Construction of Wellness Center Planned

Alumnus Wants to Change the Worldview

World's Smallest Pump Has Enormous Implications
Research with Explosive Potential

Dr. Petr studies the fracture pattern on a plexiglass target.

MINES FALL 2002

Letters to the Editor

A tribute to John Robertson Jr. EM ’49

I first met John when I came to Pueblo to be interviewed for a job with the then Colorado Fuel and Iron Corporation as a junior mining engineer in May 1954. He had gone to work for the Mining Department on June 21, 1949 and was then one of the assistant mining engineers in the department. John was assigned to take another prospective employee and myself to lunch and I learned at that time that he had been at Colorado Mines for two years when I was there. He was a gracious host and when I subsequently went to work in September of that year, I was, so-to-speak, put under his wing. He was an excellent mentor and I worked with him until the following April when I was sent to the Sunset Mine in Wyoming.

In 1958 he was transferred to CF&I’s Utah operation as the resident engineer. I joined him there in 1960, working for him for about three years at which time, in 1963, he was transferred to the Little Mine at Westol, Colo., as the assistant superintendent under Lloyd Ingalls. Upon Ingall’s retirement in 1964, John became the mine superintendent, a position he filled with very great competence until 1971.

As a result of his excellent work, he was brought back to the Pueblo office as manager of mines and quarries under R. R. Williams, Jr. (Class of 1929) who was director of mines and quarries. When Williams retired in January of 1973, John assumed the duties of head of the department. He left CF&I for greener pastures at the end of April 1978 and subsequently had a fine career in his chosen field of mining. Most notable was his work with the Educational Foundation of the Colorado Mining Association.

I will always cherish my friendship with John who did so much for me over the many years that I knew him. He was a gentleman and a fine mining engineer. May he rest in peace.

R.W. MacCannon Met E ’51, EM ’54

Hang in there, Miners

I thought it was ironic that the articles on CU being one of the top 10 party schools in the nation ran at the same time the Julie Poppen article (Rocky Mountain News) “Mines wants its students to get a life.” I went to Mines and have always believed it was one of the best things I ever did in my life. It prepared me for a career that led to world travel and gave me the background to tackle challenges well beyond what I ever in my wildest dreams thought possible. Yes, Mines was tough, but so is everything in life worth achieving. We had a motto at Mines when I went there: “Work hard and play hard.” I have followed that credo for my entire life. When you set out to do something, give it your all.

With tongue in cheek, I wonder if this is another attempt by Colorado University to take over Mines, as they have unsuccessfully attempted a number of times in the past. If they were successful, then the poor dressed Mines students would join CU and be part of one of the best party schools in the nation – and that will not be the credential that will get them that first great opportunity in life. My advice to Mines students: Hang in there, it will all be worth it. My advice to Mines students: Hang in there, it will all be worth it. And when you get a break, go to Boulder and have some fun, like we at Mines have always done. By the way, don’t pay any attention to that song the CU people sing to you that starts, “There’s a heck-of-a situation up at Mines.”

Glenn VanZant PE ’60

Letters to the Editor
Our research promotes both industry and the environment," says CSM’s Vilém Petr PhD Min ‘01. It might also promote a safer world. In his Mining Engineering Department laboratory, Petr, an assistant research professor, conducts research on concrete structures of the future. His experiments have demonstrated the effects of explosions on concrete.

When Petr detonates an explosion to test the strength of a slab of conventional concrete, the damage is significant. The impact causes pieces of concrete to break off and fly from the slab. This high velocity fragmentation, called spalling, produces extensive collateral damage. Conventional concrete materials used for structures, barriers and other applications are known to spall when applied tension exceeds their strength. To reduce the spalling, Petr has developed an advanced material with increased capacity to maintain structural strength.

In another experiment, using this new composite concrete with 30 percent to 40 percent of its natural aggregates replaced by recycled tires, Petr again sets off an explosion. This time the concrete stays almost entirely intact. Fragmentation (spalling) is greatly reduced. The recycled tire scraps have affected the number of spaces and spall regions in the concrete material and made it stronger. According to Petr, conventional concrete materials are four times to 15 times weaker than the new composite material he is studying.

This advanced material could provide protection for both personnel and structures subjected to high velocity impacts or explosions. As a counter-terrorism measure or for other military purposes, this resilient concrete shows great promise. The use of recycled tires within the composite concrete also makes this an environmentally friendly concrete.

Petr conducted the first phase of the research while working on his Ph.D. under the direction of a faculty advisory committee led by Tibor G. Rozgonyi, head of the Mining Engineering Department.

For his thesis, Petr developed experimental and numerical studies of shock waves transmitted through brittle materials, such as concrete. He found that the introduction of soft particles—in this case, recycled tire particles—reduced the magnitude of the shock. Soft particles quickly dissipate energy.
Alumni Association to Elect New Officers

Active Association members receive a ballot in the mail along with the membership drive. Several positions on the CSAA board will be filled in February 2003. Candidates for the open positions are profiled below. The only contested position is secretary. Please return your ballot in the ballot envelope to the CSAA office by January 31.

President-Elect (one-year term)

Arthur T. Biddle Met '63 is a named attorney who also sits on the board for Denver International Airport. He was a senior attorney with the Denver city attorney’s office where he was involved with the design and construction of Denver International Airport for more than eight years. Biddle has been an active member of the Alumni Association since his graduation. He is also chapter counselor for the Sigma Phi Epsilon house on campus.

Secretary (one-year term)

Lori Stucky Bsc Eng ’97 is an instrumentation and control systems engineer for Washington Group International in Denver, a job she has held since graduation. While at Mines, she was active on various committees including those planning E-Days and Homecoming, and was a member of Sigma Kappa sorority. She also was a head ambassador for the admissions office. Stucky is active in the Society of Women Engineers and is a member of the alumni fund advisory and financial committees and is an active member of CSAA.

Treasurer (one-year term)

Stefany B. Stokley Bsc Geop ’99 is a consulting geophysicist and petroleum-engineering specialist with CapWest Securities in Lakewood, Colo., with her husband and two dogs. She received her BSc degree from Colorado School of Mines in 1999. Stokley attended Mines and was a member of the alumni fund committee. She has been an active member of the Alumni Association since her graduation.

Metro Director #1 (three-year term)

Stefany B. Stokley Bsc Geop ’99 is a consulting geophysicist and petroleum-engineering specialist with CapWest Securities in Lakewood, Colo., with her husband and two dogs. She received her BSc degree from Colorado School of Mines in 1999. Stokley attended Mines and was a member of the alumni fund committee. She has been an active member of the Alumni Association since her graduation.

World Regional Director (three-year term)

Laurence G. Preble PRE ’61 is director of development for KUD International LLC. KUD (Kajima Urban Development) is an affiliate of Kajima Corporation, the construction and development firm based in Japan. KUD develops mixed-use, public/private real estate projects. Preble currently has primary responsibility for Silvertown, a 60-acre redevelopment project in the Docklands, east of London. Prior to joining KUD, Larry was the senior real estate partner at O’Melveny & Myers, a national and international law firm based in Los Angeles. Preble received his law degree from Loyola Law School in Los Angeles in 1968. He is a member of the American College of Real Estate Lawyers, the Anglo-American Real Property Institute and the Urban Land Institute. He has served on the board of several charitable and civic organizations including the Board of Trustees of Harvey Mudd College and the House Ear Institute. He is a member of the Board of Directors of the Mines Alumni Association.

CSC Foundation Board (two-year term commencing in June 2003)

Marshall C. Crouch III Geol E ’67 is president and geological engineer for White Eagle Exploration in Denver. He has worked in the oil and gas industry since 1964 starting with Plains Exploration and Production Company, and later with Kansas-Nebraska Natural Gas, and in 1974 founded White Eagle Exploration. Crouch has long been an active member of the Alumni Association and was an officer of the Alumni Association from 1980. He served on the CSMAA board in all officer positions, including president and was chairman of several committees. He also served on the CSC Foundation Board for two years. He has been active with the Rocky Mountain Association of Geologists and other geological and petroleum-engineering societies, serving on numerous committees as a member or chair. He received a Distinguished Service Award from the RMAG in 1996. Crouch has been on the board of directors of CSC’s Potential Gas Agency for over 10 years. He is currently a member of the Foundation’s Denver President’s Council calling committee.

An Update from the CSMAA President

Dear Alumni and Friends,

Some of you may not realize that CSAA is an independent organization from CSM. Two years ago, our Board of Directors began strategic planning to redefine our mission and priorities, and better utilize our limited resources. Our new mission statement explains our job as nurturing strong connections between the Mines family, providing goodwill and support, promoting the School’s traditions and excellence and helping alumni with professional development.

To this end, our programming includes reunions, homecoming, local section development, alumni career services, and student financial assistance. Our planning efforts also led to greater cooperation with the School in co-editing Mines and sharing an alumni database. A joint CSM AA/CSC task force is exploring other cooperative efforts.

CSMAA would like to provide other services: assisting with student recruitment, working more closely with student groups, increasing ties between young alumni and the School. However, these are tough financial times and we have been forced to cut back instead of expand.

Therefore, I encourage you to remember your alma mater and support the School in any way you can:

- Become a sustaining member of CSAA.
- Make a contribution via the Annual Fund or other program.
- Volunteer with CSAA or the School, attend local section meetings, or start a section if one does not exist!

You can support Mines and remain connected in many ways. I sincerely hope you find the way that’s right for you. Have a safe and happy holiday season!

Jodi Menaboker CR ’91
Inspiring Young Minds

Women in Science, Mathematics and Engineering (WISEM) recently partnered with Girls Inc. of Metro Denver to bring the Eureka! summer program for seventh-to-10th-grade girls to CSM’s campus.

The Eureka! program incorporates skills in science, math, computers, leadership, health, and sports and adventure. The teens built solar cars and conducted experiments related to natural science and energy. The girls also explored how computers can enhance adventure. The teens built solar cars and conducted experiments related to natural science and energy. The girls also explored how computers can enhance adventure.

Sharoia Taylor, nicknamed Jojo, is a good example of the type of girl that participates in Eureka! She is a two-spirit and national champion in taekwando. Jojo said, “She taught me that if you have a goal, you should focus on it and never give up.”

The computer programs here are excellent. The teachers are wonderful and facilities top notch.”

Jojo’s grandmother, she said, “She taught me that if you have a goal, you should focus on it and never give up.”

Hennebach Professor

Professor Richard Olson, the 2002-2003 Hennebach Professor in Liberal Arts and International Studies, joins the Mines community from the Department of Humanities and Social Sciences at Harvey Mudd College in Claremont, Calif.

Olson has authored six books and published more than 100 articles and reviews. His research focuses on the interactions between natural scientific knowledge and its producers and other cultural domains. Recently he has concentrated on:

- The interactions between scientific developments and religious developments in Britain during the 17th and 18th centuries
- The permeation of 17th century social thought by concepts and methods from the natural sciences.
- Astronomy, astral religion and the emergence of a transcendental divine in the ancient Near East
- Early Christianity and the preservation and promotion of natural knowledge

$30.3 Million: CSM’s Largest Research Funding Year

Colorado School of Mines researchers recorded the largest funding year ever for fiscal year 2002 with a total of $30,301,800 in 475 awards from federal, state and private sources.

The most awards, more than 250, came to CSM from the private sector and amounted to $11.6 million.

It was a record-breaking year with total research monies up $2.7 million from last year.

Top consortiums for fiscal year 2002 included:
- Reservoir Characterization Project, $1,174,731, 24 sponsors.
- Center for Wave Phenomena, $1,055,500, 26 sponsors.
- Project, $1,174,731, 24 sponsors.

Other major awards were received from the Department of Energy, Department of Defense and the Environmental Protection Agency.

NASA was the largest federal contributor with $4.9 million followed closely by the NSF with $4.1 million in funding. Other federal awards were received from the Department of Energy, Department of Defense and the Environmental Protection Agency.

Top awards from federal, state and private sources.

CSM Hosts U.S. Coast Guard Delegate

Dr. Carla Egelhoff, a senior professor at the University of Notre Dame, was chosen to be the CSM Hosts U.S. Coast Guard Delegate. Dr. Egelhoff, who has a long history of working with minority programs, visited Mines this summer to learn more about the School’s diversity programs with the goal of increasing the admissions, retention and graduation numbers of students in engineering at the Academy.

Based on Mines’s student diversity programs and the quality and reputation of its engineering programs, the Academy chose Mines from among engineering schools nationwide for its “best practice” commitments, including the CSM Diversity Committee, Women in Science, Engineering and Mathematics program, and Minority in Engineering program.
International Agreement Renewed

Rector Wolfgang Poehl and Second Vice Rector Brigitte E. Weinhardt of Montanuniversitat Leoben (MUL) recently visited CSM to renew an international exchange agreement of cooperation. MUL is located in Leoben, Austria, and focuses on applied earth sciences and engineering.

Originally initiated in 1989 by CSM’s and MUL’s petroleum engineering departments, this international studies program was the first in Austrian history to be taught in a language other than German. In order for MUL to teach petroleum engineering classes in English, the Austrian Parliament changed the constitution.

As a result of the program’s success, the Austrian Constitution was again revised to allow all departments at MUL to teach in English.

“Over the years there have been many visits between petroleum engineering and environmental science and engineering faculty that have led to a strong exchange program for both undergraduate and graduate students,” said K. Godel-Gengenbach, director of international programs. “This success is tied to the efforts of Craig Van Kirk, department head of petroleum engineering; Ramona Graves, associate professor of petroleum engineering; and Weinhardt, who have worked tirelessly to encourage student participation.”

According to Godel-Gengenbach, approximately 50 students from Leoben have studied at CSM and an equal number of CSM students have studied in Leoben. Many MUL students have also stayed at CSM to complete a master’s degree following completion of the exchange program.

Mooney Elected President of CSM Board

F. Steven Mooney Geol E ’56 was elected to serve a two-year term as president of the CSM Board of Trustees. Mooney has been a member of the board since 1996.

ASCE awarded the CSM ASCE student chapter a 2002 Certificate of Commendation for its outstanding activities, which were recorded in the chapter’s 2002 annual report.

And the Winner is... CTLM

“From the outset, I set a goal for the project to be state-of-the-art in terms of both instructional technology and sustainability,” said Paul Leef, CSM’s manager of planning and construction.

The project was CSM’s new Center for Technology and Learning Media (CTLM), and it’s been winning awards ever since.

The Colorado Renewable Energy Society recognized CTLM with a 2002 Renewable Energy in Buildings Award. Michael Bowker, mechanical engineer with the Office of Planning and Construction, accepted CSM’s award, which celebrates the most creative use of renewable energy in design and construction of new residential, commercial and institutional buildings in the state.

At the 2002 Society for College and University Planners conference, CTLM received an award in the category of Architecture and Design in Education.

In its annual Education Design Showcase, College Planning & Management awarded CTLM a 2002 silver medal honorable mention in the colleges and universities category.

In addition, Architectural Record, a leading industry magazine for architectural design, featured CTLM on its Web page throughout August.

Wagner Elected President of CSM Foundation Board

CSM trustee David J. Wagner was elected to serve a two-year term as president of the CSM Foundation Board of Directors. Wagner has been a member of the CSM Board of Trustees since 1999.

F. Steven Mooney

Candace Ammerman

Ammerman Recognized as Outstanding Adviser

For the third consecutive year, Candace Ammerman BSc BE ’81, lecturer of engineering, has received the 2002 Zone III Outstanding Student Chapter Faculty Adviser Award from the American Society of Civil Engineers (ASCE).

CSM student chapter officers nominated Ammerman for her outstanding work and dedication. She was praised by the ASCE chair of the committee on student activities, who noted, “It is the enthusiasm and commitment of faculty advisers like you that produce excellent student chapters such as yours.”

CTLM

A CTLM hallway

Wagner Elected President of CSM Foundation Board

CSM trustee David J. Wagner was elected to serve a two-year term as president of the CSM Foundation Board of Directors. Wagner has been a member of the CSM Board of Trustees since 1999.

F. Steven Mooney

Candace Ammerman

Ammerman Recognized as Outstanding Adviser

For the third consecutive year, Candace Ammerman BSc BE ’81, lecturer of engineering, has received the 2002 Zone III Outstanding Student Chapter Faculty Adviser Award from the American Society of Civil Engineers (ASCE).

CSM student chapter officers nominated Ammerman for her outstanding work and dedication. She was praised by the ASCE chair of the committee on student activities, who noted, “It is the enthusiasm and commitment of faculty advisers like you that produce excellent student chapters such as yours.”

CTLM

A CTLM hallway

Wagner Elected President of CSM Foundation Board

CSM trustee David J. Wagner was elected to serve a two-year term as president of the CSM Foundation Board of Directors. Wagner has been a member of the CSM Board of Trustees since 1999.
Building. This year’s fair, from Aug. 17 to Sept. 1, drew a crowd of more "CSM Then and Now" , an 80-foot theme display at the 2002 Colorado State Fair, was featured in the Department of Natural Resources than 600,000. The Geology Museum and Office of Public Affairs

Office of Public Affairs Receives Awards
The CSM Office of Public Affairs received four Peoples Choice Awards in July at the annual conference of the Higher Education Association of the Rockies (HEAR) for Mines magazine, the newsletter Update, the new CSM Web site, and the School’s mini-fact booklet in the category three- and four-color brochures.

Leah Kolt, director of public affairs, served as the 2003-2004 HEAR president.

Murphy Appointed Sports Information Director
Greg Murphy, a graduate of John Carroll University with a degree in communications, is CSM’s new sports information director. Previously Murphy was the assistant sports information director at Washington and Lee University. To the job at Mines, Murphy also brings his experience as an intern for the Cleveland Indians Media Relations Department and as a regional public affairs coordinator in Ohio for the Muscular Dystrophy Association.

Murphy was the assistant sports information director at Washington and Lee University. To the job at Mines, Murphy also brings his experience as an intern for the Cleveland Indians Media Relations Department and as a regional public affairs coordinator in Ohio for the Muscular Dystrophy Association.

Murphy was the assistant sports information director at Washington and Lee University. To the job at Mines, Murphy also brings his experience as an intern for the Cleveland Indians Media Relations Department and as a regional public affairs coordinator in Ohio for the Muscular Dystrophy Association.

Mines Team Takes Third in ASCE Competition
CSM civil engineering students took on dozens of teams from across the country in the 2002 American Society of Civil Engineers’ National Student Conference in late June.

The team of Mary Hamann, Sonia Heedel, Robert Marquez, Nick Rogers, Casey Spicer, Ellen Taylor and Christopher White placed third in the K’NEX bridge building competition.

Students designed, contracted and built the 4-foot wide and 12-foot long bridge that held 10 pounds of weight and spanned an obstacle. Increasing the challenge was the primary building material—K’NEX toys (similar to Tinkertoy).

CSM’s team at the K’NEX competition

"CSM Then and Now" an 80-foot theme display at the 2002 Colorado State Fair, was featured in the Department of Natural Resources Building. This year’s fair, from Aug. 17 to Sept. 1, drew a crowd of more than 600,000. The Geology Museum and Office of Public Affairs created the display with contributions from the CSM community.

Greg Murphy

CSM civil engineering students took on dozens of teams from across the country in the 2002 American Society of Civil Engineers’ National Student Conference in late June.

The team of Mary Hamann, Sonia Heedel, Robert Marquez, Nick Rogers, Casey Spicer, Ellen Taylor and Christopher White placed third in the K’NEX bridge building competition.

Students designed, contracted and built the 4-foot wide and 12-foot long bridge that held 10 pounds of weight and spanned an obstacle. Increasing the challenge was the primary building material—K’NEX toys (similar to Tinkertoy).

CSM’s team at the K’NEX competition

"CSM Then and Now" an 80-foot theme display at the 2002 Colorado State Fair, was featured in the Department of Natural Resources Building. This year’s fair, from Aug. 17 to Sept. 1, drew a crowd of more than 600,000. The Geology Museum and Office of Public Affairs created the display with contributions from the CSM community.
Mines students work hard and they play hard. Despite demanding academic schedules, 85 percent of students regularly participate in athletic activities. With plans underway to build a state-of-the-art fitness facility just southwest of the Ben H. Parker Student Center, finding the time and motivation to exercise may become that much easier.

"The facility is going to add a great deal to the campus," says Vice President and Dean of Student Life, Harold Cheuvront. "Students have wanted this for years."

Encouraging team sports, physical fitness, and balanced lifestyles is a part of our educational mission and a priority for the School.

Indeed, the Board of Trustees recently approved an official "Philosophy Statement on Athletics" that closely ties the overarching educational objectives of the institution to physical activity. Explaining this philosophy, President John U. Trefny points out, "We have four short years to turn high school graduates into professional engineers of the caliber expected from Mines. The entire fabric of campus life must support this undertaking. Athletic programs teach communication skills, teamwork, ethical conduct, and leadership—all critical professional qualities for a successful engineer. No less important, athletics help instill healthy lifelong fitness habits."

This philosophy is a major factor behind the Wellness Center project. Volk Gymnasium and Steinhauer Field House are presently the only indoor athletic facilities on campus. Constructed in 1937, Steinhauer continues to provide valuable space for athletics, but the surfaced concrete floor is unsuitable for many activities. Volk Gymnasium, constructed in 1958, offers a much wider variety of facilities, but it was designed for a student body of 1,000 students, all male. The student population is now approximately 3,300, a quarter of whom are women.

Another concern is that the varsity basketball and volleyball teams must currently share the one basketball court in Volk. They rotate two-hour practice slots each day between 4 and 10 p.m., so no one team is permanently saddled with the late-evening practice. With a large gymnasium that accommodates two basketball courts, the new Wellness Center will alleviate these scheduling pressures.

The planned $25 million facility will also include a 25-meter pool, a climbing wall, a jogging track that encircles the gymnasium, a cardiovascular and weight room, and space for group activities such as aerobics, martial arts and yoga. Plans also include classrooms for health and fitness instruction.

The location and design of the Wellness Center are the result of an extensive planning process headed up by a CSM program committee in consultation with Denver-based Christopher Carvell Architects. To ascertain community needs, SportPLAN Studio, an independent consultancy specializing in collegiate athletic facility design, conducted detailed surveys and interviews with students, faculty and staff throughout the School. From this data, space requirements for specific activities were derived. And based on this information, the input of the CSM program committee, and their own detailed analysis of the Mines campus and
After several years of planning, breaking ground is significantly closer thanks to a donation from the Adolph Coors Foundation. Acknowledging this extraordinary gift, Trefry said, “The goodwill and generosity of the Coors family and the Coors Foundation have had an important and tangible impact on all aspects of academic and student life at Mines. We are very grateful for this latest instance of the special relationship we share with them.

Component of a bond issuance involves a mandatory student fee of $55 per semester. Mines students overwhelmingly approved the fee in a campus-wide vote this spring. The fee will begin once the Wellness Center is ready for use. A request for capital construction funding has been submitted to the state, but recent budgetary cutbacks for higher education have been severe. In light of this uncertainty, philanthropic donations are likely to play a more critical role. With the Coors gift, approximately $10 million must still be raised through philanthropy. Cheuvront is optimistic about securing funding. “This is going to be the largest building on campus—a landmark,” he points out. “It is going to make a significant contribution to the quality of life for every student passing through Mines for many years to come.”

Alumni, corporations and foundations are being asked to support the center, which is a priority in a major campaign soon to be announced. The target for completion of construction is 2005.

Acknowledging this extraordinary gift, Trefry said, “The goodwill and generosity of the Coors family and the Coors Foundation have had an important and tangible impact on all aspects of academic and student life at Mines. We are very grateful for this latest instance of the special relationship we share with them.

Component of a bond issuance involves a mandatory student fee of $55 per semester. Mines students overwhelmingly approved the fee in a campus-wide vote this spring. The fee will begin once the Wellness Center is ready for use. A request for capital construction funding has been submitted to the state, but recent budgetary cutbacks for higher education have been severe. In light of this uncertainty, philanthropic donations are likely to play a more critical role. With the Coors gift, approximately $10 million must still be raised through philanthropy. Cheuvront is optimistic about securing funding. “This is going to be the largest building on campus—a landmark,” he points out. “It is going to make a significant contribution to the quality of life for every student passing through Mines for many years to come.”

Alumni, corporations and foundations are being asked to support the center, which is a priority in a major campaign soon to be announced. The target for completion of construction is 2005.

The proposed location offers a number of advantages. It is conveniently accessible from Weaver Towers and neighboring fraternity and sorority houses. It is adjacent to intramural fields and close to the Adolph Coors Foundation. Acknowledging this extraordinary gift, Trefry said, “The goodwill and generosity of the Coors family and the Coors Foundation have had an important and tangible impact on all aspects of academic and student life at Mines. We are very grateful for this latest instance of the special relationship we share with them.

Component of a bond issuance involves a mandatory student fee of $55 per semester. Mines students overwhelmingly approved the fee in a campus-wide vote this spring. The fee will begin once the Wellness Center is ready for use. A request for capital construction funding has been submitted to the state, but recent budgetary cutbacks for higher education have been severe. In light of this uncertainty, philanthropic donations are likely to play a more critical role. With the Coors gift, approximately $10 million must still be raised through philanthropy. Cheuvront is optimistic about securing funding. “This is going to be the largest building on campus—a landmark,” he points out. “It is going to make a significant contribution to the quality of life for every student passing through Mines for many years to come.”

Alumni, corporations and foundations are being asked to support the center, which is a priority in a major campaign soon to be announced. The target for completion of construction is 2005.

Weege ’84
Finds Possible New Dinosaur Species

A petroleum engineer by day and a paleontologist by night and on weekends, Chris Weege BSc Pet ’84 has expanded a childhood interest into an adult fascination with dinosaur bones.

“I’ve been collecting fossils since I was a kid,” says Weege, whose first find was a brachiosaurid in Michigan, followed by a triceratopsid in Wisconsin. When he moved to Colorado to attend Mines, he bought a jeep and began mining the West in search of fossils. “It’s what I see if I could find a piece of bone. Then I wanted to find a whole bone, then a whole skeleton.”

Eighteen years later, he has succeeded beyond his wildest expectations. He began focusing on an area in Wyoming near Medicine Bow. He obtained rights to search and later purchased a parcel there. In 1995, he uncovered what is probably a new species, an Allosaurus that’s never before been described. It’s a distantly related to Tyrannosaurus rex, though about 85 million years older.

“Carnivorous dinosaurs are rare to find because there were fewer of them,” says Weege. “Usually, skeletons are disarticulated. You might find an occasional bone.” But his Allosaurus was “pretty much complete.” And the site, an ancient streambed, promises to yield more complete skeletons. In 1996, he found a Stegosaurus and last year found three more Stegoceans, an Ankylosaurus and a Coelurosaurian dinosaur.

People have been collecting jurassic dinosaurs for about 130 years but most are from the upper Morrison formation. Weege’s finds are from the lower Morrison formation, about 3 million to 5 million years earlier.

Weege is mostly a self-taught paleontologist, glean from his knowledge from books, courses at the Denver Museum of Nature and Science, and hands-on experience. But unlike most amateurs, he has published papers on his finds. He also works with Western Paleontological Laboratories, Inc. in Orem, Utah, which is helping him prepare his finds for display. When cleaned and assembled, skeletons may be donated to a museum.

“Weege, left, and fellow dinosaur enthusiast Dave Schmidt with a dinosaur bone.

Peoplewatch

Hedlund ’75
Wants to Change the Worldview

Bob Hedlund BSc Min ’75 fell in love with Uzbekistan while there on business and the world is becoming a better place because of it. The former gold-mining engineer now uses his Mines education to help the Central Asian countries of Uzbekistan, Kazakhstan and Afghanistan improve their standard of living.

In 1992, he and his family moved to Uzbekistan and established Joint Development Association International (JDA), a non-profit institution that operates in the three Central Asian countries, to help with community and economic development. Hedlund’s approach is to change people’s worldview.

“It’s not a lack of resources that causes poverty,” says Hedlund. Neither Japan nor the Netherlands have natural resources yet are affluent nations, while Somalia, with great natural resources, is among the poorest. “It’s because of their worldview.” In the United States, for example, we believe that new resources appear through creative and innovative processes (i.e., sand being used for computer chip production. Hedlund’s goal is to help the people of Central Asia realize that “their greatest resource is their own creative mind.”

Hedlund calls this “transformational development.” He views himself as the catalyst to help others help themselves. He describes workshops in Central Asian villages where he and participants are discussing solutions to their problems using the resources that exist within their own communities. “The goal is adequacy, not affluence,” he says. The region of Central Asia and Northern Africa is one of the poorest in the world with 35,000 children daily dying of malnutrition. To just boost the standard of living is enough for now.

The JDA has a staff of 125, only 18 of whom are Westerners. Last year, the organization helped develop 400 fresh-water wells that now serve 85 villages. This year it is helping to rebuild irrigation systems, roads, homes and schools in Afghanistan.
Colorado School of Mines senior Brian Sump began playing football as a third grader. For the next nine years, Sump celebrated a brilliant baseball career, but the thought of playing football occasionally crossed his mind. However, Sump never believed that he was big enough or strong enough to play on the gridiron. That was all about to change as Sump concluded his junior year at Thomas Jefferson High School in Denver.

"After my junior year of baseball, I started talking with some of the guys on the football team," Sump said. "I started working out with the receivers over the summer and realized that they were all fast and strong. But I kept working at it and when the season rolled around, I was the number two receiver.

Sump's one season of high school football proved to be a successful one as he earned Honorable Mention All-Conference honors. In addition, Sump caught the eyes of several college football programs, including School of Mines. When all was said and done, Sump decided to become an Oredigger.

"I thought that was the best opportunity for me," Sump said. "I was offered money to play football and Mines has an excellent academic reputation. I felt that it was a school that was a great fit for me and a place I would be able to succeed at."

When Sump arrived to campus for his first preseason training in 1999, he was a mere 150 pounds and in an ankle brace due to an injury he suffered while playing baseball his senior year in high school. However, Sump was determined to prove that he belonged.

"I worked out with several of the older receivers during the summer and saw that there were some quality receivers on the team," Sump recalled. "But I knew that I had a place on the team and was determined to work hard and prove myself."

Sump did just that and ended camp as the fourth receiver on the depth chart. Although he ended his first season with only 13 receptions for 136 yards, Sump made an impression with the CSM coaching staff. In the first game of the season, Sump was called upon to return a kick, which he calls one of the highlights of his career. The following week, Sump did not travel to a game; however, Sump was called upon to return a kick, which he calls one of the highlights of his career.

Sump finished his junior year with 59 receptions for 717 yards and 12 touchdowns, all school records. In addition, he set an NCAA Division II record by returning four kickoffs for touchdowns. He now needs just three kickoff returns to be the NCAA Division II record for career touchdowns off kickoff returns.

As for his senior year, Sump and his teammates are hoping to make history. "We want to do something week in and week out that has never been done in School of Mines football history. There is a rich tradition of football here and we want to add our chapter to that."

Following his senior season, Sump said that he would love to continue to play football on the next level. Several NFL teams have maintained over the years. If the opportunity arises to talk to some teams, then I will take it as it goes."

By Greg Murphy

Change from Baseball to Football... 
Good for Sump, Good for Mines

Colorado School of Mines senior Brian Sump began playing baseball as a third grader. For the next nine years, Sump celebrated a brilliant baseball career, but the thought of playing football occasionally crossed his mind. However, Sump never believed that he was big enough or strong enough to play on the gridiron. That was all about to change as Sump concluded his junior year at Thomas Jefferson High School in Denver.

"After my junior year of baseball, I started talking with some of the guys on the football team," Sump said. "I started working out with the receivers over the summer and realized that they were all fast and strong. But I kept working at it and when the season rolled around, I was the number two receiver.

Sump's one season of high school football proved to be a successful one as he earned Honorable Mention All-Conference honors. In addition, Sump caught the eyes of several college football programs, including School of Mines. When all was said and done, Sump decided to become an Oredigger.

"I thought that was the best opportunity for me," Sump said. "I was offered money to play football and Mines has an excellent academic reputation. I felt that it was a school that was a great fit for me and a place I would be able to succeed at."

When Sump arrived to campus for his first preseason training in 1999, he was a mere 150 pounds and in an ankle brace due to an injury he suffered while playing baseball his senior year in high school. However, Sump was determined to prove that he belonged.

"I worked out with several of the older receivers during the summer and saw that there were some quality receivers on the team," Sump recalled. "But I knew that I had a place on the team and was determined to work hard and prove myself."

Sump did just that and ended camp as the fourth receiver on the depth chart. Although he ended his first season with only 13 receptions for 136 yards, Sump made an impression with the CSM coaching staff. In the first game of the season, Sump was called upon to return a kick, which he calls one of the highlights of his career. The following week, Sump did not travel to a game; however, Sump was called upon to return a kick, which he calls one of the highlights of his career.

Sump finished his junior year with 59 receptions for 717 yards and 12 touchdowns, all school records. In addition, he set an NCAA Division II record by returning four kickoffs for touchdowns. He now needs just three kickoff returns to be the NCAA Division II record for career touchdowns off kickoff returns.

As for his senior year, Sump and his teammates are hoping to make history. "We want to do something week in and week out that has never been done in School of Mines football history. There is a rich tradition of football here and we want to add our chapter to that."

Following his senior season, Sump said that he would love to continue to play football on the next level. Several NFL teams have maintained over the years. If the opportunity arises to talk to some teams, then I will take it as it goes."

By Greg Murphy

"It would be really great to get the record," Sump said, "but that won’t be one of my main goals this season. I just want to go out and be the most complete player I can be and it helps that I have positive reinforcements around me in my teammates."

Colorado School of Mines football team opened the season 4-1 and was ranked as high as seventh in the West Region and 33rd in the country. CSM lost its next two games and is 4-3 overall and 1-3 in the RMAC. The early season highlight came when senior quarterback Nate Jackson tied an NCAA record by throwing a 99-yard touchdown pass to Janney Chan against South Dakota Tech. Senior wide receiver Brian Sump continues to be one of the top players in the RMAC and the country as he is ranked in the top-30 of six statistical categories.

SOCCER The Oredigger soccer team won its first five games of the season and was ranked as high as fourth in the country and first in the Midwest Region. Included in the win streak was a 5-2 season opening victory over the University of Tampa, the defending Division II National Champions and a 4-3 overtime win at Fort Lewis which marked CSM’s first victory over the Skyhawks since 1996. Mines, now 10-4-1 overall and 5-2-1 in the conference, has been led by sophomore forward Scott Phipps, who has tallied a team-high 19 points on nine goals and one assist.

VOLLEYBALL The Mines volleyball team has played a very rugged schedule with a young squad this season and is 1-21 overall and 1-12 in the conference. CSM notched its first victory of the season with a 3-2 triumph at CU-Colorado Springs on Oct. 19. Senior outside hitter Laurie Alzheimer continues to be one of the premier players in the RMAC and leads Mines with 259 kills, 193 digs, 25 blocks and 10 aces this year. Senior middle blocker Lauren Ramsey has contributed 148 kills and a team-high 65 blocks.

CROSSCOUNTRY The CSM cross country teams have performed extremely well this season and will run at the RMAC Championships in Gunnison, Colo., on Oct. 26. Senior Michael Sharkey has been the top CSM men’s finisher in three of the four races this season, while Heather Befroed has led the Mines women in all five races this year.

GOLF The Oredigger golf squad had a very successful fall season which was highlighted by a seventh place finish at the RMAC Championships at Antelope Hills Golf Course in Bennett, Colo. Freshman Travis Reilly was the top CSM finisher as he fired a three-round total of 221 to tie for 17th place.
Learning About Learning

With the Help of Experts...

Dr. Michelene Chi

Why are some science and engineering concepts so consistently difficult for students to learn? According to Dr. Michelene Chi, professor of psychology at the University of Pittsburgh, it's the way students think about and categorize these concepts that make them formidable to understand. Students may know "how to work the problems," Chi has discovered, but that doesn't necessarily mean they grasp the underlying concepts.

So, when teaching concepts such as heat, electricity, and equilibrium, how can educators design their instruction to improve comprehension? In a seminar sponsored by CSM's Center for Engineering Education, Mines faculty gathered in a campus classroom this summer to learn about learning from Chi. The senior scientist in the University of Pittsburgh's Learning Research and Development Center has published more than 100 scientific articles, one of which is considered a "classic" work in cognitive psychology.

Chi pointed out that more than 6,000 studies have been done that document misconceptions in science alone. "Unlike incorrect, missing, or incomplete knowledge, misconceptions are difficult to remove, resistant to instruction, and persist in the face of confrontations," Chi told the faculty. The goal of her research, she said, is to explain why misconceptions are common, determine how they might have arisen, and discover how they might be repaired.

"Knowledge," she pointed out, "is not just individual pieces of facts or equations. Rather, it is a connected set of facts and equations, and we have to worry about how they are connected." Connections begin with the knowledge that students already have.

"We learn by assimilating new ideas with old ideas, and we are not good at making radical changes," Chi explained. Her light-hearted example involved a fish—whch, of course, had never lived above water—listening to a frog describe birds and people. The bird? In the fish's mind, it was a fish with wings. People? Fish with feet and hats.

A particular concern is that misconceptions may be a part of prior knowledge. So, when a student learns a new correct idea by integrating it with an old misconception, the misconception is perpetuated, and the student's understanding of the new material is distorted.

Simply summarized, Chi's research shows that correct general frameworks must be learned first. "Once learned, understanding of other similar concepts can take place," she said.

Many scholars at CSM and around the world believe this research could transform the way engineering is taught. See Dr. Chi's Website www.pitt.edu/~chi/ for more information about her work.

...and a $10 Million Grant from the NSF

Mines will partner with the University of Washington, Stanford University, Howard University and the University of Minnesota to develop a national center for engineering education. The $10 million center is one of only two funded nationally by the National Science Foundation's Higher Education Centers in Learning and Teaching Program.

The center proposed by this consortium of universities competed against 30 other proposals in the grant competition. The project will be known as the Center for the Advancement of Engineering Education, while the second center will focus on mathematics and physical sciences. The grant takes effect in January of 2003 and will run through December 2007.

"Mines provides a unique environment for this study, because students here learn open-ended problem-solving skills, rather than work on 'canned' laboratory experiments. Among other things, we are interested in learning how this relates to their abilities to work in teams and collaborate," said Dr. Ruth Streveler, director of the CSM Center for Engineering Education.

Goals of the center include gaining significant insight into how engineering students learn—across diverse student populations and environments—to help current and future educators provide effective learning experiences for all engineering students. CSM will participate in two research projects and instructional development activities.

The research projects include a longitudinal study of engineering students, as well as a study of "difficult concepts" and how to measure student understanding of them. The longitudinal study will identify what creates a "successful learning environment" by tracking groups of students at Mines and four other engineering schools, from freshman through senior year, to identify what challenges students face and how they overcome them. The "difficult concepts" portion of the research will focus more on the cognitive aspects of learning, in areas such as solids mechanics and electrical engineering.

In addition, an engineering portal will be developed, providing educators with access to resources and tools developed during the project, as well as existing resources already available on the Web.

"This grant from the NSF is strong evidence that Mines is a key national player in engineering education. As science and engineering curricula become ever more complex, it is critical that we gain insight into how engineering students learn, so faculty can enhance the learning process," said CSM President John Trefny.

For more information on current engineering education research projects at Mines, go to http://www.mines.edu/research/cee/.
The environmental beauty of Kenai Fjords National Park in Alaska was explored by petroleum engineering students during field session.

Petroleum engineering students Josh Chevalier, Travis Lauer and Steve Henning return on a helicopter ride from Forest Oil’s Osprey Platform in Cook Inlet, Alaska.

Engineering Instructor Candace Ammerman instructs students Jessie Shelley, Ryan Waterbury and Robert Marquez on how to operate the Total Station, an instrument that electronically measures distances and angles, in civil engineering field session. This station was purchased with student technology fees.

Geology student Robyn Brown uses a Brunton compass to measure the thickness of sedimentary rocks during field session near Silverton, Colo.

Geology and geological engineering students Jess Brown, Sarah Calas, Rachel Holland and Stacy Spera take a break from unraveling the geologic history of Molas Lake.

Distinguished Senior Scientist Pieter Hoekstra explains time domain electromagnetic soundings to a group of students from CSM and UCV. This year’s geophysics field session was joint with UCV.

Geophysics students Luke Bernhardt and Jon Roberts with Central University of Venezuela (UCV) Geophysics Department Head Inirida Rodriguez and Seismic Crew Chief Rod Kellaway have a bit of fun.

Environmental Science and Engineering field session compiled by Misti Brady.
Field Session
From improving knee implants... to improving third-world economics

Joint replacements for the knee and hip are fairly common now. But the implants can shift around in the body over time, causing problems for the patient.

A team of Mathematical and Computer Science (MCS) majors has developed a graphical user interface for doctors and medical researchers, which will compare X-rays of a patient’s joint five years after surgery to a model knee.

These pictures will enable physicians and bioengineers to measure differences in position, stress and how the implant is holding up generally.

“Our program makes a 3D model of someone’s knee implant, using 2D X-rays, which are cheaper but have the same data as MRI,” explained Maxie Von Eye, a senior MCS major from MIlwaukee. “We can move and rotate the implant model, which can also be made transparent so the patient’s bones actually show up beneath it for better comparison.”

The group took on the challenge as part of their field session, a six-week hands-on summer program required by all undergraduate degree programs at Mines. “We try to find clients with actual business needs to provide real-world projects,” explains Dr. Robert Underwood, an MCS associate professor who directs the field session.

Field session is very realistic, agreed the other two members of the team, Kim Hudson of Colorado Springs and Kate Slaga of Denver. “It’s similar to what you do in industry, like interviewing the client, making status and final reports, meeting deadlines,” they said.

The “joints” project is sponsored by the Rocky Mountain Musculoskeletal Medical Research Laboratory, under a grant from the National Science Foundation to principal investigator Dr. William Hoff of the Division of Engineering and former graduate student Dr. Mohamed Mahfouz.

In another field session project, students developed a “render farm” for client 3D Nature in Arvada, Colo. The firm itself develops terrain graphics software for civil engineers building bridges and highways, land planners, golf course designers, and occasionally a feature movie.

The software controller prioritizes jobs, runs several projects simultaneously, adds jobs while rendering is underway, reschedules uncompleted jobs, and sends projects to other computers if the first computer goes down.

“We are really thrilled with the product,” says Chris Hanson, vice president of research and development at 3D Nature. “We’ve wanted to have this capability for years.”

3D Nature President Gary Huber says he was amazed at how fast the students picked up the task and understood it, adding that they really went to town.” For more information, go to www.3DNature.com.

Field Session team, which worked to create a Web-based applet that showcases the product of client Zome Systems of Denver.

Zome toys are sophisticated building kits that can be used to construct enormous, complex objects. The students developed a virtual representation of the toy’s components to enable computer users to build a Zome project on their screens. The simulation had to be easy to understand and use by all age levels.

“We the team had to work with as they modeled the social interactions of individuals and families included these facts:

- 8.3 percent of the adult population is HIV-positive or has AIDS
- 37 percent of the population lives on $1 a day
- Consequently, most children make it through only two years of primary school.

The artificial society project involves agent-based modeling and other simulation techniques to present a range of strategies and their effects for dealing with emerging economies.

The MCS students modeled Ugandan society for the Alliance for Youth Achievement, in an effort to determine the most efficient allocation of aid-organization resources to raise the population out of subsistence level farming.

Currently, the Alliance provides $200 mini-grants to orphans and their guardians for an income-generating project. Many choose to buy a cow, which can provide $200 a year if all the milk is sold.

With the new model, the Alliance will be able to gauge the potential success of other income-generating possibilities, and even plug in socioeconomic data to help other countries, with an overall goal of helping create a middle class in underdeveloped economies.

Educational toys was the object of research for another field session team, which worked to create a Web-based applet that showcases the product of client Zome Systems of Denver.

Zome toys are sophisticated building kits that can be used to construct enormous, complex objects. The students developed a virtual representation of the toy’s components to enable computer users to build a Zome project on their screens. The simulation had to be easy to understand and use by all age levels.

“The team far exceeded my expectations in creating a Zome software package. I asked them only to write product specifications, yet they came through with a Web applet which is not only fully functional, but a lot of fun to use!” said Zome founder Paul Hildebrandt.

The students also developed a user’s guide, as well as a prototype for a marketable Zome Tools software package. To view Zome tools, go to www.zome.com.
North Nevada

On June 15, 2002, the members and friends of Colorado Delta (CSM Chapter) of Sigma Phi Epsilon gathered in Reno, Nev., to tap a few kegs of beer and see some faces that had not been seen in some 30 years. Guests included 47 former Miners, from 1948 to 1980 and included: Stace Armstrong BSc Min ’76, Tom Atkinson BSc BE ’78, Terry Barnes EM ’70, Ron Belden BSc Min ’74, Bill Brooks BSc Met ’74, Chuck Butto BSc Phy ’72, Bill Cain BSc Pet ’83, Scott Carle BSc Min ’78, Rod Cazeaux BSc Min ’75, Craig Clemmens BSc Geol ’72, Robert Crewdson BSc Geol ’71, MSc Geol ’76, PhD Geol ’77, Bob Cuffney BSc Geol ’72, MSc Geol ’77, Duane Dixon BSc Phy ’74, Eric Edebult BSc Pet ’80, Gerry Feld BSc Met ’75, Larry Fisher BSc Min ’72, Gary Garlough BSc Met ’70, Mike Gabla BSc Min ’76, Bruce Goff, Fritz Gottron EM ’69, Bob Handford BSc Min ’76, Fred Heumann BSc Met ’73, Ron Hibbert Met E ’69, Robert T. Johnson BSc ’72, Dennis Johnson BSc Min ’82, Dennis Keratians BSc Met ’73, Richard LaPrairie BSc Min ’74, Kholi Le BSc Pet ’76, Duncan Leitina, Gary Luber BSc Met ’73, Dave Mairs BSc Min ’76, Vic Miller BSc Geol ’73, John Otto BSc Met ’73, BSc Met ’72, Walt Pachuck BSc Min ’78, Rich Rain BSc Geol ’75, BSc Min ’77, MSc Min Ec ’86, Joe Rousseau BSc Geol ’73, MSc Geol ’80, Bill Ruppert BSc Met ’72, Wayne Sadik BSc Geol ’74, George F. Sanders BSc Geol ’73, MSc Geol ’75, Bill Warren BSc Met ’75, Gary Weir BSc BE ’70, Chuck Wenzl Chem E ’88, Glen Williams BSc Min ’75, and Dean Willis BSc Min ’88. Festivities included a dinner at Louis’ Basque Corner, beer, ping pong, a BBQ Chef LaPrairie, and the traditional “drowning of the cheap.” A repeat performance is scheduled for June 2004.

Central

Chicago

In August, CSMAA section coordinator Bob Pearson PE ’59 attended a Cubs game at Wrigley Field with fellow alumni and their friends. An after-game party was held at the home of Jeff Babcock Met E ’65. At the party, two new coordinators for the Chicago section were introduced: Terry Circo BSc CPR ’92 and Chris Erickson BSc Met ’94, MSc Met ’96.

International

Turkey

Ahmet Coskun Met E ’66 hosted a garden party at his summer home in Turkey. With spouses, there were over 40 attendants of which 13 were Mines men and women, many from Istanbul, several from Ankara and one from the Black Sea region. It was a pleasant get together with old friends reuniting and new friends being made. The Mines graduates were from the class of 1942 through 1999.

Metro Denver

Beautiful weather and good food made for lots of fun at the annual Alumni Association picnic held in Golden in August. In addition to lots to eat and drink, the day provided the opportunity for old alumni and new to get together to network and socialize.
David Marr, associate professor of Chemical Engineering, and graduate students John Oakey and Alex Terray, are making things smaller than ever before.

“We've created pumps much smaller than what anyone has ever created, about the size of a red blood cell. This truly represents a significant step forward for the field of microfluidics,” said Marr.

Currently the holy grail of the microfluidics field is the Micro Total Analysis System (µTAS) where, by using a single drop of blood, for example, thousands of tests could be performed simultaneously. In such devices, the major hurdle becomes the ability to move small, not large, quantities of fluid with accuracy and efficiency.

The micro-pumps, valves and sensors under development in Marr's laboratory could be used to create such a µTAS, which would revolutionize a patient's visit to a physician.

Often, medical tests require several vials of blood and days of analysis time to make a diagnosis after a patient sees a physician. The µTAS approach would reduce the amount of blood to a drop and the test time to a few minutes.

“Within minutes of inserting a drop of blood into the µTAS, doctors will have the ability to simultaneously run thousands of blood tests. Before you leave the doctor's office, you'll know what's wrong. This will allow doctors to make diagnoses more rapidly and accurately. These devices will revolutionize medical diagnostics and therapeutics and benefit both the patient and the medical infrastructure,” said Marr.

“We're about five to 10 years away from doctors giving their patients immediate answers,” said Marr.

Another medical application for µTAS is an in vivo drug delivery system. Thousands of micro pumps, valves and sensors could be integrated into a drug delivery device the size of a pinhead. Such devices would possess the potential to deliver small doses directly to the point of need, for example a tumor, as opposed to current delivery methods that require saturating the entire body with a drug.

With automatic drug delivery, Alzheimer's patients would not forget to take their medicine and diabetes patients would not need to test their blood daily. A sensor would determine whether medications were lacking in the bloodstream, then send the information to the pump, which would administer the drug to the patient as needed.

The benefits of this technology stretch from healthcare to the next frontier, space. NASA is interested in Marr's research. “It's much cheaper to transport items into space when they're small and light. We're funded by the Human Exploration and Development of Space Program, which supports the idea that for humans to explore other planets we must equip them with the ability to accurately detect and decipher information on the molecular and cellular level,” said Marr.

Such technology could be used to reduce the size of many devices required for deep-space exploration including those capable of monitoring the physiological conditions of astronauts and the chemistry of their environment.

“We're getting closer to technology reminiscent of Star Trek. We're taking steps closer and always moving forward,” said Marr.

“Due to the medical implications for this technology, we are interested in funding from the National Institutes of Health (NIH). CSM doesn't traditionally have large amounts of NIH funding. This could open up broad new research opportunities for the School,” said Marr.

Marr's work is funded with approximately $2 million from the NSF and NASA, and was recently published in an issue of Science.
Colorado School of Mines received gifts of $25,000 or more from each of the following individuals during the last fiscal year. However, due to an error, their gifts were not acknowledged in previous issues of Mines. We regret the oversight.

Charles Champion Geol’52 allocated his $25,000 reunion gift to the Bennie M. Erle Memorial Scholarship, the CSM History Project, and the Champion Scholarship Fund.

S. D. Chesbrough PE ‘63 gave a $50,000 leadership gift to a campaign that will be announced in early 2003. Chesbrough also agreed to serve as the co-chair of this upcoming campaign.

Colorado School of Mines received gifts of $25,000 or more from each of the following individuals between May 17 and Aug 31, 2002. Jerome T. Brousard M.E. ’63 contributed an additional $50,000 to the Brousard Family Engineering and Technology Management Scholarship Fund.

Final distributions of $642,139 were received in August from the estate of Bart, PE ’30, and Helen DeLaat. Their bequest to Mines for the DeLaat Scholarship Fund has totaled more than $2.1 million. A principal distribution of $25,000 was received in August from the Harriett L. Hares Trust. Mrs. Hares was the widow of Charles J. Hares, a well-known petroleum geologist in the Rocky Mountain region.

Norbert Jg. Geol ’47, and Helen Hannon contributed $26,640 to the Mines Annual Fund in honor of his 55th reunion.

An additional distribution of $176,496 was received from the estate of Cecil and Cleone Hansen. More than $8.1 million has been received from the Hansen bequest, the single largest gift in Mines history to support Mining.

Mrs. Carolyn V. Mann, whose husband John was a 1943 Geological Engineering graduate, contributed an additional $50,000 to the John and Carol Mann Graduate Fellowship in Geology.

Robert E. McCleie PE ’68 contributed an additional $35,546 to the McCleie Scholarship Fund.

James D. Mulryan EM ’54 gave $25,857, $5,000 of which supported the Annual Fund, and the remaining $20,857 endowed the James D. and Lois H. Mulryan Endowed Scholarship. J. Don Thorson Geol ’55 contributed $300,000 to the J. Don Thorson Endowment for Engineering Senior Design Fund.

Annual Fund Plays Critical Role
By Emily Paton Davies

“Expect the unexpected” is a good motto with which to navigate life’s twists and turns. One way Colorado School of Mines prepares for the unexpected is through its Annual Fund, which provides for some of the School’s most pressing needs.

The Annual Fund solicits gifts from alumni, parents and friends who wish to support Mines each year, with primary focus on unrestricted grants. In 2001-2002, more than 7,000 donors contributed in excess of $1.5 million in unrestricted funds.

“Discretionary funds are potentially the most influential resources because the money can be applied to an immediate need,” says Scott Dickson BSc Chem ’95. Dickson, who currently works in Silicon Valley, has given to Mines since he graduated.

“Donations to the Annual Fund play an indispensable role in the day-to-day running of the School. By providing the resources for urgent needs, many of which cannot be anticipated, these gifts provide vital support for academic programs at Mines,” says Peter Han, Vice President of Institutional Advancement.

One of the Annual Fund’s uses is to support both merit- and need-based financial aid for students. Approximately 85 percent of Mines students receive some type of financial assistance. Tuition, books, fees and living expenses for residents cost roughly $24,000 per year, whereas non-residents pay nearly $24,000 per year. The ability to offer scholarships allows Mines to admit a diverse pool of qualified students without concern for individual financial capabilities.

“Alumni need a conduit that allows them to give money and know they’re effecting change at Mines,” says Mary Pott CPR ’83, who gives to the School annually. “The dollars need to come from outside sources,” she continues. “Mines receives only about a quarter of its funding from the state. The Annual Fund allows donors to combine dollars and help Mines accomplish an awful lot.”

Gifts to the Annual Fund help Mines grow in ways state appropriations and tuition alone cannot support. Library acquisitions, classroom and lab equipment upgrades, and general campus and facility maintenance are typically assisted by Annual Fund dollars. Programatically, the M inority Engineering Program, the Office of International Programs and the McBride Honors Program in Public Affairs for Engineers have all received much needed support from the Annual Fund, as have other programs on campus.

“When I tell people where I went for my undergraduate degree, it’s followed by ‘excellent school,’” says Dickson. “Even though I didn’t need financial assistance during college, I did need other help. In a way, I see it as repaying the School.”

Pott agrees with this mindset. “If alumni want to see Mines remain at the same level as when they attended – or see it go to a higher level than when they were there – they need to contribute to the Annual Fund,” she says.

For information about giving to the Annual Fund, contact Laura M. Ackley at the Office for Institutional Advancement: 303-273-3219.

Matching Gifts
Leverage Donors’ Dollars
By Emily Paton Davies

In today’s economy, stretching the value of a dollar is paramount, particularly when it comes to philanthropy. Corporations and individuals want to make the most impact possible with their charitable donations. One way individuals and organizations can make their philanthropic dollars go further is with matching gifts.

“In recent years, corporate philanthropy budgets have become increasingly pressured,” says Peter Han, vice president for Institutional Advancement, at Mines. “Matching gift programs enable corporations to leverage the dollars they give by matching their employees’ contributions.” Individuals who give to Mines through matching gift programs are credited for their gifts as well as for the matching funds their company provides.

Matching gifts have become a substantial stream of revenue for Mines in recent years – the School received more than $415,600 in matching gifts last fiscal year. Many companies match the gifts of both current and retired employees. While the amount of the match depends on company policy, it can be as much as 3:1, which is the case at the ExxonMobil Foundation.

“We encourage those considering giving to Mines to see if their employers have matching gift programs,” says Han. “Such programs enable employers to make a difference in those areas most meaningful to their employees. It’s a win-win situation for everyone involved.”

For more information about matching gifts to Mines, contact Kim Keller at 303-273-3148.

Colorado School of Mines received more than $25,000 from each of the following corporations and foundations between May 17 and Aug 31, 2002.

BP and the BP Foundation gave gifts totaling $36,500 to support a graduate fellowship in the Department of Geophysics, the Minority Engineering Program, scholarships, and departmental support.

Conoco (now ConocoPhillips) gave a total of $50,000 to support the departments of Chemical Engineering, Petroleum Engineering, and Geophysics; Senior Design; the Minority Engineering Program; the Oil and Gas Exploration Workshop; and the Career Center.

ICI Technology gave a gift of $29,592 to support Professor Kim R. Segnit’s research and educational activities in the area of on-site and alternative wastewater treatment technologies.

The McKee Foundation contributed $28,000 to the Now Engineering and Applied Technology Program.

The Phelps Dodge Foundation gave a gift of $30,000 to support undergraduate scholarships.

Phillips Petroleum Company (now ConocoPhillips) contributed a total of $13,000 to support the Phillips Scholars Program; a Geology graduate fellowship; undergraduate scholarships; the Geology Museum; the Minority Engineering Program; the Career Center; and the departments of Chemical Engineering, Petroleum Engineering, and Geophysics.

The Torrey Foundation gave a gift of $240,000 to support research conducted by Professor Jeff Squire in the Department of Physics.

Unocal Corporation gave a gift of $20,000 to the Unocal International Fellowship of Petroleum Studies.
This year, five dedicated alumni are chairing the regional committees. Each of these individuals has whether it is for a scholarship, bequest or reunion. to raise $2.7 million. The President’s Council encourages unrestricted gifts to the Annual Fund, but other graduates in their region to support the School at this level. In 2002, these committees helped alumni who annually give $1,000 or more to the School.

If you live in Denver, Houston, North Texas, Oklahoma or Southern California, you may have received a call from a member of your regional President’s Council committee inviting you to this year’s President’s Council Committees Getting to Work

President’s Council Committees Getting to Work

If you live in Denver, Houston, North Texas, Oklahoma or Southern California, you may have received a call from a member of your regional President’s Council committee inviting you to participate in the program. The President’s Council is a distinguished giving society made up of alumni who annually give $1,000 or more to the School.

Five regional committees are made up of 32 President’s Council members who volunteer to invite other graduates in their region to support the School at this level. In 2002, these committees helped alumni who annually give $1,000 or more to the School.

This year, five dedicated alumni are chairing the regional committees. Each of these individuals has personal reasons for giving, but a common thread runs throughout—a strong appreciation for the institution and a wish to see it advance.

If you direct the corporation or its agent to issue a certificate in our name, the gift is complete as of the date shown on the resold certificate.

If you send a stock certificate and an executed stock power by U.S. mail, they should be sent in two separate envelopes for security. The later postmark is deemed the date of gift. If the documents are sent by a private courier service (e.g., Federal Express), the gift is complete on the date that both of them have arrived in our office.

Philanthropy at Mines

President’s Council Committees Getting to Work

If you live in Denver, Houston, North Texas, Oklahoma or Southern California, you may have received a call from a member of your regional President’s Council committee inviting you to participate in the program. The President’s Council is a distinguished giving society made up of alumni who annually give $1,000 or more to the School.

Five regional committees are made up of 32 President’s Council members who volunteer to invite other graduates in their region to support the School at this level. In 2002, these committees helped alumni who annually give $1,000 or more to the School.

This year, five dedicated alumni are chairing the regional committees. Each of these individuals has personal reasons for giving, but a common thread runs throughout—a strong appreciation for the institution and a wish to see it advance.

Steve Sonnenberg PhD Geol ‘81, manager of Encana Energy Resources’ DJ Basin Business Unit says, “I’m honored to have a degree from CSM. My degree has served me well in both my career and involvement in professional societies, including my position as president-elect of Aapg. The least I can do is be active in alumni activities and fundraising. I strongly believe every graduate should give something back to the School and I have found that the majority truly enjoy doing so.”

Dave Drummond PE ’75, owner and operator of PowerTuff Corporation in Houston, notes, “I had been looking for a way to get involved with the School, plus I wanted to help other folks recognize the benefits of being a Mines graduate. Working with the President’s Council Committee helps me to achieve both of those goals. Even in tough financial times when I was starting my own company after being downsized, I’ve chosen to maintain my President’s Council membership and keep Mines a priority.”

Dan Colston CPR ’93, purchasing manager for Texas Instruments in Dallas, acknowledges, “A great deal of where I am and what I’ve accomplished is due to the skills and knowledge my Mines experience instilled. The academic challenge at Mines develops a work ethic that is pertinent for a young engineer. Because students are all on a similar track, Mines also provides a more inclusive environment in which students can thrive. As a result, a culture of high-quality, hard-working people is created. I give to the School because I believe that over time, I can make a significant contribution, and I can increase that contribution through my company’s matching gift program.”

Greg Gordon CPR ’85, vice president of information services for Williams Energy, also knows the benefits of matching gifts. “Being able to double or triple your gift through your company’s matching gift program allows you to make a much larger impact at the School,” says Gordon. “When I add this monetary contribution to my volunteer efforts, I am maximizing my ability to give through both time and resources.”

Larry Probst PRE ’61, director of development for KUD International, LLC, sums it up well: “Mines is much more than a manufacturing enterprise that turns raw material (freshmen) into finished product (graduates). It is an extended community that follows each graduate into industry and the general public. Challenges of energy, the environment and economics require us to continue to produce graduates with the talent and leadership to address them in a rapidly changing world. Therefore, Mines has an important role to play, as do we as its financial supporters. Being part of the President’s Council allows me to share in the School’s vision and contribute to its success.”

For more information please call Karen Shaw at the Office of Institutional Advancement 303-273-3526.

2002-03 Committee Members by Region:

Denver
Steve Sonnenberg PhD Geol ‘81
Migun Lovzacev Geol ‘84, Grad Student
Tom Reagan PE 53
Jack Haney PE 48
Manuel Crouch III Geol ‘67
Drue Laddusaw Geol E ‘75
Will Feltgner MSc Eng ‘86
Tom Dinnelow Geol E ‘86, MSc Geol E ‘73

Southern California
Dick Banks Geophys E ‘53
Mike Carr PE ‘57
Chet Love Geol E ‘55
Dean Lauterburg CPR ‘56
Larry Preble PRE ‘61
Bob Sutherland Geol ‘79
Mark Vozar Geop ‘76
George Batenh Geel E ‘48
Harry Bricser Geol E ’71, MSc Geol E ’72
Harold Kodell PRE ‘88
Will Vander PE 100
Laura Vander CPR 30
Jeremy Zimmerman Geops E 366, M Sc Geophy E ‘89
Bill Schroeder PE 93

North Texas
Dennis Caruso Geol E ‘82
Greg Floerke Pet ‘86
Greg Gordon CPR ‘85
Maggie Lovecazev Geol E ‘94, Grad Student
Bob Laddusaw Geol E ‘75
Will Feltgner MSc Eng ‘86
Tom Dinnelow Geol E ‘86, MSc Geol E ‘73

Oklahoma
Mike Starzer PE ‘83
Mark Vozar Geop ‘76
George Batenh Geel E ‘48
Harry Bricser Geol E ’71, MSc Geol E ’72
Harold Kodell PRE ‘88
Will Vander PE 100
Laura Vander CPR 30
Jeremy Zimmerman Geops E 366, M Sc Geophy E ‘89
Bill Schroeder PE 93

Southern California
Larry Probst PRE ’61
Chet Love Geol E ‘55
Mike Sacher PE ‘83
Pat Starkman E 90
Lonnie Kerley PE ‘83
Joe Nahama MSc PE ‘93
Beth Nahama PE ’91
Bob Rohl Geol E ‘55

IRS Requirements for Year-End Giving

As we approach the end of 2002, it’s important to know how to make sure that your gifts to Mines and other charitable organizations are completed by December 31 for tax purposes. The following rules apply:

Check: Gifts by check are deemed complete on the date that:

- you physically deliver your check to our office;
- a private courier service (e.g., Federal Express) delivers your check to our office;
- you mail your check via the U.S. Postal Service (postmark date).

Credit Card: Gifts charged to a credit card are complete when our office processes the charge. If you decide to charge a gift shortly before December 31, please call (303) 273-3275 to give us your credit card information rather than sending it by mail. Or give online through our secure web connection. Go to www.alumnifriends.mines.edu and click “Give Online.”

Securities: The completion date depends on how you deliver the securities.

Stocks:
- If you direct the corporation or its agent to issue a certificate in our name, the gift is complete when the certificate is received in our account.
- If you deliver the certificate or its agent to issue a certificate in our name, the gift is complete as of the date shown on the resold certificate.
- If you send a stock certificate and an executed stock power by U.S. mail, they should be sent in two separate envelopes for security. The later postmark is deemed the date of gift. If the documents are sent by a private courier service (e.g., Federal Express), the gift is complete on the date that both of them have arrived in our office.

Securities gifts typically require extra time and planning. Please call the Office of Institutional Advancement at (303) 273-3275 for assistance.

For more information please call Karen Shaw at the Office of Institutional Advancement 303-273-3526.
Engineers, 40th Division. This unit, which also included local National Guard, became the nucleus of Company A, 115th Engineers during World War I on Pont-a-Mouson bridge in France. The unit was noted for its efficiency and discipline.

In 1919, CSM became one of the first four colleges in the United States to establish a reserve officers training corps (ROTC). For more than 50 years, the two-year compulsory course in military training was a graduation requirement, and Mines was a branch material school, which entitled its four-year military graduates to be commissioned in the Army Corps of Engineers.

The Mines ROTC was the only program that commissioned men directly into the Corps of Engineers. Mines men served with distinction in every theater of operations worldwide. The chief of engineers at the time referred to the Mines graduates as "the backbone of the Corps of Engineers." But as the men went off to war, ROTC classes were reduced in size, and the annual federal inspection in April 1943 was the last one for the duration of the war.

In 1943, 500 carefully screened soldiers selected for leadership and scholarship arrived on the campus for regular Army discipline and training. This specialized unit was a two-year assignment that offered courses in electrical, mechanical, chemical and civil engineering. The troops were quartered in the fraternity houses and in the basement of Berthoud Hall.

The war was over, enrollment at Mines nearly doubled. In January 1946, the ROTC program was reactivated and some of the returning veterans enrolled in the advanced courses, were commissioned and served in Korea. By 1947, 76.6 percent of the enrolled students were vets.

Many elected to continue and accept the mandatory two-year military obligation. The ranks soared, and with the exceptions of only two students, all the men honored their commitment and made up the largest class of commissioned officers who were commissioned in 1970-71 when 64 engineers became second lieutenants.

In 1974, CSM marked 100 years of dedicated, patriotic Mines men who have preserved our country's freedom through their participation in World War I, World War II, Korea, Vietnam, the Gulf War and now the war on terrorism.

Lorraine Wagenbach worked in the military department at Mines from 1960-1975.
 Daughter, a son, three grandchildren and a lifetime member of the Alumni Association. He held 14 domestic and foreign patents for a chemical process for extracting uranium. Atomic Energy Commission to work on a Y ork. From 1943-47 he was assigned to the Metals Co. in 1943 and moved to New York. From 1943-47 he was assigned to the Metals Co. in Bishop, Union Carbide at several mining companies. Forbes is named Boss of the Y ear. Forbes managed Casper Ambassadors and in 1984, was president. After graduation he worked for Bill Daniels in Bishop, Union Carbide and moved to New Casper, Wyoming. After the war, he returned to St. Joe's, later the Doe Run Lead Company in Flat River, Mo. He entered the U.S. Army as a second lieutenant in 1942. He was stationed in the China-India-Burma theater to build airfields during World War II. After the war he returned to St. Joels, later the Doe Run Company. He ended his 48-year career as superintendent of central services, retiring in 1985. Sears was a professional engineer with the State of Missouri Professional Engineers and Land Surveyors. He was an Eagle Scout and a merit badge counselor for the Boy Scouts. While at Mines, he was on the swim team and in 1935 he was inducted into the CSU Sports Hall of Fame. His hobbies included gardening, traveling, being outdoors and playing bridge. Sears is survived by his wife of 60 years, Maxine, two daughters, two sons, and nine grandchildren.

Michael C. Carosella M E '34 of Valley Center, Calif., died May 17 at age 91. After graduation, he worked for several mining companies eventually joining Union Carbid at its U.S. Vanadium Co., in Bisboom, Calif. He transferred to Union Carbid Metals Co. in 1943 and moved to New York. From 1943-47 he was assigned to the Atomic Energy Commission to work on a chemical process for extracting uranium. Forbes retired in 1973 as chief metallurgist. He held 14 domestic and foreign patents for the invention of ferromolybdenum. Carosella enjoyed fishing, gardening, sports and following the stock market. He was a lifetime member of the Alumni Association and attended numerous Colorado functions. He is survived by his wife of 65 years, the former M. Amelia Gyldon, a daughter, a son, three grandchildren and five great-grandchildren.

John J. Flynn Jr. EM '48 died June 12 at age 91. As a member of Alpha Tau Omega and after graduation, attended many Mines events including the 40th reunion. In 1948 he worked briefly for the Consolidated Powder Company. He then earned his JD from University of Denver in 1951. Flynn established the law firm, Flynn, Blisterd FPC, in Denver, and practiced until August 1, 2002.

Walter S. Forbes PE EM '50 of Casper, Wyo., died June 16 at age 83. Forbes was born and raised in Sacramento, Calif. In 1941, he joined the National Guard and married the love of his life, Virginia Simms. In 1942, he transferred to the Army Air Corps and served in various parts of the country during World War II. After the war, he enrolled at Mines and began working for Heine Foss at Foss Drug Store. While at Mines he was senior class president. After graduation he worked for the Florida House of Representatives' minority office. During World War II, Forbes was a lieutenant in the U.S. Navy and was stationed in Tokyo Harbor during the occupation. In addition to being ranked as an “expert” chess player, he organized chess clubs and ran youth tournaments. He also helped run Little League baseball games when his sons played. Forbes is survived by his wife of 57 years, Jesse and two daughters and seven grandchildren.

Robert L. Froemke PE '43 died June 19 of stomach cancer at his home in Florida. He was 81. Froemke was a scholar, retired Florida State University business professor, expert chess player and active community volunteer. In addition to his Mines degree, he held a master’s degree from Georgia Institute of Technology, a doctorate from Columbia University, and a law degree from New York University. Froemke designed, installed and conducted a special master's degree program for engineers and scientists at Cape Kennedy to upgrade NASA’s management capability. He pioneered the establishment of education programs far removed from university campuses to serve working students who could not leave their jobs. He chaired FSU’s management department, was professor and chair of the graduate department of industrial management at the Polytechnic Institute of Brooklyn, was dean of the business college at Florida Atlantic University and was a visiting professor for 11 summers at Columbia University. In the 1970s, he was chief legislative analyst for the Florida House of Representatives’ minority office. During World War II, Froemke was a lieutenant in the U.S. Navy and was stationed in Tokyo Harbor during the occupation. In addition to being ranked as an “expert” chess player, he organized chess clubs and ran youth tournaments. He also helped run Little League baseball games when his sons played. Froemke is survived by his wife of 57 years, Jesse and two sons and two daughters.

Joseph H. Hodge E '48 of Lakewood, Colo., died July 17 at age 77. His career included employment with General Electric, Battelle Northwest, Sears, Roebuck, the City of Lakewood and Johns-Manville. In addition to his Mines degree, he held a master’s in metallurgy from University of Idaho. As a graduate of North Denver High School, Hodge was a member of the alumni group and a supporter of the Black Mascot Drama Club. Hodge loved gardening and belonged to the American Iris Society and served as vice president of Region 13. He was a lifetime member and senior iris judge and hybridizer and introduced several varieties of iris. He also served on the State Board of Washington State Children’s Home Society. At Mines, he was a senior camp director at Ward, Colo., Boy Scout Camp. He was active in church where he lived and served as superintendent of Sunday school at Richard Lutheran Church, Wad. He was a Sense (teacher) of Akikdo with a black belt and also had a black belt in Jiujitsu. Hodge is survived by his wife of 52 years, Margaret, two daughters, a son, three grandchildren and two great-grandchildren.

R. Craig Hylton MSc Geol ‘39 of Calgary, Alberta, Canada, died April 11 at age 89. He was a graduate of the University of New Brunswick in addition to Mines. During World War II he served in the Royal Canadian Air Force. Hylton worked in the mining industry and later joined Imperial Oil as a geophysicist in 1948, retiring in 1978. He was an active participant in track and field as a competitor, coach and official. He loved the outdoors, including fishing and hunting. He also enjoyed painting and reading. Hylton is survived by his wife of 60 years, Ruth, two daughters, three sons, and five grandchildren.

Robert J. Lamm GEOL E '50 of Lakewood, Colo., died July 12. He was a geophysical engineer for Atlantic Refining Company, later Atlantic Richfield. He retired in 1984. He was an active member of the Alumni Association. Edwin F. Marker GEOL ‘47 of Aurora, Colo., died May 15 after a long illness. He was 75. He served in the U.S. Navy before attending Mines. After graduation, he was a geophysicist for Schlumberger Well Service Corporation, district geologist for Phillips Petroleum Company, district geologist for Lario Oil & Gas Company and an independent consulting geologist. He enjoyed golf, skiing and hiking Colorado’s backcountry. His friends and family remember his subtle sense of humor, his integrity, his love and devotion for his family and kindness for the less fortunate. Marker was a member of CSMAA, American Institute of Professional Geologists, Rocky Mountain Association of Geologists and an emeritus member of American Association of Petroleum Geologists. He is survived by his widow, Stella, a son, a daughter, a grandson and a brother.

Ernest C.W. Merkel III BS ‘50 died Aug. 17, 2003 in Houston after a short but courageous battle with cancer. He was 42. While at Mines, Merkel was a member of the Oredigger football team and Kappa Sigma fraternity. After graduation, he moved to Texas to begin his career in the natural gas pipeline industry. He earned his MBA, was a licensed Professional Engineer, and worked in all areas of the industry including construction both on- and offshore, engineering and design. At the time of his death, he was a trader for Occidental Energy Marketing Inc. Merkel had a great passion for woodworking, and left many beautiful pieces of furniture he designed and built, many from trees he felled and lumber he milled himself. He is survived by his wife of 19 years, Jennifer, their daughter Grace, his parents, two sisters and a brother.

William A. Riley BS GEOL ‘52 of Lakewood, Colo., died June 4 at age 81. According to his family, “He had all the intelligence and strength of a king, but unlike a normal king, he enjoyed deepness on the rock of the Earth and splashing through her streams and oceans. He gazed at the clouds, the birds, the flowers and the stars and found amazement at the stars and the moon.” Riley was a member of the Association of Field Geologists. He is survived by his parents, two siblings, three nephews and several aunts, uncles and cousins.

Edward F. Settle Jr. EM ‘49 of Greenwood Village, Colo., died May 30. He was a member of a pioneer Pueblo, Colo., Family and a mining engineer for the CF&I Steel Corporation. Settle was instrumental in establishing the Colorado Mining Association Education Foundation. He was a member of the Pacific Mountain Lodge and owner of Mining Engineers, past president of Colorado Mining Association, life member of Saint Andrew Society, 1257 Engineers Combat Battalion, U.S. Army during World War II and later served in the U.S. Army Reserve. Robertson was predeceased by his wife and daughter. He is survived by a son, John Robertson III BS Min ‘73, and four grandchildren. His father, John Robertson Sr., was also a CSM alumnus.

Howard V. Sears EM ‘37 of Lebanon, Mo., died March 30 at age 86. After graduation, Sears worked for the St. Joe Lead Company in Flat River, Mo. He entered the U.S. Army as a second lieutenant in 1942. He was stationed in the China-India-Burma theater to build airfields during World War II. After the war he returned to St. Joels, later the Doe Run Company. He ended his 48-year career as superintendent of central services, retiring in 1985. Sears was a professional engineer with the State of Missouri Professional Engineers and Land Surveyors. He was an Eagle Scout and a merit badge counselor for the Boy Scouts. While at Mines, he was on the swim team and in 1935 he was inducted into the CSU Sports Hall of Fame. His hobbies included gardening, traveling, being outdoors and playing bridge. Sears is survived by his wife of 60 years, Maxine, two daughters, two sons, and nine grandchildren.

Franklin C. Settle Jr. BS CPR ‘85 died peacefully at his home in Houston, Aug. 15 following a 14-year battle with brain cancer. He was 39. Settle was
In memoriam

born in Pueblo, Colo., and graduated from Central High School, where he met his wife of 17 years, Valerie Pratt. After graduation from Mines, Settle earned a master’s degree in management science operations research from Wichita State University in 1988. He was an energy and natural resources industry professional with experience in business, operations and technology strategy consulting with clients in the American, western and central Europe and Asia. He also worked for six years in the petrochemical industry. In the course of his career, Settle was employed by Vulcan Materials, Coastal Corp., M G Refining and Marketing, Bonner & Moore Management Science, Andersen Consulting and most recently was vice president, integrated strategy, for Sapient Corp. Settle enjoyed traveling, skiing, fly-fishing, SCUBA diving and racing sports cars. He loved nature, wildlife and his dogs. Settle’s widow, parents, grandparents and in-laws survive him. His family suggests donation to The Nature Conservancy or the CSMAA.

EDWIN M. SWIFT GEOL E ’39

A website in his memory is at www.celebratingfrank.com.

Conservancy or the CSMAA.

will be sadly missed. “In his memory, his family suggests donation to The Nature Conservancy or the CSMAA.

HAROLD M. “BUTCH” WEVER EM ’31

was retired from the U.S. Bureau of Mines. From Wheat Ridge (Colo.) High in 1935. He was retired in Richardson, Texas.

ROBERT C. WEISNER EM ’42

His family suggests donation to The Nature Conservancy or the CSMAA.

In memoriam

Also in Memoriam

MAY 2003

41 MINES FALL 2002

BSS manufactures structural components for simulated fracture processes in vehicles.

1965 John H. Burgus and H. E. retired at the end of 2000 and is enjoying life on the Mississippi Gulf Coast. He and his wife live in Gulfport, Miss.

1967 John N. Tests H. E. is general manager of Bay Shore Systems, Inc. in Rathdrum, ID. BSS manufactures structural components for tracked vehicles.

1968 Thomas S. Elliott H. E. is chief operating officer for Texas Independent Exploration in Houston. In 1986 Weaver worked mining engineering and geology and then at first. During World War II, he taught aviation, aeronautics and surveying. He retired in 1971 after 33 years but continued to serve 21 more years on the placer County Board of Education. He volunteered for 25 years for the American Cancer Society and in recent years was the oldest member of the Auburn Rotary Club, which he joined in 1946. Weaver attributed his success to his 58-year marriage to his high school sweetheart, Gertrude, who died in 1986. Weaver was an active member of the Alumni Association and Sigma Xi and had attended his 50th class reunion. He...
1980
Patrick D. Allen PhD Min Ec is the senior lead systems engineer for General Dynamics in Arlington, Va.

1981
Ann E. Harman BSc Geol is the founder and principal of brands in Ionica, Michigan.

1986
James F. Mattern BSc Geop is an environmental consultant at E Source in Lakewood, Colo.

1989
Kevin A. Andersen BSc Chem is a manager for A.T. Kearney, Inc.

1990
Daniel R. Duran BSc Geol is a project manager at Microsoft in Redmond, Wash.

1992
Terry K. Cihlar BSc Geol is a senior petroleum geologist for WesternGeco in Kula, Hawaii.

1993
James F. Mattern BSc Geop is an environmental consultant at E Source in Lakewood, Colo.

1994
Joseph G. Horvath MSc Env Sc ’93 is a senior environmental consultant at EnviroGro Solutions in Furlong, Pa.

1995
Richard S. Anderson CPR ’89, MSc Geol ’89 is a project manager for Intersil in Palm Bay, Fla.

1996
Travis Moore BSc Eng married Maggie Moore Oct. 6 in Beaver Creek, Colo. The couple resides in Denver. Travis is a design engineer with Black & Veatch Engineers.

1998
David G. Burnett BSc Eng is a mechanical engineer for Metara, Inc., in revolver, and has an MBA.

1999
Julie D. White BSc CPR ’92 is an environmental consultant at Downs, Rachlin & Martin PLLC in Albuquerque, N.M.

2000
Elsa A. Krisanti PhD Chem 1993 is a lecturer at Gadjah Mada University in Depok, Indonesia. Her e-mail address is ekrisanti@ug.ac.id.

2001
Kevin J. O’Connell BSc Eng is an environmental consultant at EnviroGro Solutions in Furlong, Pa.

2002
Deborah J. Burks BSc CPR 1997 is an MBA student at the University of Denver, and a second-year law student at the University of Colorado in Denver.

2003
James Heskin, left, and Pete Varney PhD Geol ’00, right, are president of Corporate Compliance, Inc., an environmental engineering firm, in Spring, Texas.
44 MINES FALL 2002

& Material Eng
in August 2001. She is a researcher at University’s food science department materials grown using pulsed laser Synchrotron Source (CHESS) to Cornell University in Ithaca, N.Y. He Institute of Technology in Pasadena, Calif. is a programmer
engaged in showering design for the Defense Intelligence Agency in Washington, D.C.
"Houdini" is a student at CMU.

Emeryville, Calif.

is a sales representative for the

is a second lieutenant in the U.S. Air Force.

is a second lieutenant in the U.S. Air Force.

is an engineer in training for Lehigh

is a programmer at ARCO.

is an engineer for Air Liquide America.

is an engineer at the Puget Sound

is a graduate student at the CSM.

is an associate scientist for the

is a process engineer for BP.

is a second lieutenant in the U.S. Air Force.

is a graduate student at Massachusetts Institute of Technology.

is an engineer at the Lawrence Livermore National Laboratory in Livermore, Calif.

is a associate scientist for the Dept. of the Interior, minerals management specialist for the Department of the Interior, minerals management specialist for the Bureau of Land Management.

is a manufacturing intern at Ash

is in the U.S. Air Force and

is an engineer for Air Liquide.

is an engineer for Air Liquide America.

is a second lieutenant in the U.S. Air Force.

is a second lieutenant in the U.S. Air Force.

is a second lieutenant in the U.S. Air Force.

is a graduate student at CMU.

is a graduate student at CMU.

is a senior process engineer in the

is a graduate student at CMU.

is a manufacturing intern at Ash

is a research engineer for ADA

is an engineer for Air Liquide.

is an engineer for Air Liquide.

is an engineer for Air Liquide.

is an associate scientist for the

is a process engineer for BP.

is an engineer for Air Liquide.

is an associate scientist for the

is an associate scientist for the

is an engineer for Air Liquide.

is an associate scientist for the

is an engineer for Air Liquide.

is an engineer for Air Liquide.

is a second lieutenant in the U.S. Air Force.

is a second lieutenant in the U.S. Air Force.

is a second lieutenant in the U.S. Air Force.
engineer for ChevronTexaco.

Joseph A. Macgregor BSc Geep is a graduate student at University of Washington.

Michelle M. Marchant BSc Chem Eng is an engineer for Eastman Chemical Company in Longview, Texas.

Leslie A. McCandless BSc Chem Eng is a graduate student at University of Oklahoma Health Sciences Center.

Bradley J. McFadden BSc Eng is working at the Puget Sound Naval Shipyard.

Edgar J. Miller III BSc Eng is an engineer for ExxonMobil.

Tiffany L. Manning BSc Chem Eng is a process engineer for the ExxonMobil Corporation in Torrance, Calif.

Eric Robert Miller BSc Pet is a petroleum engineer for Anadarko Petroleum, Inc.

Phoebe A. Mitchell BSc Eng, BSc Math is an engineer for the U.S. Bureau of Reclamation in Denver.

Edgar J. Morales-McKinley BSc En is a process analyst for PDVSA in Caracas, Venezuela.

Allan M. Myers BSc Math & Computer Science is a software engineer for Motorola, Inc.

Craig H. Neuman Jr. BSc Eng is an environmental engineer for the Phillips Petroleum Company in Shreveport, La.

David M. Newland BSc Eng is a design engineer for the Intel Corporation in Santa Clara, Calif.

Craig H. Neuman Jr. BSc Eng is an engineer for Air Liquide Corporation.

Robert C. Norgard BSc Chem is a graduate student at CSM.

Brandon S. Schwartz BSc Chem Eng is a graduate student at CSM.

Rachael Selby BSc Eng is an engineering intern for Alyeska Pipeline Service Company in Valdez, Alaska.

Michael R. Shockey BSc Eng is an engineer at Ball Aerospace.

Sarah E. Sharkey BSc En is a staff engineer for TST Infrastructure, Inc., in Golden, Colo.

Sarah T. Silver BSc Eng is a staff engineer for TSI Infrastructure, LLC, in Englewood, Colo.

Tara R. Stover BSc Eng is an associate mechanical engineer at Orbital Science Corporation in Chantilly, Va.

Michael J. Stott BSc Chem is a project engineer for ChevronTexaco.

Sarah T. Suazo BSc Chem Eng is a facilities engineer for ChevronTexaco.

George A. Tuttle PhD En is a senior engineer for Laidlaw & Associates, Inc., in Golden, Colo.

Jeremy A. Tilson BSc Math & Computer Science is a graduate student at CSM.

Computer Science is a second lieutenant and a communications officer with the U.S. Air Force.

Ngo T. Truong BSc Chem Eng works for Air Liquide Corporation. 

Max W. Urbic BSc Chem Eng is a petroleum engineer for Phillips Petroleum.

Lawrence M. Wagg PhD CPR is a post doc in basic sciences and material ads at the National Aeronautic Energy Laboratory in Golden, Colo.

Ryan W. Waterbury BSc Eng is an engineer for Kiewit Western Company in Littleton, Colo.

Rebekah A. Willard BSc Math & Computer Science is a land development manager for Casa Tiera Development, Inc., in Fruitland, Colo.

Jeremy J. Yarrow BSc Math & Computer Science is a graduate student at CSM.

Tiffany L. Mensing BSc Chem Eng is an engineer for TST Infrastructure, Inc., in Golden, Colo.

Daniel J. Ryman BSc Eng is a project engineer for Western Gas Resources, Inc.

Leslie A. McCandless BSc Chem Eng is a project engineer for Western Gas Resources, Inc.

Paul R. Orser BSc Math & Computer Science is a technical implementation for Net Repugs.

M. Curtis Perry BSc Eng is a process engineer for the United Corporation in Colorado Springs, Colo.

Anthony M. Phillips BSc Eng is a graduate student at Washington University in St. Louis, Missouri.

Bradley D. Pigott BSc Chem Eng is an engineer for Air Liquide America.

Justin E. Raith BSc Pet is a petroleum engineer for the Honeywell Corporation in Golden, Colo.

Jordan D. Russell BSc Chem Eng is a design engineer for the Space Shuttle Program at ATK Thiokol Propulsion in South Ogden, Utah.

Daniel J. Ryanen BSc Eng is a patent examiner at the U.S. Patent and Trademark Office.

Robert C. Sweeney BSc Chem Eng is a graduate student at CSM.

Brandon S. Schwartz BSc Chem Eng is a graduate student at CSM.

Rachael Selby BSc Eng is an engineering intern for Alyeska Pipeline Service Company in Valdez, Alaska.

Michael R. Shockey BSc Eng is an engineer at Ball Aerospace.

Sarah E. Sharkey BSc En is a staff engineer for TST Infrastructure, LLC, in Englewood, Colo.

Sarah T. Silver BSc Eng is a staff engineer for TSI Infrastructure, LLC, in Englewood, Colo.

Tara R. Stover BSc Eng is an associate mechanical engineer at Orbital Science Corporation in Chantilly, Va.

Michael J. Stott BSc Chem is a project engineer for ChevronTexaco.

Sarah T. Suazo BSc Chem Eng is a facilities engineer for ChevronTexaco.

George A. Tuttle PhD En is a senior engineer for Laidlaw & Associates, Inc., in Golden, Colo.

Jeremy A. Tilson BSc Math & Computer Science is a second lieutenant and a communications officer with the U.S. Air Force.

Ngo T. Truong BSc Chem Eng works for Air Liquide Corporation. 

Max W. Urbic Bsc Chem Eng is a petroleum engineer for Phillips Petroleum.

Lawrence M. Wagg PhD CPR is a post doc in basic sciences and material ads at the National Aeronautic Energy Laboratory in Golden, Colo.

Ryan W. Waterbury Bsc Eng is an engineer for Kiewit Western Company in Littleton, Colo.

Rebekah A. Willard Bsc Math & Computer Science is a land development manager for Casa Tiera Development, Inc., in Fruitland, Colo.

Jeremy J. Yarrow Bsc Math & Computer Science is a graduate student at CSM.

Tiffany L. Mensing Bsc Chem Eng is an engineer for TST Infrastructure, Inc., in Golden, Colo.

Daniel J. Ryman Bsc Eng is a project engineer for Western Gas Resources, Inc.

Leslie A. McCandless Bsc Chem Eng is a project engineer for Western Gas Resources, Inc.

Paul R. Orser Bsc Math & Computer Science is a technical implementation for Net Repugs.

M. Curtis Perry Bsc Eng is a process engineer for the United Corporation in Colorado Springs, Colo.

Anthony M. Phillips Bsc Eng is a graduate student at Washington University in St. Louis, Missouri.

Bradley D. Pigott Bsc Chem Eng is an engineer for Air Liquide America.

Justin E. Raith Bsc Pet is a petroleum engineer for the Honeywell Corporation in Golden, Colo.

Jordan D. Russell Bsc Chem Eng is a design engineer for the Space Shuttle Program at ATK Thiokol Propulsion in South Ogden, Utah.

Daniel J. Ryanen Bsc Eng is a patent examiner at the U.S. Patent and Trademark Office.

Robert C. Sweeney Bsc Chem Eng is a graduate student at CSM.

Brandon S. Schwartz Bsc Chem Eng is a graduate student at CSM.

Rachael Selby Bsc Eng is an engineering intern for Alyeska Pipeline Service Company in Valdez, Alaska.

Michael R. Shockey Bsc Eng is an engineer at Ball Aerospace.

Sarah E. Sharkey Bsc En is a staff engineer for TST Infrastructure, LLC, in Englewood, Colo.

Sarah T. Silver Bsc Eng is a staff engineer for TSI Infrastructure, LLC, in Englewood, Colo.

Tara R. Stover Bsc Eng is an associate mechanical engineer at Orbital Science Corporation in Chantilly, Va.

Michael J. Stott Bsc Chem is a project engineer for ChevronTexaco.

Sarah T. Suazo Bsc Chem Eng is a facilities engineer for ChevronTexaco.

George A. Tuttle PhD En is a senior engineer for Laidlaw & Associates, Inc., in Golden, Colo.

Jeremy A. Tilson Bsc Math & Computer Science is a second lieutenant and a communications officer with the U.S. Air Force.

Ngo T. Truong Bsc Chem Eng works for Air Liquide Corporation. 

Max W. Urbic Bsc Chem Eng is a petroleum engineer for Phillips Petroleum.

Lawrence M. Wagg PhD CPR is a post doc in basic sciences and material ads at the National Aeronautic Energy Laboratory in Golden, Colo.

Ryan W. Waterbury Bsc Eng is an engineer for Kiewit Western Company in Littleton, Colo.

Rebekah A. Willard Bsc Math & Computer Science is a land development manager for Casa Tiera Development, Inc., in Fruitland, Colo.

Jeremy J. Yarrow Bsc Math & Computer Science is a graduate student at CSM.

Tiffany L. Mensing Bsc Chem Eng is an engineer for TST Infrastructure, Inc., in Golden, Colo.

Daniel J. Ryman Bsc Eng is a project engineer for Western Gas Resources, Inc.
Colorado School of Mines
Alumni News at Golden Community College

The Celebration of Mines features student activities, clubs, organizations, and academics. Each year students create a mural reflecting the spirit of the event that is later posted in the Green Center’s Computing Center.