Spelunking in Lechuguilla Cave

Overcoming claustrophobia and fear of the dark, a Mines alumnus goes underground.

In Their Own Words: Mines men remember the Korean War.

Don’t miss the alumni survey on page 41.
Junior Marco Leon Presents Research at National Energy Symposium

Despite being the son of artists, Marco Leon of Santa Fe, N.M., decided early in life that he wanted to pursue engineering. "I've always been interested in figuring out how things work," he says.

Leon is a junior in mechanical engineering and last summer he interned at Los Alamos National Laboratory developing an instrument that gives an inside view of a container and locates radioactive hot spots without actually opening up the container. But most importantly, he presents results of his summer internship at the Department of Energy Student Research Symposium in Livermore, Calif. "Leon is a brilliant young man and a pleasure to work with," says Dr. Marc R. Dresselhaus, head of the high-temperature superconductivity research center at Los Alamos National Laboratory.

Leon is a member of Tau Beta Pi National Engineering Honor Society, Blue Key and Earthworks. He recently was named an Achievement Rewards for College Scientists Virginia Ransom Scholar for 1999-2000, and organizer of the 1999-2000 CSM college pre­­sidents program weekend for high school students. Leon is a member of T Wu Beta Pi National Engineering Honor Society, Society of Professional Hispanic Engineers, American Society of Mechanical Engineers, Blue Key and Earthworks. He recently was named an Achievement Rewards for College Scientists Virginia Ransom Scholar for 1999-2000. In addition, Leon is an athlete who enjoys skiing and rock climbing. He has climbed 12 of Colorado's 52 "14ers" so far. He has climbed 12 of Colorado's 52 "14ers" so far.

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Colorado School of Mines Alumni Association

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Colorado School of Mines Alumni Association

The Voice of Mines Alumni Since 1910

FEATURES

9 Grow Native American Ears Geology Ph.D.
Full-blooded Russell Smith Finds Gold in the hard sciences, receiving his degree in December. He overcomes skepticism and distrust to succeed.

12 Colorado School of Mines in the 21st Century
Expert predicts will indicate biotechnology will be the next revolution. NSF director calls it "biocomplexity," referring to the integration of research in the life, physical and social sciences with advanced technology.

15 In Their Own Words: Mines Men in Korea, Part 1
More than 300 CSM graduates and students served in the U.S. military during the Korean War, from 1950-1953. Many recorded their experiences in journals and letters.

24 Spelunking in Letchwaga Cave
Paul Burger '91 began caving in a boy and now spends a great deal of time underground. As staff hydrologist at Carlsbad Caverns National Park, he maps and explores Letchwaga Cave.

26 Preserving the Past
Margaret Katz's background of art, history and mining made her the perfect choice to oversee the restoration and preservation of CSM's valuable books, maps and documents collections.

41 Service Activities Interest Group
Let us know what sort of activities you would like to participate in with fellow alumni.

43 Thank You To 1998-98 CSMAA Donors
Alumni donations keep the association going and the CSMAA would like to thank all those who contributed this year.

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The History and Significance of Agricola's De Re Metallica. Why does the president of the faculty senate carry a book written in 1556 to every commencement ceremony?

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We'll have one magazine that truly hope you like the changes. As I noted, the magazine with Mines Worldwide will be a new magazine called "New Mines Magazine." Today, the magazine with Mines Worldwide and throughout all 50 states and U.S. Colorado will be a mobile federal tax law office in Lakewood and Vail, Colorado, providing for the practice of United States Tax Law worldwide and throughout all 50 states and U.S. Territories. RONALD F. WEISZMANN, LL.M., P.C.

University of San Diego School of Law
University of Denver School of Law
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PRESIDENT'S VIEW

The Chicken or the Egg?

DICK BEACH, 1999 PRESIDENT OF THE CSMAA ALUMNI ASSOCIATION

So which fired first? Author Almanor in the first section of the school's yearbook, a reflection of the accomplishments and generosity of its alumni. Think about it...

New Mines Magazine
Maureen Keller, editor of Mines Magazine, has been hard at work adding new features and improving the magazine. I hope you like the changes. As I noted earlier, we are discussing ways to merge the magazine with Mines Today so that we'll have one magazine that truly speaks to all Mines alumni and friends.

Among other things, we are going to a quarterly format that will have more pages, more color and more features.

STUDENT RECRUITMENT
Mary Dott BSc CPR '83 has succeeded in recruiting more than 360 alumni volunteers for the Alumni Admissions Representative program. These volunteers from throughout the country will be asked to represent CSMA as high school college fairs, contact prospective students in their areas, host send-off parties for entering freshmen, and, in Colorado, present Mines Medallia to outstanding high school seniors in math and science. (See article on page 40.)

UPDATED WEBSITE
Don't forget to check the enhanced alumni web page at csmaa.mines.edu/alumni for the most up-to-date calendar of section activities, including reunions. Use the site to update biographical data, join the association, or buy Mines merchandise. Active members can also use the CSMAA on-line directory, which lists all Mines alumni.

This is my last column. Thanks to everyone who has helped the association during my term. Vicki Cowart MSc Geop '72 is our president for 2000. Joining her are Ed Crabtree EM '60, president-elect; Bill Zsch BSc Min '79, treasurer; and Kathy Altsman BSc Met '80 as secretary. Altsman, elected in February, is senior metallurgical engineer at SN-Gavillons America Inc.

When I began my term as president, I set a goal that CSMAA would work together with the rest of the Mines family to serve and support the school, its students and alumni. Nearly a year later, much has happened and I think we've built a stronger relationship with Mines...

...Working together we help each other to be all that each can be (with apologies to the U.S. Army). It's not the chicken or the egg. It's the chicken AND the egg.

Look for the next Mines Magazine in May.

IN THE NEXT ISSUE:
The History and Mystery of Herbert Kim '28
Herbert Kim was a Chinese refugee who fled to China as a refugee, graduated from Mines, worked for the Soviets and was then jailed by them, returned to China and Korea, and in the end, disappeared.

Alumni's Norway Adventure Reminds Reader of Her Own
During World War II, Norway was occupied by Germany (as you know). With Norwegian labor and German know-how, a magnesium plant was built in Forsgrun. On the Saturday before the Monday it was ready to begin operating, the American Air Force flew from England and bombed it so it couldn't operate.

This, of course, changed German production of incendiary bombs and made a difference in the war's end. In 1951 Frank E. Love EM '36 was appointed director for rebuilding the plant. He had spent his war years supervising a plant in Henderson, Nev. Basic Magnesium Inc.

Frank and two other men from BMI went to Norway and with Norse workers, rebuilt the plant. After a year and a half, it was operating. I believe it is now a very productive industry.

The Americans were well cared for including two families. The Love family enjoyed this great experience—our children attended school; we lived in Sken one year in Hoyers Hotel (really got spoiled) and Porvoo for six months in the home of a school superintendent, Tora Tinga.

The people were so friendly and hospitable. We were lucky too to attend the winter Olympics. So, I hope Michael Rolfsen's ["Headlines", Sept. - Oct. 1999] time there is as enjoyable as ours was.


Martin E. Kelley

What To Call Ourselves?
Over a large area, the Colorado School of Mines is well known by simply "Mines." "CSM" is also used, but some of us do not favor it. Mines the School with CSU, CU and other letters of no real distinction. I think that we can take time out and use "Colorado School of Mines" and just "Mines." There ought to be enough computer memory now so that we can stop using two letters for the states. Want to bet on how many students cannot spell all of the states correctly?

Roland B. Fischer Met E '42

Graduate Recalls His Long Trip to CSM
It was a great pleasure and interest to read the article on "Remembering Mines" by Abelardo Trevino in the September/October 1999 issue of Mines Magazine. I was a student of CSM during 1950-51 and would like to share some memories with you.

I graduated in metallurgical engineering from Bengal Engineering College near Calcutta, India in 1945. Two of my classmates had studied at CSM and had returned to India after completing graduate studies. I applied to CSM and received a letter from William Burger, director of admissions, confirming my registration. On the production of the admission letter, U.S. Consul in Calcutta granted me a viza. I still remember that he advised me to introduce myself as an "East Indian" instead of just Indian to differentiate from the American Indians.

My journey to America began Dec. 26, 1949. After reaching Bombay in two days, I boarded a ship, the SS Jal Nausher (named after India's first prime minister) for journey to Liverpool, England. The journey was rough sometimes making me sick and we passed through Suez Canal and several seas. We reached Liverpool Jan. 18, 1950, then proceeded to London.

After two days in London, I boarded the famous RMS Queen Mary in Southampton. I was excited and thrilled to ride the luxury liner. We reached New York in five days. After two days at the YMCA in New York, I started the journey to California.

Thomas Cook in Calcutta had arranged my itinerary. I took a night train to Chicago, arriving the next morning. That evening I boarded a train to Denver. In Denver I boarded a small train to Golden and arrived about noon Jan. 30.

My friend Ray, who was already studying at CSM, had arranged for my board and lunch at Mrs. Bell's place. Mrs. Bell, her daughter and son-in-law managed a boarding house for foreign students. The spring semester had already started so I ate a quick lunch and I went to the metallurgic department for enrollment and course program. Prof. Carpenter, the head of the department, interviewed me and designed a program of studies. My career at Mines had begun.

Saya Sarkar MSc Met '51

Athletics Department Needs To Shape Up
With the events that have occurred within the athletics department since I graduated, I hope the morale improves. I was a member of the track team throughout my career at Mines and I hate to see great coaches and athletes leave the program and the school. It seems as though the politics within the continued on next page
LEGISLATIVE UPDATE

The Colorado Commission on Higher Education (CCHE) has issued a report to the Colorado General Assembly on how well each institute of higher learning in the state has done in implementing the Higher Education Quality Assurance Act. The act, passed in 1996, outlines the General Assembly’s expectations for a quality indicator system to judge the state’s higher education system. The CCHE and governing boards set nine indicators and evaluated colleges and universities against a benchmark for each indicator. A portion of how funds will be distributed throughout the state may be based on how well each school measures up. The goal of the quality indicator system is to achieve high quality, efficient and expedient undergraduate education. One key finding of the 1999 report was that funding for graduate and undergraduate programs should be separated. Indicators used to measure CSM were graduation rates (how many years it takes) and credits for degrees (how many extra credits do students take), faculty instructional productivity (percentage of a 40-hour week that full-time faculty devote to teaching-related activities), freshmen retention (retention of students beyond freshmen year), achievement rates (based on national test scores), lower division class size, approved and implemented diversity plan, institutional support costs, employment of recent graduates in their fields and starting salaries of recent graduates.

CSM fares well in all categories except graduation rates where the graduation rate for Mines is comparable against the graduation rate for 269 comprehensive universities and colleges—one third of which are private institutions. As a whole, all Colorado institutions lag behind their national benchmarks. Only 25 percent of CSM students earn a degree in four years compared with 36.7 percent nationally. 25 percent of CSM students earn a degree in four years compared with 36.7 percent nationally.

Gifts of Appreciated Property Are Appreciated …

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

- You may receive a tax deduction for the full market value of your property.
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Under-developed, revenue generating or environmentally sensitive land may be accepted by the CSMF Property Management Corp. The unique expertise and talents of the CSMF Property Management Corp. could help relieve you of the liability of property with environmental issues.

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

For more information, contact the Managing Director, CSMF Foundation INC., Linda M. Lambur at (303) 273-3142

Old Courseud Makes Way for New Classrooms

CSM began demolition of the old Jefferson County Courthouse in December to make way for the new Center for Technology and Learning Media building. Construction is scheduled to begin in the spring with completion by summer 2001. The state-of-the-art center will focus on education and presentation of technology. It will have over 35,000 square feet and contain six classroom laboratories and six team working areas for students. Total cost for the project is approximately $13 million. The top floor will have computer labs for daydream classes. The building's exterior will feature sandstone and brick, and the north side of the building will have extensive windows. A pre-aged copper roof will highlight the large classrooms/auditorium.

Five Students Honored

Five CSM students were among 21 young scientists to receive scholarships in November for being at the top of their majors. They are Lee Becker, Michael Erskine, Brian F. Davids, Bradley Doyle and Marco Leon (see inside front cover for more on Leon). The awards were sponsored by the Rocky Mountain chapter of Achievement Rewards for College Scientists.

New and Upgraded Student Housing in Works

CSM is expanding the Mines Park student housing with the addition of two buildings at 1911 and 1913 19th Street. The new buildings will house an estimated 32 individuals in 16 new units and will add 30 parking spaces. The new units are located in the family housing section of the Mines complex. The $1.3 million project is scheduled for completion by fall 2000.

In addition, the Weaver Tower improvements are nearly complete and include new carpets and lounge furniture in the common areas of 17 suites; replacement of 130 desk chairs; installation of new curtains in all the windows; and new carpeting in the west attic.

On Campus

Row, Row, Row Your Boat

More than 250 college civil engineering students will be rowing in the Rockies at the annual National Concrete Canoe Competition in June. CSM was selected to host this 13th annual competition, which is organized by the American Society of Civil Engineers (ASCE) and sponsored by Master Builders, Inc. Held in a different location each year, the national competition challenges core teams of college engineering students to find a way to do the seemingly impossible: design, build and race concrete canoes.

The goal of the competition is to give students hands-on experience with engineering principles and important problem-solving and project-management skills, which they will need in their future engineering careers.

The national finalists will be determined at 20 regional competitions held in the spring, in which nearly 200 teams will compete. At the national level, the top teams compete for $9,000 in scholarship prizes awarded by Master Builders, Inc. Entries will be judged on several criteria. Seventy percent of the score will be based on the appearance and structural integrity of the final canoe, a display, and written and oral presentations detailing the canoe's design, construction and materials. The canoe also must pass a critical 'tug-up' test in which submerged canoes "pop up" and float.

The rest of the score depends on the students' paddling prowess in two-person men's and women's sprint and distance races and a four-person co-ed sprint race to be held at Big Soda Lake in Bent Creek Park in Lakewood.

Stay in Touch

You can now get The Oredigger delivered to your home for $15 per semester. Stay in touch with what is going on on campus. The paper comes out 8 times a semester, every other Monday.

The Oredigger campus news, student editorials, feature stories, restaurant and movie reviews and sports highlights.

To order your subscription, call Steve Fullam in the Oredigger office (303) 273-3532 or e-mail him at oredig@mines.edu (Subject: SUBSCRIPTION)
President's Home On Display

The CSM president’s house, currently occupied by the Bickarts, was featured over the holidays as one of 12 historic buildings on the 19th annual “Christmas Tour of Historic Homes.” The Jacobean/Elizabethan-style home, built in 1928, is characterized by a shingled roof with flared gables, casement windows, timbering and a crenellated stair tower. The 5,000-square-foot residence was originally built for Sigma Nu fraternity for $30,000. During World War II, the mortgage was unpaid as many of its members left to fight.

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CSM Grads Earn Top Dollar

Starting salaries for engineering graduates at Colorado School of Mines are running several thousand dollars above the current national average.

According to the annual salary survey released recently by The Engineering Workforce Commission of the American Association of Engineering Societies (AAES), the mean income in 1999 averaged $41,473 for entry-level engineers.

The average starting salary for all graduates at Colorado School of Mines for the 1998-99 academic year was $43,061. Certain disciplines fetched even higher figures, such as petroleum engineering graduates who averaged $46,040; chemical engineers, $46,028; and electrical engineers, $45,060.

Science majors also fare well. The average starting salary for physics graduates is $46,800, and for geophysics it’s $45,817.

Signing bonuses are becoming more common, according to CSM’s career center director Lon Bumannet, with some students even receiving signing bonuses just for summer work.

More than 150 companies and government agencies recruited on campus during the 1996-97 academic year. Of these, 45 were either new to CSM or returning to recruit at CSM after an extended absence.

"As technology continues to be a major factor of our nation’s economic growth, engineers will remain in high demand," said Tom Price, executive director of the AAES.

"Rising salaries and a very low unemployment rate reflect this demand. It’s a great time to be an engineer!" said Price.

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Hennebach Gift Benefits Professorship

Ralph Hennebach Met E41, Medalist 65, Hon D Eng 90 has given $145,000 to the Division of Liberal Arts and International Studies. The gift is designated for the Hennebach Visiting Professorship, established in 1991 by Hennebach.

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Crow Indian Earns Path-Breaking Ph.D.

Two worlds have tugged at Russell Stands-Over-Bull's heart for as long as he can remember. One was the Crow Indian Reservation in Montana where he grew up and where social issues trump career aspirations. On the reservation, the tribe, not the individual, comes first.

"The other world was the one his mother and father showed him wherever they left the reservation and drove to Bozeman, home of Montana State University. "My mom would say, 'Some day, you're going to finish there,'"" Stands-Over-Bull says. "I've always had that dream. My folks ingrained it in me as a young kid."

At December graduation, Stands-Over-Bull became the first Crow Indian to earn a doctorate in hard science—a Ph.D. in geology.

"When I decided to leave the reservation and come to Montana, I didn't want to be a statistic," says the geology scholar, who often shortens his name, which translated means Stands Over a Bull Buffalo. "There's no one speaking Crow other than the tribal elders. The other world was the one his mother and father showed him wherever they left the reservation and drove to Bozeman, home of Montana State University. "My mom would say, 'Some day, you're going to finish there,'"" Stands-Over-Bull says. "I've always had that dream. My folks ingrained it in me as a young kid."

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CSMAA Hosts Senior Pizza Party...

Three seniors enjoy pizza and beer at the senior pizza party held in the food court of the student center. Alumni Association staff served up free food and drinks before a bus arrived to take members of the graduating class to the casinos for a night of fun. The party was held the Thursday before exams.

...And Senior Banquet

C

New Head Football Coach Named

Harvard University’s former offensive coordinator and offensive line coach is the new CSM varsity football coach. Bob Stitt replaces Venise Wallace, who was head coach from 1995-1999.

In only one season at Harvard, Stitt set new school standards for total offense in a single game (640 yards), passing yards in a single game (405), and points scored in an Ivy League game (63).

"I'm looking forward to coming to the Colorado School of Mines," Stitt said before his arrival. "I am excited at the opportunity to turn the program around and to create a disciplined team all year round, not just from August to November. Building confidence in the players and ensuring that they are taking care of themselves year round, in all respects, will be a focus.

Stitt earned a bachelor’s degree in physical education and business administration from Doane College in Crete, Neb., in 1986. During his collegiate athletic career at Doane, he competed in football, baseball and track and field. Stitt then earned a master’s degree in physical education from University of Northern Colorado in 1989. While there, he was graduate assistant running backs coach for two seasons.

Stitt’s coaching experiences also includes being assistant head coach/offensive coordinator/special teams coordinator for five seasons at Austin College in Sherman, Texas.

One hundred twenty people applied for the coaching position including assistants from the NCAA Division I level, head coaches in the National Association of Intercollegiate Athletics and others with head coaching assignments in NCAA Division II. "We had a high caliber of candidates," says Dan Lewis, CSM associate athletic director. "I was extremely impressed with many of the candidates. I also was pleased at the type of interest that happened because of the search. It was a tough decision to get down to the four we brought in."

Since Stitt’s arrival in January, he has recruited six football players for next year. "I am very happy with the quality of the recruiting class so far," he says. "Each of these players has potential to play early in their collegiate careers. These recruits are a huge key to rebuilding the Colorado Mines football program."

CSM granted 153 bachelor degrees, 115 master’s, 32 PhDs and five professional degrees at the 125th mid-year convocation in December. One third of the PhD candidates were women. The highest percentage ever to graduate from CSM. The Alumni Association sponsored the banquet for graduating seniors and their families.

Campus Has Two New Institutes

Two new institutes have been established at CSM. The mission of the Colorado Institute for Macromolecular Science and Engineering and the Center for Engineering Education is to enhance the education, training and research capabilities of CSM in the science and engineering of polymeric materials and other complex fluids. Complex fluids possess structural complexity including polymer colloids, liquid crystals and biological fluids. Center activities encompass a wide range of research activities including the synthesis of novel and novel materials, optimization of processing strategies for polymer materials, development of biocompatible materials, and the formation of nano-materials and nanostructures from colloidal materials. Experiment and theory are integrated to advance understanding in a fundamental manner.

The Center for Engineering Education serves as a focal point for educational research conducted by faculty at CSM. The principles of cognitive psychology and educational psychology are used to explain how this system of learning works. The center marries educational research with assessment, outreach and teaching. Dr. Ruth Streveler is director of the center and Dr. Barbara Moskal is associate director.

Art Class Added to Curriculum

CSM students will have the chance to express themselves artistically in a new course being taught next semester by Bob MacPherson, director of Environmental Health and Safety.

MacPherson will teach a studio art class, oil painting for beginning and intermediate students at the Footfalls Art Center. He has 27 years of painting experience, has studied with prominent professionals and his paintings have been selected for juried national art exhibitions.

Management, was also invited by the Colorado Bar Association to present a talk on "Global Trends in International Mining Law" to its international practice section.

Arthur Sacks, division director of Liberal Arts and International Studies, gave a keynote address, "Educators for Sustainable Development: The Humanities, Technological Education and the Transformation of Self" at the International Workshop on Education for Sustainable Development in New Delhi, India, in December. Sacks also participated in a European Union-sponsored workshop to explore the restoration of Agra, India, home of the Taj Mahal.


John Wyman, professor of geology and geological engineering, completed his second three-year appointment to the advisory board of the Petroleum Research Fund administered by the American Chemical Society in Washington D.C. Wyman served on the board from 1993 to 1999 and was chair of the committee that reviews and recommends research awards in geological sciences.

Barbara Ruth, associate professor of mathematical and computer sciences, has received the Burton W. Jones Award for Distinguished College or University Teaching of Mathematics from the Rocky Mountain Section of the Mathematical Association of America.

Don MacAlby, professor of chemistry and geochemistry, gave an invited lecture Jan. 11 at the north-central regional workshop on natural organic substances at University of Minnesota-Minneapolis.

Kevin Mandernack, assistant professor of chemistry and geochemistry, has received a National Science Foundation CAREER Award. This is the second NSF CAREER Award received by the Chemistry and Geochemistry Department this year; the first went to Dan Knauer, assistant professor.

Ginny Mast, geology museum curator, was a guest curator for the "Rivers Run Through It" art exhibit at Footfalls Art Center. The exhibit is open through March 12.

By Tzvinkin, geochemistry professor, is technical program co-chair of the 9th International Workshop on Seismic Anisotropy in Houston in March. He was also elected chairman of the Translations Committee of the Society of Exploration Geophysicists. n
Colorado School of Mines in the 21st Century
Advances in biotechnology will likely be the economy's driving force.

By Leah McNeill
Director, Public Affairs

"It will knock the socks off the information technology revolution. It may take a while, but the signs are there."
Chuck Ferris
Colorado Commission on Higher Education

predicting the biological economic revolution.

W e are starting the century of biol-
ogy, according to the Institute for Genome Research, whose president pre-
dicted in Business Week last year that ad-
vances in biotechnology will be the driv-
ing force behind the economy of the 21st
century. This opinion is echoed by others in government and higher education:
National Science Foundation Director Rita
called the term "biocomplex-
ity," which refers to the integration of research in the life, physical and social
sciences with advanced technology.
Harvard-affiliated economist Juan In-
rieger Ccalc has predicted that "it sig-
nificant and increasing chunk of the
world economy will be dominated by the
life sciences.
Closer to home, Chuck Ferris, bio-
science programs director of the Colo-
rado Commission on Higher Education
(CCHE) also predicts that the next
economic revolution will be biological.
"It will knock the socks off the informa-
tion technology revolution, " he says. "It
can take a while, but the signs are there."
February
10 Golden Lunch Bunch. An informal lunch get-together of CSM alumni the second Thursday of every month at the Buffalo Rose in Golden, Colo. Order from the menu.
10 "Dolphins" at the Imax Theater, 7 p.m., Denver Museum of Natural History, 2001 Colorado Blvd. Adults $7; children and seniors (65+) $5. Call (303) 273-3999 for reservations.
10 Grand Junction Section Lunch. An informal lunch get-together of CSM alumni the third Thursday of every month at the Bookcliff Country Club, 2730 G Road. Call for further information: John Howe, (970) 242-4903 (B) or Del Tolen, (970) 256-1118 (B).
10 Mines Basketball at Metro State in Denver. Buffet starts at 6:15 p.m. in the Metro Gym.

March
9 Golden Lunch Bunch. An informal lunch get-together of CSM alumni the second Thursday of every month at the Buffalo Rose in Golden, Colo., center of 12th and Washington, 11:30 a.m.-1 p.m. Order from the menu.
9 Mines Vansty Alumni Soccer Match, Brooks Field, 2 p.m.
9 Houston Reception for Dr. Bickert. Location and time TBA.
9 Bone Valley (Florida) Alumni Gathering, Mine tour at 1 p.m., barbeque at 2 p.m. Call Dick Holmes for details at (941) 653-0064.

April
1 Golden Lunch Bunch. 11:30 a.m.-1 p.m. Buffalo Rose in Golden, Colo. Order from the menu.
1 "Bus Stop" at the Source Theater. 8 p.m. Denver Center for the Performing Arts, 1050 13th Street.
1 Grand Junction Section Lunch. An informal lunch get-together of CSM alumni the third Thursday of every month at the Bookcliff Country Club, 2730 G Road. Call for further information: John Howe, (970) 242-4903 (B) or Del Tolen, (970) 256-1118 (B).
1 Mines Choir Concert. 7 p.m. Redford Hall (FREE).

May
4 Reunion.
6 Golden Lunch Bunch. 11:30 a.m.-1 p.m. Buffalo Rose in Golden, Colo. Order from the menu.
6 Denver Section Luncheon, Southeast Area. 11:30 a.m., Metropolitan Club, 7800 E. Orchard, $20. Guest speaker Jim Duske BSc Min 73. Call (303) 273-3255 for reservations.
6 Mines Basketball at Metro State in Denver. Buffet starts at 6:15 p.m. in the Metro Gym.

June
8 Golden Lunch Bunch. 11:30 a.m.-1 p.m. Buffalo Rose in Golden, Colo. Order from the menu.
8 Denver Section Luncheon, Southeast Area. 11:30 a.m. Location TBA.
8 Grand Junction Section Lunch. An informal lunch get-together of CSM alumni the third Thursday of every month at the Bookcliff Country Club, 2730 G Road. Call for further information: John Howe, (970) 242-4903 (B) or Del Tolen, (970) 256-1118 (B).
8 Mines Alumni Band. 11:30 a.m.-2 p.m., Buffalo Rose in Golden, Colo. Order from the menu.
8 Grand Junction Section Lunch. See listing under Feb. 17 for details.

Visit the CSMAA website: csmaa.mines.edu/alumni

In Their Own Words:
Mines Men in the Korean War
By Steve Voyack

The following is the first of a two-part account of the Korean War (June 1950-July 1953) based on recollections of Mines men who served in Korea during that conflict. The article was prepared with the assistance of Norman R. Zeh EM 52, MSc Min 56, Medalist 77, Men Min 96, former director of the Colorado School of Mines Alumni Association and assistant editor of the three-volume Encyclopedia of the Korean War.

On June 25, 1950, infantry and armored units of the North Korean People’s Army surged across the 38th parallel into South Korea. The bloody, three-year-long war that followed affected millions of Americans, but more so directly than the 1.5 million American military personnel who rotated in and out of wartime Korea. The war altered the plans and lives of more than 380 graduates and students of the Colorado School of Mines who served in the U.S. military from 1950-1953. For those Minesmen who served in Korea in combat and combat-support roles, the war was a landmark event that helped shape not only their own lives, but the geopolitics of the latter half of the 20th century.

When the Korean War broke out in 1950, the military was already well represented at Mines. Many students were World War II veterans who attended Mines with the help of the GI Bill. Some were discharged, while others maintained military connections as reservists. Many non-veteran underclassmen had also joined reserve or national guard units to earn a few dollars to help meet school expenses. Army military science instruction had begun at Mines in 1873. An Army Reserve Officer Training Corps (ROTC) program, one of the first four in the United States, was established at Mines in 1919. In the 1950s, thanks to the prominence and excellence of its ROTC program, Mines was known as the “West Point of the Rockies.” By 1950, the Mines ROTC program had graduated hundreds of second lieutenants into the U.S. Army. All non-veteran students were required to take two years of ROTC.

When the Korean War mandated a threefold increase in the size of the U. S. Army, the newly-formed Department of Defense reactivated the draft and called up many reserve and national guard units. A deferment arrangement allowed Mines students to continue working toward their degrees, provided they remained active in the ROTC program, which would lead to Army commissions and induction into active service upon graduation.

During the Korean War, most Mines men who entered military service ended up in the Army Corps of Engineers, the ideal place to apply their engineering skills. But Mines men also served in all branches of the military as everything from infantrymen and sailors to cartographers, supply officers and pilots. During the war, not all Mines men in the military actually served in Korea. Many were assigned to duty stations in places like Europe, Alaska, Japan and the Philippines. Together, their enormously varied duties reflected both the broad scope of the Korean War effort and the buildup of national defense capability during the early years of the Cold War.

The Korean War originated in the political chaos that followed the Japanese surrender at the end of World War II. When Japan, which had forcibly occupied Korea since 1910, relinquished control, the peninsula was arbitrarily divided into zones of Soviet and American occupation, north and south of the 38th parallel. The Soviets installed a communist government in the north with Kim Il Sung, a Korean exile who had lived in the Soviet Union, as premier of the Democratic People’s Republic of Korea. When American efforts to unify the country under a republic regime failed, the Republic of Korea—South Korea—installed Syngman Rhee as president in a free election.

North of the closed border, the Soviets trained and equiped a large army, then withdrew, challenging the United States to withdraw its troops from the south. Lacking funds to support further Korean operations, the U.S. Army withdrew its occupational forces in June 1949.

One year later, the North Korean People’s Army (NKPA) crossed the 38th parallel in an attempt to forcibly unify the country under communist rule. In an emergency session, the United Nations Security Council voted to send troops to support South Korea. The U.N. troops were composed of American and Allied forces and commanded by Gen. Douglas MacArthur.

The surprise NKPA invasion caught the Republic of Korea unprepared...
**Built and blew up bridges; built and blew up roads; built fortifications and blew up fortifications...**

Got hot and wet and learned all about cold, and all about hot dust and cold dust, and warm mud and freezing mud.

—Spencer R. Titley Geol E '51

*Winter 2000*
Maps used for tactical purposes literally had to be medevac and supplied one way or another. Laid mine fields and blew up or took up minefields. Laid wire and blew it up. Got hot and wet and learned all about cold, and all about hot dust and cold dust, and warm mud and freezing mud. Learned how to traverse a rice paddie quickly in summer and how to hide in one in winter. Learned what they smelled like and why. Learned that there was no way to bridge a river in flood and that a floating bridge was no solution. Learned about enemy reconnaissance in the light of the moon, and the dark of the moon."

Army 1st Lt. Tyler Brinker PE '50 served with the 3rd Engineers, 24th Infantry Division. "We built roadways for military and supplies up the Korean mountains, just like at Silverton (Colorado) for the mines."

In Korea, the U.S. Army actually had two jobs—fighting a war and training the ROK Army. Robert W. Meader Geol E '51, a first lieutenant engineer officer served with the Korean Military Advisory Group (KMAG) as an instructor with the ROK Army Engineers School at Chinhae.

Military Advisory Group (KMAG) as an instructor with the ROK Army Engineers School at Chinhae.

When the war began, accurate, reliable maps of Korea were nonexistent. Maps used for tactical purposes literally had to be made from scratch, a job that utilized the skills of Mines men like Army 1st Lt. Paul J. Frim Geol E '52, a cartographer with the 420th Engineer Aviation Topographic Battalion.

Fritts's commander at Mines, Army 1st Lt. William F. Oline Geol E '52, a pilot with the 306th Engineer Aviation Topographic Battalion, felt fortunate not to experience combat. "Since nobody shot at me and I loved flying, my service time was generally enjoyable."

But Korea offered more than enough combat to go around. Marine 1st Lt. James D. Jerrell EM '52 faced combat as a forward observer with the 11th Marine Artillery Regiment, 1st Marine Division. First Lt. Robert W. MacCannon Met E '51 EM '54 saw combat as an engineer officer with the 187th Airborne Regimental Combat Team.

James V. Bonds EM '52, a first lieutenant with the 116th Combat Engineer Group, distilled his recollections of Korea to what he felt were its basic fundamentals. " Mud, snow, ice and water."

Keith G. Comstock Met E '50 MSc Met '58, a first lieutenant with the 3rd Infantry Division who later became a colonel, took things a bit further, summing up his wartime experience in words with which most servicemen would certainly agree. "My recollections of Korea are of being cold most of the time and devastated by the constant casualties."

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Steve Voynick is a freelance writer from Leadville, Colo. His most recent book is Climax; A History of Colorado's Climax Molybdenum Mine. During 1964, Voynick served with Charlie Battery, 4th Bn., 76th Artillery (7th Infantry Division) at Munsan-ni, Republic of Korea.

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Colorado School of Mines had 30 student-athletes named Academic All-Rocky Mountain Athletic Conference for the fall of 1999. Included on the list were three men’s golfers, 10 football players, seven cross country athletes (four women, three men), five men’s soccer players, four volleyball players and one member of the men’s tennis team. Furthermore, golf’s Jack Sayers and football’s Justin Murray and Forrest Buckner all earned perfect 4.0 grade-point averages. In order to be named Academic All-
Mines Magazine

Winter 2000

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Wriggling through tunnels barely big enough for a man’s body, rappelling down jagged cliffs and slowly traversing slippery, slime-covered rocks, all in complete darkness more than 1,000 feet beneath the surface of the Earth may sound like a nightmare to some. But to Paul Burger BSc Geol ’91, MSc Geol ’99, it’s the job of his dreams.

Burger is a hydrologist at Carlsbad Caverns National Park. One of his duties is to help researchers collect samples in Lechuguilla (lech uh GEE yah) Cave, the greatest cave discovery in the past 50 years. “Not a day goes by where I don’t think ‘I can’t believe I’m paid to do this,’” he says. The discovery and exploration of Lechuguilla Cave is an exciting one fraught with danger and intrigue. That story is told by Burger and three co-writers in a recently published book, Deep Secrets.

Lechuguilla Cave, named for a blue-green plant in the agave family found in the surrounding area, is located in the Guadalupe Mountains of southern New Mexico on national park land. Despite the discovery of nearby Carlsbad Caverns 100 years ago, Lechuguilla remained unknown, except as a shallow cave where bat guano was harvested in the 1800s.

In the mid-1950s, a park ranger visiting the cave noticed a strong wind blowing through rocks at the back of the cave and recorded his observation in a report. In the late 1970s, members of the Cave Research Foundation (a private, non-profit group dedicated to promoting the long-term preservation of caves) came across the report and decided to check it out. Caves react to changes in barometric pressure, so strong winds indicate the presence of an extensive network of passages. When the pressure falls, air inside the cave rushes out. When pressure rises, air rushes in. The larger the cave, the more wind rushes in or out as the cave tries to reach equilibrium.

Digging at the back of the small cave began in earnest in 1984. Work was sporadic as expeditions had to be arranged when people were off work, usually during holidays. In 1986, the diggers finally broke through and were awestruck by what they found.

During this time, Burger was growing up on Air Force bases around the country. In the early 1980s, his family moved to Colorado and to keep her children occupied for the summer, his mother signed them up for a spelunking class, although she didn’t know what it was. Burger says he was afraid of heights, the dark, and was also claustrophobic. But he conquered his fears and, he says, “I started caving in 1984 and have been caving almost every weekend since then.” In 1988, he made his first trip to Lechuguilla.

Lechuguilla Cave was formed by sulfuric acid rather than carbonic acid like most other caves. Reaching hydrogen sulfide from nearby oil fields mixed with water from the surface to create sulfuric acid. The acid ate away the limestone, forming the cave. The enormous cave—more than 100 miles of corridors have been mapped so far—contains some of the most beautiful selenite crystal stalactites ever found. It also has the longest soda-straw stalactite, more than 24-feet long compared to the previous record-holders of 8 feet. Although not part of the original team to discover the cave, Burger has chartered previously unexplored territory and has been able to name some of the cave’s rooms, passages and pits.

The discovery of Lechuguilla Cave caused enormous excitement among the caving community, but six months after it was penetrated, in-fighting among various parties interested in exploring the cave caused the park to close it for a year. It is now classified as a research-only cave and is not open to the public. Only six expeditions are allowed per year with no more than 12 members on each expedition. “The environment is so sensitive to traffic,” Burger says. In the past, fabulous discoveries were quickly exploited and caves were badly damaged. “The thrill of cutting-edge exploration just creates that excitement,” he continues. “It’s difficult to stop oneself from forging down passages where no other human has ever been.

In addition to mapping and exploring on his own time, Burger helps conduct research projects in the cave. One of the projects is a study of microbes that grow on rocks and pools within the cave. “These microbes are using rock as food to survive in an extreme environment. There’s a possibility of these types of microbes being found on Mars to NASA is interested,” he says. “There’s a potential for those microbes to be used to fight cancer. They are so aggressive, some microbes will consume leukemia cells.”

Burger came about his dream job at Carlsbad Caverns by following his heart. While still an undergraduate, he started taking a week off every other month to explore the cave. “It didn’t help my grades,” he says. “But it became my priority. I thought, ‘What will I remember in 15 years: what I got on a physics exam or how I explored Lechuguilla?’” The answer is obvious.
Mines Magazine

Winter 2000

reserving the Past

The art of preservation and restoration of documents requires an appreciation of historical materials, an understanding of chemistry and a lot of patience. Margaret Katz, collections conservator at Arthur Lakes Library since 1992, has the necessary qualifications and has risen to the challenge of caring for a collection of documents, much of it more than 100 years old and just sitting on shelves until her arrival. The library has been used by thousands of people over the years, she notes, “And many things are just falling apart from use.”

During her working day, Katz sits in a spacious room awash with natural light on the lower level of the library. She may spend the day piecing together tiny torn fragments of an ancient map, for example, restoring it to a readable condition. She may carefully separate stuck-together pages of an old book. Or she may spend her time strengthening new publications before they are shelved for use by the CSM community.

Katz came to preservation and restoration by a circuitous route. She received a bachelor’s degree in French from Alfred University in New York, but took many art courses including art history, which led to her current career. Recently, Rocky Flats donated an entire semi-trailer full of documents. In the mining industry, the Arthur Lakes Library collection is world famous, Katz says. Her task is to keep it in usable condition.

In addition to what is already in the library, gifts are always being made, and the library is always hungry for new materials. Recently, Rocky Flats donated an entire semi-trailer full of documents. In the mining industry, the Arthur Lakes Library collection is world famous, Katz says. Her task is to keep it in usable condition.

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ON THE MOVE

project engineer for M.K. Ferguson Corp. He lives in St. Charles, Mo.

Michael Carney BSc Geol is a manager for Schramberger, Ltd. He lives in Houston.

James P. Edler BSc Met is president and CEO of SilexRena, Inc., in Farmdale, Mich.

W. Durand Egeler MSc Min is vice president of Newmont Mining Corp. and president of Newmont Indonesia, Ltd. He lives in Denver.

David S. Hoss BSc Met, a senior engineer for ARWC, lives in Shatima, Okla.

1977

Allen E. May BSc Geop is project director, global procurement for BP Amoco in London, U.K.

Steven G. Roesch BSc Min is senior mining engineer for Jacobs Ranch Coal Co. in Gillette, Wyo. She lives in Newcastle, Wyo.

Michael J. Dern BSc Pet is a freelance consultant. He lives in Everett, Colo.

David A. Berget BSc Min is plant engineer for Rio Grande Cement Co. in Tijeras, N.M. He lives in Albuquerque, N.M.

1979

David W. Casselberry BSc Min is chief economist, corporate planning for Phillips Petroleum in Bartlesville, Okla.

Bruce W. Cavender BSc Pet is president of advanced operations Management, Inc. He lives in Tucson, Ariz.

Gregory M. Henningson BSc Geop, MSc Geop '84 is systems analyst for Forest Oil Corp. He lives in Houston, Ariz.

Timothy J. O'Grady BSc Geol has been named director and is also the president and chief executive officer of Heatilator, Inc., in Denver.

William D. Hinseb BSc Min is production manager for Sanwood Lomeco, Inc. He lives in Res, Texas.

Peter B. Papazian MSc is an electrical engineer for the National Telecommunications Information Administration in Boulder, Colo. He lives in Golden, Colo.

Pete J. Weader BSc Chem is treasurer of Dupont Dow Elastomers in Wilmington, Del.

1980

Debra J. (Bollacker) Bsc Geol is senior analyst for Burlington Resources in Midland, Texas.

Douglas Gable BSc Geop, MEng Geop '87 is employed by Kinross/Kivallik Exploration in Lafayette, La.

Thomas E. Jordan BSc Geop, MSc Geop '97 is vice president of engineering for Western Gas Resources, Inc. He lives in Westminster, Colo.

Steven M. Gruber BSc Pet is vice president/general manager for ENSCO Offshore Co. in Broussard, La.

1981

James Applegate BSc Geop is a graduate teaching assistant in the mining engineering department at University of Massachusetts.

John E. Bain BSc Geop is president of Galileo Geophysics, Inc. in Houston.

Mark A. Balderson BSc Pet is southwest Wyoming area superintendent for Salt River Project in Page, Ariz.

G. Timothy Fisher II BSc Met is a senior engineer-minesite service program for Newmont. He lives in Sierra Vista, Ariz.

Robert L. Clute M Eng Min is director of engineering at Marathon Technical Services and lives in Sunnyside, Wash.

George B. Gillilan BSc Met is a contract analyst for BHP World Minerals. He lives in Farnborough, N.H.

Wanda J. Eaton Bsc Geop, MSc Geop '93 is research associate for University of Colorado at Boulder.

Charles R. Wagner BSc Pet works for the Acordco Corp. as senior reservoir engineer in Houston.

Robert E. Block Bsc Eing is an information systems engineer for Experimental and Applied Sciences (EAS), in Las Vegas, Nev.

John J. Cambrozzi BSc Pet is manager of technical services for Johns Manville Corp. He lives in Lakewood, Colo.

Eric S. Danas Geop is product designer for Microsoft Corp. He lives in Redmond, Wash.

Jill M. (Kristian) Donoho BSc CPR is director of business development for Nexus Resource Corp. She lives with husband Donald Donoho in Lafayette, Colo.

Robert E. Farrar Bsc Pet is engineering manager for Black and Veatch. He lives in Lakewood, Colo.

Richard J. Jones BSc Min is in sales with Nalco Energy Chemical in Park City, Utah.

Linda A. Battaiora BSc Pet, MSc '88 is an attorney for Victor J. Boog, RC, in Lakewood, Colo.

1982

Jennifer A. Bollinger BSc Geop, MSc Geop '92 is research associate for Western Geophysical in Houston. He lives in West Lawn, Pa.

Joel D. Schneyer MSc Min Jr is president of Environmental Consultants, Inc. He lives in Washington, D.C.

1983

Scientist for Anesta and lives in South Jordan, Utah.

Steven C. Moore BSc Pet is a design engineer for Motivekon Kruskield Corp. He lives in Littieton, Colo.

Katherine T. Clemence Burger MEng Geol, PhD Geol '93 is a graduate assistant at University of Colorado at Boulder.

Matthew W. Enker BSc Min is in sales with Metals En 91 is a manager for Carter & Burgess and lives in Lakewood, Colo.

Craig Friesen Bsc Eing is project manager for Metal Control Engineering, Inc. He lives in La Paz, Bolivia.

Larry A. Cramer BSc Met is chief consulting metallurgist-contractor for Anglo American Platinum Corp. in Johannesburg, South Africa. His e-mail address is lcramer@amplats.co.za.

Claudio Mingelletti Bsc Geop is a geophysical consultant for Western Geophysical in Houston. His home is in Naples, Italy. His e-mail is claudio.mingelletti@wgb.com.

Scott Muller BSc Env Sc is a senior research engineer for Storage Technology Corp. and lives in Broomfield, Colo.

ON THE MOVE

Steve Bsc Pet and Penny (Wright) Bsc Met Owlets have a daughter, Darcie Kangas, born Sept. 13 in Longmont, Colo.

Bryan R. Young Bsc Met is project manager for JT Thorpe & Son. He lives in Sandy, Utah.

1992

William T. Beltz Jr., BSc Min is a metallurgical service engineer for Rouge Steel in Dearborn, Mich.

Robert W. Dalton Bsc Eing is staff engineer for Infinite Engineering and lives in Scottsdale, Ariz.

Wendy K. (Monroe) Hahn Bsc Met Sr is a member of the technical staff at Los Alamos National Laboratory, New Mexico.

Lisa Bsc Math and Bryan Bsc Min '91 Mortimer had a daughter, Grace, Jan. 7. She weighed 8 lbs. 11 oz. and was 20 in. long.


Kenneth E. Tollef Hydrogeologist is project hydrologist for Delta Environmental and lives in Naples, Fla.

Gary D. Will M Eng Geol is a hydrogeologist for Wright Water Engineers, Inc. He lives in Littleton, Colo.

1993

Evan R. Anderson MSc Min is a geophysicist at Molybdenum, Inc. He lives in Littleton, Colo.

Larry A. Craner BSc Met is chief consulting metallurgist-contractor for Anglo American

Platinum Corp. in Johannesburg, South Africa. His e-mail address is lcramer@amplats.co.za.
Schwartzberg Analyzes Why Bad Things Happen

After graduation from Mines, John also went to work for Martin Marietta. But by 1992, the company was downsizing and John decided to join his father, Fred Schwartzberg Met E '53 (seated) in the failure-analysis business with his father, Fred Schwartzberg Met E '53. "It's engineering detective work," John Schwartzberg explains. "It's like putting a puzzle together. Sometimes the pieces aren't there and you have to recreate what happened. In addition to determining how events occurred, the Schwartzbergs can also prescribe suitable repairs.

A case they recently worked on involved a [redacted] after an [redacted] failed, drooping a heavy weight on his foot causing a serious break. It turned out the equipment was designed and built by a group of weightlifters. They had come up with a great idea, but [redacted] had determined what was necessary to make the product work. "We often run into situations like this," Schwartzberg continues. "We see lots of products that were never engineered. We call them 'Billy Bob' products. "Failures of equipment such as this underscore the importance of having a product engineered to ensure safety.

The elder Schwartzberg began the firm, Entech located in Denver, in 1983. He had employed in the aerospace business with Martin Marietta, and wanted to get back into engineering. "About that time, I was living out of the country," says John, who has journalism and political science degrees from University of Colorado-Boulder. "I stumbled into going back to school for an engineering degree.

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continued from previous page

Pearson wanted to be a teacher so he started at Colorado State College of Education (now University of Northern Colorado). After only one quarter, he dropped out and enlisted in the U.S. Navy to serve in Korea. During his en-
service, he witnessed the test of the hydrogen bomb.

After returning to Colorado, Pearson decided to try CSM and chose petroleum engineering as his major. “I didn’t like it,” he says. “But I was too stubborn to quit.” Along with his engineering stud-
es at Mines, he also pursued his real in-
terests—sports. “I loved the athletics,” he says. “I was a half-back on the track team. I played basketball. I was the foot-
ball manager my senior year. And I also
directed the Barbs [a non-Greek] in in-
terfraternity.”

Gilbert ‘97 Is Part of Peace Effort in Kosovo

Christopher Gilbert BSc Eng ‘97 is currently an engineer in one of the world’s hot spots supporting the U.S.

“coached basketball, baseball, softball,
soccer, tennis, intramurals and helped with track,” he recalls. He was assistant basketball coach for 26 years during which time the team won two conference championships. “I thought of coaching as a life career,” he says. “But I thoroughly enjoyed it.”

Five years later, in 1966, he re-
turned to Mines as a coach and business manager and stayed until his retirement in 1998.

Mines has mountains to rival Colorado’s. “Usually we don’t have power or heat so a lot of people sleep in their of-
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Paul A. Archibald

Paul A. Archibald M.B.E. 35, a resident of the Masonic Home in Elizabethtown, N.Y., died May 7 at age 87.

Archibald, originally from Maine, was a veteran serving as a major in the U.S. Army during World War II. After the war, he was chief metallurgist and vice president of Standard Steel, Based in Boston, he later in life worked at U.S. Steel and Rio Grande Railroad in Denver.

Archibald was a member of East Kiskiopaug Presbyterian Church, Reedsville, N.Y., Lewiston County Club, Masonite Lodge 160, Middleburg, Elk Lodge No. 650, Lewiston, CS-MAA Alumni Association and Beta Theta Pi. He is survived by his daughters Janice and Carol Crafa, seven grandchildren, nine great-grandchildren and two great-great-grandchildren. Paul A. Archibald M.B.E. 35

Duane John Fritz

Duane John Fritz Ph.D. 51, of Durand, Okla., died Oct. 1 at the age of 78.

After graduation from high school in his native Chicago, Fritz joined the USGS Conservation Corps in 1939 and was stationed in Illinois, Missouri and Nevada.

In 1942, Fritz enlisted in the U.S. Army, and was sent to the Aleutian Islands. During a routine inspection tour for mines, a trap accidentally discharged killing all the members of the crew except for Fritz and the commanding officer. Both were critically wounded and Fritz lost his left eye. He was transferred in 1944 to the Aleutian Islands and stationed there. Fritz is survived by his widow. The Fritz family is being assisted by the Chicago Historical Society.

William Jackson

Guerdon E. Jackson EM'52 died Oct. 11 at the age of 72.

Jackson was an honors graduate from Harvard University. He was a distinguished international career including chief mining engineer for Amoco Minerals. His expertise was...
IN MEMORIAM

Milton Leroy Little
Col. Milton L. “Lee” Little died Sept. 30 at his home in Granbury, Tex. He was 67.

Although Little never graduated from CSM, he attended off and on from 1950 to 1955. According to his twin, Thomas Wilson Little ‘54, “One of the valuable things he took from Mines was a completed senior RCTC program.”

After attending CSM, Little graduated with an earth science degree from Texas Christian University and a master’s degree in personnel management from George Washington University. He attended the United States General Staff College in 1970, the Armed Forces Staff College in 1971, and the Army War College in 1977.

Little served in the U.S. Army for 25 years and had two tours in Vietnam. He was Army Corps of Engineers district engineer during the construction of the Corps most expensive-to-date project—a $25 billion fort, KKMC. He retired in 1977.

After retirement, Little worked as a contract administrator for King County Highway Commission for seven years. He was a member of Magnolia Presbyterian Church and did volunteer carpentry, janitorial, and office work. During his retirement he enjoyed corresponding with his classmates. He and his wife also enjoyed writing, traveling, gardening, Kiwanis and investments.

Allan P. Nesbitt Jr.
Allan Preston Nesbitt EM ’38, a lifelong member of the Alumni Association, class agent and a guiding force when Mines Annual Fund first started was honored by his widow, Virginia, two daughters and seven grandchildren.

Louis B. Parks
Louis B. Parks ‘48 of Chardonville, Ga., died May 9 at his home at age 75.

Parks was a Navy veteran of World War II. While stationed in Miners, the Denver native played basketball and football and was a member of Alpha Tau Omega, Blue Key and Theta Tau. He attended

 helped mining companies improve their financial and operational planning and reduce capital and operating costs.

James E. Cole EM ’35
Michael C. Dougler BSc Pet ’85
Frank E. Hayward PE ’32
Herbert D. Hegland PE ’35
Robert J. Illentz BSc Pet ’43
Stanley T. Scroth Geol ’35
Harvey W. Smith EM ’49
George E. Wunder EM ’53

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Okinawa. After 56 months of active duty he was discharged and he returned to U.S. Smelting as superintendent of a four mine complex at Elko, Nev.

In 1948, Wunder began an 18-year career with the National Lead Company. He became a key executive with duties encompassing the research and development, dedication, Nickel Processing Corporation and the construction of the first magnesium extraction plant, built on the western shore of the Great Salt Lake, Utah, to extract magnesium and other by-products from salt water. Wunder then joined the New Jersey Zinc Company in 1967 as executive vice president with responsibility for all company operations. He then moved to The Anaconda Company where he was vice president and director of technology advising the vice chairman and division presidents on Anaconda’s projects and operations in the United States, Chile, Indonesia, Iran, Mexico and Poland. Wunder retired in 1976.

In retirement, he pursued his passion for the outdoors. He was president of the Port Washington Sportsman Club and an active member of the Manhasset Bay Yacht Club. He continued his hunting and fishing activities throughout the United States until summer of 1999.

Wunder reached the pinnacle of success in life by achieving the respect and admiration of all those with whom he associated. He was a loving husband and father and totally dedicated to his family and to the School of Mines, both of which he believed made his success possible. He is survived by his wife Frances, three children, four grandchildren and two great grandchildren.
Central Region

St. Louis, Mo.

Terry Laverty EM '70 organized a Sunday afternoon get-together for the revitalized St. Louis section. The group met in the bar of the Marriott Pavilion in downtown St. Louis. Remembrances were shared and stories were told. Michael Watson, CSMAA executive director, was on hand to update members on school activities. Several of those present volunteered to serve as high school student recruiters.

Metro Denver Region

Dr. John Trefny, CSM vice president for academic affairs and dean of faculty, discussed the current status and future plans for buildings and curriculum at the September quarterly meeting at the Metropolitan Club. In attendance were Dick Beach Geol E '66, Ed Crabtree EM '60, Bill Ziech BSc Min '70, Michael Watson, Bob Pearson PE '59, Cathy Carrell BSc Geol '75, Bill Engal Met E '60, Mines Medals '94, John Ferrell MSc Env Sc '83, Jack Haley PE '48, Glen Jameson MSc Env Sc '95, Kevin Kidd BSc Min '98, Lee Mathews PE '48, Paul Mathias PE '63, Jim Mulryan EM '54, Charles McNeil BSc Min '71, Medalist '98, John Pfeiffer BSc CPR '71, Lou Phannenstiel PRE '54, John Schwartzberg BSc Met '88 and Doug Ward BSc Pet '74.

Nineteen petroleum engineering graduates and guests attended a luncheon at the Petroleum Club in downtown Denver. In attendance were Dick Beach Geol E '66, Ed Crabtree EM '60, Bill Ziech BSc Min '70, Michael Watson, Bob Pearson PE '59, Cathy Carrell BSc Geol '75, Bill Engal Met E '60, Mines Medals '94, John Ferrell MSc Env Sc '83, Jack Haley PE '48, Glen Jameson MSc Env Sc '95, Kevin Kidd BSc Min '98, Lee Mathews PE '48, Paul Mathias PE '63, Jim Mulryan EM '54, Charles McNeil BSc Min '71, Medalist '98, John Pfeiffer BSc CPR '71, Lou Phannenstiel PRE '54, John Schwartzberg BSc Met '88 and Doug Ward BSc Pet '74.

Soccer Match Planned

An alumni/varisty soccer match is set for 2 p.m., Saturday, April 1 at CSM's Brooks Field. Bob Pearson is organizing a team of recent graduates to challenge Frank Kohlenstein's spring squad. A picnic or party is planned after the match. If you didn't get invited and would like to play, call him at (303) 273-3959.

Luncheon with Speaker Coming Up

Jim Gusek BSc Min '73 will discuss "The Straight Poop on Passive Treatment of Acid Rock Drainage" 11:30 a.m., March 16 at the Metropolitan Club, 7800 E. Orchard. Cost of the luncheon is $20. Call (303) 273-3295 for reservations.

Rocky Mountain Region

Colorado Springs

Fifty-one alumni, parents and players shared a buffet between the women's and men's basketball games when Mines played at University of Colorado-Colorado Springs Jan. 14. The buffet was in the library next to the gym. It was hosted by Kenji Farenelli BSc Geop '74, Colorado Springs section coordinator.

The women won their game 64-47; the men lost 75-70.

Greeley

From left, Mines juniors Matt Chase, Jody Trenholm and Nate Mascarenas are congratulated by Coach Lewis for their wins in the UNC match Jan. 13.

Calling All Musicians and Singers!

With nearly 5,000 CSM alumni living within the Denver metropolitan area, it has been proposed that a group be organized to participate in next year's homecoming parade. If enough people are interested, a marching band could be assembled that gets together occasionally to practice. The band could then march in the parade and if members were interested, perform at other events. In addition, if enough singers are interested, a chorus or quartet or other group could be formed. During Homecoming, that group could ride on the float the CSMAA plans to design and build for this fall's event. If you are interested in either endeavor—whether as a potential leader, organizer, or as a participant—please contact Bob Pearson at (303) 273-3959 or rpearson@mines.edu.
Do you remember why you decided to attend the Colorado School of Mines? Do you remember why you stayed to graduate? Would you like to talk to high school students about your decisions, experiences and career? If so, consider participating in the Alumni Admissions Representative (AAR) program.

Throughout its history, Mines alumni have encouraged outstanding young men and women to consider their alma mater. Your participation in the AAR program helps the school reach students the admissions office can't afford to contact in person. You can help by:

• attending college fairs in your area;
• receiving calls from prospective students when they want to talk with someone locally;
• calling accepted students and inviting them to attend a program on campus;
• presenting scholarship awards at high school awards assemblies on behalf of Mines; and,
• hosting a send-off reception for enrolling freshmen from your area.

Last fall, alumni represented Mines at 28 college fairs in Texas, California and Alaska and have contacted more than 500 students to date. Here are examples of what alumni had to say about their experiences:

"It was splendid! We were busy most of the night with many interested people. Sometimes we had two or three people stacked up and ready to speak with us. This was definitely a success! I hope we get the opportunity to do this college fair again next year."

Roxann MacKenzie Hayes, EG'95, Houston, Texas

"I had a lot of traffic, much more than I expected. Not many people had heard of the school, but they were often attracted by the location. Those who were interested in engineering stayed to talk and get information. I think it was worth doing, and I'd be happy to do it again."

Dan Krygowski MSc Geop'75, PhD Geop'78, Austin, Texas

"It was fun and went really smoothly! We had 93 contact cards turned in. I know that the alumni made a positive impact in the lives of the local kids who stopped to talk."

Tom Walker, PE'89, Anchorage, Alaska

The college admissions process has become more complicated for high school seniors. Outstanding students are actively recruited by many top-notch schools and the schools that are chosen are the ones that can provide the best education for the money. The best information the students can get is to hear how Mines alumni have succeeded in a variety of careers. Even better is when they can hear it from the source.

We'd like to increase our representation in other areas of the country. We feel that through personal contact, we can increase the number of out-of-state students who decide to enroll. If you attended Mines as a non-resident, you understand how important that contact is when students make their college decision. All our alumni representatives receive the latest material from the admissions office including view books, applications, catalogs, brochures, information sheets, etc., so that they are well prepared to talk to students. If you decide to participate, you will receive the Alumni Admissions Representative Handbook to help you in your efforts. Also, you will be notified of training programs in your area and of new developments on campus.

Many alumni have told me this program gives them a wonderful opportunity to give back to the school. This is especially true for young alumni who don't have the financial resources to give but want to contribute in some way.

If you have any questions, please call me at (303) 273-3291 directly or toll-free at (800) 446-9489, ext. 3291, 8 a.m. - 5 p.m. MST, or e-mail me at mpott@mines.edu.
The Colorado School of Mines Alumni Association thanks the following individuals who, in addition to paying their annual membership dues, made contributions to the Alumni Association during 1999. For more than 100 years, the Alumni Association has operated as an autonomous independent non-profit organization dedicated to serving the interests of Mines alumni. Contributions support the CSMAA student financial assistance fund, the endowment fund and the general operations fund.
The History and Significance of Agricola's De Re Metallica

By Robert Sorgenfrei

At each commencement ceremony, a copy of De Re Metallica is carried by the president of the faculty senate in the procession. It is carried as a symbol of the academic enterprise at Mines. Why is a book originally published in Latin in 1556 considered so important more than 400 years later? What gives this book its enduring value and place in scientific literature? To answer these questions, we must go back and examine the life of its author, Georg Bauer, better known by his Latin name, Agricola.

Agricola was born in 1494 in Glauchau, Germany, 40 years after Johannes Gutenberg published the first book with movable type and two years after Christopher Columbus discovered the existence of the New World. The Renaissance was in full swing and the Age of Discovery had started. Agricola was appointed physician to the town of Joachimsthal (now Jachymov in the Czech Republic). This region of Europe is rich in ore deposits and to this day remains an area of metal mining. Agricola became fascinated with mining and spent most of his free time observing local mining operations, asking questions and studying the few books on the subject.

In 1539, he began writing De Re Metallica, or On Metals. The Latin title would translate into English. The book encompasses virtually everything there is to do with the mining industry. It is divided into 12 books or chapters. Sections discuss mining methods, metallurgical processes, mine investment, mine administration, mining law, diseases of miners and the effects of mining on the environment. The text is greatly enhanced by a series of 273 magnificent woodcut illustrations by Hans Rudolf Duesch. The woodcuts show in great detail the technology used in ore haulage, use of water power, pumps, ventilation techniques in mines and metallurgical methods. Agricola also made a contribution to physical geology by describing his observations of how wind and water help determine landscapes. He was far ahead of his time using geological observations in a dispassionate, objective manner. Unlike some of his contemporaries, he did not delve into alchemy and attributed magical properties to minerals. He was not only a great Renaissance scholar, but a true scientist, composing one of the first masterpieces of technical writing.

De Re Metallica was completed in 1550, but was not published until a year after Agricola's death in 1556 because it took a great deal of time to finish the woodcut illustrations. The book remained the definitive book on mining and metallurgy well into the 18th century. It is still perhaps one of the best works describing pick- and-shovel mining operations that technological advances in the 19th century finally supplanted. Four editions of De Re Metallica were published in Latin (1556, 1561, 1621 and 1657). German editions were published in 1557, 1560 and 1621. An Italian edition was published in 1563. It was not until 1912 that the first English edition was published. In that year, mining engineer and later President Herbert Hoover and his wife Lou published their translation in London. It remains in print to this day in a softcover edition published by Dover Publications. The closest place to see copies of De Re Metallica is in the Russell L. and Lyn Wood Mining History Archive in the library on campus. The archive has an original first edition as well as the third and fourth Latin editions. The archive also contains copies of the Hoover edition and its later trade editions. The first edition is amply well preserved as the paper it was printed on is high quality cotton rag with virtually no acidic impurities. The paper in the first edition looks fresher than the paper in many books published centuries later. The original first edition as well as the other editions can be seen in the archive any afternoon Monday through Friday.


A page from De Re Metallica shows a drawing that illustrates three machines used in mining that are described in the text.

John McLaughlin Heads to Austria for a Semester Abroad

Third-year petroleum engineering student John McLaughlin is looking forward to spending spring semester in Austria studying resource engineering and learning to speak German. He already reads French well and will study German for two hours a day during his stay. His future dream job, however, will be with an oil company in South America or Southeast Asia.

McLaughlin, a native of Iowa, attended boarding school in Connecticut, but wanted to head west for college. "I wanted to go somewhere where I had to work hard," he says. "It wasn't as exciting a job as I was looking for. There's not that much creativity involved. Now McLaughlin is contemplating a career as a reservoir engineer. Last summer he worked for Phillips 66 in Odessa, Texas as the reservoir engineer on a team with a geologist and geophysicist. He studied well completion methods, worked on the economics of drilling, completing/stimulating, and producing the same gas plays and also did oil prospecting."

"I just received an e-mail from my old boss that one of the old well holes I was looking at recompeting turned out to have five producing zones and the well will pay for itself in five days!" he says.

In addition to academics, McLaughlin is also an avid skier and mountain biker. In high school he ran track and holds two school records. He also plays piano, cello and trumpet.
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