The Magazine of Colorado School of Mines

MINES

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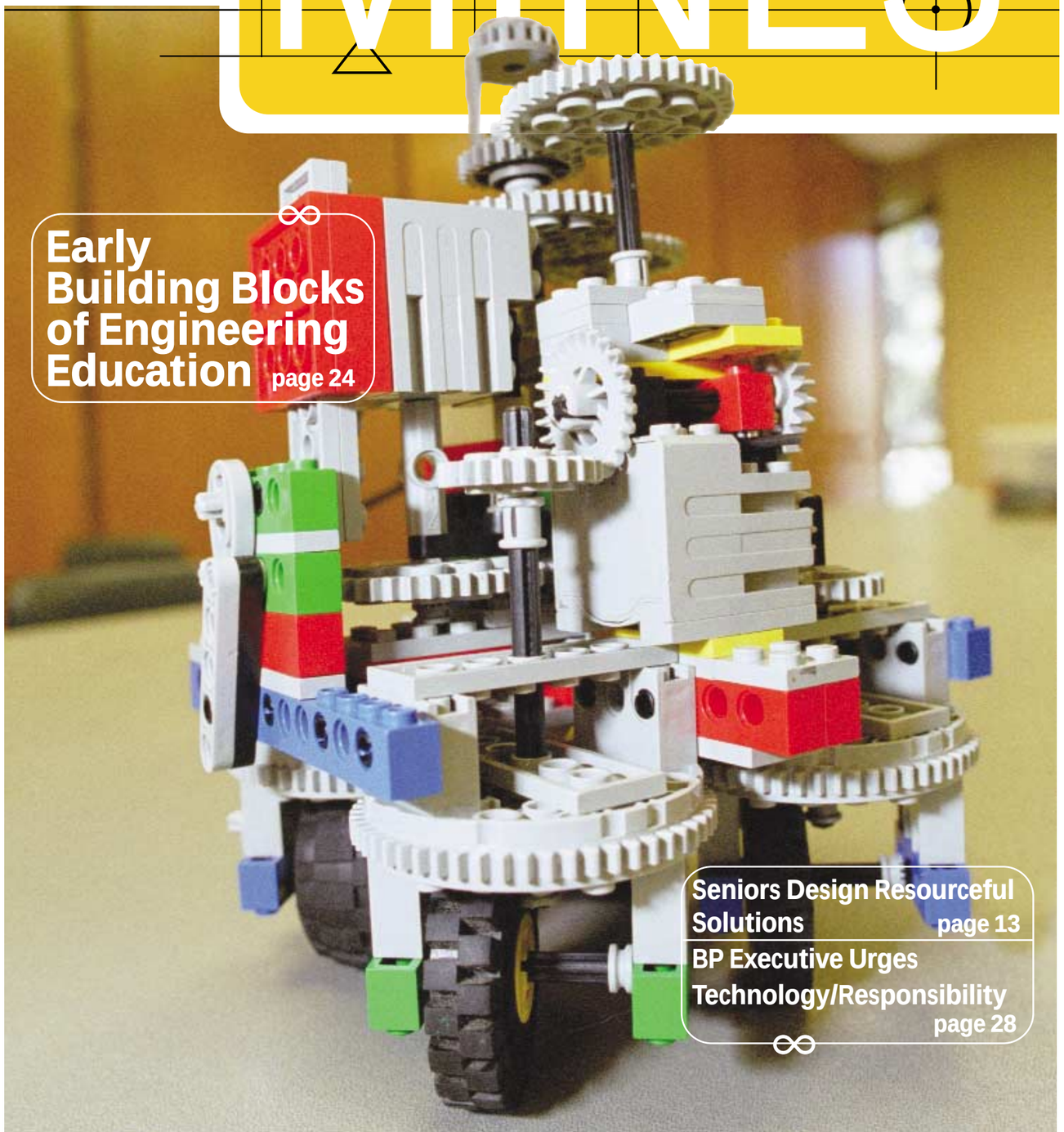
Summer 2003



Early Building Blocks of Engineering Education

page 24

Seniors Design Resourceful Solutions

page 13

BP Executive Urges Technology/Responsibility

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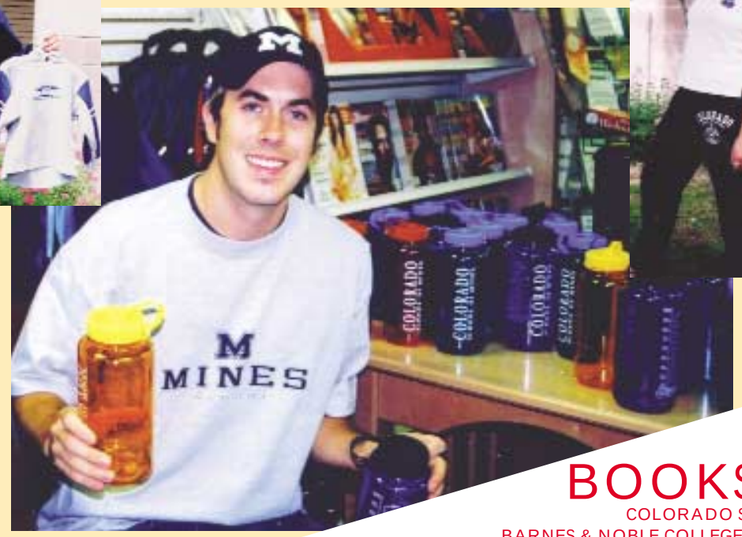
Graduate student Andy Headley models a CSM sweatshirt ($49.98) and displays a child's t-shirt ($17.98) and hooded sweatshirt ($27.98).

Electrical engineering senior Elana Hawkey models a visor ($17.98), shirt ($29.99) and pants ($34.98) while physics junior Mandi Stewart models a Mines sweatshirt ($44.98) and pants ($29.98).



Andy's cap is $17.98. His shirt and water bottle are $14.98 each.

MINES
SUMMER 2003

Mines is published quarterly by the Colorado School of Mines and the CSM Alumni Association for alumni and friends of the School. The magazine is a merger of *Mines Magazine* (founded in 1910) and *Mines Today* (founded in 1986). The merger took place in 2000.

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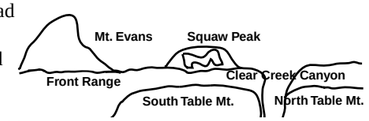
Letters to the Editor

The Other "M"

In 1987, I was riding west from Denver to Golden on 6th Avenue with **Doug Watrous EM '40** when he asked if I had ever seen the other "M." At that point, the "M" on Mount Zion was not visible so I had to reply "No," I had not seen the other "M." Doug then said to look west and locate Mt. Evans, which was snow capped and quite visible. After locating Mt. Evans, I was told to look north for a rounded mountain top, Squaw Mountain. Immediately below the crest of Squaw Mountain I could see a block "M" which was very visible. It was winter and snow clearly made the "M" outline visible.



Toward the crest of Squaw Mountain there is a rock slide and scrub vegetation that form the "M." During the summer when there is no snow, the rock slide and scrub vegetation contrast against the surrounding evergreens and still make the "M" visible, but not as pronounced as when there is snow. Above is a sketch of the skyline with reference points for locating the "M." It is visible from Hampden Avenue, Alameda Avenue, 6th Avenue, I-70 and Highway 58.

Bob Reeder EM '49, MSc Min Ec '76

ROTC Right On

I really enjoyed the letter in the Spring 2003 issue from my old friend and classmate Fred Meissner re: Mines ROTC and his reference to Col. Fertig, a hero to all of us. Fred's suggestion of other stories out there prompts me to write, hoping that it'll be of interest to others.

My own interest in the U.S. Army Corps of Engineers predates attendance at CSM and enrollment in the ROTC program. It was inspired by my father's pride in having served in the 12th Engineer Regiment in France in World War I. The 12th was the recipient of nine unit commendations (silver bands) for battle engagements, including familiar names such as Cambrai, St. Mihiel and Meuse-Argonne. The events of World War II reinforced that interest. I think I knew even then that someday I'd take my turn.

After training at Ft. Belvoir, primarily for service in Korea, I was assigned to the 801st Engineer Aviation Batallion, a SCARWAF (Special Category Army with Air Force) unit on a Royal Air Force base in England with the mission of rebuilding the field to accommodate heavier jet aircraft. This and other SCARWAF units were Cold War creations at the time of a real threat from the U.S.S.R. Our mission required a wartime around-the-clock construction schedule which was miles apart from a typical garrison assignment. Our battalion commander and many others were seasoned veterans and great leaders. They were also great teachers. Other Miners serving in the same unit were **Bill Burpeau '53** and **Jim Russell '54**.

Bill Mauldin's dogface heroes of WW II, Willie and Joe, have a special place on my wall, and I have genuine affection for them and for all of our GIs, then and now. I take great pride in my own military service and it is certainly a most important part of my life. Mines ROTC was the vehicle that took me to the right place at the right time to provide rounding in my education. Thank you CSM for this bonus.

Vince Ames Geol E '53, MSc Geol '57
U.S. Army Corps of Engineers, 1954-1956

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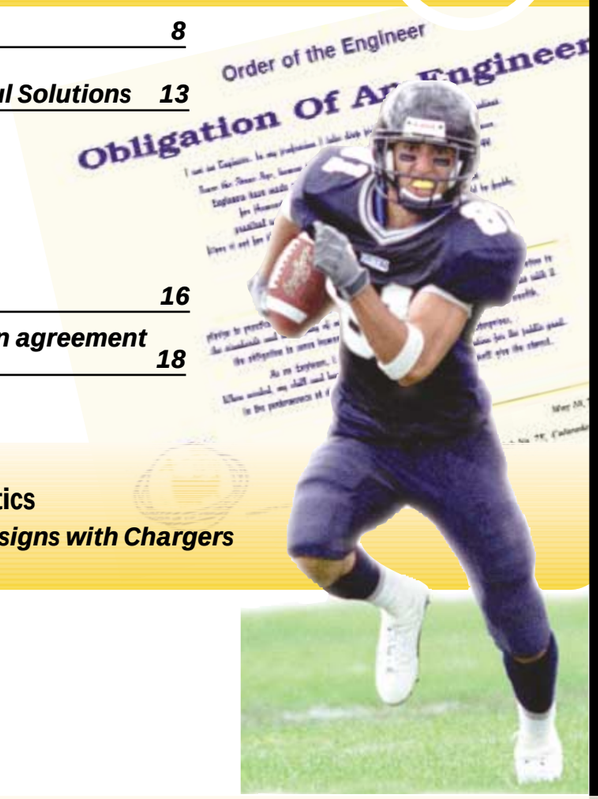
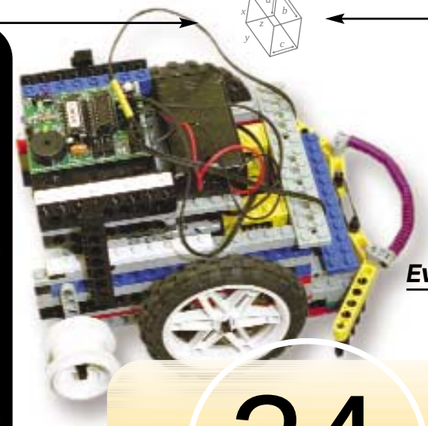




About the Cover:
Building robots out of Legos™ is a project of an introduction-to-robotics class taught to middle schoolers by CSM students. See story on page 24.

Photo by **Douglas Baldwin BSc Math & Comp Sci '03**.

Engineers Promise to be Honest, Ethical

More than 100 join Order of the Engineer

By Maureen Keller

Without a secret handshake or a private password, engineers can still distinguish fellow members of the profession. No, it isn't pocket protectors that give them away. It's the steel ring they wear on the fifth finger of their working hand. That ring signifies the wearer is a member of The Order of the Engineer.

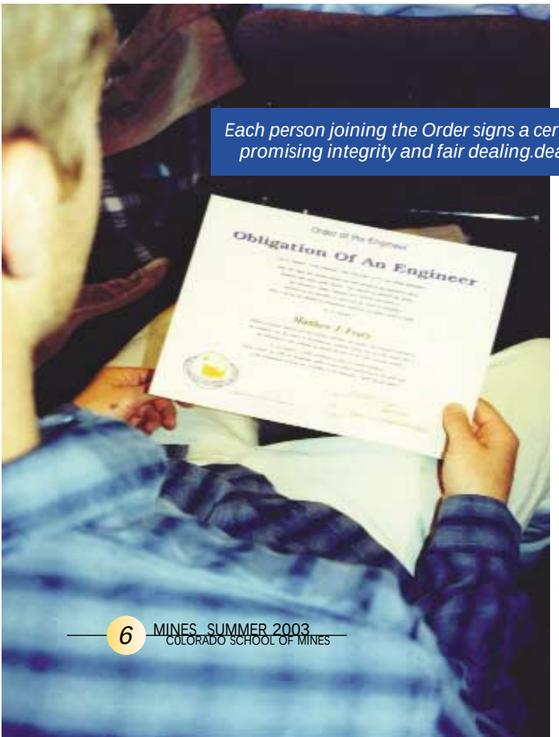
The Order is the roster of engineers who have participated in the Engineer's Ring Ceremony and who have taken the Obligation, a sort of Hippocratic oath for engineers. The Obligation is a statement of an engineer's responsibilities to the public and to the profession. During the ceremony, engineers pledge integrity, honesty and to use their skills to serve humanity by making the best use of the Earth's precious resources.

The Order of the Engineer is an outgrowth of the Ritual of the Calling of an Engineer, which was founded in Canada in 1922. That year, Professor Herbert Haultain of the University of Toronto was guest speaker at the annual meeting of the Engineering Institute of Canada. During his address he urged the development of a "tribal spirit" among engineers. He proposed an oath or creed be developed to which young engineers could subscribe.

His ideas were well received by the Engineering Institute so Haultain wrote to his friend Rudyard Kipling for help in writing the oath and designing the ceremony. Kipling responded and his words are still used today in Canada's ceremony. It was decided that members should wear iron rings "rough as the mind of the young man," Kipling said.

The United States version of the group was initiated in 1970.

Graduating senior Jessica Ayers (center) applauds during the Order of the Engineer ceremony held on campus in April.



Each person joining the Order signs a certificate promising integrity and fair dealing.dealing.

The first U.S. ceremony was held at Cleveland State University that year. The U.S. rings are made of stainless steel rather than iron to avoid copyright infringement, but are also worn on the fifth finger of the working hand. As in Canada, the ring signifies pride in the engineering profession.

According to myth, the first rings were made from the debris of a bridge that collapsed outside of Quebec City. Construction on the bridge – part of the transcontinental railway linking Manitoba to New Brunswick – began in 1900. In 1907, as construction was nearing completion, the bridge collapsed under the weight of a train loaded with steel. Seventy-five people were killed. An inquiry into the tragedy revealed it was the result of an error in judgment made by the bridge's engineers.

A second attempt to build the bridge resulted in a second disaster in 1916. While being hoisted into place, the center span fell and 10 more people died. The Pont de Quebec Bridge was finally completed in 1917. Undoubtedly, these tragedies were on the minds of the engineers who attended that annual meeting in 1922. But there is no evidence that bridge debris was used to make the rings. The first rings were made by World War I veterans in a Toronto rehabilitation hospital.

James Johnstone Geol E '48, a past president of the Alumni Association, started the Order of the Engineer at Mines in 1983. **Karl Nelson Geol E '69, MSc Geol '71** took over in 1988. When Nelson retired last year, the Alumni Association took over. To date, more than 800 engineers have joined the Order from Mines. Students are eligible if they are within two academic terms of graduation from an ABET-accredited engineering degree program. At Mines, all disciplines except mathematics, chemistry, and economics and business are eligible.

From left, Phil Romig, dean of Graduate Studies and Research; Nigel Middleton, vice president of Academic Affairs and dean of faculty; and CSM President John Trefny joined the Order in April.

For more information about joining the Order, call the Alumni Office at 303-273-3295; 800-446-9488, ext. 3295; or check out the website at www.order-of-the-engineer.org.

The goals of CSM and the Order of the Engineer are strikingly compatible. They read, in part:

Engineer's Obligation
As an Engineer, I pledge to practice integrity and fair dealing, tolerance and respect, and to uphold devotion to the standards and the dignity of my profession, conscious always that my skill carries with it the obligation to serve humanity by making the best use of the Earth's precious wealth.

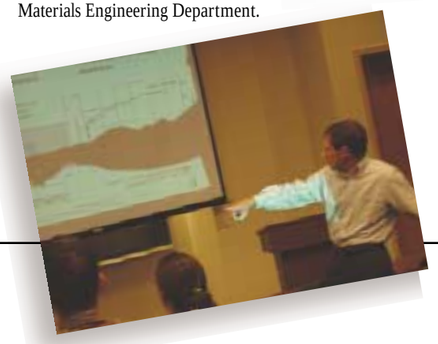
CSM's Mission
[The CSM] mission is achieved by the creation, integration and exchange of knowledge in engineering, the natural sciences, the social sciences, the humanities, business, and their union, to create processes and products to enhance the quality of life of the world's inhabitants. The Colorado School of Mines is consequently committed to serving the people of Colorado, the nation, and the global community by promoting stewardship of the Earth upon which all life and development depend.

The engineer's ring is to be worn on the little finger of the working hand.

Alcoa Metallurgists Present Lectures

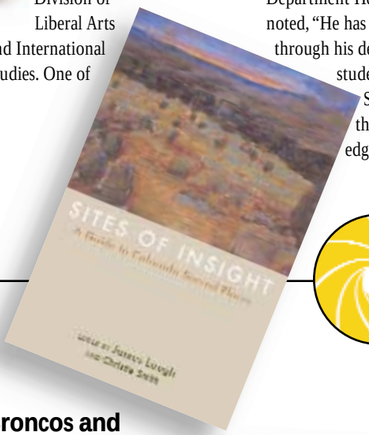
Two Alcoa metallurgists, Dr. Rob Sanders of the Alcoa Technical Center in Pennsylvania and **Cherlyn Foster BSc Met '97** of the Alcoa Davenport Works in Iowa, visited Mines during the spring semester. They presented six hours of evening lectures on the production, metallurgy and applications of aluminum and aluminum alloys to students in a senior elective course in the Department of Metallurgical and Materials Engineering Department.

Collection of aluminum applications



Book Published

Sites of Insight: A Guide to Colorado Sacred Places will be published this summer by the University Press of Colorado. The book, which has already won a publications prize from the Colorado Endowment for the Humanities, was edited by James Lough with the help of assistant editor Christie Smith, both of CSM's Division of Liberal Arts and International Studies. One of the book's featured writers is Nick Sutcliffe of CSM's Office of Institutional Advancement.

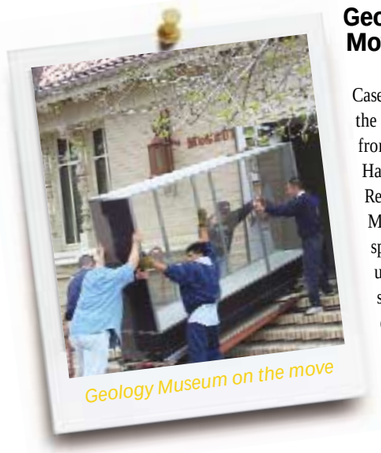


Dean's Excellence Award

Kent Voorhees is the recipient of CSM's 2003 Dean's Excellence Award, which recognizes significant and meritorious achievement in teaching and scholarship. Voorhees is a professor in the Department of Chemistry and Geochemistry. Department Head Paul Jagodzinski noted, "He has distinguished himself through his dedication to the students at Colorado School of Mines and through his cutting-edge applied research."

Geology Museum Moves to New Home

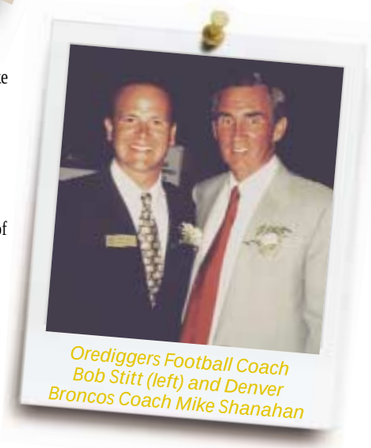
Case by case and gem by gem, the Geology Museum is moving from its old home in Berthoud Hall to the new General Research Laboratory at 1310 Maple. "It's a tremendous space to showcase the university and its museum," says Paul Bartos, museum curator.



Geology Museum on the move

Broncos and Orediggers

Denver Broncos Head Coach Mike Shanahan was the speaker at the first-ever Mines Athletics Fundraising Dinner and Auction held May 30 in the Ben Parker Student Center. Local TV anchor Jim Benneman served as master of ceremonies. "This was an extremely successful and fun event for all in attendance. We look forward to this becoming an annual affair," said Athletics Director **Marvin Kay EM '63**. Proceeds from the event will help support CSM's 18 athletic programs.



Orediggers Football Coach Bob Stitt (left) and Denver Broncos Coach Mike Shanahan

Young Researcher Award

CSM Physics Department graduate student Yuki Yoshida has received the Young Researcher Award at the 3rd Annual World Conference on Photovoltaic Energy Conversion held in Osaka, Japan. The award is presented to researchers under the age of 35. The title of her paper was *Molybdenum-Doped Indium Oxide Deposited by Radio-Frequency Magnetron Sputtering and Pulsed Laser Deposition*. She credits David Wood, associate professor in the Physics Department, for his help in completing the paper.

Mrs. Trefny Is Keynote Speaker

In response to the publication of her essay "We are Sisters of the World," Sharon Trefny, wife of President John Trefny, was asked to speak to the Zonta Club of Denver II. The local club is part of Zonta International, with some 35,000 members in 1,100 clubs in more than 70 countries.

The global network of business and professional women consults with a number of United Nations agencies and works to improve the economic, educational, legal, political, health and professional situation of women, and to eliminate the abuse of women and children.

As a tribute to early Zonta International member Amelia Earhart, the organization awards annual fellowships to women for advanced education in science, aerospace and engineering.

Sharon Trefny

SHORT TAKES

Cecil Green Remembered

Cecil H. Green, the namesake with his late wife Ida of CSM's Green Center, died April 11 at the age of 102. He was a co-founder, director and vice president of Texas Instruments. Great philanthropists, he and his wife donated millions of dollars to hospitals, schools and colleges.

In 1953 he received an Honorary Doctor of Engineering degree from Mines. He served the School as a member of the resource fund executive committee for 10 years and as the honorary co-chair of the Resources Campaign from 1989 to 1994.

Mines President John U. Trefny said, "Cecil Green was a remarkable pioneer in developing technology for resource exploration. His accomplishments contributed substantially to the revolutionary developments in locating and recovering petroleum and other key resources over the last half century. Along with his wife Ida, Cecil was an extraordinarily generous friend of Colorado School of Mines and a true partner in its mission. We will miss him greatly."

Professor Eileen Poeter at the Summit

Mines Summit

In April, 157 members of the CSM community gathered for an evening meeting in the Green Center to share ideas at The Mines Summit: Financial Challenge as Opportunity. Participants included undergraduate and graduate students, alumni, classified staff, academic faculty, administrative faculty and administration representatives.

Safety Instruction Saluted

The International Society of Mine Safety Professionals has presented **Robert Ferriter EM '60, MSc Pet '73**, manager of CSM's Mine Safety and Health Program, with its Highest Degree of Safety Award, honoring Ferriter as the safety professional who has contributed most significantly to the reduction of injury and illness in the international community. The society's H.L. Boling Award, which recognizes a mine support organization with outstanding dedication to safety and health, went to the training component of CSM's Western Mining Resource Center. Established through a grant from the National Institute for Occupational Safety and Health, the center includes training conducted through CSM's Office of Special Programs and Continuing Education, as well as research administered by the School's Department of Mining Engineering.

Family of Mines Scholarship

This spring's First Bloom luncheon and silent auction raised $4,635 for the Family of Mines Scholarship, which was established by the Administrative Faculty Council to provide a scholarship opportunity for undergraduate students who are children of faculty or staff members of CSM, the CSM Foundation or the CSM Alumni Association. KCNC-TV's Luan Akin, who specializes in helicopter reporting and is also an expert gardener, was the event's guest speaker.

Commencement Honorees

The Lord Browne of Madingley, group chief executive of BP, was the May 2003 commencement speaker and received an honorary degree from Mines. The recipient of numerous honors, Lord Browne received the Prince Philip Medal from the Royal Academy of Engineering for his outstanding contribution to the field of Engineering. He was voted Most Admired CEO by *Management Today* from 2000 – 2002 and recently received the Society of Petroleum Engineers Public Service Award. He was knighted in the 1998 Queen's Birthday Honours and made a life peer in 2001.

The other honorary degree recipients at May's commencement were:

Walter Alvarez, professor of geology at the University of California, Berkeley

Reid A. Bryson, professor and senior scientist, Center for Climatic Research, at the University of Wisconsin-Madison.

Albert C. Yates, president, Colorado State University.

The following alumni were recognized with Distinguished Achievement Medals at the May Commencement:

Bruce D. Hansen BSc Min '80, senior vice president and chief financial officer, Newmont Mining Corporation

Robert C. Hedlund BSc Min '75, chief executive officer, Joint Development Associates International, Inc.

Thomas LaFehr MSc Geop '62, chairman and chief executive officer, LCT, Inc.

Michael J. Taravella BSc Chem '77, associate professor of ophthalmology, University of Colorado Rocky Mountain Lions Eye Institute

Kathleen M.Wiltsey BSc CPR '77, former vice president, Amgen, Inc.; vice president, The Discovery Center for Science & Technology

Marathon Oil Company Funds New Center

A $300,000 grant from the Marathon Oil Company Foundation will establish a new Center for Reservoir Studies at Mines.

Housed in the School's Department of Petroleum Engineering, the center will train students in multiple academic departments. The center will also provide the opportunity for teams made up of students, industry professionals, and consulting experts—all under the tutelage of academic experts at Mines—to solve real-world reservoir problems.

"At Marathon, we know that the most efficient solutions come about through collaborative efforts, so we are committed to the multidisciplinary focus of the Center for Reservoir Studies at Mines," said Tim Tipton, Marathon vice president of technology.

"This generous gift from Marathon will fund unique educational possibilities for our students and the petroleum industry as they work together to find timely solutions to real technical challenges," said John Trefny, president.

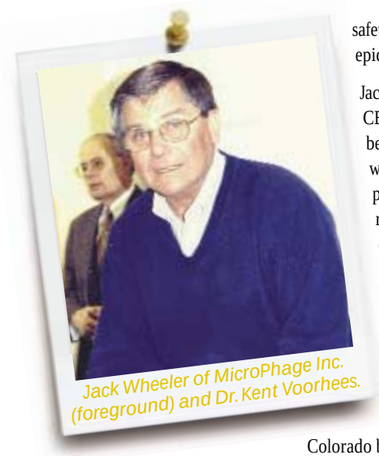
Olds Inducted as Fellow

Barbara Olds, currently serving at the National Science Foundation, was inducted as a Fellow Member of the American Society for Engineering Education at the society's annual awards banquet in June in Nashville, Tenn.

Technology Licensed

Intellectual property offering a novel, innovative and powerful approach to pathogen detection has been licensed by CSM to MicroPhage Inc., an early-stage Colorado company. This platform technology provides a rapid, sensitive and accurate method for the detection of agents associated with diseases such as anthrax and plague. Mines has partnered with MicroPhage, Inc. to commercialize the technology developed in the Department of Chemistry and Geochemistry.

Drs. **Angelo Madonna PhD Applied Chem '02** and Kent J. Voorhees invented the technology that allows for identification of microorganisms in such applications as bioterrorism incidents, environmental monitoring, food safety and emergency epidemics.



Jack Wheeler, president and CEO of MicroPhage, believes the partnership with CSM offers great potential. "The strong relationship that has been established between the School of Mines and MicroPhage represents an ideal model between one of our country's strongest engineering and applied science institutions and a new Colorado biotech start-up company. This further reinforces the governor's strategic initiative to develop biotechnology in the state of Colorado," he said.

Moskal Wins Teaching Award

Barbara Moskal of the Department of Mathematical and Computer Sciences (MCS) has been awarded the 2003 CSM Alumni Teaching Award, which recognizes superior teaching at the undergraduate level. "It is clear from students' comments on Barb's evaluations that she is not only caring and patient but also an enthusiastic, well organized and talented instructor," noted MCS Department Head Graeme Fairweather.

Short takes

Mines Appointments

The Office of Academic Affairs announces the following appointments and related restructuring:

Associate Vice President for Academic and Faculty Affairs (interim): Dr. Arthur Sacks
Primary responsibilities will be the administration of faculty affairs and the direct supervision of special units that report to the Office of Academic Affairs. These include the Office of the Registrar, the Office of International Programs, the McBride Honors Program, EPICS and the Center for Engineering Education.

Associate Vice President for Research and Dean of Graduate Studies: Dr. Phil Romig '67, '69
Primary responsibilities will be the facilitation of research activity and the associated aspects of research advancement, facilities and compliance, as well as the oversight of all graduate programs.

Associate Dean for Academic Programs (interim): Dr. Tom Boyd
Primary responsibilities will be facilitating programmatic, instructional and curricular developments and delivery in all aspects of the School's academic offerings.

Acting Director of the Division of Liberal Arts and International Studies: Dr. Laura Pang

Youngs' Symposium


Admiral Richard H. Truly, NREL director

Admiral Richard H. Truly, director of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), presented "Enabling An Alternative Energy Future Through Science" at the Youngs' Environmental Symposium, held in the Green Center this spring.

"Our future will depend on the continued investment in science to succeed in a successful transition from a fossil fuel dominated society," said Truly.

Herbert Young EM '39 and his wife Doris, who have established the Youngs' Environmental Symposium, said, "We feel that the proper use of the energy available in our ecosystem is one of the best ways to protect our society, our economy, and our enviroment." They added, "We want to thank Mines for letting us see the start of our legacy while we are living."


John Moore

Moore Named Honorary Professor

John Moore, Trustees Professor and Head of the Metallurgical and Materials Engineering Department, will be awarded the status of Honorary Professor of the Moscow State Institute of Steel and Alloys at a ceremony in Moscow in September.


From left, President Trefny, Bruce Goetz, Ruth Streveler and Linn Havelick

Awards for Excellence

Bruce Goetz, director of admissions, and Ruth Streveler, director of academic services and the Center for Engineering Education, have won this year's Connected Learning Community awards for administrative faculty excellence. President John U. Trefny presented the awards at a luncheon sponsored by the Administrative Faculty Council in the spring.

Seniors Design Resourceful Solutions

By Karla Gordon

"Practical, resourceful, competent, problem-solvers" are words often used to describe Mines graduates. One reason is that students begin solving practical, real-world problems well before they graduate. Mines has always been committed to experiential education—learning-by-doing. The Engineering Division's senior design class is a good example, and the Engineering Trade Fair where students exhibit their senior design projects is a testament to that commitment.

At this year's fair in the Steinhauer Field House in April, more than 200 students exhibited 50 projects. The two-semester design course requires senior engineering majors to address challenges provided by clients from diverse arenas, including private business, government agencies and public education. This capstone project provides an opportunity for students to work in multidisciplinary teams, applying the skills they have acquired throughout their Mines academic experience to solve real engineering problems.

Doug Sutton, engineering instructor and industry liaison, believes—and he's heard others say—that learning to work in teams with these real-world connections "is what distinguishes Mines students from graduates of other programs." As lead instructor for the course, one of Sutton's jobs is to help find projects for student teams to complete. He says that projects typically fall into three categories: those that are entered in intercollegiate competitions; those that involve actually building a prototype from designs; and large-scale design-only projects—such as this year's work on protecting the Bradford-Perley Historical Site in Ken-Caryl Ranch from storm water flow.

Projects take on challenges from the glamorous to the mundane. This year, one team was challenged by the medical community to design a knee replacement implant that spares the anterior cruciate ligament and has a longer lifespan than implants that are currently available. Another project addressed the Future Energy Challenge competition sponsored by, among others, the U.S. Department of Energy, the National Association of State Energy Officials, and the U.S. Department of Defense. The team designed and developed components of a fuel cell inverter system intended to provide power for an average household. Another team traveled to San Pablo, Belize, where, in five days, they installed a solar-powered system to light the church and school in the village of approximately 250 people. "It was a long, hard week," says instructor Julie Van Laanen, "but I was very proud of the work completed by my students and the villagers."

Less glamorous—but no less challenging—projects included designing a carriage to facilitate locomotion for injured and disabled dogs and a robotic window cleaner. Another student team designed a modular engine that could be used for multiple

lawn utility tools. Justin Carlson, who worked on this project, believes the hands-on approach was an important finale to his undergraduate coursework. “The most challenging and the most rewarding aspect of the project,” he says, “was bringing the design to reality—actually seeing our design in a final product.”

In addition to the application of multiple engineering specialties, students also gain experience in other aspects of the business world, picking up a wide range of practical project management skills. As they design and develop a system to satisfy the client, student teams are also responsible for communicating with the client through written and oral correspondence, for documenting that correspondence, and for managing the project budget and schedule.

Some projects involve relatively little expense and others are funded by the sponsoring company or organization, but many require additional resources. Two privately endowed funds held by the CSM Foundation now support the program: in 2000 **Don Thorson Geop E ’55** established the J. Don Thorson Endowment for Engineering Senior Design, and in 1988 **Willard Slater Geol E ’40** and his wife Emma created the Slater Family Research Endowment Fund. In 2002, a bequest from the Slaters also created the Slater Family Research Trust to support design activities at Mines. “Many projects employ sophisticated technologies that are quite expensive. Funding is a huge issue. Shell Oil and Conoco both helped sponsor this year’s trade fair, and the private support we’ve received is a great help,” says Sutton. To seek additional support for senior design and similar hands-on learning programs, the School has included it as a major component of the overall *Transforming Resources* campaign goal. In the meantime, students sometimes find ways to raise their own

funds for costs associated with the projects—which is, in itself, good preparation for the transition to the professional world, points out Sutton.

Another valuable component of the Senior Design Trade Fair is that in addition to giving students an opportunity to showcase their labors, the event simulates a real-world trade fair. Although students aren’t necessarily trying to sell their work to potential clients, the fair is a judged competition. Rather than have students present to groups of judges, the judges walk around to student booths and ask questions. In a sense, students are trying to sell their ideas to the judges.

The team of 50 volunteer judges who participated in this year’s event was primarily made up of working or retired alumni. Giving up half a day to serve in the event, these individuals provide detailed written and verbal feedback to students, drawing from their professional insight and knowledge of the working world. Many return year after year to participate. One judge in this year’s event, **Tim Haddon BSc Min ’70**, called it “an exhilarating experience.” He was impressed “by how many students were articulate and well prepared,” and he found some projects “absolutely ingenious.” Among the most impressive, according to Haddon, was a robotic truck that the student team designed

for the K-12 robotics program. The team’s goal was to produce working robots and a mobile presentation to excite children about the possibilities of science. The “Haul-bot,” as it is called, uses GPS technology to seek out a target.

Karrie Rein, whose team won this year’s competition with their work on the RoboWeekends educational program (see story on page 24), is now an instructor at this summer’s K-12 robotics camp on the Mines campus. She attributes her team’s success to their commitment: “We were all so excited. We really enjoyed what we were doing, and we knew what we were doing. And now, we’re teaching [the kids] real-world engineering.”

Monte Richard, who took Senior Design this spring, points out that the experience is valuable “because you’re actually expected to perform. It’s a culmination of everything you’ve learned.” On the cusp of entering the job market, he found his confidence bolstered in another crucial area: “It taught me a lot about working with other people. Helping to organize a team that would produce was a large part of the overall challenge.”

Recognition for Engineering Education

The Senior Design Program is just one example of the School’s practical approach to engineering education for which Mines has received numerous accolades. The Carnegie Foundation for the Advancement of Teaching selected Mines as one of six outstanding engineering programs to be featured in an upcoming report on best practices in engineering education.The National Science Foundation also recognized nine engineering faculty members as Career Award winners, and the Engineering Division’s Multidisciplinary Engineering Laboratory (MEL) course sequence won the Award for Academic Excellence and Cost Management from the American Council on Education. In addition to this formal recognition, MEL has received grants from the National Science Foundation, Parsons Foundation, Chevron and Kennecott Mining. And in the last nine years sponsored research in the division has grown 600 percent. Perhaps most notably, the National Science Foundation recently awarded a $10 million grant to Mines and its partners in the newly established Center for the Advancement of Engineering Education, which will conduct in-depth research into the ways diverse student populations learn complicated engineering concepts.

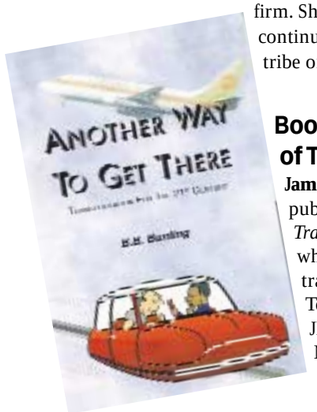
Ridolfi '80 Named Engineer of the Year

Callie Ridolfi BSc Min '80, P.E., was chosen 2003 Engineer of the Year by the American Council of Engineering Companies of Washington (ACEC). Guided by her passion for the environment, both her personal goals and her firm's mission revolve around building a sustainable culture and restoring natural resources.

Inspired by an ideology of sustainable living, Ridolfi has spent the past 22 years working on numerous remediation and environmental clean-up projects. Her work includes award-winning projects for habitat restoration at Commencement Bay in Tacoma, Wash., and the Moon Creek reclamation project for the USDA Forest Service in Idaho. Other notable projects include National Coastal Hazmat Services for NOAA, Superfund oversight at the Bunker Hill Metallurgical Facility, and an integrated waste management pilot program for the Metlakatla Indian Community on Annette Island, Alaska.

"I've never classified myself as an environmentalist, but my heart is really in restoring polluted lands and waterways to uses that enhance public good," Ridolfi said.

After Ridolfi completed an assignment in the Coeur d'Alene Basin, Idaho, a tribal elder, impressed with her work and commitment to the environment, encouraged her to leverage her personal commitment, experience and excellent working relationships with government agencies into opening her own firm. She founded Ridolfi Inc. in 1990 and continues to work with the Coeur d'Alene tribe on a variety of projects.



Book Discusses Future of Transportation

James J. Bunting MSc Env Sc '90 has published *Another Way to Get There: Transportation for the 21st Century* in which he suggests alternative transportation options for the future. To purchase a copy ($13.95), write to JBI Inc., 212 Prospect Street, Fort Morgan, CO 80701.

Hamouz '79 to head Colorado ACEC

Mark Hamouz BSc Geol '79, P.E., vice president of LONCO, Inc., assumed the 2003-2004 term of president of The American Council of Engineering Companies of Colorado (ACEC/CO). Hamouz has been an active member of the Council since 1992.

Hamouz said his goal as president was "to further empower our membership and the individuals who comprise one of Colorado's most dynamic industries. As engineers, as owners of companies performing engineering services and as people volunteering our personal time for community betterment, we must use the power we feel to influence our society." Programs of interest to Hamouz include influencing youth to maintain a serious interest in math and sciences; influencing public and private clients to create and maintaining favorable relationships while providing services for the betterment of the community; and supporting local government and influencing other agencies to formulate laws that maintain a constructive business climate.

ACEC/CO is a business organization of more than 246 member firms employing over 8,500 persons in the independent private practice of consulting engineering. It operates for the purpose of furthering the private practice of consulting engineering, the protection of the public safety and welfare, and the furthering of satisfactory business relations of its members with their clients. The organization supports the maintenance of high professional standards, the interchange of business experience and the promotion of beneficial relations among its members.

Caribbean Bar Welcomes Mines Graduates

The Mine Shaft bar, located on the island of Virgin Gorda in the eastern Caribbean, has hoisted a banner to welcome Mines alumni. According to proprietors Lincoln and Elton Sprauve, the bar's motif is mining, based on a nearby historic copper mine dating back to Columbus' voyages to the New World. The Mine Shaft has invented a drink, The Blaster, "whose powerful ingredients are a carefully guarded secret," in anticipation of Mines visitors. They also serve Coors. The Sprauves especially welcome CSM graduates wearing Mines T-shirts.

Colorado Marble Featured in Tomb of the Unknowns

The search is on in Marble, Colo., for a perfect piece of marble for the Tomb of the Unknowns at Arlington National Cemetery. The Colorado Yule Marble Quarry has taken on the task of finding a stone to replace the current memorial, which is showing its age after 72 years. The original marble came from the same quarry.

The tomb in the national cemetery represents some 90,000 men and women who did not return from the nation's wars. It includes the remains of unknown soldiers from World Wars I and II and Korea. The Vietnam War unknown soldier was exhumed in 1998 for DNA testing, resulting in an identification. It was decided that that crypt will remain vacant. Because of advances in science, there probably will be no more unidentified remains to inter.

The Marble Historical Society is heading the project and has arranged for a local artisan to carve the new stone. The new tomb is expected to be delivered in the spring of 2004.

Help Solve the Mysteries

Do you recognize either of these items?

The hat says "Colorado School of Mines 1975" and is signed by many of the 1975 graduates. Does anyone know the significance?

The statue was found at the Golden Hotel and includes the CSM logo and a tool or mechanical part encased in plastic. What is it?

If you have the answer to either question, please e-mail us at *csmaa@mines.edu*.

Become a Member of the Alumni Association

- ❒ **ANNUAL MEMBERSHIP**
  $55/yr. for '00 and earlier grads; $100 for two years ('03 & '04)
  $30/yr. '01 and '02 grads -- $54 for two years ('03 & '04)
- ❒ **JOINT MEMBERSHIP** (Both spouses grads)
  $65/yr. for '00 and earlier grads $120 for two years ('03 & '04)
  $40/yr. '01 and '02 grads -- $70 for two years ('03 & '04)
- ❒ **SENIOR MEMBERSHIP** (65 or older)
  You must have been an active member for at least 15 years. (Need not be consecutive.)
- ❒ **LIFE MEMBERSHIP** $1000 or $200/yr. x 5 years
- ❒ **JOINT LIFE MEMBERSHIP** $1250 or $250/yr. x 5 years.

Contributions to CSMAA are deductible under Section 501(C)(3) of the Internal Revenue Code. In accordance with IRS guidelines, the CSM Alumni Association provides no goods or services in exchange for your gift. CSMAA funds are not part of the Mines Annual Fund.

MAIL TO:
CSM Alumni Association
P.O. Box 1410
Golden, CO 80402-1410
or sign up on line:
csmaa.mines.edu
Click on "Member-ship" under Action Items

Name _____

Address _____

_____

❒ My check is enclosed (Made payable to CSMAA).

❒ Please bill to my Mastercard # _____ Expiration date _____

Visa # _____ Expiration date _____

Signature _____

Joint Mission Statement for Alumni Relations Between CSM and CSMAA

From the President

Dear Fellow Mines Alumni and Friends of the School,

In the winter 2003 edition of Mines magazine, I wrote about the on-going discussions between the CSM Alumni Association and the School's administration to form a new joint venture for alumni relations. I'm pleased to share with you that we have reached an agreement in principle, which is presented below. Our next step is to begin implementation, including formation of the new Office of Alumni Relations, and to create and fill the position of executive director/director of alumni relations. I'll update you on our progress via e-mail, the web site and in the next edition of Mines.
Sincerely,

John N. Schwartzberg Met. E '88, PE, CSMAA President

The mission of CSM is to be a specialized baccalaureate and graduate research institution with high admission standards, with a unique mission in energy, mineral, material science, mineral engineering and associated engineering and science fields, that is dedicated to educating students and professionals, and which is committed to serving the people of Colorado, the nation, and the global community by promoting stewardship of the earth.

Mines is proud of, and indebted to, the men and women who have become its alumni and considers them a unique and important asset of the school. Therefore, Mines places a high priority on establishing and supporting alumni relations programs that encourage alumni to stay connected with the School and their classmates, thereby strengthening a lifelong relationship. To accomplish this objective, Mines affirms that effective alumni relations begin with a positive student campus experience, place a priority on communication with alumni about campus and alumni affairs, and seek to provide alumni with meaningful opportunities to connect with each other and participate in university planning and campus activities.

Mines alumni, likewise, are indebted to the School and appreciate the excellent education they received. They also benefit from, and take pride in, the excellent reputation of their alma mater. Therefore, they have a stake in the continued success of the School as one of the premier engineering schools in the world. As alumni stakeholders, they affirm the value of strengthening lifelong relationships with the School and welcome opportunities to participate in its continued success.

CSMAA, on behalf of the Mines alumni, therefore enthusiastically supports, plans and promotes alumni relations policies and programs that (1) support the School's mission and its faculty, staff, students and alumni; (2) encourage alumni participation in the School's policy development and program planning activities; (3) provide opportunities for alumni to participate in campus professional and social activities; and (4) provide networking, employment and social opportunities for alumni.

Because Mines and the Association are committed to jointly planning and executing a coordinated alumni relations program that will bring credit and recognition to both the School and the Association, they have agreed to the following:

1. *Creation of an Office of Alumni Relations (OAR) within the Mines administration*. A director of alumni relations (DAR) will serve as executive director of the Alumni Association and shall head the OAR, reporting directly to the School's president and the CSMAA board.
2. *The Alumni Association shall retain its independent corporate identity and its board of directors and officers.* The Association board will work in concert with the School's president to adopt budgets, programs and priorities for the alumni relations program.
3. *Accountability:* The DAR will be employed by Mines and report directly to the Mines president. That person will also be accountable to the Alumni Association's board of directors. The Association's board of directors shall jointly with Mines determine the scope and extent of the DAR's duties and responsibilities. The Association will have majority representation on all DAR search and/or selection committees and shall participate in all performance reviews and any decision to dismiss the DAR.
4. *Staffing:* The Alumni Association staff will serve as the OAR staff and will be managed by and accountable to the director of alumni relations.
5. *Budget:* The Mines president and the Association board of directors will develop the OAR budget jointly so that the programs, priorities, goals and objectives of the joint Alumni Association/Mines alumni relations efforts can be accomplished. In the future, the budget for all alumni relations programs will be included in the Mines president's budget. Funding for all alumni relations programs shall come from all sources that are available to the Association and the School.
6. *Alumni Events:* The Association will be responsible for receptions, events, alumni gatherings, sectional operations and events, and alumni communication. Sufficient resources shall be budgeted to fulfill these responsibilities. The Association will closely coordinate the planning of events with the Office of Institutional Advancement (OIA) when OIA has specific interests or responsibilities.
7. *Alumni Career Services* will be offered by the Mines Career Center.
8. *The Alumni Admissions Representative Program* will be administered through the Admissions Office with such assistance as required from OAR. Related activities, such as send-off parties and Mines Math and Science Achievement Medal presentations, will be coordinated through OAR with the assistance of the Admissions Office when such assistance is required.
9. *Mines* magazine will continue to be the single voice of the Mines community. It will be published by CSMAA with editorial assistance and input from other campus offices, as well as from a *Mines* magazine advisory board. Adequate resources shall be budgeted to maintain and improve the quality of the publication.
10. *The Student Assistance Fund* will be maintained and administered by the Alumni Association.
11. *Alumni Database:* CSMAA and OIA will continue to jointly maintain the alumni and friends database.
12. *Young Alumni Program:* The departments of Student Activities and Athletics will be responsible for developing and managing on-campus young alumni programs. The Association will be responsible for post-graduate young alumni development.
13. *Alumni Association Membership:* All Mines alumni are considered to be members of the Alumni Association. Membership shall also be available to non-graduates, as reflected in the Alumni Association's by-laws. A category of "sustaining members" shall be established for those who contribute to alumni relations on an annual basis.
14. *Alumni Association Endowments:* The Association's endowment funds shall continue to be the fiduciary responsibility of the Association's board of directors. At its discretion, it may choose to allow the Mines Foundation to manage those funds at a reasonable fee.

From the Treasurer

Fellow Alumni and members of our community,

Over the past several years we have seen active membership in the Alumni Association continue to drop. We have also seen a reduction in contributions to the Association, reduced advertising revenue, and losses in our investment portfolio. All of these factors combine to make for a very difficult time creating a budget for the coming fiscal year.

We are committed to a balanced budget and have a fiduciary responsibility to the Alumni Association members and donors. The Board of Directors decided to balance the budget while minimizing the use of our endowed funds. Because of these decisions and our current financial position, we made the difficult decision to eliminate the full-time position of executive director.

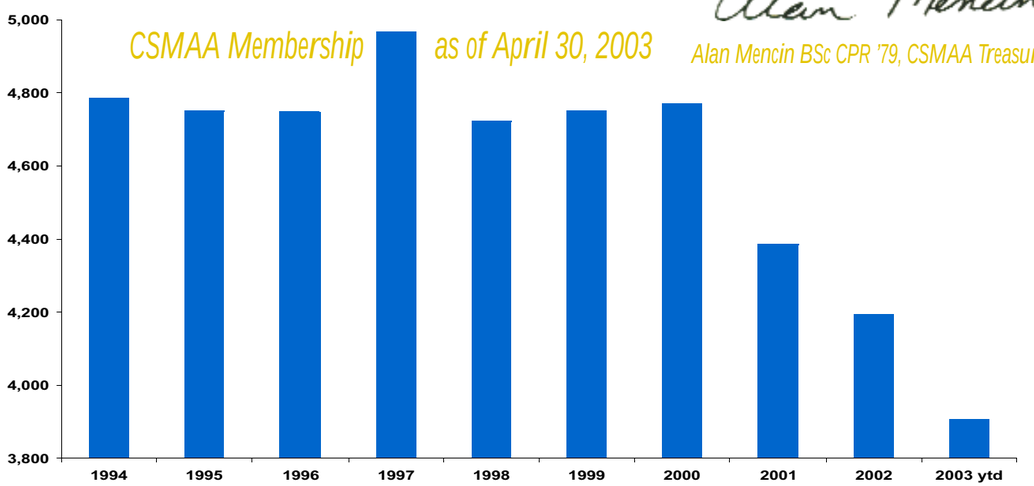
We did not take this decision lightly and it was one that we know could be perilous. We felt that this was the best choice because our duty is to the alumni and to the School. We also felt that we could not continue to drain the endowments.

A plan has already been implemented to take care of the necessary functions of the executive director's position in the short term. A committee of dedicated volunteers is taking care of these functions. For the others who have already offered their services during the interim, we say thank you.

Several people have asked how they can help. You can help by doing one or more of several things. You can become an active member or life member, make a donation beyond membership dues, purchase advertising in the magazine, sponsor an event, donate your time to one of our many events, or participate in a campus activity. In short, tell us what you want and ask us how you can help.

We want the Alumni Association to grow, become stronger, and be of service to the alumni, the School, and members of our community at large.

Alan Mencin BSc CPR '79, CSMAA Treasurer

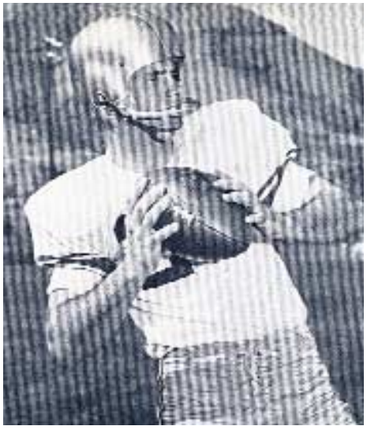


CSM Athletics
summer 2003

By Greg Murphy

Athletics Hall of Fame Inducts New Class

CSM has announced the eighth class of its Athletics Hall of Fame, which will be inducted at a ceremony on campus Friday, Sept. 12. The inductees will also be honored at halftime of the Orediggers' football game against Northwestern Oklahoma State on Saturday, Sept. 13.



This year's class includes **Rob McKee PE '68**, **Dick Swerdfeger EM '59** and **Raul Varela BSc Eng '96** as individuals, former Head Coach **Bob Pearson PE '59**, the 1958 football team, Erica and J**ohn Lockridge Geol E '52** as outstanding supporters, and the 1961-62 men's basketball game at Black Hills State as a historic event.

McKee was a three-year letter winner for both the football and baseball teams. As a senior, he was an All-RMAC selection in both sports, as well as an All-American pick in baseball. During his senior season, McKee captured the league scoring title as he produced 14 touchdowns, including all three scored in a 20-12 win over Chadron State Nov. 11, 1967. In addition, he helped guide the baseball team to a second-place league finish.

Swerdfeger lettered in both football and wrestling. He was the Oredigger quarterback from 1956-59 and helped lead the 1958 squad to a 7-3 mark and the co-RMAC title. As a wrestler, Swerdfeger competed at 167 pounds and placed second in the conference for three straight years.

Varela, one of the finest players to grace the Volk Gymnasium court, graduated as the School's all-time leading scorer with 2,551 points over his four years. A starter in all 106 games he appeared in, Varela averaged 24.1 points, 3.0 assists and 2.9 rebounds over his career and was 11th in the nation with 26.1 points per night as a sophomore. He was a four-time All-RMAC selection, as well as a three-time All-America honoree.

Pearson will be honored for his dedication to Mines athletics for more than 30 years. Pearson served as an assistant basketball coach from 1966-92, the tennis coach from 1966-77, the soccer coach from 1980-98 and the softball coach from 1992-95. Perhaps his greatest accomplishment came as a soccer coach from 1993-96 when he guided the team to a combined 39-26-2 mark. The teams captured four conference titles over the four-year span and finished the 1995 season ranked 24th nationally and sixth in the West Region.

The 1958 Oredigger football team, which was coached by Fritz Brennecke, will be honored as this year's team inductee. The squad, which began the season at 1-3, finished with an overall record of 7-3 and earned a share of the conference championship.

The 1961-62 men's basketball game at Black Hills State will be recognized as a historic event. The game went into four overtimes and Mines finished the third overtime with four men, but held matters to a 70-70 tie. In the fourth overtime, the officials whistled two more CSM players out of the game and Mines concluded the final two minutes of the fourth overtime with just two players. Mines ended up losing the game, 80-79.

Finally, John and Erica Lockridge will be recognized as the Outstanding Philanthropic Supporters of CSM Athletics.

Congratulations to the following Oredigger athletes who earned either All-Conference (AC), All-Region (AR) or All-American (AA) honors during the 2002-03 season.

BASEBALL
Kevin Barrett (AC)
Matt Gilbreath (AC)
Adam Marwitz (AC)
Ross Tobin (AC)

MEN'S BASKETBALL
Stephen Bahl (AC, AR)
Farris Broussard (AC)
Matt Luedtke (AC)
Mike McNish (AC)

WOMEN'S BASKETBALL
Ashley Gronewoller (AC)
Heather Hoops (AC)
Heather Angel (AC)

FOOTBALL
Nate Benton (AC)
Jonny Chan (AC, AR)
Chad Friehauf (AC)
Scott Hahn (AC)
Josh Hodsdon (AC)
Casey Kraft (AC)
Daniel Leger (AC)
Michael Lucas (AC)
Doug Morris (AC)
Grant Newton (AC, AR)
Matt Oliver (AC)
Brian Sump (AC, AR, AA)
Craig VanHorn (AC)

SOCCER
Brian Blaskovich (AC)
Joel Flanagan (AC, AR, AA)
Scott Phipps (AC, AR)
Eric Talburt (AC, AR, AA)
Robbie Williams (AC, AR)

SOFTBALL
Heidi Bauer (AC)
Breeann DiCarlo (AC)
Kim Kaiser (AC)
Karrie Rein (AC)

SWIMMING
Shane Copsey (AA)
Brooks Masterson (AA)
Gretta Simpson (AA)

TRACK AND FIELD
Angela Lemmerman (AC)
Gina Nichols (AC)
Tyson Parrott (AC)
Jared Peacock (AC)
Zane Prickett (AC)

VOLLEYBALL
Laurie Alzheimer (AC)

WRESTLING
Greg Chirieleison (AC, AA)
Mark Dubrovich (AC)
Chuck Halstead (AC)



Sump Signs with Chargers

Mines senior wide receiver/return specialist Brian Sump signed a free-agent contract with the National Football League's San Diego Chargers of the American Football Conference West Division April 26.

"I am very excited to be part of the Charger organization and feel it is a perfect fit for me," Sump said. "They have a quality group of players and a number of outstanding mentors who I can look up to as I become adapted to life in the NFL. I also maintained a great relationship with receivers coach James Lofton throughout the entire process and feel the organization is dedicated to succeeding with a lot of hard work."

Charger Head Coach Marty Schottenheimer is excited to see what Sump can do in this summer's training camp. He plans to give the former Oredigger a shot at earning a spot as a wide receiver, as well as a return man.

"We'll give Brian the chance to compete for a spot as a receiver and we'll also see what he can do in the return game," said Schottenheimer. "We've had good success in finding quality rookie free agents as six rookie free agents made our squad last year. Brian clearly has some outstanding skills and now he will get the opportunity to prove that he can play on this level."

Sump enjoyed an outstanding career at Mines as he played in 39 collegiate games and set School records for receptions (146), receiving yards (2,464) and receiving touchdowns (24). In addition, Sump posted School records in kickoff returns (81), kickoff return yards (2,384), touchdowns off kick returns (5), punt returns (47), punt return yards (717) and all-purpose yards (5,529).

As a junior, Sump recorded his breakout season when he caught 59 passes for 1,175 yards and 12 touchdowns. He also returned 38 kicks for 1,082 yards and a Division II record four touchdowns en route to earning First Team All-RMAC, All-Region and All-America honors. As a senior, he tallied 46 catches for 849 yards and seven scores.

"Nobody deserves the opportunity more than Brian with all the work he has put in over the last three years," said Mines Head Coach Bob Stitt. "I also feel that San Diego is a perfect fit for him because their scouts were saying how much they were looking for a return guy."

2003 Mines Fall Schedules

(ALL HOME GAMES IN CAPS)

FOOTBALL

DATE	OPPONENT	TIME
Aug. 30	WESTERN NEW MEXICO	1:00 pm
Sept. 6	at Missouri Rolla	1:00 pm
Sept. 13	NORTHWESTERN OKLA.	1:00 pm
Sept. 27	at Chadron State*	1:00 pm
Oct. 4	at Fort Hays State*	1:00 pm
Oct. 11	NEBRASKA-KEARNEY*	1:00 pm
Oct. 18	FORT LEWIS*	1:00 pm
Oct. 25	at New Mexico Highlands*	1:00 pm
Nov. 1	at Mesa State*	1:00 pm
Nov. 8	ADAMS STATE*	1:00 pm
Nov. 15	WESTERN STATE*	1:00 pm

SOCCER

DATE	OPPONENT	TIME
Aug. 29	at Vanguard University	2:00 pm
Aug. 30	at Westminster	1:00 pm
Sept. 3	CU-COLORADO SPRINGS	7:00 pm
Sept. 5	METRO STATE*	7:00 pm
Sept. 7	at Colorado Christian*	2:00 pm
Sept. 12	SOUTHERN COLORADO*	7:00 pm
Sept. 14	REGIS*	1:00 pm
Sept. 19	at Fort Lewis*	3:00 pm
Sept. 26	MIDWESTERN STATE	7:00 pm
Sept. 28	WEST TEXAS A&M	1:00 pm
Oct. 3	TRUMAN STATE	7:00 pm
Oct. 5	at Denver University	2:30 pm
Oct. 10	ST. EDWARD	7:00 pm
Oct. 12	INCARNATE WORD	1:00 pm
Oct. 17	at Southern Colorado*	3:00 pm
Oct. 19	at Regis*	4:00 pm
Oct. 24	FORT LEWIS*	4:00 pm
Oct. 28	CU-COLORADO SPRINGS	3:00 pm
Oct. 31	at Metro State*	3:00 pm
Nov. 2	COLORADO CHRISTIAN*	1:00 pm

VOLLEYBALL

DATE	OPPONENT	TIME
Aug. 29	MONTANA STATE-BILLINGS	2:00 pm
Aug. 29	CAL-STATE UNIVERSITY	6:00 pm
Aug. 30	WAYNE STATE	10:00 am
Aug. 30	ST. MARTIN'S	2:00 pm
Sept. 5	Incarnate Word	9:00 am
Sept. 5	Central Oklahoma	5:00 pm
Sept. 6	Abilene Christian	9:00 am
Sept. 6	Texas A&M Commerce	1:00 pm
Sept. 12	FORT HAYS STATE*	7:00 pm
Sept. 13	NEBRASKA-KEARNEY*	7:00 pm
Sept. 19	Metro State*	7:00 pm
Sept. 20	Colorado Christian*	7:00 pm
Sept. 23	Chadron State*	5:00 pm
Sept. 26	REGIS*	7:00 pm
Oct. 3	Mesa State*	7:00 pm
Oct. 4	Western State*	7:00 pm
Oct. 10	Adams State*	4:00 pm
Oct. 11	Fort Lewis*	7:00 pm
Oct. 17	NEW MEXICO HIGHLANDS*	7:00 pm
Oct. 18	CU-COLORADO SPRINGS*	7:00 pm
Oct. 19	SOUTHERN COLORADO*	3:00 pm
Oct. 24	Fort Hays State*	7:00 pm
Oct. 25	Nebraska-Kearney*	7:00 pm
Oct. 28	COLORADO CHRISTIAN*	7:00 pm
Oct. 31	METRO STATE*	7:00 pm
Nov. 4	Regis*	7:00 pm
Nov. 7	CHADRON STATE*	7:00 pm

Governor Appoints New Advisory Board

The governor of Colorado has appointed 10 members to the new CSM Advisory Board, which will provide advice to the Board of Trustees in their areas of expertise and contribute to the development and enrichment of CSM.

When Senate Bill 01-229 amended the Colorado Revised Statutes, the change included CSM's designation as an exemplary institution. It included authorization to create the Advisory Board. Members, who will serve staggered three-year terms, are representative of national and international industries as well as research and academic institutions. In June members met with the Board of Trustees during its annual retreat.

Advisory Board Members

Nathan Avery '56
Chairman and C.E.O.
Galveston-Houston Company

D. Allan Bromley
Sterling Professor of Sciences and Dean of Engineering
Yale University
Former Assistant to the President for Science and Technology

Bruce Grewcock '76
President, Chief Operating Officer and Director
Peter Kiewit Sons', Inc.

C.L. (Jerry) Henry
Chairman, President and C.E.O.
Johns Manville Corporation

Patrick James '68
Natural resource management consultant
Former President and C.E.O. of Rio Algom

Kristina Johnson
Dean of the Pratt School of Engineering
Duke University

Robert McKee III '68
Executive Vice President of Exploration and Production (Retired)
ConocoPhillips

Ralph Peterson
President and C.E.O.
CH2M Hill Companies, Ltd.

Greg Stevinson
President
Denver West Realty

Richard Truly
Director
National Renewable Energy Laboratory

D. Allan Bromley (left) and Richard Truly

CSM's Nigel Middleton (left) and Kristina Johnson

CSM's Murray Hitzman (left), Patrick James and Ralph Peterson

August

14 Golden Lunch Bunch
Second Thursday of every month. An informal alumni get-together meets at the Buffalo Rose in Golden, Colo., 11:30 a.m.

Denver Mixer second Thursday of every month: Wyncoop Brewing Company, 1634 18th Street, Denver, 5-7:30 p.m. No charge at door, pay own way. RSVP to Janet Blair, 303-273-3295.

15 Houston Section: Miners Luncheon. Details TBA.

21 Lunch in Grand Junction, Colo., third Thursday of every month. Bookcliff Country Club, 2730 G Road, noon. For information call John Howe at 970-242-4903 or Del Tolen at 970-256-1118.

22 College Alumni Night at the Rockies vs. Braves in Denver. Game at 7:05 p.m. Right field mezzanine. $18 per person. Call 303-273-3295 for details.

September

11 Golden Lunch Bunch (see Aug. 14 for details)
Denver Mixer (see Aug. 14 for details)
Houston Section: 5 - 7 p.m.; After Work Social. Assorted appetizers and first drink free, Happy Hour prices for remaining drinks. Farrago, 318 Gray (corner of Bagby and Gray), Houston; 713-523-6404; *www.farrago.tv*

14 Phoenix: Rockies vs. Diamondbacks baseball

18 Grand Junction, Colo., lunch (see Aug 21 for details)

October

09 Golden Lunch Bunch (see Aug. 14 for details)
Denver Mixer (see Aug. 14 for details)

11 Houston Section Mines Alumni Picnic. Details TBA.

16 Grand Junction, Colo., lunch (see Aug 21 for details)

18 Homecoming Parade in Golden

November

08 Phoenix: annual CSMAA Olympics.

13 Golden Lunch Bunch (see Aug. 14 for details)
Denver Mixer (see Aug. 14 for details)
Houston Section: 5-7 p.m. Houston Area Job Networking. Join with other alumni to discuss the dos and don'ts of a job search. What works and what works best. Open to both those looking for a job and those seeking to hire. Discussions coordinated by Chuck Russell '54. Drinks at Happy Hour prices. Farrago, 318 Gray (corner of Bagby and Gray), Houston; 713-523-6404; *www.farrago.tv*

20 Grand Junction Lunch (see Aug 21 for details).

December

11 Golden Lunch Bunch (see Aug. 14 for details)

18 Grand Junction, Colo., lunch (see Aug 21 for details)

January

08 Golden Lunch Bunch (see Aug. 14 for details)

15 Houston Section: 5:30 p.m. Happy Hour at the Outback Pub, 3100 Fountainview at Richmond Ave., Houston. 713-780-2392; *www.outbackpub.com/default.asp*

18 Grand Junction Lunch (see Aug 21 for details)

For the most up-to-date information on what's happening, check the website at *www.alumnifriends.mines.edu* and click on "News and Events"(top of the page). Scroll down to the calendar.

Minutes Online
All CSMAA quarterly board of directors meeting notes and monthly CSMAA executive committee meeting notes are available online at *csmaa.mines.edu/alumni/minutes*. The CSMAA financial statement is also available online in the winter 2003 of *Mines* magazine at *www.alumnifriends.mines.edu/Alumni/mines_magazine/*. Scroll down and click on the edition you'd like to view.

If you do not have Internet access and would like a hard copy of the minutes or the financial statement, call Kathy Breit at 303-273-3295 or 800-446-9488, ext. 3295.

"I want to go to Mines!"

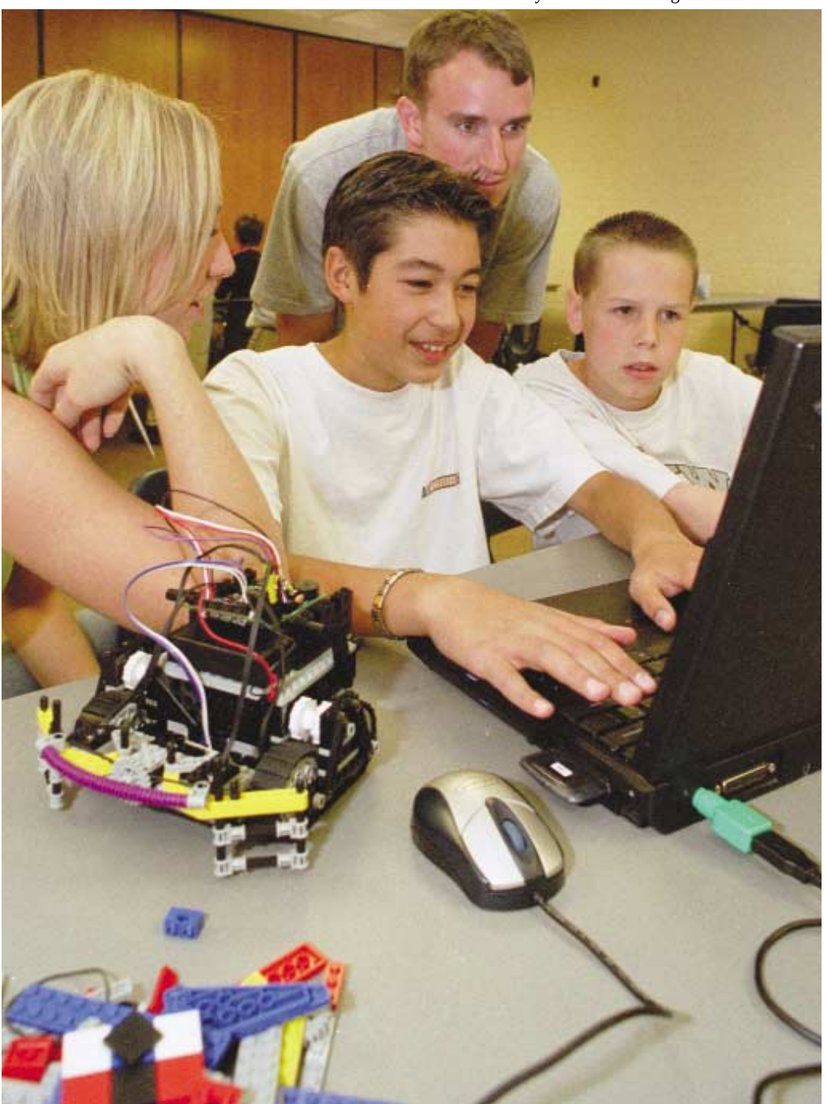
Mines students take kids from Legos™ to algorithms in workshops that teach robotics

By Maureen Keller

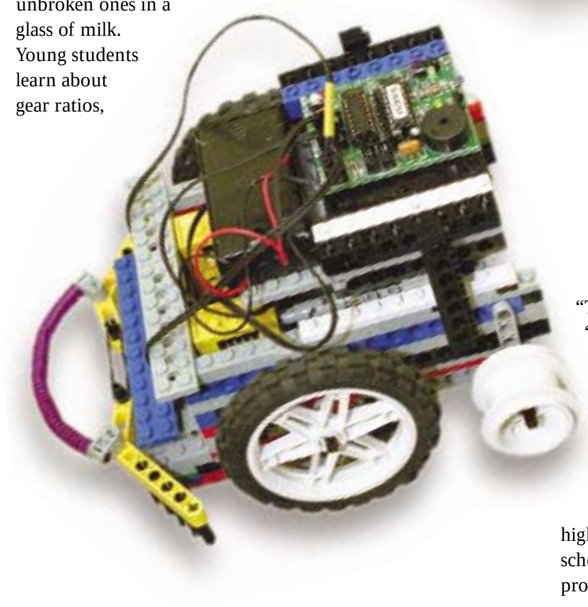
Some of tomorrow's future scientists are already on campus, even though they aren't old enough to drive. Maria Brunhart-Lupo (pictured right), now a Mines sophomore, first attended a class when she was 13. Her brother, Nicholas (left), also a sophomore, was 12. They came to campus to build robots in a Special Programs and Continuing Education (SPACE) learning adventure for middle-school children.

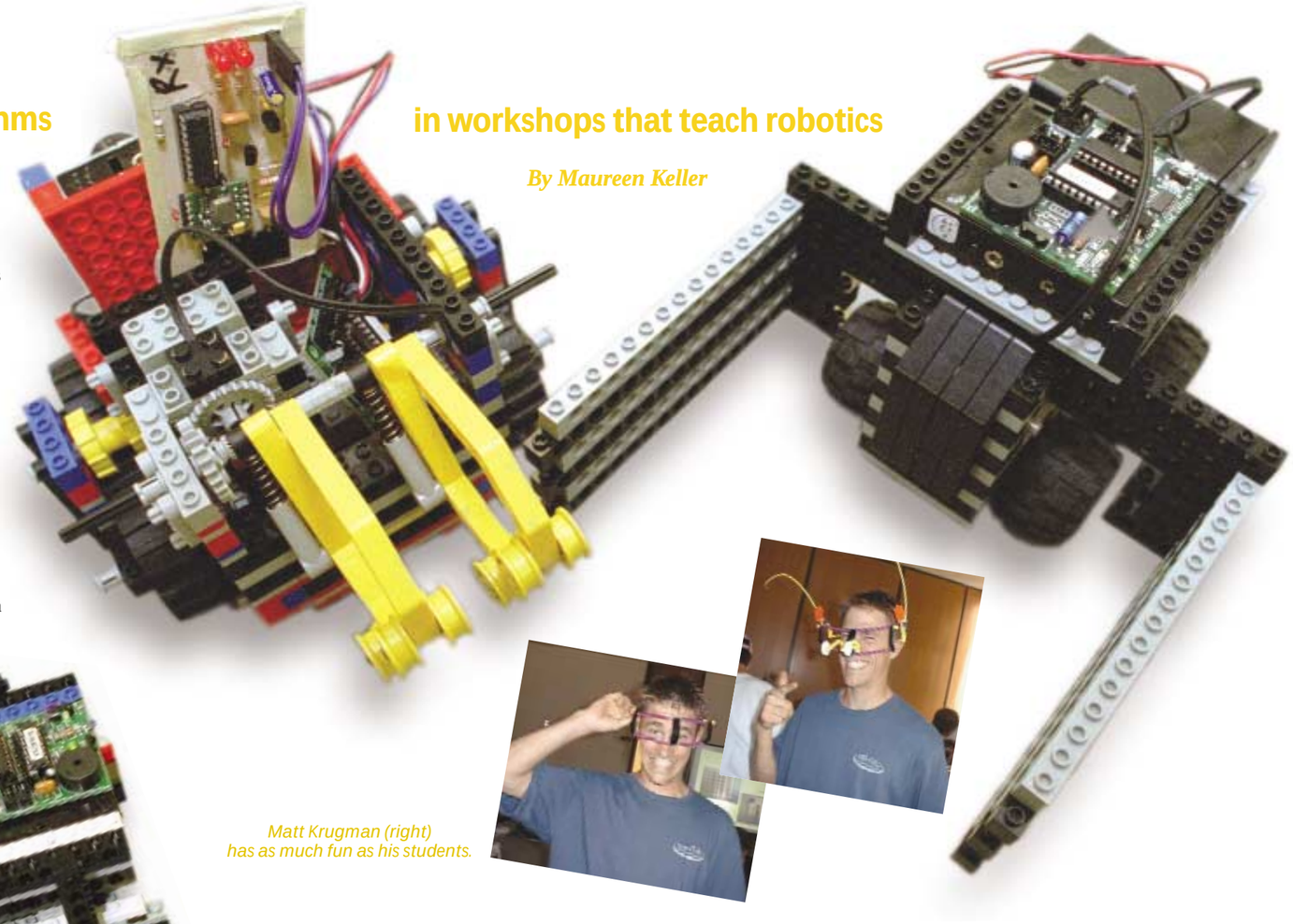
SPACE's Roboweekends introduce sixth, seventh and eighth graders to robotics. The two-day, hands-on courses have kids building robots from Legos™ and programming them to do different tasks. According to **Matt Krugman BSc Eng '01**, who developed and teaches the weekend courses, "The kids are enthusiastic and enthralled. They're just having a good time." They're also learning. They absorb robotic mechanisms, artificial intelligence and engineering fundamentals as if they were rules of a game.

Roboweekends are an extension of the summer Robocamps developed in 1998 by Robin Murphy, CSM assistant professor of mathematical and computer sciences. Krugman began helping out as an assistant at the summer camps while still an undergraduate. As a graduate student, he developed the weekend courses, which are taught once a month during the school year. Each weekend course has a theme, such as Star Wars™ Pod Racer where kids design, build and program a robot to move around an all-terrain obstacle course, or Operation Oreo® Cookie where they design, build and program a conveyor-belt system that detects and separates broken and unbroken cookies and dunks the unbroken ones in a glass of milk. Young students learn about gear ratios, torque, center of gravity, sensors, gears and pulleys, timing and teamwork while having a blast.



CSM electrical engineering students and workshop leaders Karrie Reim and Dave Hutchison look on as Andy Kaczmarek and Ian Davis program their robots.





Matt Krugman (right) has as much fun as his students.

"The demand is there," notes Krugman. "There's nothing else like this in the Front Range." One youth came all the way from California to attend a weekend course because he couldn't find anything like it nearer home.

This summer, Krugman will hold an advanced robotics camp aimed at high school students or advanced middle-schoolers. The focus will be solving problems through computer algorithms.

To keep the program on-going after he leaves Mines, Krugman turned Roboweekends into a two-semester senior design project. "The first semester I taught the seniors how to teach the courses. The second semester they improved on what I'd taught them. It worked fantastically." Now, each second-semester group will train the first semester group so the program can perpetuate itself. Krugman's efforts were so successful his students won first place in the senior design competition. "I was really proud of them," he says.

In addition to encouraging an early interest in math and science, the camps also foster an interest in the School. "We want to come to Mines!" is a common refrain heard from the youngsters as they successfully wrap up their projects.

Junior high students Tyler Glenn, Kevin Brugh and Leigh Martin discuss their projects with each other.

New Honor Code Sets Student Standards

Preamble The students of Colorado School of Mines (Mines) have adopted the following Student Honor Code (Code) on the date written below in order to establish a high standard of student behavior at Mines. The Code may only be amended through a student referendum supported by a majority vote of the Mines student body. Mines students shall be involved in the enforcement of the Code through their participation in the Student Judicial Panel.

Code Mines students believe it is our responsibility to promote and maintain high ethical standards in order to ensure our safety, welfare, and enjoyment of a successful learning environment. Each of us, under this Code, shall assume responsibility for our behavior in the area of academic integrity.

As a Mines student, I am expected to adhere to the highest standards of academic excellence and personal integrity regarding my schoolwork, exams, academic projects, and research endeavors. I will act honestly, responsibly, and above all, with honor and integrity in all aspects of my academic endeavors at Mines.

I will not misrepresent the work of others as my own, nor will I give or receive unauthorized assistance in the performance of academic coursework. I will conduct myself in an ethical manner in my use of the library, computing center, and all other school facilities and resources. By practicing these principles, I will strive to uphold the principles of integrity and academic excellence at Mines. I will not participate in or tolerate any form of discrimination or mistreatment of another individual.

The Associated Students of the Colorado School of Mines (ASCSM) passed the new CSM Student Honor Code in a vote held in March 2003.

Cooley '00 Repairs War-Damaged Planes

Editor's Note: Cooley was interviewed at the start of the Iraqi war.

W. Glenn Cooley BSc Eng '00, one of the first graduates of CSM's Air Force ROTC

program, is repairing airplanes in Southwest Asia in support of the war in Iraq. He is stationed at Hill Air Force Base in Ogden, Utah, and his job there is to maintain older aircraft. "I do mechanical engineering projects on the T-37, T-38, F-4, F-5 and many older aircraft we have sold to foreign countries," Cooley says. "With the exception of the T-37 and T-38, the U.S. Air Force does not fly the planes I work on. However, we still support them as long as foreign militaries fly them. Most of my time is spent finding aircraft parts, improving the life of our parts, finding solutions to outdated technology, and sustaining aircraft that were fielded in the late '50s."

Now that the country is at war, Cooley has been deployed to Asia where he is attached to the 649 Combat Logistics Support Squadron, which repairs F-16, A-10 and F-117 aircraft damaged in combat. "The goal is to rapidly restore a battle-damaged aircraft to flying status using nontraditional repair techniques. That aircraft can then either return to the fight or ferry back to Hill AFB for permanent repairs," he says. "My team is capable of performing very involved repairs that are outside the capability of the maintainers assigned to the aircraft."

Cooley's team repairs the F-16 Fighting Falcon and his specific job is to design repairs for damage that falls outside the realm of technical orders that dictate specific repairs for specific regions on damaged aircraft. Typically, Cooley designs repairs for structural damage. "I find most of my engineering expertise applied to repairing either aircraft skin or the support structures (L, T, J angles, etc.). I work very closely with the technicians to ensure my design is feasible to be installed." Cooley adds that CSM more than prepared him for his duties. "My Mines education has given me the knowledge to perform repairs that are quite complicated," he says.

When Cooley first arrived in Asia late February, he lived in a hangar with about 200 others and a K-9 unit. After three weeks, some housing became available and now he shares a 45-foot by 15-foot trailer with 13 others. "We are located right next to the flight line so we constantly hear (and feel) the roar of the jets taking off. It is quite the sight to see – one that makes the hair on your neck stand up and a shiver of pride shoot through your body."

Cooley says the morale at his base is good and improving with the addition of amenities such as a ping pong table, foosball and a big-screen TV. The chow halls serve American-style food with a Middle Eastern influence. "Some days it is good; others it is simply edible," he says. "The host nation has been very supportive in our efforts to defend the American people, eliminate Iraq's weapons of mass destruction and to liberate the Iraqi people," he adds. "One of our objectives is to end the regime of Saddam Hussein by striking with force on a scope and scale that makes clear to Iraqis that he and his regime are finished. Each person at this wing is helping to support that national objective, from the pilots flying the aircraft to the person driving the bus to the medical personnel taking care of the base populace. Each person plays a very important role achieving our objective."

Technology and the Positive Impact It Can Make

Commencement Address, May 2003
By The Lord Browne of Madingley

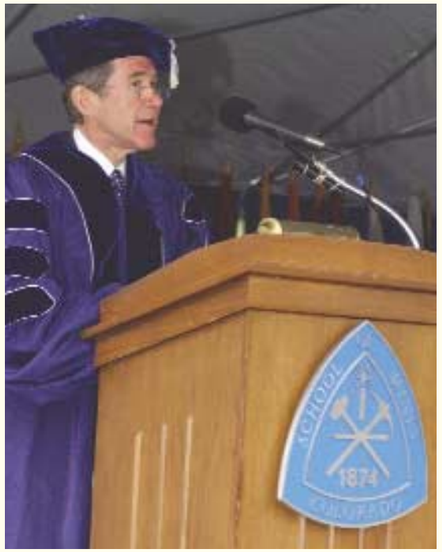
The Lord Browne of Madingley, group chief executive of BP, the world's second largest oil company formerly known as British Petroleum, traveled from London to deliver the keynote address at the Mines commencement ceremony May 9.

Mr. President, Ladies and Gentlemen.

It is an enormous privilege for me to be here today to speak to the graduating class.

It is a privilege as someone who began their working life as an engineer – a petroleum engineer working on Prudhoe Bay in Alaska. It is a privilege as someone who has long admired this school as one of the finest academic institutions in this country or any country ... and it is a privilege because it allows me to share your day – one of the best days of your life.

This school has a wonderful history and a global reputation for excellence. We in BP have benefited directly because over the years we've recruited some wonderful people from here who've helped us to advance the frontiers of our business.



Those alumni have brought to us great technical skills, a tremendous dedication and a determination to push the limits of the possible – to do things which other people dismiss as impossible.

Most important of all though, they've brought the values on which this school is founded.

Nothing summarises those values better than the mission statement of the School which, if I may quote selectively, says that you are:

"dedicated to educating students about the discovery, recovery and utilisation of the Earth's resources, and the economic and social systems necessary to ensure their prudent and provident use in a sustainable global society."

You are "consequently committed to serving the global community by promoting stewardship of the Earth upon which all life and development depend."

Those are not accidental words. They are very deliberate, and very distinctive for an institution working in these areas. They reflect a high ambition – and that's probably why they have such an impact on the people who pass through these doors.

As a company we share that vision and I think it is worth examining why. Why should any company think in terms of responsible stewardship? Isn't any business just business … just making money – as much of it as possible? Isn't that what all shareholders want?

Companies do exist to make money – and there's nothing wrong with that. We create wealth for those who invest in us, we create jobs and income for our staff, and we create wealth for nations and local communities by developing resources.

Though it isn't a target in our planning we are one of the largest tax payers in the world, and those taxes fund a great many other activities and public services.

We're also one of the largest single funders of pensions in the world because our income paid out through our dividends helps to meet the needs of millions of pensioners around the world.

So we need to make money.

But we have one defining characteristic which draws our objective close to the mission of this school.

We exist for the long term. The profits we are making now are based on the investments we made – in Alaska and the North Sea and elsewhere forty years ago.

The investments we're making now in the deep water Gulf of Mexico, in Russia, in Trinidad, in the Caspian and elsewhere will provide income over decades to come.

And we are a long-term business in other senses as well. We serve some 14 million customers everyday – in no case do we want that transaction to be the last transaction. We want to keep supplying the needs of those customers and more. And that means that every transaction is part of a long-term relationship.

If you live for the long term, you think differently. That is true for an individual, for a school, for a company.

If you live for the long term, you care about the relationships you are building, you care about the impact of your activity, and you care about the health of the society in which you operate. Because in all those cases if you didn't care, and didn't act on the basis of that care, the world in which you were working would turn against you.

And that is why we share your commitment to the responsible stewardship of the natural environment.

As we look ahead, leaving aside the day to day events and focusing on the underlying trends, we see a growing demand for at least the next twenty to thirty years for hydrocarbons – for oil and gas.

That is driven by the combination of population growth and the gradual spread of prosperity.

The world's population will be almost 7 billion by 2008. And while there are still hundreds of million of people living in poverty around the world, more have been lifted out of poverty over the last two decades than in the five hundred years before that.

That means that more and more people want and can afford to buy at least some of the things we all take for granted – heat, light and mobility – and in the absence of commercially viable alternative sources of supply, that means oil and gas.

So a great growth industry. But an industry with a challenge. Because unless things change, that growth in consumption will lead to growth in the emissions of greenhouse gases to a level close to the point of danger, according to all the serious scientific studies.

There are various reactions to that reality.

"If you live for the long term, you care about the relationships you are building, you care about the impact of your activity, and you care about the health of the society in which you operate."

Some say that is an issue for the next generation – let them solve it.

Some deny the science, or wait for science to find the absolute truth.

I don't think either approach is acceptable. Not on moral or intellectual grounds and not on business grounds – because we define our objective to be a thriving company which can make money for its shareholders not just this quarter or this year but over the next 200 quarters – the next 50 years.

A long-term business has to respond to long-term challenges. We can't pretend they don't exist, and we can't pretend to be waiting for absolute scientific proof when we know that in every other area of activity we respond to risk in conditions of partial uncertainty.

What can a single business do?

Of course we can't do everything. That must be true for a school like this as well. But equally, we can't do nothing.

We've begun to do a lot of things, and so have many other companies in other sectors. I'll concentrate on BP, because that's all I'm really qualified to talk about.

We were the first oil company to recognize that something had to be done about the growing volume of emissions of greenhouse gases and that as a company we ourselves had to do something. We recognize that it would be wrong to wait until the problem overwhelmed us all, and equally wrong to wait for someone else to take action.

Because of that judgment, we set ourselves an objective.

To reduce our emissions by ten percent from a 1990s base line.

We've met that initial objective and now we're determined to sustain that reduction even as we grow.

We believe that can make a contribution to the stabilization of emissions at a level of concentration which is safe – a level below that at which the balance of scientific evidence suggests there would be danger.

The reduction we've achieved so far hasn't come from a single step. It has come from a multiplicity of actions taken by different teams across the company, and throughout the world.

■ We've minimised the flaring of associated natural gas.

■ We've systematically reduced leaks and wastage along our pipeline network worldwide.

■ We've improved the quality of fuels – taking out lead and sulphur and benzene.

■ We're working with the automakers to improve the efficiency of fuel use by combining the latest advances in fuels, in lubricants and in engine technology.

■ We're helping to shift the fuel mix – increasing the availability of natural gas which when consumed produces at least a third less carbon for every unit of energy generated.

■ We're using emissions trading to find the most cost effective way of getting to the target – applying the right resources in the right places.

■ And then we're looking further ahead, researching and beginning to develop the alternative fuels which one day, decades ahead will provide significant sources of energy for the world.

All those are long-term steps. Some are experimental. In some cases we're applying existing best practice across a range of global operations; in others we're pushing the frontier of knowledge and doing things which have never been done before.

The remarkable thing about all the actions we're taking is that they all rely on technological development. It is clear that progress in responding to the challenge of climate change will come through the sort of advances made here and at a very small number of comparable institutions.

That is why institutions like this are so important.

Now I know that it is fashionable in some places to say the U.S. doesn't care about these issues, and doesn't care about the environment.

I've never found that to be the case. Of course, there are many different views but I think there is a very widespread and powerful belief in this country that the answer to a problem – almost any problem - lies in technology.

In this case I share that view. The progress we've made in reducing emissions and in understanding how we can stabilize emissions at a level which should be safe comes back to technology, most of which has originated here in the United States.

"When you carry the rock up Mount Zion, that is a mark of commitment – to the school and to its ideals. But it isn't the end of the process. Now you have your chance to do something more. To make a difference."

And the challenge now is both to pursue the advances that are being made, and to ensure that the advances already made can be applied around the world.

This is not a problem which will be solved country by country. Science doesn't recognize national borders. It is a global challenge, and we need a global answer.

Of course, we can't know precisely how the challenge will be met.

We don't know how much we can achieve by the various steps

we're taking, though it is perhaps fair to say that we're likely to achieve more than if we did nothing.

There is no single answer to the challenge of climate change – but that's a good thing because it means there is scope for innovation and creativity across a wide range of activities. Everyone can do something.

And I suppose that is my message to you today.

You have become a graduate from a great school. That gives you a tremendous opportunity but also a responsibility. The people who founded this school, back in the 1870s, and the people who have fostered its growth and development did so for a purpose. Their purpose – expressed most vividly in your mission statement I quoted earlier – was to use their skills, and to develop *your* skills in order to improve the stewardship of the world's resources.

You now carry that responsibility forward.

There are daunting challenges, and no one – no individual and no company can do everything. But we can all, as individuals, do something. And, of course, the most interesting thing, the most satisfying thing is to do the things you believe you cannot do.

"When you carry the rock up Mount Zion, that is a mark of commitment – to the school and to its ideals. But it isn't the end of the process. Now you have your chance to do something more. To make a difference."

I can think of no better advice on this commencement day than the words of a great American poet ... "Dare, be bold for what you believe in, dare and dare again."

You have my very best wishes for your future.

Thank you.

"There are daunting challenges, and no one – no individual and no company can do everything. But we can all, as individuals, do something."

Staying connected

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Gulf Coast

Houston

CSMAA Houston Section is proud to announce it has reached the endowment level for two Houston-area preference scholarships—one athletic- and one academic-based. Many thanks to the key organizers for the third year: **George Puls BSc Min '75**, **Dean Stoughton BSc Math '75**, **MSc Geop '78**, and **Kim Harden BSc Met '74**. CSM faculty and athletic representatives traveled to Houston for the tournament. Thank you to our many individual and corporate sponsors for this three-year period. Pictured top right from left are the committee and the hole-in-one winner: Puls, Harden, **Doug Woodul BSc Pet '78** (winner) and Stoughton.

Southwest

Phoenix, Arizona

Many Miners enjoyed the annual pig roast at the home of Kathy and **Leon Munyan BSc Min '76** in April.

Central

Tulsa, Oklahoma

Barry Quackenbush PE '65 hosted a picnic and reception for President John Trefny at his ranch southwest of Tulsa in May.

Metro Denver

Golden, Colo.

The Society of Automotive Engineers and Mines alumni brought their vintage or specialty cars for a Saturday showing during E-Days in April.

Reunion 2003

◀ **Class of 1943**
Front row from left,
Archie Carver, Tom Cole, Peter Burnett, Ted Stockmar, Carl Lomax, Bill Holtman, Rit Burrows.
Back row from left,
Ed Rugg, Dick Deneke, Richard Van Horn, Doug Grobecker, Bill Roberts, Dave Coolbaugh, Bob Greider, John Gabelman, Richard Dewey.

Thirty states and five foreign countries were represented at the 2003 class reunions held in May. **Jamie Parry BSc Pet '93** and his wife, Meg, traveled the furthest, from Indonesia, although **Al Sabitay Geop E '53** was a close second, coming from Australia. The other foreign countries represented were French Guiana, Canada and Mexico.

The oldest person to attend this year was 90-year-old **Fritz Weigand PE '39**. Eighty-seven-year-old **Bob France PE '36** drove himself and wife, Marie, from California to attend the celebration. As usual, the largest class was the 50-year reunion class, 1953, with 57 alumni in attendance.

In all, approximately 240 alumni and 160 guests attended one or more of the 27 dinners, breakfasts, tours, open houses and events planned by the Association and the School during the four days of reunion. The reunion classes raised a record $4.9 million for the annual fund.

▲ **Class of 1948**
Front row from left,
Daniel Pavone, Norm Domenico, William Cutler, Don Craig, Tony Corbetta, Jack Haley.
Back row from left,
Lee Mathews, Sam Sandusky, Al Ireson, Roy Carlson, Art Lankenau, Robert Seklemian, Les Truby, George Bodine.

Class of 1953 Reunion
Covered on page 36

◀ **Class of 1958**
Front row from left,
Gerry Grimes, Hershal Ferguson, Ron Schubert, Olin Whitescarver, Jim Mollison, Dan Bench, John Hamlin.
Back row from left,
Bill Preston, Ian Achong, Bob Barker, Bob Pearson, Stan Hadley, David Waring, Bill Wahl.

▲ **Class of 1963**
Front row from left,
Rod De Luca, Paul Mathias, Roger Phillips, Art Pansze, Bob Pond, Dan McFadden, Marv Kay and Gene Adams.
Back row from left,
Dennis Floyd, Bob Steele, Ron Lease, Fred Hilterman, Joe Furman, Jim Gustafson, Hildy Frost, Chuck Speltz, Don Bennett, Dyke Howell, Carl Edstrom, Warren Andrews, Clark Wollenweber, Earl Jaynes.

▲ **Class of 1968**
Front row from left,
Bob Irelan, Ed Church, Fred Schulte, Jack Hayes.
Back row from left,
Bob Burnham, Randy Touslee, Bob Larson, Harold Korell, Joel Mascitelli, John Walker, Ron Ciarallo, Howard Holcombe.

▶ **Class of 1973**
Front row from left,
Michel Julliand, Alan Gadberry, Ted Lewtas, Jim Green, Fred Limbach, Bill Bartow.
Back row from left,
Tom Haycraft, Rob Reeves, Eugene Clower, Charlie Putman, John Danio, Tom Huzzey, Joe Huck.

▶ **Class of 1978**
Front row from left, Stephen Rasey, Philip Saletta, Hal Miller, Eileen Colleary, Mike Norred, Billy Harris, Craig Camozzi.
Middle row from left, Mike Schumacher, Shelley Wolf.
Back row from left, Murphy Hannon, Chris Roberts, Joseph Kuchinski, Richard Jolk, Richard Mark Dickson, Stephan Ice, Miles Barrett, George Newman and Jeff Sattler.

▲ **Class of 1983**
Front row from left, Tim Albers, Thomas Nickoloff, Darien O'Brien, Thomas Young, Darrell Dinges.
Middle row from left, Laurence Israel, Mary Pott, Cathy Mencin.
Back row from left, Dan Collins, Mike Nagorka, John Farrell, Bill Pedler, Peter Hagist.

▲ **Class of 1988**
Front row from left, Paul Morehead, Amber Morehead, Anita Gebbie-Deisch, Deborah Simpson.
Back row from left, John Schwartzberg, David Wertz, Randall Reddig, Scott Sammons, Keith Davidson.

▲ **Class of 1993**
Front row from left, Reeda Baturevich, Troy Gorrell, Julie White, Robin Simmons, Jeff Gilmore, Wes Dickhut.
Middle row from left, Kevin Kelly, Wendy Krutka, Kirsten Dickhut, Denise Dihle, Chad Soliz.
Back row from left, Dan Simpson, Chris Settje, Tim Toussaint, Joseph Skaggs, Nelson Tusberg, Steve Trembly, Jamie Parry, Andy Baturevich, Bryan Roberts.

Class of 1953
50-Year Reunion
May 2003

Many members of the Class of 1953 returned to an unseasonably chilly Mines campus to celebrate their 50-year reunion. At the annual 50-year reunion breakfast, President Trefny applauded the class for their professional accomplishments and their many contributions to modern life. On a lighter note, he pointed out the ironic coincidence that on their graduation day in 1953, a day marking the culmination of years of hard work and toil, Edmund Hillary and Tenzing Norgay arrived at the top of Everest for the first time. In addition to the president's speech, a slideshow of the class members' days at Mines accompanied breakfast.

President Trefny presented commemorative diplomas to each member of the Class at their class dinner Friday evening instead of at commencement ceremonies due to inclement weather. The silver plaques inscribed with gold recognize the class' loyalty and dedication to the School over the past 50 years.

The 2003 Reunion Giving Program raised almost $4.9 million for the School—the largest reunion gift in the history of Colorado School of Mines.

Names are listed left to right, Row 1 (seated on floor): *Carl (Fritz) Krueger, Bud Wreaks, Jerry Bryant, Al Sabitay, Bill Burpeau, Bob Kerwin, John Beers, George Mitchell, Ed Hunter, Peter Yurcisin, Gene Kaefer, John Neff* ***Row 2:*** *Tom Ryan, Paul Hinrichs, Tom Rollins, Bob Kendrick, Roger Peck, Ray Peluso, Fred Schwartzberg, Edgar "Bo" Turner, Raymond McGraw, Harry McLeod, Jr., Fran Mueller, Jim Curzon, Vern Adams, Ken Meitz, Eugene O' Brien* ***Row 3:*** *J. Paul Bacca, Dunston "Dusty" Boyd, Jorge E. Castillo, W. Gordon Wieduwilt, George Minick, George Freeland, Abelardo Trevino, Dick Erdman, Phinn Townsend, Ian Mackay, Leslie E. West II, David Brown, Don Quam, Harold Hoak, Doug Jung* ***Row 4:*** *Darrell Beckley, Tom Wyman, John Witt, Don Miller, S. Peter Bickley, Franklin D. Wicks, Fred Meissner, Charles Tyler, Tom Reagan, Dick Banks, Guy Towle, Bud Rebeck, Jack Parkin, Charles O. Parker II*

Mines Acknowledges Corporate and Foundation Donations

Colorado School of Mines received gifts of $25,000 or more from the following corporations and foundations between Sept. 1, 2002 and May 31, 2003. Acknowledgements for individual gifts since the last issue of *Mines* will be included in the fall issue.

Anadarko Petroleum Corporation's gifts, totaling $42,500, are in support of the Geology and Geological Engineering Department, the Geophysics Department, the Petroleum Engineering Department, and the School's Society of Petroleum Engineering (SPE) student chapter.

The **ARCS (Achievement Rewards for College Scientists) Foundation** contributed $30,000 toward scholarships for six students.

The **Burlington Resources Foundation** contributed $25,000 to support the Petroleum Engineering Department.

Caterpillar donated a patent titled "Process for Reducing Defects in Arc Vapor Deposition Coatings." In addition, Caterpillar contributed a cash gift and laboratory equipment to assist with the maintenance costs and research related to this patent.

ChevronTexaco contributed $120,000 to benefit several academic departments, student groups, scholarships, the WISEM (Women in Science, Engineering, and Mathematics) program, and the Minority Engineering Program.

The **Adolph Coors Foundation** contributed gifts totaling $416,720 toward the Herman F. Coors Professorial Chair in Ceramics, the William K. Coors Distinguished Chair in Chemical Engineering, and minority scholarships.

The **Viola Vestal Coulter Foundation** gave gifts totaling $108,000 to support the following: the Coulter Chair in Mineral Economics, the William Jesse Coulter Instructorship in Mineral Economics, the Viola Vestal Coulter Instructorship in Mineral Economics, the Mineral Economics Professional Development Fund, the Mabel M. Coulter Student Health Center, Viola Vestal Coulter Foundation Graduate Fellowships, Viola Vestal Coulter Foundation Undergraduate Scholarships, and William J. Coulter Outstanding Undergraduate/Graduate Stipends.

Environmental Resource Associates is supporting the Environmental Science and Engineering Division with grants totaling $45,513.

ExxonMobil Corporation contributed gifts totaling $25,000 to several academic departments and the Minority Engineering Program's Preparation for Engineering Program (PREP).

Hazen Research continues its support of the Hazen Research Professorship in the Department of Metallurgical and Materials Engineering with gifts totaling $28,425 this fiscal year.

The **William and Flora Hewlett Foundation** contributed $328,500 toward its $1,167,000 grant for humanitarian engineering program development.

Infiltrator Systems contributed gifts totaling $166,669 to support Dr. Robert L. Siegrist's research and educational activities in the area of on-site and alternative wastewater technologies.

The **Li Foundation** contributed $42,000 for the 2002-2003 Li Foundation Fellowships.

The **Phelps Dodge Foundation** contributed $50,000 to the Phelps Dodge-Ansell Endowment for Excellence in Mining Engineering.

The **Shell Oil Company Foundation** contributed $137,504 in 2002 for departmental support, the Career Center, the Minority Engineering Program's Preparation for Engineering Program (PREP), and minority scholarships through the Shell Incentive Fund.

The Edna Bailey Sussman Fund contributed $26,200 to support its Environmental Internship Program at the School.

The Steve Gruver Memorial Scholarship

Donations totaling $100,000 have been received from **ENSCO International Inc**. and **The Lee Matherne Family Foundation** to establish *The Steve Gruver Memorial Scholarship*. Steve Gruver '82 was piloting his own twin-engine Beech Baron when it went down shortly after takeoff last September at an airport in New Hampshire. Steve was traveling with his wife, Julia, his three daughters, and his parents-in-law, George and Julia Coyle of Charleston, W. Va. There were no survivors from the crash.

Steve was vice president and general manager of North American offshore operations for ENSCO, where he had worked for 15 years. In addition to the corporate donation of $50,000, which was unanimously authorized by an official resolution of the company's board of directors, private donations were received from colleagues and friends totaling more than $40,000. Steve was a close friend and business associate of Lee Matherne, whose family foundation donated $50,000 to the Scholarship. Steve graduated from Mines with a degree in petroleum engineering in 1982. Anyone wishing to make a donation to the Steve Gruver Memorial Scholarship may contact Rod McNeill at 303-273-3161.

In memoriam

John H. Baker EM '35 of Alpine, Texas, died Dec. 30. He was 93. Baker was a mining engineer and began his career at Rio Tinto, Nev. He then served in the U.S. Army in North Africa and the Pacific Islands as a lieutenant colonel. After World War II, he continued his mining career in Bonanza, Utah, in a gilsonite mine, then moved to Salt Lake City. Later he was a mining consultant and in 1965, moved to the Texas Mercury Mine in Terlingua. In 1970 he retired and bought the Study Butte Motel and Café. He and his wife moved to Terlingua Ranch before moving to Alpine in the late 1980s. He was preceded in death by his wife, Lillian, in 1993. Baker is survived by a daughter, two grandchildren, 11 great-grandchildren, and one great-great-grandchild.

Carl Thorsten "Thor" Brandt EM '43, of Tulsa, Okla., died March 23 at age 84. During World War II, he served in the Pacific with the U.S. Navy. Brandt was a recognized expert in underground mining and strategic petroleum storage and held

registered patents in solution mining of salt domes for liquefied petroleum storage. During his professional career, he worked and traveled internationally as a consulting engineer and retired as executive vice president of Fenix & Scisson Inc. Brandt was known to his family and friends as a fair, kind and honorable man. His sharp wit, engaging personality and curious intellect were reflected in his optimistic zest for life. He was an avid golfer and a member of Boston Avenue Methodist Church and Oaks Country Club. He is survived by his widow, Elizabeth, three sons, two grandchildren and one great-grandchild. His first wife, Lorene, preceded him in death.

Anthony G. "Tony" Dempster EM '58, a strategic planner and engineer who twice managed his wife's successful campaigns for family court judge, died of liver cancer March 24 in Houston. He was 71. Trained as a mining engineer, Dempster turned to transportation and marketing and ultimately to long-range planning, speech writing, public affairs and public relations work. He worked for Shell Oil Company for 23 years. After retiring in 1989, he joined Texas A&M University as executive director of strategic planning.

In 1994 he retired for the second time. Dempster split his education at Mines by serving two years in the Army in between. While working in Salt Lake City for a mining company, he met his future wife, Georgia, and they were married in 1961. In 1964, he earned a master's degree in business from Massachusetts Institute of Technology. In addition to his widow, he leaves a son, a daughter, a brother and a sister.

M. Parke Huntington PE '26 died March 23 at age 97. While at CSM, he was a

member of Sigma Phi Epsilon and worked in the kitchen to pay for his board and room. He was also active in school functions, was on the football team, and made good grades. After graduation, Huntington was employed until retirement by the oil and gas production arm of the Standard Oil Company of Indiana, now BP Corporation. He had a varied and interesting career. After retirement, he remained active in community, cultural and church activities until he reached the age of 90. Huntington was a member of the Society of Petroleum Engineers, the Tulsa Geological Society, the Oklahoma and Colorado Historical Societies and the nationwide Huntington Family Association, in which he served several terms as an officer.

M.C. Irani MSc Met '42, 86, died of a heart attack while walking his dog in Severna Park, Md. His head fell into a bed of flowers, said his son Phillip. An Iranian born and raised in India, Irani earned his undergraduate degree from the Indian School of Mines before immigrating to the United States. He also earned a master's degree from Denver University and another from Johns Hopkins School of Advanced International Studies. "He liked to live on the edge," his son reports. In 1939, Irani left Poland and entered Russia one day before the Nazi invasion of Poland. He was also a figure skater who met his wife, Shirley Henning, at the skating rink. Their

30-year marriage ended in divorce. Irani worked for many years for the U.S. Bureau of Mines and was perhaps best known for his work on a bureau experiment to stop uncontrolled fires in abandoned coal mines. He also designed high temperature furnaces. Irani held five patents in paint and steel manufacturing. He founded the Zoroastrian Association of Pennsylvania and studied Persian and Russian. He was fluent in Gujarati, Ourdu, Hindi, French and English. He helped half a dozen children escape from Iran by adopting them and enrolling them in school. Irani is survived by two sons, a daughter and one grandchild.

Gerald E. "Jerry" Manning MSc Chem '62 died Feb. 24 at his home surrounded by family and friends. He was 67. After graduation from Mines, Manning had a 22-year career with Aramco as an analytical chemist. During that time he developed programs for air pollution sampling and analysis, industrial health and industrial toxicology. He then decided to pursue his passion for geology and started a small business with his wife, Peggy, called Mid Continental Minerals, selling minerals and crystals and amassing a large private collection. By 1985, MCM was turning a healthy profit by specializing in tourmaline when prices were low and the market was beginning to catch fire. To his associates on the tradeshow circuit, he was unofficially dubbed the "tourmaline king." He also named the brilliantly blue tourmaline "peacock blue." Manning enjoyed visiting the mines and braving the dangerous conditions in the sometimes lawless, remote reaches of the Brazilian territories. He was fascinated with and most happy crawling through caves looking for the source in a region that he equated to the "wild, wild west." In 2000, he sold his successful business and retired. Manning is survived by his widow, two sons, four grandchildren and two great-grandchildren.

Robert Phelps, an honorary member of the Alumni Association, died Jan. 9 at age 96. He taught at CSM for 13 years and also coached the ski team. Phelps earned an undergraduate degree from University of New Hampshire and a PhD in chemistry from Penn State.

A. Thomas Sinclair Geol E '40 died March 16 in Oklahoma City at age 85. He was born in Wyoming, but raised in Limon, Colo., and had been living in Oklahoma since 1947. Sinclair married Patricia Vickers in 1942 before leaving for active duty as a pilot in World War II. His plane went down while transporting supplies from India to China in a part of the Himalayas known as "the hump." He survived and was awarded the Distinguished Flying Cross. After an honorable discharge at the rank of captain, he moved to Kansas for three years before moving to Oklahoma City and worked for Vickers Oil. In 1958 he opened his own office and worked in the oil business for 40 years. "Everybody liked Tommy," said his widow. "He didn't have an enemy in the world." Sinclair loved all kinds of music and was an ardent supporter of the Oklahoma City Philharmonic. In 2000, he and his family traveled to the Orkney Islands off the coast of Scotland where Sinclair's grandfather lived before immigrating to the United States. Sinclair is survived by his wife of 60 years and numerous other relatives including 14 grandchildren and 8 great-grandchildren.

Robert Van Strain PE '64 of Naperville, Ill., died April 27 at the age of 61. Strain grew up in the La Junta, Colo., scouting organization and earned his Eagle Scout award in 1957. He was active in Koshares and was elected head chief of the Sioux Clan. In addition to his Mines degree, he held a master's degree from Iowa State University. He was employed for 35 years as a metallurgical engineer at Argonne National Laboratory. Strain is survived by his widow, Linda, two sons and a brother.

Richard Wheeler Jr. PE '56 died March 26 at age 68. At Mines, he was a member of Kappa Sigma and the football team. Wheeler spent 47 years in the petroleum industry in Oklahoma, first working for Teneco in Oklahoma City, then forming his own company. He also worked as an independent oil producer and consultant. He drilled several deep wells including Oklahoma's deepest at the time. Wheeler loved thoroughbred horses and owned and raced them since 1974. He was active in trying to improve the development of quality thoroughbreds in the state. He was an active member of the Horsemen's Benevolent and Protective Association and served on its board of directors. He also was a member of the Oklahoma Thoroughbred Association. Wheeler married Rebecca Rice in 1988. In addition to his widow, Wheeler is survived by a son, a daughter, two stepchildren and five grandchildren.

Also in Memoriam

Joseph P. Crompton Met E '40 3/11/00

Arthur W. Heuck EM '36 3/11/03

George W. Hoffman Jr. PE '48 3/24/03

M.C. Redmond PE '54 2/07/03

Eugene E. Ruley Geol E '43, MSc Geol E '52 2/01/03

Thomas P. Turchan Met E '35 12/30/02

Sam E. Walthall PE '67 2003

1940

Perry K. Hurlbut Geol E, retired in Midland, Texas, is doing research correlating the Earth's magnetism with earthquakes that measure greater than 4.5 on the Richter scale in the United States and more than 5.5 around the world. He has built a simple device that measures changes in the Earth's magnetism.

1948

Gordon Miner EM and his wife, Marj, will be inducted into the Mining Hall of Fame in September in Leadville, Colo. They will be honored for their work in getting the museum started.

1951

John W. Carey Geop E is a board member for Funding Associates in Denver.

1954

Frederick M. Fox Jr. Geol E is retired in Arvada, Colo.

Samuel L. McClaren PE is retired in Tucson, Ariz.

1958

Gordon W. Bruchner Geol E is a part-time special projects engineer for the city of Anacortes, Wash.

1959

Duane I. Graham PE is a consultant for Graham Consulting Company in Houston.

1961

Wayne R. Andrews Met E is retired in Burnt Hills, N.Y.

James L. Cox Geol E is retired in Englewood, Colo.

1963

Phillip M. Beatty Geop E, MSc Min Ec '86 is a partner for the Axiom Group in Bixby, Okla.

Michael J. Cruickshank MSc Min is president of MMTC Associates in Honolulu.

Donald D. Snyder III Geop E, DSc Geop '68 is president of Snyder Geoscience Inc. in Tucson, Ariz.

James A. Wood Geop E is an independent consultant for JAW Consulting in Houston.

1964

A. David Alcott Geol E is principal and project manager for MACTEC Engineering & Consulting of Georgia Inc. in Kennesaw, Ga.

1966

Richards C. Thomas EM is president of the Teak Experience Company in Bonita Springs, Fla.

1967

Richard C. Clark Chem E is a product development and technical services manager for Superior Lubicants in Tonawanda, N.Y.

Charles C. Hanebuth Met E has retired as chairman and chief executive officer of Kentucky Electric Steel Inc.

Terrence P. McNulty DSc Met received the Robert H. Richards Award from AIME in February. He is cited as being one of the outstanding metallurgical engineers of his generation, with an ability to get to the heart of complex metal and mineral extraction problems through the application of basic engineering principles. He owns T.P. McNulty and Associates in Tucson, Ariz.

1968

Charles E. Applegate Geop E is retired in Spring, Texas.

1969

Richard J. Carlson Met E, MSc Min Ec '81 is working on his PhD at CSM.

Daniel W. Ferguson PRE is a project cost of schedule manager for Technology Management Consultants in Los Alamos, N.M.

Terry W. Pepper Chem E is a process engineer for Bioproducts Inc. in Corcoran, Calif.

1970

Fred E. Stabile BSc CPR is vice president of LNG engineering for Tractebel Power Inc. in Houston.

Robert D. Stimson BSc Phy is a foreman for Marvin James Construction in Sedona, Ariz.

Andrew C. Weinzapfel Geol E is an independent consultant in Florissant, Colo.

1971

Rodney J. Eichler BSc Geol, MSc Geol '73 is executive vice president and general manager for Egypt for the Apache Corporation in Houston.

W. Harry Mandeville BSc Chem is senior vice president of chemical technology for GelTex Pharmaceuticals, a Genzyme general business, in Waltham, Mass.

Stephen P. Westhoff BSc CPR, MSc CPR '73 is a process engineer for the Anvil Corporation in Bellingham, Wash.

1972

John R. Johnstone BSc Pet is a field operations superintendent for the ChevronTexaco Exploration & Production Technology Co. in Kazakhstan.

1973

James J. Gusek BSc Min is a senior project engineer for Golder Associates in Lakewood, Colo.

Robert G. Howard Jr. BSc Pet is vice president of ChevronTexaco North America Upstream in Houston.

1974

Lewis B. Gray BSc Geol, BSc Min '76 is manager of expansion and technical services at Kennecott Energy - Jacobs Ranch Mine, outside Wright, Wyo.

Kenneth R. Parrott BSc Math, MSc Geop '81 is a senior geophysicist for the Bill Barrett Corporation in Denver.

1975

Ronald W. Cattany BSc Math, MSc Min Ec '77 is director of the division of minerals and geology and natural resource trustee for the Colorado Department of Natural Resources.

Glenn L. Krum BSc Min, MSc Min '77 is a geological adviser for ExxonMobil International Ltd. in London.

1976

James A. Criswell BSc Chem is a senior field service representative for Baker Hughes INTEQ Drilling Fluids in Denver.

W. Dennis Gibson BSc Min is the eastern regional manager for rock tools for the Mitsubishi Materials USA Corporation in Mocksville, N.C.

Howard E. Janzen BSc Met, MSc Met '77 is president and chief executive officer for Janzen Ventures Inc. in Tulsa, Okla.

Robert A. Morroni BSc Phy is a partner for Carollo Engineers, P.C. in Denver.

Joseph P. Slattery MSc Pet is vice president of engineering for W & T Offshore in Metairie, La.

John R. Underhill BSc Pet is a drilling engineer for the Unocal Corporation in Sugar Land, Texas.

1977

Margarita D. Gallego MSc CPR is a project manager for OSIsoft Inc. in Denver.

1978

Kathryn R. Cain BSc Geop is chief of the environmental division for the U.S. Army, Pueblo Chemical Depot in Pueblo, Colo.

Craig M. Camozzi BSc Pet '80 is president of Water Drilling Inc. in Brighton, Colo.

Francine D. Schlaks MSc Geochem, PhD Min Ec '82 is director of A Matter of Mediation in Marina Del Rey, Calif.

Michael J. Schumacher BSc BE is a solution mining engineer for Cargill Salt in Steamboat Springs, Colo.

Shelley J. Skopinski Wolf BSc Met is a rolling process manager for Wise Alloys LLC in Muscle Shoals, Ala.

1979

Thomas F. Buchholz BSc Min owns Buchholz Consulting in Arvada, Colo.

1980

Barbara L. Kidwell BSc Met is a division manager at the Alcoa Technical Center in Alcoa Center, Pa.

Diana L. Perfect BSc Geol, M Eng Geol '94 is liaison for international climate services at the NOAA National Weather Service in Silver Spring, Md.

Robert M. Pickard BSc Geol is a broker associate for RE/MAX Southeast in Denver.

1981

Paul A. Giusti BSc Min is chief executive officer of Brookstone Homes Inc. in New Canaan, Conn.

Jorge Lira BSc Met, MSc Met '83 and his wife, Carla, announce the birth of their third child, a daughter,

Francesca Lira Parodi, born April 21.

Tracy J. Lyman M Eng Geol and partner Raymond W. Henn are taking over the Denver office of Haley & Aldrich Inc., an engineering solutions firm. The new name is Lyman Henn Inc.

John C. Mitchell III BSc BE is president of Drilbert Engineering in The Woodlands, Texas.

Rebecca Moore Trembath BSc BE is president of TeleServices Inc. in Ten Sleep, Wyo.

1982

Steven K. Bair BSc Pet is a senior production engineer for Evergreen Resources Inc. in Denver.

Ricardo J. Escobar BSc Min is a group manager for BHP Billiton - Stainless Steel in London.

Richard A. Martin Jr. MSc Geop, MSc Min Ec '88 is special assistant of water recycling for the U.S. Bureau of Reclamation in Denver.

1983

James E. Banaszak BSc Met is managing engineer for Exponet, Inc. in Chicago.

Michael G. Burns BSc Met, MSc Met '86 is a consultant for Metallurgical Consultants Inc. in Houston.

Gail Cosulich BSc Geop is an associate engineering geologist for Zeiser Kling Consultants Inc. in Santa Ana, Calif.

Richard J. Jones MSc Pet is a senior staff reservoir engineer for the Apache Corporation in Golden, Colo.

Wallace N. Klingensmith BSc Pet owns Control Engineering Solutions in New Berlin, Wis.

John A. Stafsholt BSc Pet is a sales manager for Teradata, a division of NCR Corporation, in The Woodlands, Texas.

1984

Jamie L. Gallagher BSc Geop is a math teacher at Everitt Middle School in Wheat Ridge, Colo.

Lt. Col. **Jeffrey P. Lee BSc Geop** married Claudine Ludi March 22 at the Bon Secours Church in Paris. Miners who attended include

LaVonne Hauck (wife of **Jason Hauck BSc BE '77**), **Jared Olsen BSc Geol** and **Michael Curto BSc Met**

o n the move

'83. Lee and Claudine moved from their NATO assignment in Holland to assume command in Indianapolis in June.

Bruce D. Peterman BSc Geol is a systems engineer for Pacific Western Technologies Ltd. in Lakewood, Colo.

Jeffrey K. Warmann BSc CPR is vice president of business development for International Alliance Group in Tulsa, Okla.

Lisa Weers-Woodward BSc CPR received the American Academy of Environmental Engineers DEE certification in hazardous waste. She believes she is the first woman in Colorado to receive this certification. She works for CDPHE in Denver.

1985

Elizabeth A. Bradford BSc Pet is an operations manager at the B. L. England Station for Conectiv at Beesleys Point, N.J.

Navy Chief Petty Officer **Edward T. Gunderson BSc Pet** recently returned from a deployment to the Arabian Gulf while assigned to the aircraft carrier USS Constellation, homeported in San Diego, Calif. Gunderson was one of more than 8,000 Pacific Fleet sailors aboard the ships of the USS Constellation Carrier Battle Group who participated in Operation Iraqi Freedom. Aviators flew 1,300 sorties off of the deck of Gunderson's ship, accumulating more than 4,000 flight hours and expending more than one million pounds of ordnance.

Pablo A. Lira BSc Met, MSc Met '88 is general manager for Representaciones Peruvian Trading S.A. in Lima, Peru.

1986

Stephen F. Biagiotti Jr. BSc Met, MSc Met '94 is a manager of pipeline risk analysis for Kinder Morgan Energy Partners, L.P. in Orange, Calif.

David J. Camille BSc Pet is regional environmental compliance director for ConocoPhillips in Rodeo, Calif.

Phillip L. Dalke BSc Met is a superintendent for Newmont in Cajamarca, Peru.

Gregory W. Handke MSc Min Ec is director of WeatherWise USA Inc. in Glen Ellyn, Ill.

Kurt F. Hollberg BSc Min is president of Hollberg Professional Group in Englewood, Colo.

R. Scott Lewis BSc Eng is a senior design engineer for Norgren in Littleton, Colo.

1987

Roger E. Amerman MSc Geol is a tribal liaison and soil conservationist for the Natural Resource Conservation Service of the U.S. Department of Agriculture in Toppenish, Wash.

Jeffrey W. Harwell MSc Geop is a manager of U.S. land data processing in the reservoir technologies division of Core Laboratories in Houston.

Roger A. Jaramillo BSc Met, MSc Appl Mech '99, PhD Engr Sys '03 is a postdoctoral fellow at the Oak Ridge National Laboratory in Oak Ridge, Tenn.

1988

Chris E. Bement BSc Eng is an economist for Shell Rocky Mountain Production in Denver.

Donald B. Larson BSc Eng, MSc Appl Mech '91 is president of Ropeway Technical Services Inc. in Glenwood Springs, Colo.

Charles L. Miller III BSc Pet is a global strategic HR manager for Halliburton Sperry Sun in Houston.

Erin A. Powers BSc Met is a metallurgical consultant for Shamrock Consulting in Dallas.

Scott Sammons BSc Eng, P.E. is a senior program manager for Kleinfelder in Denver. His expertise is in foundation evaluations, failure investigations, pavement designs, soil stabilization and chemical treatment of subgrades, geosynthetic reinforcement of subgrades, and construction monitoring of foundations, pre-cast pre-stressed

concrete, post-tensioned slabs, super-flat floor slabs, and site grading operations.

Dwight L. Smith BSc Geol is president and principal hydrogeologist for Interflow Hydrology Inc. in Truckee, Calif.

Gregory R. Wessel PhD Geol is an environmental scientist for King County in Washington.

1989

Ralph A. Brandt BSc Min is president of Indonet Financial Services in Phoenix.

Shun-Ping Chau BSc Geol, MSc Min '96 is an on-scene coordinator for the U.S. Environmental Protection Agency in Denver.

Carole D. Graas PhD Mat Sc is a semiconductor reliability manager for IBM in Essex Juction, Vt.

Geoffrey N. Smith BSc CPR is a brewing process support group manager at the Williamsburg Brewery for Anheuser Busch Companies Inc. in Williamsburg, Va.

Paul M. Veatch BSc CPR is regional A&D engineer for St. Mary Land & Exploration Company in Shreveport, La.

Tom J. Walker BSc Pet is head of the production engineering team for Occidental Petroleum of Qatar Ltd. in Doha, Qatar.

1990

Deborah Kang Gentzen BSc CPR is director of strategic development for the Providence Health System in Seattle.

Rhonda R. O'Grady BSc Eng is regional sales manager for Vitesse Semiconductor in Littleton, Colo.

Steven BSc Met and **Penny Ouellette BSc Met** announce the birth of two new entities: the first was Dara Nicole, their second daughter. The second was Steve's new business, The ROI Alliance LLC, which allows him to continue living in the Longmont, Colo., area while consulting in business management technology.

James R. Warner BSc Eng, BSc Eng is senior project manager for Stanley Consultants in Phoenix.

1991

Colin J. Basye BSc Geol, M Eng Geol '94 is project manager for Thermal Remediation Services Inc. in Meridian, Idaho.

Jerome M. Haliw BSc Eng is chief discipline engineer for airports for Washington Group International in Denver.

1992

Edward D. LaFehr MSc Min Ec is asset manager for BP in Alaska developing the Milne Point Oil Field. He and his wife, Stephanie, have two children. They live in Anchorage.

Blaine K. Spies BSc Pet is a technical representative for Baker Oil & Tools in Houston.

Randall P. Sulte BSc Min is an account manager for Ondeo Nalco in Plymouth, Minn.

1993

Russ Cirillo BSc Eng and his wife, Dixie, who works at Mines in financial aid and athletics, are proud to announce the birth of their second child, Mark R., born April 10.

Russ is an environmental engineer consultant for Secor International in Golden, Colo.

Christopher M. Hougland BSc Met is manufacturing manager at Applied Materials in Austin, Texas.

Kevin F. Kelly BSc Phy is an assistant professor of electrical and computer engineering at Rice University in Houston.

Justin D. McCright BSc Met is senior staff scientist for the Naval Research Lab - NOVA in Washington D.C.

1994

Felipe Azocar H. MSc Min Ec is director de desarrollo minero for Colelco in Santiago, Chile.

Robert N. Ball BSc Eng is senior director of program management for Supervalu in Eden Prairie, Minn.

Sharon J. Jackson Msc Math is senior management analyst for Bearing Point in Greenwood Village, Colo.

J. David Kenley BSc Geol is a design engineer for Alan Plummer Associates in Austin, Texas.

Hanchu Li MSc Appl Mech, PhD Engr Sys '97 is an engineer for the Navsys Corporation in Colorado Springs, Colo.

1995

R. Patrick W. Earhart BSc Phy, MSc Mat Sc '03, PhD Engr Sys '03 is principle engineer for Ball Aerospace & Technologies Corp. in Boulder, Colo.

Roxann (Mackenzie) BSc Eng, P.E., and **Matthew Hayes BSc CPR**, P.E., announce the birth of their first child, Breanna Grace, born March 8 in Fort Collins, Colo. Roxann is a senior civil engineer for Larimer

County and Matt is a graduate student in civil engineering at Colorado State University.

Kyle Knudson BSc Eng received his MBA from the Mays Business School at Texas A&M University in May. He is a zone manager for Ford Motor Company.

Amy Inkell Pflaum BSc Eng is an independent engineering consultant in Fort Drum, N.Y.

Charoen Sanpawanitchakit MSc Env Sc, PhD Env Sc '02 is an environmental scientist for Golder Associates Ltd. in London, Ontario, Canada.

Keith L. Woodburne BSc Geol is a senior geologist for URS Corporation in Oakland, Calif.

1996

Joseph T. Dohm BSc Pet is a quality assurance manager for Helmerich & Payne IDC in Tulsa, Okla.

Jennifer Gadberry Hadrys BSc CPR is a process engineer for Raymond Professional Group Inc. in Bakersfield, Calif.

1997

Dayan R. Anderson BSc Min received the Mining and Exploration Division Outstanding Young Professional Award from the Society of Mining Engineers in February. The award recognizes her meritorious accomplishment while working in the mining and exploration industry. She works for Cliffs Mining Services in Michigan.

Tricia Bauer BSc Pet, BSc Eng married Jim Baird Nov. 30 at St. Machar Cathedral in Aberdeen, Scotland. She is a drilling engineer in Brunei.

Kriss B. Bergethon BSc Min is president and owner of Colorado Pipe and Concrete in Henderson, Colo.

Kristy M. Carlson BSc CPR is a senior account manager for medical gases for the Air Liquide America Corporation in Land O Lakes, Fla.

Aaron D. Close BSc Math & Computer Science is a geoscientist for Tom Brown Inc. in Midland, Texas.

David Coghalan BSc Econ is a

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on the move

lieutenant in the Navy Reserves. He was called up for one year in March. This fall, he starts working on a master's degree in security at Georgetown University.

Ross E. Collins BSc CPR is an analyst for Copia Capital LLC in Chicago.

Scott J. Dennis BSc Eng is a controls system engineer for Bechtel in Frederick, Md.

Edward J. Domagata BSc Geol is a maintenance analyst for Time Warner Telecom in Greenwood Village, Colo.

Eric R. Elrod BSc CPR is a process engineer for Koch Nitrogen in Fort Dodge, Iowa.

Richard A. Ernst BSc CPR was recently certified by IBM as a consulting IT architect. He works for IBM Global Services in Boulder, Colo.

Joey M. Evensen MSc Geochem earned a PhD in geology from University of Oklahoma in 2001. He is a research geoscientist at ExxonMobil Upstream Research Co. in Houston.

Tyler K. Faulk BSc Eng is C Company Commander for the 1st Engineering Battalion in the U.S. Army at Fort Riley, Kan.

Jeffry T. Fisher BSc Met is supply quality engineer for Delphi in Tuscaloosa, Ala.

Dana J. Fowers MSc Min Ec is senior business systems analyst for Southcorp Wines, The Americas in Napa, Calif.

Emily Gibson BSc Phy is doing research in non-linear optics at University of Colorado, Boulder, while working toward a Ph.D.

David Graham BSc CPR, MSc Chem '02 married Danielle DeWitt Oct. 7. The couple resides in Albany, N.Y., where David is in medical school.

Troy T. Laman BSc Eng is a design engineer for Black & Veatch in Dallas.

Mariia K. Leathrum BSc Met announces the birth of a son, March 11, 2002.

Todd M. Mundorff BSc CPR married Jennifer Hausman May 26 in Malibu, Calif. He is a process engineer with BP in Carson, Calif. She is a fifth-grade teacher.

Brian N. Patterson BSc Eng is a glass coater process engineer for Guardian Industries in Corsicana, Texas.

Cassandra K. Quaintance BSc Eng is Denver-area sales operations manager for Schneider Electric in Denver.

Elizabeth R. Reigles MSc Min Ec is a midstream negotiator for BP in Baku, Azerbaijan.

Tara Schenk BSc Geol married Scott McFarland June 30, 2002 at St. Herman Orthodox Church in

Littleton, Colo. Other alumni in attendance were Tara's mother, **Judy Schenk MSc Geol '90**, brother **Liam Schenk BSc Min '00**, Debbie Shaner, Susan Evers, Leslie (O'Dell) Armentrout, Ruben Rodriguez, and Phyllis Scott. The McFarlands reside in Littleton where Scott is a mechanical engineer with Project Management, Inc. and Tara is finishing up a master's degree in geotechnical engineering at University of Colorado at Denver.

Devin D. Shunk BSc Eng is a technical staff member for the Los Alamos National Laboratory in New Mexico.

Jennifer A. Van Dinter BSc Geol is director of investor relations and manager of corporate planning for Young Innovations Inc. in Chicago.

David B. Wait BSc Eng is a project engineer for Trigon-Sheehan in Durango, Colo.

Brooke A. Williams BSc Eng is a technical service engineer for Holcim (US) Inc. in Lakewood, Colo.

1998

Mario Ballout De Giulio MSc Min Ec is managing director of The Agleon Group in Caracas, Venezuela.

Donald W. Conley BSc Math & Computer Science is a systems administrator for Agilent Technologies Inc. in Colorado Springs, Colo..

J. Andrew Jensen BSc Eng is an emergency medical technician (EMT) in Denver.

Kevin J. Kidd BSc Min is a project manager for The Industrial Company in Casper, Wyo.

Dusty Lynne Mosness BSc Phy is a tutor in Golden, Colo.

David Pantoja MSc Pet is a reservoir engineer for the Maxus Energy Corporation in The Woodlands, Texas.

Vickey P. Sare PhD Geochem is a team leader in volume interpretation and visualization in the subsurface characterization business line for ChevronTexaco Exploration & Production Technology Company in Bellaire, Texas.

Russell B. Thomas BSc CPR is an operations engineer for Occidental of Elk Hills in Tupman, Calif.

Brett W. Thompson BSc Eng is a drilling engineer for ConocoPhillips in Aberdeen, Scotland.

1999

Talgat K. Abdullaev BSc Pet is a petroleum engineer for Maersk Oil Kazakhstan GmbH in Almaty, Kazakhstan.

Ben M. Bayer BSc CPR is an analyst for Abt Associates Inc. in Cambridge, Mass.

Robert D. Clark BSc Eng is a rolling mill electrical supervisor for Nucor Steel Seattle.

Michael T. Davis BSc Math & Computer Science is president and owner of Flash Point LLC in Greenwood Village, Colo.

Richard I. Day Jr. BSc Eng is an assistant county engineer for Summit County in Frisco, Colo.

Karen L. Dennis BSc Eng is a performance test engineer for Bechtel in Frederick, Md.

David B. Graham BSc CPR, MSc Chem '02 is a medical student at Albany Medical College in New York.

Jacob M. Hoban BSc Eng is a project engineer for Vision Land Consultants Inc. in Golden, Colo.

Steven T. Kendrick BSc Pet is a drilling engineer for BHP Billiton in Houston.

Lance J. King M Eng Geol is a network planning engineer for Qwest in Littleton, Colo.

Jason LeGore BSc Eng is a technical project leader for IMI Norgren-Herion Fluidtronic GmbH & Co. KG in Grossbettlingen, Germany.

Darren T. Lewis MSc Met & Mat Eng is a process engineer for Motorola, Inc. in Austin, Texas.

Patrick M. Newman MSc Env Sc is a senior consultant for Interlink Group in Englewood, Colo.

Andrew L. Olson BSc Geol is a captain in the U.S. Army in Scweinfurt, Germany.

Mark J. Pavol BSc Eng, M Eng Engr Sys '02 is a graduate student at CSM.

Jenny R. Riley BSc Eng is an engineer with High County Engineering in Glenwood Springs, Colo.

Chad M. Rolstad BSc Eng is a pulp mill maintenance manager for the Weyerhaeuser Company in Kingsport, Tenn.

Matthew J. Sands BSc Eng is an integrity assessment engineer for Shell Pipeline Company LP in Houston, Texas.

Shannon E. Schmitt BSc CPR married Ted Taylor April 12 at Mt. Bachelor ski area in Bend, Ore. The wedding party skied down to the ceremony at the base of the mountain.

Jason J. Spice BSc Met & Mat Eng, MSc Met & Mat Eng '02 is a graduate student at CSM.

Shannon S. Taylor BSc CPR is an environmental engineer for Schmitt Environmental Services Inc. in Bend, Ore.

Alexander V. Terray BSc CPR, MSc CPR '02 is a senior engineer for Geo-Centers Inc. in Alexandria, Va.

Douglas J. Turner BSc CPR, MSc CPR '03 is a CSM graduate student.

Sarah J. Vega BSc Met & Mat Eng is an engineer specializing in materials for Pratt & Whitney Aircraft in East Hartford, Conn.

Christina Yuste M Eng Pet is a reservoir engineer for Cepsa in Madrid, Spain.

2000

Jason A. Brucker BSc CPR is a senior financial/business analyst for Qwest Services Corporation in Denver.

Eric P. Bunnell M Eng Geol is a geological engineer for Burns & McDonnell in Cushing, Okla.

Charles D. Carwin BSc Math & Computer Science is an actuary for Milliman USA in New York City.

Jarrod Clark BSc CPR and **Jessica Lolley BSc Eng '01** were married Jan. 3 in Casper, Wyo. Jessica is an equipment design engineer at Merrick in Los Alamos, N.M. and Jarrod is finishing up a master's in biomedical engineering through University of California-Davis. Miners in attendance included (front row, left) **Mike Magill BSc Phy, BSc Eng '01**, **Melanie Magill BSc Eng '02**, **Sean Thorne BSc Eng '01**. Middle row: **Jeremy Thompson BSc Eng '01**,

Mike Nagata BSc Met '98, **M Eng Met '01**, **Suzanne Heskin BSc Geop '01**, **Carla Gustafson BSc CPR '94**, Jarrod and Jessica, Mindy Lee, Cassie Fry. Back row: **Jeremy Dillman BSc Math & Comp Sci**, Scott Fischaber, Drew Keefe, **Scott Gustafson BSc Eng '92**, **Charlie Chambers BSc Eng '02**, **Jennifer Phillips BSc Eng '02**.

Sharon F. Diehl PhD Geol is a research geologist for the U.S. Geological Survey in Denver.

Vanessa Fabyanic BSc Geol married Jacob Henderson Sept. 26 on the island of St. Lucia.

Julie Kremer BSc Eng and **Jake Taylor BSc Min '01** are field engineers with the Impregilo/Healy Joint Venture on the Westside CSO Pump Station and Shafts Tunnel project in Portland, Ore.

Curtus Regnier BSc Eng and his wife, Rebecca, welcome the latest addition to their family, Evan Nathaniel, born March 31 and weighing in at 8 lbs. 6 oz. He joins

big brothers Caleb and Jacob, and big sister Hannah.

Rolf B. Ronnekleiv-Kelly BSc Geol is a reservoir engineer for the Exxon Mobil Corporations in Houston.

Adan I. Saenz BSc Pet is a sales representatives for MillTech Inc. in Aurora, Colo.

Kimberly E. Sands BSc Pet is a drilling engineer for BP America Inc. in Houston.

on the move

Kelley Probasco Stockton BSc Eng is a freelance artist in Aurora, Colo.

Tomasz M. Szynakiewicz BSc Eng, M Eng Engr Sys '02 is a field engineer for Hayward Baker Inc. in Fort Worth, Texas.

Joshua M. Thomason BSc Pet is an operations engineer for Prima Energy Corporation in Denver.

2001

Eric S. Cepull BSc Eng is a mechanical engineer in the healthcare division for TLC Engineering for Architecture in Lake Mary, Fla.

Harrison G. Fell BSc Eng, BSc Econ is a graduate student in economics at the University of Washington in Seattle.

Roger A. Furley MSc Geol is a geologist for BP in Houston.

Stephen W. Grigel BSc Eng is a surface engineer for BP Exploration (Alaska) Inc. in Anchorage.

Devon A. Harman BSc Met & Mat Eng, MSc Met & Mat Eng '02 is a metallurgist for the Newmont Mining Corporation in Golconda, Nev.

Robin C. Iacovo BSc Geol is a project geologist for HRP Associates Inc. in Plainville, Conn.

Eric K. Lorenson BSc Geol is a staff engineer for Water and Waste Engineering in Denver.

Erik C. Ronald MSc Geol is a geologist for the Metlakatla Indian Community in Metlakatla, Alaska.

Gina M. Vaccari BSc Chem Eng is a chemical engineering graduate student at CSM.

Joshua J. Viets BSc Pet is a production engineer for ConocoPhillips in Odessa, Texas.

Ross R. Volk BSc Chem Eng is an investment development engineer for Air Liquide in Houston.

Anthony K. Yeboah M Eng Pet is a reservoir engineer for Tom Brown Resources LTD in Calgary, Alberta, Canada.

Dalong Zhong PhD Mat Sc is a research associate at CSM.

2002

Arief J. Andriyanto MSc Min is an engineer at the Fitri Farm in Jakarta Selatan, Indonesia.

Hadi Mohammed Balhareth BSc Geop is a geophysicist for the Saudi Aramco Company in Dhahran, Saudi Arabia.

Joshua D. Crumb BSc Eng is a graduate student at CSM.

Russell C. Ditsworth BSc Eng is a structural engineer for FDG Inc. in Arvada, Colo.

Kari L. Gonzales BSc Eng is an engineer for the Transportation Technology Center Inc. in Pueblo, Colo.

Brian T. Harrington BSc Chem Eng is a process engineer for Bechtel SAIC in Las Vegas.

Cambrey S. Johnston BSc Geop is a geophysicist for Geophex Ltd. in Raleigh, N.C.

Gretchen L. Joseph BSc Math & Comp Sci is a software engineer at Northrup Grumman Mission Systems at Schriver Air Force Base, Colo.

Tolulope Gbolabo Lasaki BSc Eng is a test engineer for Gaming Laboratories International Inc. in Golden, Colo.

Benjamin J. Lengerich BSc Eng is a nuclear shift test engineer at Puget Sound Naval Shipyard in Bremerton, Wash.

Nicholas L. Long BSc Eng is a mechanical engineer at the National Renewable Energy Laboratory in Golden, Colo.

Marc C. Miller BSc Eng is a project manager for the Federal Aviation Administration in Denver.

Bryan S. Mitisek BSc Chem Eng is a process engineer at ExxonMobil Torrance Refinery in Torrance, Calif.

Jose M. Mogollon BSc Geol is completing a master's thesis in earth sciences at Utrecht University, The Netherlands.

Eric C. Norris BSc Math & Computer Science is an IT specialist for the Bureau of Land Management in Lakewood, Colo.

Shira P. Paulson MSc Geol is a geologist for BP in Houston.

Stephen Redak MSc Geol is a field engineer for Baker Atlas in Broussard, La.

Dasha Rozdest BSc Math & Comp Sci is a programmer for the Bureau of Land Management in Denver.

Michael R. Sherwood MSc Geol is a geologist for Anadarko Petroleum Corporation in The Woodlands, Texas.

Adam G. Smith BSc Phy, MSc Engr Sys '03 is a systems engineer for the Raytheon Company in Aurora, Colo.

2003

Jehad A. M. AbuShama PhD Appl Phy is a research faculty member in CSM's Department of Physics.

Paul J. Adams MSc Math & Comp Sci works at Raytheon Systems Company in Aurora, Colo.

Daniel J. DeSnyder MSc Min Ec is a CSM graduate student.

Luis Gonzalo Garza-Martinez MSc Met & Mat Eng is a CSM graduate student.

Pipat Laowattanabandit MSc Min is a CSM graduate student.

Kyle E. Murray PhD Geol E is a hydrologist and GIS specialist for the U.S. Geological Survey in Lakewood, Colo.

Atul Narsinh Rathod MSc Pet is an applications engineer for Schlumberger Ltd. in Macae, Brazil.

Fernando Roa PhD CPR is a post-doc in the CSM Chemical Engineering and Petroleum Refining Department.

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Tyson Foutz BSc Pet '00 *celebrates his degree with a Mines tattoo. He is an engineer with Cudd Pressure Control in Oklahoma City.*

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