990 and vice president for academic affairs and dean of faculty in 1995. He was named the School’s 15th president in 2001 after serving as interim president the preceding year. On July 31, John and Sharon Trefny will retire leaving a long legacy of significant achievements along their path.

Teaching Highlights

“I can trace my interests in teaching as far back as age five when I recall holding short ‘mathematics’ classes for fellow students. Teaching, whether undergraduates, graduate students, professionals, or others, has been one of the most rewarding aspects of my career.”

—John Trefny

As a professor of physics for more than 20 years, Trefny taught almost every physics course in the catalog, from freshman to graduate level, including the unique—and short-lived—Physics of Music. For the McBride Honors Program, Trefny taught a Chinese studies course and joined with former Governor Dick Lamm to teach a course in leadership. He particularly enjoyed advising M.S. and Ph.D. students, as well as coordinating K-12 Teacher Enhancement Programs. Trefny was honored with the Excellence in Science Teaching Award in 1992, the Amoco Outstanding Teaching Award in 1984, and the Brown Innovative Teaching Award in 1983.

Research Interests

“For me, the particular pleasures of doing research have had as much to do with the development of the students involved and our subsequent friendships as with the research itself. I have experienced the joys of discovering new scientific insights, but the discovery of the human potential of the students with whom I have worked has excited me even more.”

—John Trefny

An expert in superconductivity, Trefny was awarded major grants and contracts to pursue research in cryogenics, the thermal properties of materials, acoustics and direct energy conversion. This research led to his authoring and co-authoring scientific and technical papers in a variety of publications. He also investigated advances in engineering education and co-authored papers on curriculum reform.

Administrative Initiatives

“It is interesting that I never applied for any of the administrative positions I have been privileged to hold. Nevertheless, I have found great satisfaction in helping others on the team see their individual and collective dreams fulfilled.”

—John Trefny

During Dr. Trefny’s years of administrative leadership, 1995 to 2006, the Connected Learning Community of Mines made remarkable advancements, elevating the School’s reputation and expanding its contributions worldwide.

• A new Mines Advisory Board was appointed by the governor of Colorado and a new executive position, Vice President for Research and Technology Transfer, was established. Top-quality faculty were hired, and new endowed chairs were created. Applications to the School increased and enrollment grew.
• A Ten-Year Strategic Plan, as well as a Campus Facilities Master Plan, was developed, and athletic programs were restructured.
• A National Science Foundation grant was awarded to research and implement more effective practices in undergraduate engineering education, and a comprehensive curriculum reform was accomplished. The Women in Science, Engineering and Mathematics Program was initiated.
• The Colorado Energy Research Institute (CERI) was re-established, and new centers were formed, including the Center for Engineering Education, Chevron Center of Research Excellence and Colorado Fuel Cell Center. A memorandum of understanding was signed with the National Renewable Energy Laboratory.
• Construction was completed for the Center for Technology and Learning Media (CTLM), General Research Laboratory and Geology Museum, new on-campus houses and Mines Park residences, and the Student Center expansion. Construction is underway or planned for CTLM phase 2, new playing fields, the new Petroleum Engineering building, and the Recreation Center.
• “Exemplary Institution” designation and “Enterprise Status” were granted from the State of Colorado, and new degree programs were approved by the Colorado Commission on Higher Education.
• A Joint Operating Agreement between the School and the Colorado School of Mines Alumni Association was established. The Petroleum Institute in Abu Dhabi, United Arab Emirates, was developed in a 10-year agreement between the School and the Abu Dhabi National Oil Company.
• The State of Colorado, and new degree programs were approved by the Colorado Commission on Higher Education.
• A Joint Operating Agreement between the School and the

Public Service

“There is no greater reward or joy in life than giving of yourself to others, particularly if your gift is intended to help make the world a better place to live. I have always tried to take every opportunity to give service, regardless of my circumstances.”

—Sharon Trefny

• Dr. and Mrs. Trefny: Honorees of the Golden Civic Foundation and Institute of International Education, Board Members of the Jefferson Symphony Foundation
• Mrs. Trefny: Service to Foothills Art Center, International Center for Appropriate and Sustainable Technology, Namlo Foundation and Engineers Without Borders-U.S.A. Advisory Board
• Dr. Trefny: Service to the Colorado Advanced Materials Institute, Colorado Oil and Gas Association, Governor’s Blue Ribbon Panel on Higher Education, Lutheran Medical Center Community Foundation, Midwest Research Institute, NREL Education Advisory Council and National Advisory Board, Red Rocks Community College Advisory Council and Foundation, Rocky Mountain Regional Center of the Institute of International Education, and Sigma Xi
• Jefferson County Industry Appreciation Award, “Economic Developer of the Year”, 2006
• Colorado Alliance for Science James R. Wailes Award, 1997
• Friend of Science Education, 1990
Fulbright Scholar
Ivar Reimanis, Metallurgical and Materials Engineering professor, has been selected as a Fulbright scholar grantee to India for spring 2007. Reimanis will be hosted by the Indian Institute of Science in Bangalore, where he will conduct collaborative work on a nanotechnology testing methodology.

According to the J. William Fulbright Foreign Scholarship Board, appointed by the President and responsible to the U.S. Congress, “Fulbrighters enrich the educational, political, economic, social and cultural lives of countries around the world.”

Claim to Fame
Emeritus Professor Richard W. Hutchinson is a 2006 inductee into the Canadian Mining Hall of Fame, established in 1988 as a way to recognize and honor legendary mine finders and builders in the Canadian mining industry. The Hall currently has more than 120 members.

An emeritus professor of geology and geological engineering, Hutchinson was the Charles Franklin Fogarty Professor in Economic Geology at Mines, where he served from 1983 to 1998. He currently resides in Forest, Ontario, Canada.

Hutchinson authored or co-authored hundreds of papers in numerous journals and he was the recipient of many prestigious awards. However, according to the Canadian Mining Hall of Fame, “his industry peers maintain that his legacy is best reflected in the success of the many students in industry, academia and government whom he inspired and mentored.”

Guns, Germs and Steel
Jared Diamond, author of the Pulitzer Prize-winning, best-selling book Guns, Germs and Steel, spoke to a crowd of almost 1,500 people at the Young’s Environmental Symposium in April. Diamond discussed his recent book, Collapse: How Societies Choose to Fail or Succeed, which tackles environmental questions about vanished societies, including those of Easter Island, the Anasazi, the Lowland Maya and others.

A recipient of the National Medal of Science and numerous other prestigious awards, Diamond is recognized as one of the world’s most influential thinkers. His talk was free and open to the public.

The Young’s Environmental Symposium was established by Herbert Young ’39 and his wife, Doris.

Weimer, a Legend
The American Geological Institute (AGI) has announced that Professor Emeritus Robert J. Weimer is the recipient of the 2006 Legendary Geoscience Award.

“Bob Weimer is most deserving of this honor for his exceptional service in advancing and representing the geosciences across many sectors. He has provided significant support and mentoring to his students throughout his academic career. Last but not least, he has made major contributions to improving our understanding of hydrocarbon systems,” said AGI Executive Director Marcus Milling.

AGI is a nonprofit federation of 44 scientific and professional associations that represent more than 120,000 geologists, geophysicists and other earth scientists.

Weimer was a professor of geology and geophysics at Mines from 1959 to 1993. He is the recipient of many awards, including AGI’s 2006 Legendary Geoscience Award, 2006 National Medal of Science and the 1993 William Holmes McGuffey Medal of the Geological Society of America.

Weimer is the associate director of the Colorado Center for Earth Sciences, a joint venture of Mines and the U.S. Geological Survey.

Kelly Fox, director of policy and planning, won the 2006 Connected Learning Community Award at the Mines’ spring Administrative Faculty luncheon.

Short Takes
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Corinne Johnson is the winner of the fall 2005 Frank Oppenheimer Science and Society Award, created with the approval of the Oppenheimer family to acknowledge excellence in first-year writing at Mines. Finalist papers are chosen from among 600 papers completed by students enrolled in the course Nature and Human Values. Named after Frank Oppenheimer—a physicist on the Manhattan Project, a Colorado educator, and founder of the Exploratorium in San Francisco—the $400 award is co-sponsored by the Liberal Arts and International Studies Division and the Physics Department. Johnson’s paper unites the themes of environmental ethics with an analysis of the social, cultural and economic repercussions of building the Three Gorges Dam in China.

Van Kirk Lecture
Craig Van Kirk PhD Pet ’72, head of the Petroleum Engineering Department, was honored by his peers as the year’s Faculty Senate Distinguished Lecturer. His February presentation was titled “On the Benefits of Multiple Perspectives.” Van Kirk noted, “One of the uncommon characteristics and strengths of CSM is its incorporation of multiple perspectives, arising from the worldwide variety of students, alumni, faculty, staff and global partners in research, service and exchange programs.”

Promoting Mathematics
Graeme Fairweather, head of Mathematical and Computer Sciences, spent four weeks during fall semester visiting the Mathematics Department at Chiang Mai University (CMU) in Chiang Mai, Thailand. His visit was supported by a grant that CMU received from the Thai government’s Center for Promotion of Mathematics Research. Fairweather presented a two-day workshop and gave additional lectures to mathematics graduate students and faculty.

More than 50 M.S. and Ph.D. students used poster presentations to share their research results at the Graduate Student Association’s Research Fair, held in the lobby of the Green Center in April.

The Outstanding Student Chapter of the Society of Mining Engineers (SME) Award was presented to Mines students in March at the annual SME meeting in St. Louis. The group’s faculty sponsor is Ugur Ozbay.

Mines’ Society of Women Engineers (SWE) was awarded 1st Place Region I Collegiate Student Section at a SWE conference held in March at Kansas State University in Manhattan, Kan.

From left, CMU associate dean of the faculty of science, Dr. Ruangsri Watanesk; dean of the faculty of sciences, Dr. Mongkon Rayanakorn; Graeme Fairweather; and head of CMU’s mathematics department, Dr. Suthep Suantai.

Barbara Moskal, Mathematical and Computer Sciences, has received the Burton W. Jones 2006 Award for Distinguished Teaching of Mathematics at the annual meeting of the Rocky Mountain Section of the Mathematical Association of America. She is the 15th person, and the second woman, to receive the honor.

From left, CMU associate dean of the faculty of science, Dr. Ruangsri Watanesk; dean of the faculty of sciences, Dr. Mongkon Rayanakorn; Graeme Fairweather; and head of CMU’s mathematics department, Dr. Suthep Suantai.

Salute to Moskal
Gasoline Prices: a Highly Volatile Topic

The U.S. consumes an average of 61.5 million gallons of gasoline per day. The unprecedented gasoline price spike in late summer of 2005 generated an inflationary spike in the U.S. economy, angered consumers but, more importantly, presented a clear picture of the vulnerabilities of the U.S. transportation fuel industry. Following the Gulf Coast landfalls of hurricanes Katrina and Rita, retail gasoline prices rose from an August 2005 national average of $2.49 per gallon of regular conventional blend to $2.72 per gallon average for the following two months, a 13 percent jump. The single week high price during this period was $3.04 per gallon, a 25 percent jump. Diesel fuel prices showed similar behavior. By the end of the year, three months after the hurricanes’ landfalls, retail prices have fallen back to June 2005 levels. Crude oil prices, hurricanes, infrastructure limitations, corporate greed ...

there was an opinion of the cause of the price spike. Was there only one causative factor or was it a combination of events and circumstances? Was it a one-time coincidence or will it happen again?

I followed the events with great interest and incorporated the daily reports of damaged production platforms, destroyed infrastructure, insurmountable refineries and gasoline price volatility in any undergraduate petroleum property valuation and economics course. It was a valuable (and sobering) look at the interconnectivity of the transportation fuel industry from production, transportation and refining through distribution. That interconnectedness was, I believe, the source of the price spike and probably exacerbated its magnitude. No one factor caused the spike. It was a combination of the hurricanes’ timing relative to refineries’ production planning, the high density of refining capacity in the stricken area, an aging refining industry forced to operate at high utilizations for too long, failures in the power grid, and fear of supply shortfall that drove spot price speculation on the trading floors and regional price dislocations. Let me lead you through my logic.

The U.S. Transportation Fuel Industry and Natural Disasters

Refineries are built near crude oil supplies. As U.S. domestic production levels have fallen, refinery capacity has aggregated along the country’s supply and import routes. The most recent greenfield refinery construction in the U.S. was in 1973, so the U.S. refining infrastructure will become more and more susceptible to interruptions. As with anything mechanical, overuse tends to increase the potential for malfunction. The domestic refining industry has been operating at an average of 91 percent utilization of operable capacity since 1990, with periods of utilization as high as 94.6 percent and only 15 percent of the time at utilizations below 90 percent. Consequently, the recent spate of explosions associated with equipment failures and unplanned maintenance-induced shutdowns are understandable given the aging and over-stretched facilities. All of these issues led to a domestic gasoline storage level shortfall of about 10 percent, relative to the five-year average. So, going into the arrivals of Katrina and Rita, the country’s storage level was low by more than 20 million barrels of gasoline (15 days of consumption) to recent historical levels.

There is a high concentration of refining capacity along the U.S. Gulf Coast. From Pascagoula, Miss., to Corpus Christi, Texas, there are 6.655 million barrels per day of capacity with 3.0 million along the Houston Ship Channel alone. Hurricane Katrina forced the shutdown of 1.9 million barrels per day or 22 percent of the domestic capacity. Hurricane Rita forced the shutdown of an additional 0.66 million barrels per day refining capacity in the Port Arthur area. As of December 1, 2005, all but Louisiana’s Belle Chasse refinery (ConocoPhillips, 250,000 barrels/day) were fully operational. Refiners sustained a minimum of 82 percent of production overall through the fourth quarter of the year, indicating that refineries were back on line sooner than expected post-Katrina and Rita.

On the product side of the refineries, several grades of gasoline, diesel fuel, heating oil and jet fuels are stored in tank farms awaiting pipeline capacity to move to regional distribution terminals. Interruptions in crude oil deliveries, electric power, work force availability and refined product pipeline capacity can result in inability to deliver gasoline to distribution terminals. During March and August, refiners move product emphasis from heating oil to gasoline in March and back again in August.

Refineries are not located near the regions of high population density. A large number of large pipelines transport gasoline and diesel fuel from refiners to local terminals where 6,000-gallon tanker trucks distribute supplies to individual service stations. The Colonial/Plantation pipeline system appears to be the most susceptible link within our control in the country’s transportation fuel system.

Coast states and New England. It was shut down for several days when hurricanes Katrina and Rita damaged the electric transmission grid and left the pipeline without power. This outage led to local shortages, panic buying and a general price increase in areas served by the Colonial/Plantation pipeline backbone. During this period, gasoline demand dropped by about 4 percent from a combination of disruption and dislocation along the Gulf Coast and an increase in price. No data is available yet to assess whether this demand decrease is temporary or permanent. Supply and demand theory suggests that decreased demand should decrease price, which has happened, but the cause of the price drop through November and December 2005 remains a choice of reduced demand or increased supply.

The hurricanes did major, albeit temporary, damage to the nation’s ability to refine and distribute transportation fuels. To meet the shortfall, marketers imported an additional one million gallons of gasoline per day above the historical 6 million gallons imported per day on average between Sept. 9 and Dec. 1, 2005. Space gasoline supplies in other parts of the world plus available tanker capacity allowed the U.S. to avoid significant shortfalls.

Based on these facts, viewed in hindsight, the abrupt rise in gasoline prices across the country was not caused by supply shortages except along the mid-Atlantic and East Coast where distribution was interrupted. Consumer panic buying causing local stock drawdowns and the marketer’s anxiety regarding the magnitude of damage to refining capacity appear to be the source of price volatility. Where is the weak link in the transportation fuel infrastructure? Supply is not the weak link, even though high quality, easily refined crude oils have recently moved to a new price plateau with little sign of decline. Given 150+ days of gasoline demand in storage, we cannot say that the refining industry’s ability to change production is wide open capacity loss for an extended period. This leaves transportation between refining centers and local distribution terminals. The transportation system requires high reliability in the pipeline system as well as a reliable electric power grid to run the pumps. Failure in either component could result in a temporary shortfall. In fact, Hurricane Rita’s damage to the interstate natural gas transmission system at Henry Hub in Louisiana illustrated this again within five weeks of Katrina’s impact on the gasoline distribution system. The pipeline system appears to be the most susceptible link within our control in the country’s transportation fuel system. The

By Dr. Larry Chorn

Will gasoline price volatility return? Yes, given the necessity to import 60 percent of our crude oil requirements, localization of refining capacity in regions susceptible to hurricanes and the interrelated nature of the country’s power and hydrocarbon (gasoline and natural gas) distribution systems, it is likely that we will again see price spikes caused by unforeseen events outside our control.

What are leading indicators of renewed price volatility? There are probably several that, in combination, would cause price spikes. For example, crude oil import curtailments from our principal suppliers (Saudi Arabia, Venezuela or Nigeria) would reduce refinery operations within one to two months resulting in extended gasoline supply shortages. Hurricanes, particularly high frequency, high impact landfalls on the Gulf Coast, will generate price volatility periods much like we just experienced. A serious production or transmission problem in the Southeast’s power grid would cause temporary distribution disruptions to the upper Midwest, mid-Atlantic and New England. Accidental or intentional damage to one or more of the major pipelines, like the Colonial/Plantation, would cause significant, but temporary, regional supply disruptions.

The bottom-line? When any system is run at or near its peak capacity with minimal redundancy there are opportunities for disruptions. The U.S. transportation fuel system is highly efficient and well run, but...
Introducing the Mines Power Network: A New Tool That Connects Mines to the Nation's Capital

By Jim Sims

Digging deep into the School of Mines network of alumni, parents, faculty and friends and mining a new source of influence in the nation’s capital is the aim of a grassroots network the School launched in December.

The Mines Power Network is designed to leverage the enormous, influential – and largely untapped – resources of the thousands of men and women around the world who value their ties to Mines and want to help the School succeed in lobbying leaders in Washington, D.C. From legislation that affects the energy industry – and thus the prospects of Mines graduates – to appropriations to help enhance campus facilities and research programs, the School has much at stake in D.C.

"Month after month, leaders in Washington make decisions that can have deep and sustained effects on the School of Mines," said President John Trefny. "The Mines Power Network will use the influence expertise of our people to engage the legislative and executive branch to help our School grow and prosper."

Trefny said that in his travels around the nation and the world on behalf of the School of Mines, he was consistently impressed with the level of achievement of alumni and other supporters. Reflecting on the depth and the breadth of this accomplished group sparked the thought that Mines could – and must – use this influence to boost the School’s future. Mines alumni and supporters have risen through the ranks of government, industry and the news media to positions of leadership.

The Power Network combines these solid connections with cutting-edge technology to help CSM supporters lobby and advocate from wherever they are in the world. And they’ll work in a coordinated fashion as part of an integrated network. With the ability to speak out for Mines literally just a mouse click away, the Power Network will quickly become an influential tool to create new and important opportunities for the School.

The hub of that network is the online headquarters, which will provide insight and compelling speakers at public events, Congressional hearings, and other venues on key topics. You are also encouraged to add your name to the Mines Ask An Expert database, which will provide Members of Congress, White House, Cabinet members and staff with a ready source of expert advice. Given the complexity and the high profile of many of the issues that the School of Mines is involved with – from energy exploration to emerging technologies – providing internationally known experts from the Mines family will ensure that leaders are well informed about the issues.

Mines alumni and friends in the Washington, D.C., area will receive personal invitations to the rollout of the Mines Power Network on Capitol Hill this spring. This will be the first in a series of Mines Power Breakfasts that will bring prominent leaders together with the Mines network. Senators, members of Congress, key committee staff, as well as leaders from the U.S. Department of Energy and other federal agencies will be featured.

“We see virtually unlimited potential to help take our School to the next level of national influence by using the Mines Power Network," Trefny said. "I hope that friends and supporters from around the globe will join us in speaking out for the Colorado School of Mines.”

The Mines Power Network will be an indispensable resource to raise the profile of the Colorado School of Mines and help the school reach important objectives in the nation’s capital.

Jim Sims is president of Policy Communications Inc.

Cornejo ‘91 Honored

The editors of Hispanic Engineer & Information Technology (HE&IT) magazine have selected Iván A. Cornejo MSc Mat Sc ’91, PhD Mat Sc ’94 as one of the 100 most important Hispanics in technology and Hispanic Honorees are chosen for this annual list because of their leadership and outstanding work in the field of technology. Cornejo is glass research manager at Corning Inc. in Corning, N.Y. Under his direction, his department has delivered ultra low loss fiber for c-Lens applications, novel glass composition for LCD display, fundamental understanding of defects in high purity fused silica and new glass frits for display and energy applications. An awards ceremony will be held in September in Baltimore during Hispanic Heritage month. Cornejo and the other honorees will also be featured in an upcoming issue of HE&IT magazine.

Joseph H. Sullivan Geol E ’51 and his friend, Richard Mersereau, have embarked on a mission to have Col. Wendell W. Fertig posthumously promoted to brigadier general. Fertig, as many a Miner may remember, was a professor of military science and tactics. He received an honorary doctorate from Mines in 1951 and also served as Alumni Association director from 1960-1975. In 1965, Fertig was made an honorary member of CSMAA.

The colonel’s real claim to fame, though, was as a World War II hero. In 1942 after surrender of the Philippines, Fertig, refusing to surrender, formed and led an Army of 35,000 guerrilla forces against the Japanese on the island of Mindanao until the war ended. His feat of heroism is detailed in They Fought Alone by John Keats.

“We believe the United States government owes a debt that can be easily made whole,” says Sullivan. “We believe Col. Wendell W. Fertig posthumously should be honored and promoted to brigadier general.”

Joseph H. Sullivan Geol E ’51

A Posthumous Promotion

Iván A. Cornejo

Col. Wendell W. Fertig

Chad A. Lensing

Chad A. Lensing

Asian American Engineer of the Year

Chad A. Lensing BSc Met ’91, MSc Met ’95, PhD Mat Sc ’01, a metallurgy/welding engineer with BP Corporation in Houston, was named Asian-American Engineer of the Year for 2006. The award is sponsored by the Chinese Institute of Engineers-USA and was first awarded in 2002.

“I was honored to be part of this prestigious event and to represent BP as well as Colorado School of Mines,” Lensing says. “I have to give great credit to Dr. [Dave] Olson, Dr. [Stephen] Liu ’84 and Dr. [Glen] Edwards ’81 for not only what I have learned but how to solve problems as an engineer and to effectively communicate that knowledge with others. I feel I still have a long career ahead of me but I know I can rely on the strong education/experiences I received at CSM to move forward.”

Asian American Engineer of the Year

Chad A. Lensing
Achievement at Mines requires dedication and perseverance—even through the toughest of times. Mines alumni and friends know the special characteristics that make CSM students unique and are familiar with their enduring passion for learning and unwavering drive to excel. When Mines students like Pablo truly find themselves at an impasse, they have somewhere to turn. Thanks to generous Mines alumni, emergency funds are available for students in dire financial situations who are at risk of withdrawing from school.

Pablo turned to Harold Cheuvront, vice president of Student Life and dean of students, for help. Dean Cheuvront was able to draw upon an endowment fund named for a previous dean of students at Mines, William V. Burger.

Burger joined Mines in 1947 as director of admissions and registrar, and in 1951 assumed the dean of students position, which he held until his retirement in 1964. Burger was known among students and faculty allies for his willingness to lend a hand for and for his enthusiastic involvement in campus life.

The Dean Burger Memorial Endowment Fund was established by Ben Fryrear '42 in 1988 to recognize the kindness and guidance that Bill Burger demonstrated throughout his 13 years as dean of students at the School.

Throughout his career, Dean Burger’s office was always open to any student in need of his inspiration and support. “Burger was never too busy to listen to students’ troubles and to help solve their personal problems,” the late Fritz Brunner, a former athletic coach at CSM, once said. “In my 29 years here, I’ve heard more than a few students and alumni say, if it hadn’t been for Dean Burger, I’d never have made it through Mines.”

Indeed, emergency assistance from the Burger Fund enabled Pablo to stay at Mines and finish his senior year. “The money from the Burger Fund came at the right time, as my situation had become critical,” reflected Pablo. “The help I received made all the difference for me. It meant I could finish my senior year without having to struggle too much.” His Mines degree in hand, Pablo returned to the Democratic Republic of Congo and started his own mining consulting and communications companies. He hopes to one day contribute to the School after graduation.
Sports Camp in Africa Includes Life Lessons

James Trask BSc Eng '03 has been in the Peace Corps in Makianga, Tanzania, since he graduated. He sent the following to family and friends about a seminar he held for primary school students:

On July 11th, I began preparing for the Youth Wellness Seminar, the fancy name I gave to the sports camp Komba [the academic master at Mungaa Secondary School] and I had organized. I decided to host 60 primary school students for a week at our school. In May, I wrote a grant to hold the seminar and feed the students for a week. Since all the available money sent to Africa these days is trying to prevent the spread of HIV, I decided to throw in a bunch of health classes too.

The higher-ups in Peace Corps approved the grant and before I knew it, 60 little kids (10 from each of the nearby primary schools) were staring at us in the classroom. Now in secondary school I struggle with the Swahili language barrier, but the primary school students took it to a whole new level: the Kinaturu-Swahili-English language barrier. They had a hard time understanding my American accent in Swahili, their second language, and they had an attention span about 10 minutes. The first day was very frustrating but the Komba, Komba and a slew of guest speakers stepped in to help out.

Under my direction, they taught the bulk of the classes. I listened as the kids discussed circumcision, drugs, alcohol, early pregnancy, diseases, nutrition, health, diets, HIV and AIDS. When classes finished, the students went to the soccer fields to play. Every evening I prepared lesson plans for the next day and then instructed the guest teachers to teach in their own style. Watching them teach the students made it all worthwhile, although I almost pulled my hair out a couple times when the doctor said toothbrushes taught the students made it all worthwhile, although I almost pulled my hair out a couple times when the doctor said toothbrushes

The camp went well and I was pleased with the overall outcome of the seminar. The week was motivating but physically draining and by the end of the week I was exhausted. Yet the students had full bellies for a week (because of the provisions I requisitioned) and got a chance to see the secondary school. Because of cost, language and preparatory training, most won’t have the opportunity to continue their education. Makianga Secondary School opens Monday and I’ll have one more term with my 109+ students teaching physics, chemistry and calculus. Hopefully they are learning something and will be able to pass the governments FORM exams. I’m pleased.

It is winter here in Makianga where the altitude is about 1,600 meters and it has been freezing cold due to a strong wind coming in from the West... it makes me think of summer back in Colorado.
When we discuss the word “energy” at Colorado School of Mines, we usually think of oil, gas and coal. But about one fourth of the total energy usage in the United States comes in the form of electricity. “Only when there’s a massive blackout (like what happened in 2003) does anyone give it much thought,” says engineering Professor P.K. Sen. Electric Power Systems is very important and an integral component of the “big picture” of energy, though we take it for granted.

The broader issues regarding electric power and energy are complex and interdisciplinary in nature and include power generation and transmission, electric grid reliability and security, conservation and electric energy usage, renewable energy applications and sustainability. Mines has a unique multi-university consortium (13 universities, the Electric Power and Energy Systems Engineering, a research focus area within the Division of Engineering with about 30 graduate students, most of whom are practicing professionals and is headed by Dr. Sen. The group pursues both fundamental and applied research the theory of interconnected areas of energy systems, renewable energy and electric power grid.

The advanced level power engineering program at CSM is only three years old, but Sen has been in the field for decades. “I was at the National Bureau of Standards working on high voltage in the 1970’s,” says Sen. “Much of what we are doing at Colorado School of Mines is research that I did on high voltage years ago.”

Senior David Graham, one of the students in the High Voltage AC and DC Transmission class. But it is also rewarding. “It’s a little intimidating,” says senior David Graham, one of the students in the High Voltage AC and DC Transmission class. “Most of the students come from the local power and energy industry. We teach the classes in the late afternoon to accommodate working professionals,” says Sen. Many of the graduate students already have one degree from Mines and have studied with Dr. Sen.

One day five years and long term (2020 and beyond). For the short term, the students discussed options and costs of providing an additional electric feeder to the campus. For the mid-term they suggested an economic feasibility study be performed to look into the possibility of adding photovoltaics to selected new buildings. The long-term recommendations include studying new renewable technologies.

“One of the most important tasks we at CSM perform is to educate and train some of the best, young, and much needed, power engineers in the local industry,” says Sen. “Our power engineering students are hot commodities, always in big demand with multiple job offers at an excellent salary!”

Anthony Marroni, BSc Math ’71, BSc Phys’ 71, MSc Phys ’74, a partner with Carollo Engineers, says, “Carollo Engineers feels that Dr. Sen’s power engineering program is one of the top, if not the top, in the country. We have sent students to Mines for the past four years and I have been impressed with their work and apply it,” says Eric Vaughn, an engineer with the Bureau of Reclamation and also a student in the class. “P.K. knows what industry professionals need to know,” adds PhD candidate Ben Kroposki, a senior engineer at NREL.

“Colorado School of Mines is one of the few schools left in the country that has a quality power engineering curriculum,” says Bert Milano, manager of Hydroelectric Research and Technical Services for the Bureau of Reclamation. “The School of Mines’ highly selective admissions criteria, in combination with the senior design project requirements and the rigorous power engineering curriculum, results in a cadre of excellent power engineering graduates that are second to none. The recent Mines graduates we have hired are well educated, articulate and are advancing very quickly in assuming technical and project management responsibilities.”

As a testament to Sen’s dedication to and recognition in the power engineering field, the local chapter of the IEEE created the Dr. P.K. Sen Senior Design Project Award. Each year, students or teams of students working on an undergraduate power engineering project are awarded financial support. “In the last four years, there have been six or seven cash awards given to students from CSM, CU-Denver, and CSU,” says Sen, adding that having the award named after him is his greatest honor.

The students at Mines perform research at the graduate level, with rather impressive results from Mines’ senior design projects and other research efforts. Recently, for example, eight undergraduate students, Brian R. Wood, Christopher W. Mielke, Justin C. Ray, Dalton H. Shaffer, Jessica A. Miller, Saxon Pate, Kris C. Kokk, and Patrick E. Heinlussen— all 2005 graduates, looked at the School’s future energy needs to the year 2020 and beyond. The students examined current energy usage by the School including electric power, heating, ventilation and air conditioning, and steam, and also considered the political implications of electric power supply and the future of renewable energy before making recommendations for
CSM Athletics

Women's Basketball Makes Magical Run as Gronewoller's Career Ends

Last season, the Mines women's basketball team made history by winning a School-record 19 games and advancing to the RMAC Tournament for the second straight year. The win also moved CSM to the tournament semifinals where they pulled an upset, this time a 67-61 triumph over fourth-seeded Nebraska-Kearney, which advanced the Orediggers to their first ever RMAC Championship.

In the finals, CSM squared off against sixth-seeded Colorado State-Pueblo, a team they knocked off in the first round. However, the Orediggers would not be able to pull off another upset, losing 71-57 to the Thunderwolves.

The loss concluded the brilliant career of Ashley Gronewoller who was one of the greatest players to ever play in the women's basketball program. The 6-foot-3 Gronewoller concluded her collegiate career with an outstanding tournament performance in the RMAC Tournament since 1996. She averaged 22.7 points and 10.7 rebounds per game in the three games.

Gronewoller was named to the Second Team All-RMAC East Division. Tomova was named to the Second Team All-RMAC East Division. Tomova was named to the Second Team All-RMAC East Division. Tomova was named to the Second Team All-RMAC East Division. Tomova was named to the Second Team All-RMAC East Division.

The win in the RMAC Tournament in eight attempts. It marked the first time a No. 8 seed had defeated a No. 1 seed in the 14-year history of the RMAC Men's or Women's Tournament.

Ashley Gronewoller concluded her career at CSM as the all-time leader in points, rebounds, field goals and free throws made. She finished the 2005-06 season with a CSM single-season record 450 points and was also second on the all-time blocked shots list at CSM with 176. Tomova was named to the Second Team All-RMAC East Division.

Digger Dirt

• The football staff changed after the end of the 2005 season. Marty Heaton has joined the staff as associate head coach and defensive coordinator from Adams State. Curt Lessman comes from Northwest Missouri State as the new offensive line coach. Jason Koltz has been promoted to assistant head coach, while Jason Munoz was promoted to offensive coordinator.

Women's Basketball

Freshman Kyle Pape

MCADIRIS placed fourth in the mile run with a time of 4:08.13, less than one second behind the top two finishers. Hamilton was sixth in the 5,000-meter run in 14:26.85.

The duo of McDaris and Hamilton also helped the CSM Men's Distance Medley Relay Team to an All-American showing as the team finished in fourth place in a School record time of 9:57.14.

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Beresford also anchored the Distance Medley Relay Team to a second-place showing in a School record time of 11:39.02. That bested the old School Relay Team to an All-American showing in the RMAC Tournament at Fort Lewis.

One of the biggest highlights of the season was when CSM placed 28 student-athletes on National Letters of Intent. The football team will open the season with a 1 p.m. kickoff at Washburn.

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The NCAA Division II Nationals were past winter as women placed tenth in the nation, while the men’s squad was quartered overall in the mile run for the second consecutive year. Her time of 4:47.69 set a School record and was just .06 seconds behind the winner.

Leading the way for the women’s team was senior Heather Beresford who placed second overall in the mile run for the second consecutive season. Her time of 4:47.69 set a School record and was just .06 seconds behind the winner.

Beresford also anchored the Distance Medley Relay Team to a second-place showing in a School record time of 11:39.02. That bested the old School record by more than 33 seconds. Joining Beresford on the team were seniors Hannah Davey-Briggs and Serena Gardiner and junior Melanie Peddle.

The quartet earned All-American honors for their performance.

On the men’s side, juniors Larry McDaris and Joel Hamilton earned All-American accolades in their individual events.

Men’s Basketball

Reaches RMAC Semifinals

The men’s basketball team enjoyed its deepest run in the Rocky Mountain Athletic Conference Tournament since 1996. The squad entered as the No. 7 seed and traveled to second-seeded Fort Lewis Mar. 1. The Orediggers raced out to a 10-point lead and hung on for a 72-71 win. It was the first time CSM had won an RMAC Tournament game since 1996.

In the semifinals, the Orediggers were knocked off by fourth-seeded Nebraska-Kearney, 71-57. UNK went on to win the tournament title.

The Orediggers opened the season with back-to-back wins over Nebraska-Omaha and Pittsburg State, teams that were nationally ranked in Division II. However, on Dec. 9, the injury bug struck CSM and the team would not play with its full roster healthy until the RMAC Tournament game at Fort Lewis.

Senior guard Kyle Pape led the team in scoring (14.0 ppg) and became the Rocky Mountain Athletic Conference. But the Orediggers won four of their next six games to all but clinch a berth in the RMAC Shootout for the third straight season.

For her efforts, Gronewoller, along with junior guard Iva Tomova, was named the Female Athlete of the Meet at the RMAC Championships and was the RMAC Nominee for Regional Female Athlete of the Year.

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• Senior wide receiver Justin Gallas helped lead the West squad to a 49-28 victory over the East in the Sixth Annual Cactus Bowl Game Jan. 6. He finished the game with 108 all-purpose yards as he caught three passes for 86 yards and a touchdown and returned two kicks for 22 yards.

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• CSM placed 28 student-athletes on the RMAC Winter All-Academic Team. Those sports include men’s and women’s basketball, wrestling, and men’s and women’s indoor track and field.

• The CSM swimming and diving team had eight student-athletes named to the North Coast Conference Commissioner’s Academic Honor Roll.

• Junior basketball player Davey Iverson was named to the 2006 ESPN The Magazine College Division Academic All-District VII Men’s Basketball Team. He sports a 4.0 grade point average as an engineering physics major.

• Senior track star Heather Beresford was named the Female Athlete of the Meet at the RMAC Championships and was the RMAC Nominee for Regional Female Athlete of the Year.

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Dr. Robert Siegrist, director of CSM’s Division of Environmental Science and Engineering, was one of five U.S. scientists invited to Vietnam in November for its 10-year anniversary celebration of normalization of diplomatic relations with the United States. Siegrist’s trip could mark the beginning of an exchange program that would bring Vietnamese graduate students to study at Mines.

Vietnam is the 12th largest country in the world by population with 82 million people. “I found them to be inquisitive, considerate and kind,” says Siegrist. He was told that it took three generations to get past the Vietnam War period, but says he found no lingering resentments. “Vietnam is rapidly modernizing,” he notes. “The people are focused and committed to what they are doing. It’s an exciting place and it’s just blossoming.”

Siegrist was invited to the Southeast Asian nation to participate in the country’s Science and Technology Days. According to U.S. Ambassador Michael W. Marine and vice minister of the Vietnam Ministry of Science and Technology Dr. Bui Manh Hai, “This event was designed to showcase U.S.-Vietnam scientific and technical achievements.” The event included seminars on commercialization of technology, disaster-mapping technology, water pollution prevention technologies and promoting the effectiveness and linkage between research and education. “The country is rapidly industrializing,” says Siegrist, “and it recognizes the potential impact that modernization can have on public health and environmental quality.”

Within Vietnam, there is wide recognition of the importance of education and research and the Vietnamese want to enable appropriate environmental management systems so that their public health and environmental quality are protected. The country is also committed to cooperating with the United States and has established the Vietnam Education Foundation (VEF), which so far has placed 153 Vietnamese nationals at 46 top U.S. graduate schools with financial support for them to earn their Ph.D. or master’s degrees.

The VEF has also arranged for scientific exchanges such as the one Siegrist participated in. During his visit, Siegrist took part in a seminar, “Improving the Effectiveness and Linkage between Research and Education in Vietnam,” chaired technical sessions on water pollution prevention technologies, and delivered a presentation on wastewater reclamation and reuse. In addition, he visited the Hanoi University of Civil Engineering, which has 20,000 students, met with the management board for the HaLong Bay UNESCO World Heritage Site and toured the Institute of Environmental Technology of the Vietnamese Academy of Science and Technology where he gave a presentation on remediation of contaminated land. At each meeting, Siegrist discussed various types of cooperative efforts between the United States and Vietnam. “They have interests and needs that span all of CSM’s focus areas,” he noted.

Siegrist hopes that Mines will develop collaborative research and educational projects with universities and research laboratories in Vietnam and become a destination for some of Vietnam’s top students. “We need to communicate to them what we have here and how we can work together,” he says. “This is a wonderful opportunity. Vietnam and the rest of Southeast Asia have major economic development prospects. CSM can contribute to and benefit from involvement.”
Physics is Fun: New teaching methods improve student success
By Maureen Keller

About 10 years ago, physics Professor Tom Furtak was leaving Meyer Hall when he overheard a student ambassador telling potential future freshmen that they’d probably want to avoid the physics building. He was dismayed but not surprised. The number of physics majors nationally had been on the decline for years. At CSIM, interest in physics was stable, but the introductory courses were not working. More than 40 percent of the students who started Physics I received Ds or Fs or withdrew before the end of the semester.

“Introductory physics is very difficult for freshman. It comes just when they’re learning what college is all about. It’s their first real test,” Furtak says. Physics is one of the gateway courses to getting a technical education. If students find it too difficult, it can keep them from going into science and engineering. So Furtak decided to find new ways to help students learn physics more successfully.

“I had been experimenting with more effective and engaging teaching methods in other courses,” Furtak explains. “So I talked to the department head—who at the time was John Trefny—into trying some of these things in Physics I [formerly PHGN132]. John took a gamble and allowed me to fiddle with the course.”

The results have been dramatic. Today, Mines has the largest undergraduate engineering physics program in the country according to a recent survey by Stephen Cobb at Murray State University. And it’s growing. In 2000, 104 Mines students—4.16 percent of the student body—were declared physics majors. Last year, 270 students, or 8.35 percent of the student body, were working toward degrees in physics engineering.

How did Furtak and the physics department accomplish such magic? They redesigned the way the course is taught. “People learn more effectively in a social environment,” says Furtak. “They learn and remember more if they can articulate with others.” The concept is called the learning studio classroom, first developed by Professor Jack Wilson at Rensselaer Polytechnic Institute. “Jim McNeil [current Physics Department head] and I recognized that this would be a good way to teach. Wilson visited us sometime in the late ’80s and told us all about it. Then we put our own spin on it. Don Williamson, department head at that time, encouraged the development of a prototype studio classroom.”

On the first day of class, students are randomly assigned into groups of three. Each group works together on lessons delivered through a computer that uses a large type font that can be easily read from a distance. The group learns together and each group progresses during a class period at its own pace. The classroom is staffed by a member of the physics faculty and several teaching assistants. They spend most of their time facilitating discussions and answering questions.

“It’s an open environment,” Furtak explains. “We get them to confront their misconceptions and fix them by talking. It’s a challenging curriculum, but they’re doing it with friends so it doesn’t seem so hard.” And, it is the embodiment of President Trefny’s vision of an extended-learning community. “The social connections the students make in class continue beyond the classroom,” Furtak says. If a student needs homework help, it makes sense to go to someone he or she already knows. Or, a student might run into a classmate at a party some night. “And who knows?” says Furtak. “The topic of physics might even come up.”

Furtak began his experiment with two sections of about 20 students each in 1997. The Board of Trustees approved a modest investment to turn a Meyer Hall classroom into a physics studio with computers. With the help of graduate student Stan Vozella, Furtak made it work.

“Then came the opportunity to move it up a notch,” says Furtak. When construction of the Center for Technology and Learning Media (CTLM) began in 2000, he lobbied to turn one of its new classrooms into a physics studio with 32 computers, enough for a class of 96. “In spring 2002, we took it to full scale. Now, everyone has the opportunity of taking Physics I in the studio.” After working out the kinks, Furtak says, “It works very well.” He knows because students are learning physics better. “They’re getting higher grades and we’ve increased the standards, not lowered them. We’ve added calculus, which wasn’t included before, and it’s a harder course. But students are getting higher grades.” Senior geological engineering student Jessica Spriet says she learned a lot in Physics I, but in Physics II, still taught the conventional way, that was not the case. Furtak says the department would like to expand the studio concept to Physics II, but it will require the building or renovation of a dedicated classroom.

In addition to the learning studio classroom, which is now managed by instructors David Flammer BSc Math & Comp Sci ’00, BSc Phy ’00, MSc Phy ’01 and Chris Kelso Math & Comp Sci ’00, BSc Phy ’00, Physics I includes lectures presented in another CTLM classroom. This room, too, is equipped with new technology, infrared electronic keypad communicators for each student. Throughout the class, the teacher can ask questions and each student posts his or her response by clicking the communicator. That way, the lecturer can see if he or she needs to explain further or can move on because most seem to understand. It’s instant feedback and Furtak credits physics Professor Frank Kowalski with making it happen at Mines. “I’ve been teaching for 26 years, 20 of them at Mines, and this is easily the neatest thing that’s happened,” says Furtak. “It creates the most amazing teaching environment.”

The Physics Department has instituted other innovations that are catching on around campus, including the five-year program that allows students to begin taking graduate-level classes in their senior year so that they earn both an undergraduate and a master’s degree. Mines has received national attention within physics professional societies for its innovations in teaching. In 2001, the teaching of Physics I was also named a “Program of Excellence” by the Colorado Commission on Higher Education.

In a recent straw poll of the freshman in Physics I, which asked how many wanted to major in the subject, nearly 100 of them raised their hands. “It starts with not turning students off,” says Furtak. “All the students here are pretty bright. We can encourage them into careers in physics with just a positive introduction.”
Safety First
Students pull insight from 1870s mine

By Gargi Chakrabarty

When coal mine disasters cost 16 West Virginia miners their lives, local and national media looked to Colorado School of Mines for accurate, up-to-date information about mine safety. Experts from the Mining Engineering Department, the Edgar Mine in Idaho Springs, and the Special Programs and Continuing Education Mine Safety Training program spent countless hours talking with television, radio and newspaper reporters around the country. The following story, written by Gargi Chakrabarty, ran in the Rocky Mountain News on Feb. 4, 2006.

Josh Gresham picks up a javelinlike pole and pokes at cracks on a dark wall of rocks, lit only by a small lamp perched on his miner’s hard hat.

A chunk of solid rock gives way and crashes to the uneven mine floor.

Gresham’s teacher, Bob Cooper, nods in praise.

“Rocks get loose over time,” Cooper explains, as Gresham listens to his instructions. “If you see cracks on one, it should be knocked off before it falls off and hurts someone.”

The Edgar Mine in Idaho Springs, about 40 miles west of Denver, produces high-grade silver, gold, lead and copper.

In the 1870s, the Edgar mine produced high-grade silver, gold, lead and copper.

The U.S. Mine Safety and Health Administration, which regulates all mines, requires a mandatory 40-hour training for new miners.

The federal agency also requires miners to take an eight-hour refresher course each year. “We do miner training for anybody, for contractors, mine companies, people who work in tunnels, and students,” said Bob Ferriter, director of the school’s mine-safety training program and a former MSHA employee.

Most important, the mine offers engineering students hands-on training that simulates a real-world situation.

The mine owns equipment that mostly was donated by private companies. It is used for experiments not only by students of mining engineering but also other departments such as electrical and mechanical engineering.

In all, about 200 students go through the mine each year. Also, about 200 to 300 professional miners and government rescue workers train at the mine each year. Dressed in thick overalls, steel-toed boots, safety glasses, air filters and hard hats, Gresham and Nichols — both juniors in the engineering department — focus on their assigned jobs.

About 40 pounds of equipment, including an emergency breathing apparatus, batteries, tools and air detectors are strapped to their backs.

“This is a nice relief from classes or reading books all the time,” Nichols says, as she rotates the wrench around the pipe. “After the day is over, I feel like I have accomplished something. This work is so much fun.”

Reprinted with permission from The Rocky Mountain News.
Colorado School of Mines mascot, Marvin the Miner, might be the smartest performer of his kind in Colorado. The mascot, originally from Shippensburg, Pa., is a graduate student who earned his bachelor’s degree in geophysical engineering last year and is now working toward a master’s degree. When he isn’t buried in his thesis, he dons the mascot uniform and rallies the home crowd at Oredigger sporting events. “They asked me to do it because I was a crazy fan who came to the games sober, and it was something I wanted to do,” Marvin said.

The idea for a Mines mascot started two years ago as a brainchild of “Marvin” and Brandon Leimbach, the director of club sports at CSM. The mascot had to reflect the heritage of the university and was named “Marvin” and Brandon Leimbach, the director of club sports at CSM.

“Marvin” happened to be in the right place at the right time and he was the only person we interviewed for the job. He has done a great job for us and was a great selection.” When Leimbach brought Davis into his office and showed him the mascot uniform and asked him if he was interested in the job, Davis made a couple of conditions.

“The first thing is I’m not doing cheers with the cheerleaders because I want to have my own identity, and I want to get paid,” Davis said. “I also wanted a trampoline, but since I couldn’t get that, I got a springboard. I don’t know any other college mascot who has a springboard.”

Davis uses the springboard to get an airborne start for dunk attempts during halftime soccer games last year between mascots and fans at Kelly Smith Field.

While making those theatrical 3-pointers gets the crowd going at halftime soccer games, Davis also tries a shot with his back to the basket at half court and gets close to converting the bomb as often as not.

“While making those theatrical 3-pointers gets the crowd going at Volk Gymnasium where games average 300 people in attendance, Davis has also highlighted Marvin on the big stage.

During a halftime soccer game last year between mascots and fans at Kelly Smith Field, Davis, who thought about playing Division III soccer before moving to Mines, scored a goal in front of a crowd of 5,000 thousand cheering fans.

“They went crazy so I ran to the center of the field and started doing my normal poses and I noticed I was on the Jumbotron, “ he said. “That was probably the most psyched I have ever been.”

So I knew I had to do more and I started doing more poses. That was probably the most psych I have ever been.”

But his forte is intertwining with everyone at Orediggers’ games. Marvin the Miner gives high-fives to players, coaches, fans, scorekeepers, press and officials, when they let him, and has his most fun chasing the kids who dare get near enough the human cartoon.

“A lot of college mascots just stay on the sidelines,” Davis said. “I have to get into the crowd and get into everybody so at least when they go home, they remember something from the game.”

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Mines Acknowledges Individual, Corporate and Foundation Donations

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

- Charles “Scottie” Bruce ’57 contributed $461,010 in cash to establish his second charitable gift annuity with the CSM Foundation. The annuity residuum will be added to the Eileen Bruce Memorial Scholarship Fund.
- A bequest of $44,900 was received from Richard J. Carlson ’69 for the CSM Rugby Club.
- John ’52 and Erika Lockridge continued their support of the CSM video production with a gift of $36,635 toward the Blaster Current Basketball Scholarship Fund.
- Richard ’54 and Janice Veghte made a generous current gift of $25,469 to establish the Harry W. Oborne Memorial Scholarship Fund, in honor of Mrs. Veghte’s uncle. In addition, they contributed $75,482 to set up a charitable remainder trust that will also support this scholarship fund.

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

- BHP Billiton Ltd. gave a gift of $30,000 to support the work of Dr. John A. Scales in Geophysics.
- The Viola Vestal Coulter Foundation gave gifts totaling $73,000 to support the following: the Energy Chair in Mineral Economics, the William Jesse Coulter Instructorship in Mineral Economics, the Viola Vestal Coulter Instructorship in Mineral Economics, the Mineral Economics Department for Professional Development Fund, the Mabel M. Coulter Student Health Center, Viola Vestal Coulter Foundation Graduate Fellowships, Viola Vestal Coulter Foundation Undergraduate Scholarships, and William J. Coulter Outstanding Undergraduate/Graduate Stipends.
- Lockheed Martin Corporation contributed to the Minority Engineering Program and to select Senior Design projects with a gift of $2,000.
- Modtronic SNT supported a Biomedical Engineering Fellowship with a gift of $3,000.
- The Mikkelson Foundation continued its support of the Engineering and Applied Technology program with a gift of $26,000.

Pelps Dodge Corporation gave a gift of $79,450 to support Jon Woodhead’s thesis studies in geology.

Pelps Dodge Foundation contributed gifts totaling $17,500 to support the Excellence in Mining Engineering program and the George R. Munnse-Pelps Dodge Foundation Scholarship.

The Harry Trueblood Foundation contributed $27,000 to support scholarships in petroleum engineering.

Shell Oil Company contributed gifts totaling $105,000 for departmental support, the Career Center, the Minority Engineering Program and the McBride Honors Program.

A Hole in the Ground with a Liar at the Top

Graduate student not starving for attention as mascot

By J.D. Harris

"Marvin" III soccer before moving to Mines, scored a goal in front of a crowd of 300 people in attendance, at the University of Northern Colorado, where Davis has a minor in geology.

The mascot had to reflect the heritage of the university and was named "Marvin" and Brandon Leimbach, the director of club sports at CSM.

"We thought it would be great to have a real live mascot so we got online and saw a lumberjack we thought would be great for our mascot," Leimbach said. "Marvin happened to be in the right place at the right time and he was the only person we interviewed for the job.

"He has done a great job for us and was a great selection." When Leimbach brought Davis into his office and showed him the mascot uniform and asked him if he was interested in the job, Davis made a couple of conditions.

"The first thing is I’m not doing cheers with the cheerleaders because I want to have my own identity, and I want to get paid," Davis said. "I also wanted a trampoline, but since I couldn’t get that, I got a springboard. I don’t know any other college mascot who has a springboard."

Davis uses the springboard to get an airborne start for dunk attempts during halftime soccer games last year between mascots and fans at Kelly Smith Field.

During a halftime soccer game last year between mascots and fans at Kelly Smith Field, Davis, who thought about playing Division III soccer before moving to Mines, scored a goal in front of a crowd of 5,000 thousand cheering fans.

“They went crazy so I ran to the center of the field and started doing my normal poses and I noticed I was on the Jumbotron," he said. "So I knew I had to do more and I started doing more poses. That was probably the most psych I have ever been."

But his forte is intertwining with everyone at Orediggers’ games. Marvin the Miner gives high-fives to players, coaches, fans, scorekeepers, press and officials, when they let him, and has his most fun chasing the kids who dare get near enough the human cartoon.

"A lot of college mascots just stay on the sidelines," Davis said. "I have to get into the crowd and get into everybody so at least when they go home, they remember something from the game."
At Colorado School of Mines, excellence is a habit. The student body is made up of talented individuals who are accustomed to high level achievement in all of their pursuits – from band to baseball, photography to physics, thermodynamics to track and field. Fueled by students who aspire to make the best of all of their talents, Mines’ campus pulses with purposeful activity.

Outside of the classroom, athletics provides the most visible arena for achievement at Mines. Sports are a central part of this dynamic campus, providing students with competitive challenges that complement their rigorous course work. Teamwork, leadership and discipline, hallmarks of a Mines education, are reinforced on the field. And, in an era when the media tends toward critical skepticism, athletic achievements generate distinctly positive publicity for the School.

With their generous gift of $1 million to fund endowed scholarships for Mines’ student-athletes, Steve Bsc Geol ‘76 and Gayle Mooney have made an enduring contribution to the School’s comprehensive culture of excellence. Mooney and his wife made the gift through their privately held company, Thompson Creek Metals, a leader in the development and mining of molybdenum.

The Mooneys’ gift provides a welcome boost to sports programs that have endured cuts in scholarship funding during recent lean years for higher education. With a deeper pool of scholarship funds to draw from, sports such as baseball, cross country, golf, softball, swimming, and track and field now have greater potential to attract top-tier student-athletes.

Mines has seen its share of hard-working students who also bring their athletic talent to the School. However, Mines must be able to sustain a steady stream of academically inclined high-caliber athletes in order to field consistently strong teams. Athletic scholarships are essential tools for coaches to build a critical mass of student-athletes in order to field consistently strong teams. Athletic scholarships, I can bring in high-level student-athletes to drive the train, providing leadership that is critical for our team to continue to compete on the national level.”

However, the benefit of attracting top student-athletes goes well beyond the sports arena. Tom Spicer, Mines’ director of athletics, notes that scholarship athletes number among the ranks of each of Mines’ academic departments. In essence, an athletic scholarship not only brings talent to a sports program, it performs double duty by bringing top academic candidates to the School as well. Retired Athletic Director and Emeritus Professor Mary Kay EM ’63 points out that successful athletic teams also give the School regular opportunities for positive publicity that attracts other outstanding students. He notes, “Getting into the sports section helps in recruiting students, whether they intend to participate in athletics or not. By showing the public that we have a vibrant campus life with successful athletic teams and recreational opportunities, we show them that Mines’ students can earn one of the finest technical degrees in the country while wholeheartedly pursuing athletic and extracurricular interests.”

Mines student-athletes have proven that devoting time to sports doesn’t detract from academics. Athletes at Mines have above-average grade point averages as a group, compared to the overall Mines population. The rigorous of a 15- to 20-credit hour course load demand that student-athletes manage their scarce time efficiently. The time spent outside of class, labs and practice simply has to be spent hitting the books.

The Faculty Oversight Committee on Sports and Athletics interviews student-athletes who are completing their eligibility at Mines. According to geology professor Ric Wendland, who leads the committee, athletes recognize that participating in a varsity sport provides a beneficial mental break from academics, contributing to their sense of balance and well-being. Additionally, they often describe valuable lessons related to interpersonal problem-solving, overcoming adversity, and achieving goals that they learned from being a varsity competitor.
JAMES ROBERT "Bob" Boone EM '39 of Tucson, Ariz., died Dec. 6 at age 92. He was a captain in the Army Corps of Engineers during World War II. After the war, he worked for Magma Copper, retiring in 1976. He served the Masonic Lodge for more than 50 years and was past Master of Temple Lodge No. 51 in Oracle, Ariz. He was also a member of the Scottish Rite and the Eastern Star. His volunteer activities included working with the Arizona Highway Patrol and Kino Hospital. In retirement, Boone and his wife enjoyed traveling and golfing. His wife of 61 years, Helen Shephard of Golden, Colo., predeceased him. A daughter, Sharon, survives him.

Warren E. Bush EM '41 died Aug. 31 surrounded by his family. He was 87. Bush was born in Utah but moved to Grand Junction, Colo., when he was five. He lived there for 82 years. While at Mines, he was a member of Tau Beta Phi, the national honorary engineering fraternity and the Kappa Kappa Psi, the national musicians' fraternity. After graduation, he joined the Army Air Corps and, during a dance, he met and married his wife, the former Gwendoline W. Hawes. They married in England in 1945. Bush was a chemist for 34 years and was past Master of Temple Lodge No. 51 in Oracle, Ariz. He was also a lifetime member of the Alumni Association. Bush also was a mentor to countless party guest of his sons, a tea director at Bible Church, a head counselor at Camp Elim, a Christmas pageant playwright, a hiker, a camper and a Civil War buff. Bush is survived by his wife of 70 years, Cynthia, three sons, his daughter, his father, a sister, a brother and six nephews.

Harry R. Cunningham GeoE '52 died from a stroke Dec. 8 in Houston. He was 77. After graduation from high school in Grand Junction, Colo., Cunningham worked for the Bureau of Land Management in Wyoming. He was drafted in 1950 and served two years in the Army Corps of Engineers. During that time, he met and married his wife, Mary Ann. Cunningham entered Mines in 1953 and his wife took a job in the School's Athletics Department. After graduation, he joined Atlantic Refining Company where he directed seismic data collection, reduction and interpretation. He also conducted independent research in applied geophysics. In 1960 he began a career in the space industry with the Martin Company. In 1968, he moved his family from Texas where he worked for TRW Systems and Lockheed Engineering. His expertise was in scientific software engineering and in support of missile/ space flight systems analyses and requirements definition, support of computer system and scientific software and consultant service sales in the petroleum exploration industry. He received many honors and awards from NASA. Outside of work, Cunningham's interests included reading, storytelling, fishing and family. He is survived by his widow, three daughters, two sons, three grandsons and a granddaughter.

JAMES N. "Jim" Eakins BSc CPR '78 died Jan. 17, 2005 of a brain tumor. He was 48. Eakins was an engineer at BNIM and Lexmark. He also was a mentor to countless teenagers, a football coach to his son's, a 40 party guest of his daughter's, an elder and youth director at Bible Chapel, a head counselor at Camp Elim, a Christmas pageant playwright, a hiker, a camper and a Civil War buff. Eakins is survived by his wife of 27 years, Cynthia, three sons, a daughter, his father, a sister, a brother and six nephews.

William "Bill" A. Elser PE '48 of Calgary, Alberta, died Nov. 30 at age 79 after a long battle with Alzheimer’s disease. Elser was born in Texas and raised in New Mexico and Colorado. While attending college, he served two years in the U.S. Navy and saw active duty in the South Pacific during World War II. After graduating, Elser worked for Standard Oil. He moved to Canada in 1959 and had various petroleum jobs. In 1982, he became executive vice president and chief operating office of ATCOR Resources Ltd., where he remained until retirement in 1992. Elser also served as president of the Independent Petroleum Association of Canada, a director of the Petroleum Recovery Institute and the Petroleum Foundation of Canada. He was also a member of the U.S. Society of Petroleum Engineers, the Canadian Society of Petroleum Engineers and the Association of Professional Geologists and Geophysical of Alberta. Elser married Elizabeth Kryza in 1953 and together they raised six sons. He enjoyed woodworking, camping and sports, particularly golf. He was a member of the Canyon Meadows Golf and Country Club. He was active in Cub and Scouts and coached Little League baseball. He also raised and trained Irish Setters for show and obedience trials and was once an obedience judge for the Canadian Kennel Club. Elser is survived by his sons, 17 grandchildren, a brother and three sisters.

Major RICHARD C. GERHARDT M.ET E59, USAF (Ret.), 76, a resident of Albuquerque for over 30 years, died Dec. 30, surrounded by his family. Before graduation from Mines, Gerhardt graduated from Aviation Cadets as a pilot in 1952. In 1962, he earned a master's degree in metallurgy from Denver University. Gerhardt's career included working at the weapons lab at Kirkland Air Force Base, N.M., doing research on early atomic testing. He was a math instructor at the Air Force Academy for three years, then was stationed in Arlington, Va., at the Defense Intelligence Agency. Gerhardt later returned to Albuquerque where he retired in 1976. He then began a second career as an engineer for Boeing in Seattle and Wichita, Kan. Gerhardt is survived by his wife of 53 years, Shirley, and son Douglas. He was preceded in death by his son Richard J.

Guy Gries EM '32 died in Tucson, Ariz., Nov. 20 at age 98. He was born in a two- room log cabin with a sod roof in Webster, Kan. His family moved by wagon to Matheson, Colo., in 1911 where his father homesteaded, farmed and later became a merchant and auctioneer. Gries finished tenth grade in a one-room schoolhouse and moved to Denver at age 16 to further his education. He graduated from Parks Business School and worked as a bookkeeper. A fellow worker suggested that he attend Mines to further his education. After taking math and chemistry in night school, Gries worked his way through by washing dishes, night clerking in hotels and surveying for the City of Golden. He also played in the Mines band. After graduation, Gries found work for the Colorado State Highway Department. In 1938 he started what became a small chain of variety stores and dress shops in Denver, Arvada, and Lakewood. In 1956 he closed those and went back to the highway department as a designer. He retired in 1972 as chief of the right-of-way department. Gries’ wife of 72 years, Charlotte, predeceased him. He is survived by three children, Nancy, Roger and Gerald Met E58.

Richard H. Schafer GeoE '54 of Willoughby, Ohio, died Dec. 12. He was 77. Schafer was born in Cleveland, Ohio, and graduated from Willoughby High School there. He served in the U.S. Army and attended Mines on the GI Bill. He was a member of Tau Beta Pi and an Honor Society. Schafer was a geotechnical engineer for Gates Engineering Co. in Denver before his retirement. He is survived by his sister, a brother and many nieces and nephews.

Robert D. Vonfeldt BSc ENG '05 died Aug. 4 after an automobile crash. He was to marry Lindsey Stagg soon, was a wrestler and played football at Fort Lupton, Colo., High School in 1999. He was a member of the Future Business Leaders of America. Vonfeldt was a computer science major. He was employed as an electrical engineer with Shaw Stone and Webster. Vonfeldt is survived by his fiancé, has parents, two step-parents, six brothers and two sisters.

Also in Memoriam

ROBERT C. YOUNG BSc GEOL '79 July 4, 2005

SAMUEL Y. STENNIS MET E58 of Amarillo, Texas, died Dec. 7. He was 88. Following his graduation from Mines, Stennis joined ASARCO никел as a chemist and later was plant manager from 1968 until it closed in 1975. Then he became an assistant to the ASARCO copper refinery manager until he retired in 1982. Stennis served as an officer in director in many organizations such as the Amarillo Board of City Development, the Amarillo Chamber of Commerce, the Rotary Club and the Amarillo Growth Association. He was active in Kids Inc., Boy Scouts, Girl Scouts, West Texas Chamber of Commerce, Salvation Army, Service Board, First United Association of Business and the American Institute of Mining and Metallurgical Engineering. As a leader of the Amarillo job matching fair for six years, Stennis helped place more than 1,500 unemployed or underemployed workers. He also helped raise about $350,000 in cash and equipment to develop a machinist training program at Texas State Technical Institute. In 1981, he was named the Texas Volunteer Industrial Developer of the Year. Stennis is survived by his wife of 63 years, Elsie, a daughter, two sons, eight grandchildren and a great-granddaughter.

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**West**

**Seattle, Wash.**
- Several Miners, all Kappa Sigs, went to Lake Tahoe for a ski outing organized by Seattle Coordinator Mitch Kruse ’85.

**Gulf Coast**

**Bone Valley, Fla.**
- The annual alumni picnic, hosted by Judge Holmes ’60, was once again a big success!

**Houston, Texas**
- The annual Houston alumni golf tournament raised more than $29,000 for scholarships this year. The event was organized by George Pulis ’75, Kim Harden ’74, and Dean Stoughton ’73, ’78.

**E-Days ’Round the World**

Miners around the world got together to celebrate E-days memories on April 13. It was the first of what will become an annual event. Nearly 50 sections arranged get-togethers ranging from two to 30 participants.

**Anchorage, Alaska**
- Hosted by Dan Grunwald ’99.

**Atlanta, Ga.**
- Hosted by Holly Bellmund ’94.

**Bend, Ore.**
- Hosted by Jay ’95, ’98 and Jamie ’04 Dunavenport.

**Boise, Idaho**
- Hosted by Jim Classen ’77.

**Boulder, Colo.**
- From left, Kathy Brett, Nathaniel Putzig ’86, Don Eldhurt, Betty Gibbs ’69, ’72, and Roger Phillips ’63.

**San Diego, Calif.**
- Hosted by Sam Przywiatowski ’94 and Charley Crew ’70.

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- Hosted by Kim Lewis ’92, ’93.

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- From bottom left and going clockwise, Scott Eckels, Jennifer Eckels ’98, Jessica Nevold ’99, Tim Nevold, Christy Krenek, Dave Krenek ’71.

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- Hosted by John Gould ‘80, who says, “I would like to issue a challenge to the other sections to come up with two alumni with a greater difference in graduation years than 66 years!”

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Group photo includes Gould, Dave Peery ’66, Van Howbert ’51, Phil Philips ’49, Tim Lien ’80, Larry Melzer ’39, Deborah Melzer, Michael Pierce ’90, Mark Linroth ’82, Lindsay Maddox ’55, Richard Dunham ’74, Michael Bansbach ’80, Garpe Bansbach, Jim Brayton ’92, Shelly Worrill ’83, Billy Harris ’78, Tom Jonas ’75, James Reeves ’76.

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Staying connected
The Mystery of the Stetson

By Maureen Keller

When Chris Sheeran BSc Geol ’75 was ready to graduate from Mines, he decided to commemorate the event with a senior Stetson signed by his classmates. “I conceived the idea for a ‘class ring’ of signatures instead of a traditional gold ring after a really old signed hat I saw at CB’s during my time there,” Sheeran recalls. “To me, the signatures and the memories they would bring meant much more to me than a gold class ring.”

Alas, Sheeran left the country in 1986 having the hat behind in a museum display and when he returned, the Stetson was gone. “I was working at the U.S. Bureau of Mines Spokane Research Center [USBM-SRC] then and left for a couple of years to go to Central America. At that time, my hat was in the mining display case at the USBM-SRC on Montgomery Street where I had worked for five years as a mining engineer. I left the hat under the supervision of another Mines grad named Ron Hill Geol B’67. On my return from Guatemala, I was disappointed to find that the hat had disappeared from the display case and none of my friends there could tell me where it had gone. I guess ‘disappeared’ is too mild of a word for what I felt.”

Ten years passed and in 1996, Mr. Milo Rude of Medical Lake, Wash., sent the Stetson to the Alumni Association with this note: “I found this hat some years ago in a trash can and was always meaning to try to find the owner. I hope you may be able to accomplish this for me.”

The Stetson was displayed at the Association for the next nine years and then in the summer 2003 issue of Mines, a photo of the hat was published with a request for information about it. Sheeran was out of the country, didn’t receive the issue and didn’t see the photo. But his sister did.

Finally in December, the Alumni Association received a note from Sheeran: “I am down in Miami visiting my folks over the Christmas holidays. Also here is my sister, Pat, who married one of my good friends from my class at Mines, Paul Daggett BSc Min ’73. Yesterday, Pat mentioned to me that a picture of a curious senior Stetson had appeared in a recent alumni magazine. From her description of the signatures on it, I realized that it was my long-lost ‘class ring’ Stetson.”

Sheeran went on to describe the hat and mentioned his friends who had signed it. “I was part of a group called the ‘Randall Gang.’ A picture of this group at the clay pits appears in the 1975 yearbook and I am the one with the banjo with a CSM logo on the head.”

Today, the Stetson is back home with Sheeran in Waxhaw, N.C., where he is an international e-mail administrator for Wycliffe Bible Translators. Sheeran also still plays his banjo with the CSM logo on the head. “I received a note from my sister did. Today, the Stetson...”
Robin E. Hendrickson BSc Econ is database manager of the Americas for Philex Mining Inc. in Toronto, Ont.

John H. Gray PRE is president of Equinox Metals Inc. in Park City, Utah.

Joseph A. Dodds BSc Phy, M Eng is manager of physical analysis laboratories for Johns Hopkins University.

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**Cedar L. Simmons BSc CPC, BSc Chem** is a project engineer for The Dyer Engineering Company Engineers and Planners in Coos Bay, Ore.

**Sean S. Spanier BSc Pet** is a petroleum engineer for E&N Natural Resource Management Corp. in Bakersfield, Calif.

**Patrick C. Sullon BSc CPC, BSc Pet** is a project engineer for Black & Veatch in Centennial, Colo.

**Jackson A. Tabor BSc CPC, MSc Comp Sci** is a software engineer for Computer and Communications Technologies Inc. in Littleton, Colo.

### 2000

**Jewel A. Boren BSc CPC, BSc Pet** is a degree engineering technician for AMEL Corporation in Colorado Springs, Colo.

**Jarrod C. Clark BSc CPC** is a project engineer for the Los Alamos National Laboratory in New Mexico.

**Allison J. Portman BSc Math & Comp Sci** is a technical business analyst for Global Healthcare Enabling in Issaquah, Wash.

**Aaron L. Gensik BSc CPC** is a fire fighter for West Metro Fire Rescue in Golden, Colo.

**Kevin J. Gonsou BSc CPC** is a contractor and mining engineer for Compassing Corp. in Aurora, Colo.

**Steve E. Johanns BSc Math & Comp Sci** has been a software engineer for Raytheon in Colorado.

**Les L. Johnson BSc CPC, MSc Eng** has been pursuing his PhD in Colorado.

**Karen M. Kneerogon BSc MSc Env Sci** is an environmental engineer with UBS Corporation in Denver.

**Sarah L. Lau BSc CPC** is an engineer intern for Intel in Pendleton, Ore.

**Gregory N. Mitchell BSc CPC** is an environmental engineer for Gordon, Gannett & Associates in Denver.

**Michael G. Peters BSc CPC** is an environmental engineer for Gannett, Gannett & Associates in Denver.

### 2001

**Mohamed Saleh Al-Nuaimi BSc Pet** is a reserve engineer for Abu Dhabi National Oil Company in Abu Dhabi.

**Branianna G. Albertson BSc Chem Eng** is a chemical engineer for Washington Group International Inc. in Denver.

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### 2002

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**Anthony L. Vesu BSc CPC** is a senior engineer for Freescale Incororation in Greensboro, France.

**Gosdin C. CPC (and Chaotic! BSc CPC)** Trujillo arranges the birth of their first child, Kaitlyn, born Sept. 30.

**James Richard Wehner BSc CPC** is an engineer for the U.S. Air Force at Eglin Air Force Base, Fla.

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**2001**

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### 2000

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New home on five acres with Quail Creek flowing through the middle. The inclusion of mineral rights plus an 1100 foot level mine shaft. This mine can come back to life! Surrounded by national forest, this is truly Colorado at its finest! Listed at $1,950,000.

46 MINES SPRING 2006 COLORADO SCHOOL OF MINES
The Mines team won second place in the Regional Steel Bridge Competition held in Rapid City, S.D. in April. They advance to nationals this month. Front row from left, Emily Dunham, Andrea Struble, Ryan Hollinshead, Chia An “Abe” Chen. Back row, Chad Crabtree, Jess Pedersen, Kaitlin Schmidt.

At Regionals, the team took 20 minutes, 1 second to erect the bridge, which held 2,500 lbs. The bridge weighed 349 lbs. with a deflection from the loading of 0.71 inches.

Timothy Van Schmidt