

CENTENNIAL CELEBRATION



A CENTURY OF WOMEN AT MINES

A retrospective collection of the
challenges, victories and achievements
of Colorado School of Mines alumnae

A CENTURY OF WOMEN AT MINES

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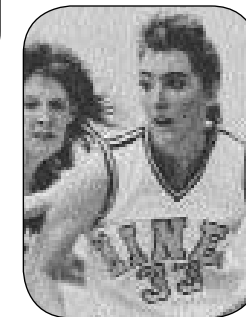
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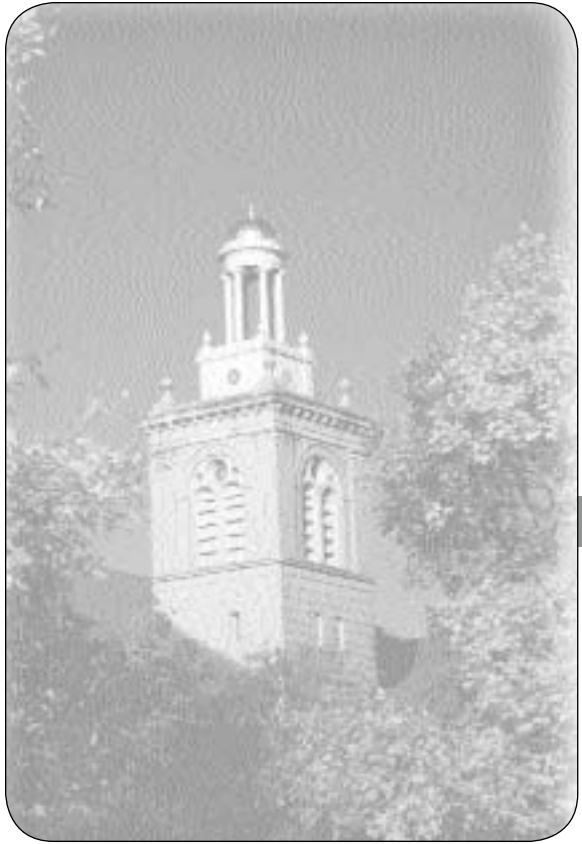


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INTRODUCTION



INTRODUCTION

The Century Book outlines the evolution of women’s participation in studies at the Colorado School of Mines. This document originally started out to be a memory book for the Caldwell Celebration that was held by Mines women, for Mines women, October 3, 4 and 5, 1998. During the 100 years from 1898 to 1998 over two thousand women have graduated from this distinguished institution. This is a significant accomplishment, especially if one considers that only nine women had graduated during the seventy-year period from 1898 through 1968.

The depth and goal of the Century Book has grown during its creation. As members of the committee have sifted through archives and alumni files, *Mines Magazines* and *Orediggers*, it has become apparent that a wealth of information has been buried and it could be lost to posterity if it is not documented. The committee has made every effort to be accurate and to report the truth about the history of the Mines coeds and the school itself. However, information has not been well organized and is, at times, contradictory. If there are mistakes or omissions, please send corrections or additions so an accurate history can be saved for future generations.

The information in this history has been broken down into six eras and one section to document the celebration itself. They are:

- The Early Years (1895–1959):** The Pioneers
- The 1960s:** The Beginning
- The 1970s:** The Caldron
- The 1980s:** The Transitional Years
- The 1990s:** Part of the Crowd
- The Florence Caldwell Centennial Celebration**
- The Future:** Comments from President Bickart

As the committee has worked on assembling the information to be presented in this documentary, the evolutionary process has become familiar. The Early Years are obvious; four women graduated during this time period. The enrollment of women students became more and more acceptable during the 1960s, pre-ERA (Equal Rights Amendment). During this decade, a total of ten

women graduated. No longer will a coed have to brave the challenges of the school without the companionship of other Mines coeds. However, classes were still generally limited to one woman per class with few exceptions.

The Caldron of the 1970s saw the advent of the equal rights movement, environmental regulations, an escalation of the controversy and strife of Vietnam and the civil rights movement and other substantial changes in our world. During this decade, 153 more women graduated from Mines. Graduates of this decade seemed to express feelings of anger and frustration, perhaps because of the changes swirling about them while they were students. This decade signified a loss of the old, comfortable roles and positions that had been enjoyed and a confrontation of the uncertainty of all the unsettling transformations taking place in society.

The 1980s could be called the transitional years. Students weathered the upheaval of the caldron just as the country did. Mines women established a clear, sustained presence on the Colorado School of Mines campus. During this time women began to participate in all available activities and established some of their own. This is the decade where a feeling of belonging was generated.

As the twentieth century nears an end, the feelings seem to have evolved to a period of acceptance. The female graduates of this decade do not seem to feel the sting of being different and the attitude seems to have changed to “what’s the big deal?” We belong here, too. All student are just “one of the guys.”

Although this educational institution has been dominated by men and by traditions oriented towards males, women now have a firm place here, too. This document is an effort towards recognizing the accomplishments of women who dared to break traditions and establish a foothold as engineering professionals trained at the World’s Foremost School of Mineral Engineering. This book is dedicated to the women, graduates or not, who are known by name or not, who attended the Colorado School of Mines during its 125-year history. This book is also in recognition of the women who have served on committees and served tirelessly to make the Florence Caldwell Centennial Celebration a success. This is their story. This is our story. Thanks to all of the individuals who have contributed to this project and to all of the individuals who have supported this project, directly or indirectly, male or female, young or old. For we all are the foundation upon which this institution and its fame are based.



THE EARLY YEARS

(1895–1959)

THE PIONEERS

THE PIONEERS

Timeline

The Early Years (1895–1959):

THE PIONEERS

1800

- 62.9 million people lived in the United States
- One out of seven inhabitants of the U.S. had been born abroad

1895

- Clutch operated car with a carriage body was introduced
- Natural gas was discovered in Kansas

1898

- The Spanish American War ended
- The Republic of Havana was transferred to the U.S.

1899

- The term “automobile” was coined in a *New York Times* editorial

1900

- 630,000 high school students in the U.S.
- 237,000 students were enrolled in colleges and universities
- 60 out of 100 people lived in the country
- Eastman Kodak introduced the Brownie Camera

1901

- The stock market dropped \$100 million for U.S. Steel alone
- President McKinley was shot and Theodore Roosevelt succeeded him
- Rockefeller was worth \$200 million

The earliest years of the Colorado School of Mines, women were not strangers to the campus. The 1880–1881 President’s report to the Board of Trustees, noted that there were 18 “regular” students and 51 “special” students including 13 ladies that attended lectures and drawing classes. In 1881 a total of 33 ladies attended the drawing classes and special lectures.¹ Shortly thereafter, the school made a concerted effort to raise its standards and formalize the course of instruction to include a four-year curriculum. This change in policy eliminated the courses that had been so popular.

Dean Morgan suggested in his 1955 book that “the original founders of the school never dreamed of the School of Mines as a coeducational institution.”² However, the Territorial Act of 1874 established the School of Mines as a Territorial School by stipulating that “The School of Mines shall be open to any inhabitant of the Territory of Colorado without regard to sex or color.”^{2,3} The combination of the clear wording of the Act and the relatively high attendance of women students following the act suggests that the legislators knew precisely what they were doing and contradicts Dean Morgan’s comments.

During the first 75 years of the school’s existence (1874 to 1949) a total of four women graduated from the Colorado School of Mines. They were:

Florence Caldwell Jones
C.E. (Civil Engineer)
1898

Ninetta Davis
E.M. (Engineer of Mines)
1920

Grace McDermut Mulligan,
E.M. (Engineer of Mines)
1903

Jacquelyn Borthick Kircher
P.R.E. (Petroleum Refining Engineer)
1949

What prompted these women to attend a predominantly male engineering school during this era? Grace C. Updike McDermut entered Mines in 1899 at the suggestion of an aunt who had invested in the Razzle Dazzle gold lode in Colorado. Grace’s parents and aunt thought she

should study mining engineering so she could oversee the mine.³ Both Ninetta Davis and Jacqueline Borthick were residents of the Denver area. Ninetta Davis was a native of Colorado. She was born in Denver on April 12, 1899 and graduated from East Denver High School. Jackie Borthick did her preparatory work at Kent School in Denver. She lived with her family in Englewood, Colorado prior to enrollment at CSM.³ Since they lived nearby, these women undoubtedly knew that Mines was dominated by men and masculine traditions.

Although Florence Caldwell’s accomplishment as the first woman to graduate from Mines has been memorialized by naming the first women’s residence hall on campus and the recent Centennial Celebration in her honor, little is known about her as a person. The motivation that led Florence to leave her native Ohio, to come west and study at Mines can only be surmised as no record is known to give us a clue. Florence Hazel Caldwell was born in Gallipolis, Ohio, on August 31, 1868.²³ She attended public school in Cleveland and graduated from Cleveland High School in 1886. Florence enrolled in Adelbert College in Cleveland. In 1888, coeducation was abolished at Adelbert. She entered Ohio

Wesleyan University and received her Bachelor of Science from that institution in 1890.²³ She then enrolled in graduate classes and taught free-hand and scientific drawing at the Cleveland School of Art from 1892–1895⁴ before enrolling at Mines as a sophomore in the 1895–1896 academic year.^{3,4, 23}

A fellow student at Mines, Frederick C. Steinhauer, Met. E. 1899, reported that the initial tendency among the other students was to discourage her, but once they found out that she was there to stay, she was accepted as one of the gang and did her share of work.²³ School records show that she was a good student who scored exceptionally well in calculus.³⁰ Florence received a degree in Civil Engineering in 1898. Her diploma was altered to read, “on consideration of her successful completion of the pre-

scribed course of study and work.”⁴ At the time of her graduation, the school was known as the State School of Mines (S.S.M.).²³

Florence Caldwell and Frank H. Jones, E.M. 1898, met at school. Both were older students and shared mutual interests. They were not able to wed immediately after graduation,²³ so she simply returned to teach at the Cleveland School of Art while Mr. Jones accepted a position in Georgetown, Colorado. Three years after graduation from the School of Mines, Florence married Frank in Cleveland, Ohio,^{3,4, 23} on April 10, 1901.²³ They adopted one son, Lawrence,³ in 1909.²³

After their wedding, Mr. Jones was appointed Deputy Mineral Surveyor for the District of Colorado so they returned to Colorado to live. For the next 12 years they resided in various mining towns including Leadville, Colorado, McGill and Ely, Nevada, Trail, British Columbia, and Milner, Idaho.²³ The March 1913 *Colorado School of Mines Magazine* reports:

“Frank H. Jones, with his wife and little boy, visited the school on February 4th, and the assistant secretary had a very enjoyable time talking over old times with them. They are leaving Jerome, Idaho, for Houston, Texas, where Jones will open an engineering office.”²⁵

Perhaps there were few enough alumni at the time that it was assumed that readers would know that Mrs. Jones was also a Mines graduate. However, she was not given credit for her accomplishment in the text. The April 1913 Personals reported the address of Mr. Jones’ new professional offices²⁶ and the December 1913 magazine indicated that “Mr. and Mrs. Frank H. Jones have given up their offices in ... Houston, Texas....Frank Jones is now with a construction company.”²⁷ By July 1914, Frank had returned to the mining industry and was with Gold Road Mines Company, Goldroad, Arizona.²⁸ After a lifetime of supporting her husband’s transient mining career, Florence Caldwell Jones died on April 22, 1937 in Clarkdale, Arizona.³⁰

In 1940, Fred Steinhauer quoted how Mr. Jones described his wife in a recent letter:

“There is little to write about her engineering experience...I prefer to remember how much help she was to me in assisting to solve the many knotty problems in my work. Her personal characteristics were admirable: loyalty to friends, kindness and sympathy to anyone in distress of mind or body, and unwavering courage. She kept me encouraged through many rough places.”³⁰

What prompted her to seek multiple college degrees at a time when it was not customary for women to be educated? And what on earth prompted her to leave the relative civility of Ohio to attend school in Colorado when traveling to the wild-west alone took an extended time period and renowned



Florence Caldwell Jones



Grace McDermut Mulligan

1902

- Helen Keller is a student at Radcliffe
- Jello was introduced

1903

- Henry Ford sold the first Model A for \$850
- The Wright Brothers flew at Kitty Hawk

1904

- The ice cream cone and iced tea were invented at the World’s Fair

1905

- Pizza was introduced to New York City’s Little Italy

1906

- San Francisco earthquake occurred
- Kellogg’s Toasted Corn Flakes were invented by accident

1907

- Neiman-Marcus opened in Dallas
- The tungsten filament light bulb was marketed
- A Nobel Prize was awarded to a U.S. scientist

1908

- The paper cup was invented and called the Dixie Cup
- Westinghouse introduced the electric iron and toaster

1909

- National income estimated at \$28.7 billion

1911

- Standard Oil was broken up

1912

- Arizona and New Mexico were added to the union
- The Titanic disaster
- Women were allowed to vote in Arizona, Kansas and Oregon

1913

- Ford assembly line

- opened
- Federal Reserve was created

1914

- 18 died in the massacre at the Ludlow Mine
- Panama Canal opened for commerce

1917

- The U.S. entered World War I

1918

- World War I ended

1920

- Prohibition began
- Women were given the right to vote
- The first commercial broadcasting radio station was started in Pittsburgh
- The census showed that more than half of the population of the U.S. lived in cities

1927

- TV was introduced to the American public
- Lindburgh solos the Atlantic

1929

- Al Capone conducted the Valentine's Day massacre
- Black Tuesday, Wall Street collapsed \$15 billion lost

1930

- First analog computer was developed

1931

- *The Star Spangled Banner* becomes the National Anthem

1932

- Amelia Earhart flies the Atlantic

1933

- Prohibition ends

1934

- Donald Duck made his debut

1935

- WPA formed

schools that taught engineering were available in the east? Still unmarried at the age of 27, she would have been considered an old maid at the turn of the century. Perhaps she chose to escape her more traditional existence in the pioneering spirit and in search of adventure.

Without a doubt she was a strong, independent woman capable of making rare choices for her time. She was described as “a very robust young woman” by Mr. Steinhauer.³⁰ One could guess that she came from a family that was fairly affluent and open minded with regard to the aspirations and accomplishments of their daughter. Indeed, Florence was the fourth child and only daughter of the five children of a prominent Cleveland family. Her father was Judge Hugh J. Caldwell, Judge of the Eighth Circuit Court of Ohio. Her mother and her father were graduates of Mount Union College in Ohio.²³

Grace McDermut was from Jersey City, New Jersey. She enrolled in the freshman class of 1899-1900 in the company of 350 male students.²⁴ As mentioned previously, she is reputed to have enrolled at Mines to learn the expertise required to manage the family’s interest in a gold mine. Unfortunately, the mine passed out of the family’s possession just a few weeks prior to Grace’s graduation from Mines in 1903,^{3,5,30} and there she was with a “fancy degree on my hands and no place to make use of it.”²⁴ After seeking suitable employment for a person with her credentials, she applied at the Bureau of Standards in 1904.²⁴ No one knew what to do with the application. Correspondence from Dr. H. B. Brooks to Dr. Rose, Assistant to Dr. S. W. Stratton, Bureau Director at the time said, “...any young woman who had the courage to fight her way, probably the only woman in her class, through a four-year engineering course, ought to be given a chance.”²⁴

Grace became the first woman hired by the National Bureau of Standards (NBS) in a permanent position “as an experiment”³ and remained the only female employee for five years.⁴ She was hired as a draftsman at \$1,000 per annum.²⁴ She worked in various areas including the electrical division, but most of her work was in the Division of Weights and Measures chiefly in the

What prompted her to seek multiple college degrees at a time when it was not customary for women to be educated? And what on earth prompted her to leave the relative civility of Ohio to attend school in Colorado when traveling to the wild-west alone took an extended time period and renowned schools that taught engineering were available in the east?

Volumetric and Density Section.³⁰ In the density laboratory, Grace assisted with determinations of the density and expansion of alcohol-water solutions. She compiled and tabulated density data of various kinds, some of which appear in the international Critical Tables, some in Bureau and other publications.³⁰ Grace stayed at NBS for 44 years achieving numerous promotions, including the Medal for Meritorious Service in 1949.²⁴ She attained the position of Assistant Chief Capacity, Density and Fluid Meter Sections Mechanics Division of the NBS^{5, 24} prior to retirement.

After moving to Washington, D.C., Grace married Barry Mulligan,⁴ a graduate of the Case School of Applied Science.³ They had one son, Barry, Jr.⁵ They were divorced in 1920.⁴ Prior to her death in 1979, Grace was featured in the November 1978 *Mines Magazine* as the oldest living graduate of the school. No doubt, alumnae can be proud of the professional precedents that were set by Grace McDermut

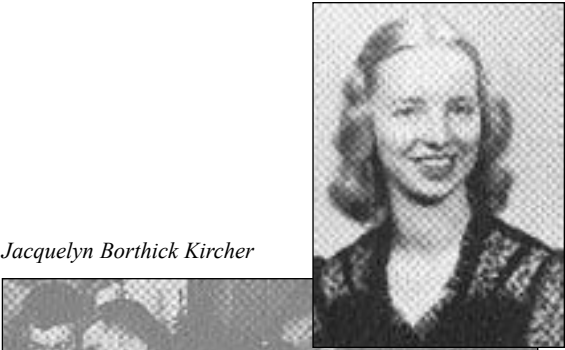
Mulligan. Her early example teaches us that women cannot only meet the rigorous standards set by CSM, but they can also make significant contributions in the professional world.

Ninetta Davis was popular with her classmates. She was elected secretary of her freshman class. She completed her Engineer of Mines degree in 1920. Following graduation, she worked for Midwest Mining Co., Union Oil of California, Shell Oil Co., the United States Geological Survey, and in private business.³

In her first job, Ninetta worked for four years as an assistant to the petroleum engineer at Midwest Refining Company in Casper, Wyoming. Her tenure with Union Oil of California included one year as an office geologist. After several years in private business, she started in the Conservation Branch of Geological Survey on January 1, 1934. She completed office geology of dam sites and studied the subsurface geology of oil fields in the western states to help with the conservation of oil and gas on public lands.³⁰

Ninetta also became active in the Rocky Mountain Association of Petroleum Geologists (later the RMAG). She served as secretary-trea-

Ninetta Davis



Jacquelyn Borthick Kircher



- Social Security Act passed

1936

- Hoover Dam opens

1937

- Golden Gate Bridge opens
- Hindenburg explodes killing 36
- Amelia Earhart disappears

1938

- *Snow White and the Seven Dwarfs* opened
- *God Bless America* was sung by Kate Smith
- Teflon and fiberglass were introduced

1939

- War erupts in Europe

1940

- Bugs Bunny debut
- CBS demonstrated color TV technology
- Draft lottery began
- Hattie McDaniel became the first African American woman to win an Oscar for Best Supporting Actress in *Gone with the Wind*
- RCA laboratory demonstrated the first electron microscope

1941

- Mt. Rushmore was finished
- Pearl Harbor bombed by Japan

1942

- Congress created Women Accepted for Volunteer Emergency Service (WAVES) and Womens Army Auxiliary Corps (WAAC)

1944

- The Invasion of Normandy

1945

- Hitler commits sui-

- cide
- First atomic bomb blasts Hiroshima
 - A second atomic bomb struck Nagasaki

1950

- 150.7 million people lived in the United States
- One in fifteen inhabitants of the U.S. was born abroad
- 2.7 million college students
- The National Science Foundation was set up to coordinate the development of American science

1953

- National income reached \$307.7 billion

surer, vice president and the first woman president.⁴

Jackie Borthick was obviously well-liked by her fellow classmates. She was chosen by popular vote to be the Homecoming Queen in 1948. The next Mines coed was not selected as Homecoming Queen for nearly 25 more years. She also served on the Junior-Senior Prom Committee, the *Oredigger* staff and as the secretary of the American Society of Mechanical Engineers.³

Earlier references have not provided much information about Jacquelyn Borthick Kircher. During a recent phone call to her home in Southern California, she said she is simply not a very public person. However, she is a congenial lady, quick to laugh and fun to talk to. It is easy to see why her classmates liked her.

An interest in chemistry and math led Jackie to attend Mines. Being from the Denver area, it was well known that the Colorado School of Mines provided a better education in those fields than any other school in the area. Her older brother, Gilbert D. Borthick, P.R.E. 1948, MSc. P.R.E. 1951, attended Mines one year ahead of her. He tolerated his little sister following in his footsteps by ignoring her as much as possible.

Initially, Jackie left the family home in Cherry Hills and roomed in Golden. One of the biggest problems to solve was that there was no place for her to eat. She made arrangements to eat with the cook at the Beta House, but was not allowed in the dining room with the men. Later her family moved to Golden and she was able to live at home for the remainder of her college career.

One challenge at the “World’s Foremost” included a lack of restrooms for her to use on campus. This problem continued for the coeds who followed her long into the 1960s. But, other than that, she does not remember much more than going to school, studying and sleeping as she completed the requirements for a professional degree.

Finishing a degree in Petroleum Refining Engineering “just came about” because the option offered more chemistry than other options. It also offered the best alternative when it came to field trips. The Senior Trip included travel by bus to tour refineries and oil fields in Colorado and Wyoming. She says she had no problems and was treated like any other student during the tours. They stayed in hotels, which was preferable to the tenting accommodations associated with field trips for other options.

The day after graduation, Jackie married a classmate, Rex E. Kircher, P.R.E. 1949. The first year, they stayed in Golden while Rex completed his MBA from the University of Denver. Jackie worked for the Denver and Rio Grande Western

Rail Road doing laboratory work at the Bureau of Standards and Research. The following year, the Kircher’s moved to Salt Lake City where Rex worked for the Standard Oil Company of Utah. In 1953, they moved to Southern California and have lived there ever since. The Kircher’s have two children, a son and a daughter, and one granddaughter.

Jackie has a variety of interests that include gardening and travel, with Alaska being one of her favorite destinations. As she has raised her family she has been active in the PTA, Boy Scouts, Girl Scouts, the Easter Seal Society and the Hospital Auxiliary where she is currently working with the blood bank.

Mrs. Kircher seems to think that what she has done is “no big deal,” as if anyone could do it. She says she would not presume to tell anyone anything when asked the question from the Century Book Biographical Summary, “What would you tell a woman student at Mines today?” Others think that what Jackie did is an important part of the history of women at Mines. She is one of only four female students to graduate from the Colorado School of Mines in its first 75 years. Her unassuming manner and willingness to fit in are a likely reason for her success. Being able to share a small portion of her accomplishments is a significant contribution to documentation about Mines women.³¹

The decade of the 1950s is well documented with numerous stories about Nancy Easley, including the famous portrait that was to be a cover story for Life



THE 1960S

THE BEGINNING

THE BEGINNING

Timeline
The 1960s:
THE BEGINNING

- 1960**
- New submarine depth record set (24,000 feet)
 - Non-violent “sit ins” adopted by African Americans to protest discrimination
 - Triton submarine circumnavigated the globe entirely underwater
 - U-2 spy plane, piloted by Gary Powers, shot down by Soviet Union

- 1961**
- President John F. Kennedy’s inaugural speech, “Ask what you can do for your country”
 - First man in space (Yuri Gagarin, Soviet Union)
 - The “Bay of Pigs” Cuba
 - First American in space, sub-orbital flight (Alan Shepard, Jr.)
 - Berlin Wall built
 - The Beach Boys were formed

- 1962**
- First American to orbit the earth (John Glenn)
 - First submarine-launched atomic missile tested
 - Marilyn Monroe dies
 - Cuban missile crisis

—continued on page 17

Fisk, a CU instructor, became the first female instructor at Mines. Two days a week she taught a fine arts appreciation class. In 1967, Ruth Simon was hired as a research assistant in the geophysics department and in 1965 Jerri Hamilton was hired as the museum curator and research technician in the geology department. While these last two women did not teach courses, they contributed to the scientific research at the school.

Summer field camp sessions were another obstacle for women at Mines in the ’60s. Even with the influx of women, the Mines faculty was still reluctant to have single women living in close quarters with men in the early ’60s. Mary

The list of these dedicated, confident women and their degrees follows:

Shirley M. Valencia, *Geol. E. 1961*

Mary (McGill) Edwards, *P.E. 1962*

Juanita A. Williams, *P.E. 1965*

Joan Bacon, *Chem. E. 1966*

Elsie J. (Stewart) Rowe [Deceased], *Chem. E. 1967, MSc. Min. Ec. 1986*

Mary Beth (Patterson) Beach, *P.E. 1969*

Patricia C. (Herald) Mosch, *Geol. E. 1969, E.M. 1969*

Rosalyn I. (Riesner) Temple, *Math. E. 1969*

Edwards reports when she was planning to attend petroleum field camp near Rangely, Colorado, there was only one other woman in P.E., Juanita Williams, who was behind her in school. Dr. Barb made an exception that year in the field camp attendance and allowed Juanita to take field camp early so there could be two women in the session. He also allowed the women to live in a nearby “modern motel” of the era rather than tenting out with the men. Mary says that these were the only concessions Dr. Barb made. Both women were expected to perform at the same level of participation as the men as far as the fieldwork was concerned. By 1969, when there was only one woman in P.E., Mary Beth Beach

lived in Massadona, Colorado, in a small flood-salvaged trailer that was infested with pack rats. On trips to the Piceance Basin in southwest Colorado and Casper, Wyoming, she got a motel room rather than tenting with the men. She says she still has problems with long-tailed rodents.

Pat Mosch and Betty Gibbs both had to take the Mining field camp (Mine Surveying) and the Saturday Mining Lab. Betty remembers taking Mine Surveying up at the Edgar Mine in Idaho Springs for her field camp. Her crew worked well together and remained friends. The Mining Lab (Saturdays, taught by Sam Shaw) was an interesting situation. Betty says fellow students told her that women could not take the course.

However, Betty and Pat spoke to Sam Shaw and he informed them they could. Betty remembers there were circumstances when the equipment was too heavy for one woman alone to carry, but with another team member they could haul it along the drift and get the job done. Everyone in the lab course was told at the beginning that getting an “A” would be difficult unless a student had previous mining experience. Although neither Betty nor Pat had such experience they both received an “A” for the course. Betty feels that the women’s enthusiasm, interest in the course, and attitudes to work and participate to their fullest capabilities were instrumental in the grade.

Pat adds their willingness to work with their teams also played a role. She remembers a field trip to mines in North Dakota, coming back through mines in Wyoming and then to Colorado mines. At the Idarado Mine near Silverton, Colorado, the women got all suited up with boots, hard hats, etc. and then were told women were not allowed underground—after they had



(left) Mary Anne Zemitis, Who’s Who 1969

HISTORY

This decade was truly the beginning of a continuous attendance of women students on the Mines campus. It also saw growth in the presence of women in industry and the corporate world. When the ’60s began, four women had graduated from the Colorado School of Mines. Ten more women graduated from the school during the decade. In each of the years 1961, 1962, 1965, 1966, and 1967 only one woman graduated. In 1969 the largest class of coeds (female students) to date graduated—one woman in January and four more in June.

The class of 1969 also saw an increase in the number of women attending Mines. There were a total of eight freshmen and transfer women the fall of 1965 and another woman transferred in spring semester 1966. There were three upper-class women the fall of 1965, for a total of 11 undergraduate coeds.

The women of the ’60s were not impacted by the Equal Rights Amendment, an influence on subsequent coeds, although civil rights and worker rights were major social issues of the time (see timeline). In speaking with several of the women who graduated during the decade, the majority remember that admission was not difficult as long as the high school transcript held up to scrutiny. And, in fact, some even stated that they were encouraged by the Director of Admissions to attend Mines. The male students, for the most part, accepted the women as fellow students. As long as a coed did the work and didn’t expect special treatment she was treated as an equal. If not, she did not last long at Mines.

FIRSTS

Several of the women who graduated during this decade were the first women at Mines to receive specific recognition for their accomplishments. The first woman from Mines elected to *Who’s Who Among Students in American Universities and Colleges* was Joan Bacon in 1966, followed soon by Mary Anne Zemitis Wheeler in 1969. Mary Anne was also the first woman at Mines to receive the Woman’s Badge from Tau Beta Pi.¹ Betty Gibbs was the first Mines woman to be selected as a candidate for Outstanding Young Woman for 1971.⁶

Patricia Mosch was the first woman to receive dual Professional degrees from Mines, Geological Engineering and Engineer of Mines in 1969. The first Mines women to receive degrees in Geological Engineering, Petroleum Engineering, Math Engineering and Physics Engineering graduated during the ’60s. The first

woman to graduate under the new engineering-science degree program graduated during this decade as well.

The first woman at Mines to wear a coveted senior Stetson graduated in 1966, and a school letter was awarded to a woman for the first time in 1968. Coeds began participating in glee club (predecessor to chorus) and band during the ’60s.

BIOGRAPHIES

Shirley Valencia transferred to Mines in January 1957, having received credit from the University of Southern California, the University of Colorado, and Wyoming University. She was the first woman to receive a Geological Engineer degree from Mines. Shirley Valencia graduated in June 1961. Following graduation, Ralph M. Parsons Co. employed Shirley as a mechanical engineer/technical writer in Los Angeles, California. She received a Master of Science in Geology from the University of Southern California in 1966. She worked for Mobil Oil Corp. in Los Angeles for a year before spending a year at the University of Alaska as a research assistant. Shirley also worked in South Africa from 1968 to 1970.¹ Most recently she worked for Hercules Powder Co. in California.⁷ Although Shirley Valencia remained an active member of the CSM Alumni Association through 1993, the Alumni Association has lost contact with her. A recent search via the Internet was also unable to locate Shirley.

Mary Edwards entered Colorado School of Mines in the fall of 1957 with four other coeds. She was the only coed from this class to graduate with her silver diploma and professional degree, and was the first female Petroleum Engineer (P.E.) from Mines. Mary says her choice of Mines for college was due to “divine intervention.” She wanted to attend UNAM in Mexico City and traveled there to take a language course. She realized that her Spanish was unlikely to reach the level needed for college classes. She called her mother and asked her to see about getting her into “the best engineering school west of the Mississippi.” Mary came to CSM. After graduation Mary worked three years in the oil and gas industry with the North Dakota Geological Survey before marriage to an Air Force officer changed her career opportunities.¹ There was little call for a P.E. at most of her husband’s postings, so Mary became a certified mechanical engineer and is still working in the engineering field as a project manager with the Corps of Engineers in Maryland. Mary has six children: three girls and three boys ranging from 18 years to 33 years in age. She says none of her children became engineers but all have gone to college. She

1963

- First four African Americans graduate from U.S. Air Force Academy
- First woman in space (Valentina Tereshkova, Soviet Union)
- Zone Improvement Plan (ZIP) codes introduced
- Martin Luther King march on Washington, D.C., “I have a dream” speech
- Escalation of U.S. involvement in Vietnam from advisors to troops
- John F. Kennedy assassinated Nov.
- Maria Meyer, Nobel Laureate—Physics

1964

- Alaska shaken by 9.4 earthquake
- Civil Rights Act passed
- Wilderness Act set aside pristine lands in the West
- Dorothy Crowfoot Hodgkin, Nobel Laureate—Chemistry

1965

- First woman named chief justice of a state supreme court (Lorna Elizabeth Lockwood, Arizona)
- First space walk (Alexei Leonov, Soviet Union)
- First American to walk in space (Edward White)
- First space rendezvous of manned orbiting spacecraft (Gemini 6 and Gemini 7)
- Cesar Chaves led workers’ strike against grape growers
- The Grateful Dead was formed

1966

- First space docking (Gemini 8 and Agena rocket)
- Air speed record set in an X-15 jet (4,233 mph)

1967

- Apollo 1 fire—3 men killed (Virgil (Gus) Grissom, Roger Chaffee, Edward White II)

—con-

- “Summer of Love” and flower children
- DNA successfully synthesized

1968

- Martin Luther King assassinated
- Robert F. Kennedy assassinated
- Apollo 8—first manned space flight to orbit the moon

1969

- First men on the moon (Neil Armstrong, Edwin Aldrin), Apollo 11
- First military draft lottery
- Nobel Prize in physics for discovery of the quark
- Native Americans occupied Alcatraz
- Woodstock

has six grandchildren “and counting.”

Juanita A. Williams originally planned on attending the University of Colorado (CU) in Boulder, but decided on Mines because it was a better engineering school and closer to her home in Indian Hills, Colorado. She graduated in 1964 in Petroleum Engineering. Following graduation, she also worked for the North Dakota Geological Survey, succeeding Mary Edwards, at the headquarters at the University of North Dakota in Grand Forks. Juanita left the oil and gas industry in 1968 to serve as a missionary in Zurich, Switzerland. After returning to the U.S. in 1970, she attended Adams State College in Alamosa, Colorado, to get her teaching certification. Juanita began her teaching career in 1974 in Rockville, Maryland.¹ She has since accepted a job in Hanna, Wyoming, and currently enjoys teaching remedial Title I students.

Joan Bacon graduated with a degree in Mineral Engineering–Chemistry. She was the first woman to receive a degree under the new engineering-science degree program.¹ Joan received her master’s degree from the University of Tulsa while working for Sinclair’s research center.⁵ Joan worked as a geochemist and chemist, a consultant and a cattle rancher, a whitewater river guide and outfitter, and an investor. She has also been a river ranger and backcountry ranger. Joan is enjoying her retirement, doing extensive volunteer work for the National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service. Joan wrote in her biographical summary that going into the next century she wants “to give back to the outdoors (especially wild rivers) a small fraction of what it gave” to her. She also prefers to look forward rather than back on “ancient history.”

Elsie Rowe also graduated with a degree in Mineral Engineering–Chemistry. She was the second woman to receive the new degree at Mines. Elsie worked for the U.S. Geological Survey and American Metal Climax-Exploration before her early death on July 1, 1993.

Mary Beth Beach was the third coed to receive a professional P.E. degree from CSM. She transferred to Mines from the University of Utah for several reasons—she felt that Mines was the best engineering school around, her father was a 1942 graduate, and due to allergies, her desire to become a veterinarian was unrealistic. Mary Beth married a Mines graduate, Richard Beach (Geol. E. ’66) during her last semester at school. After raising her two children to school age, she went to work for Petro-Lewis Corp. in 1977. She developed oil and gas properties, providing geology and engineering, in

Wyoming, Texas, and California, as well as preparing oil and gas reserve updates. After eight years, Mary Beth went to work for a small independent oil company, doing acquisition analysis and oil and gas reserve updates for another seven years. She is now retired and has her own knitting business.

Elizabeth (Betty) Gibbs worked long and hard to achieve her degree, Engineer of Mines. Betty started her college career at Virginia Polytechnic Institute in 1960, one of four coeds. After her sophomore year, she came to Colorado and worked for two years before enrolling at Mines in 1966. Betty chose Mines because she always wanted to be a prospector.¹ She worked miscellaneous jobs on campus while taking classes and raising her first child. She received a scholarship loan from the Women’s Auxiliary of the American Institute of Mining Engineers in her senior year at Mines. Following graduation Betty surveyed possible coal deposits in Colorado, Utah, and New Mexico. In 1970 she moved to Library, Pennsylvania, where she became involved in data storage and recovery.³ In an article from the February 14, 1971, issue of *The Pittsburgh Press* (reprinted in *The Mines Magazine*, April 1971) Betty stated that the only times she ran into discrimination was in the metal mining domain. In 1971, Betty was the first Mines woman selected as a candidate for Outstanding Young Women of America. Betty completed her Master of Science degree in Mining Engineering in December 1972, while working part-time for CONOCO in Denver. She went to work for Climax Molybdenum Co. in 1973.¹ Betty has her own business, Gibbs Associates, in Boulder, Colorado, which she identifies as an earth science software information company, providing software and computer education for the mineral industry.

As noted previously, Patricia Mosch attained two undergraduate Professional degrees in 1969. Her career at Mines began in 1956 when there were only two other women in the school. She left school in 1958 and married a Nederland, Colorado miner, Al Mosch. She returned to Mines in 1964 taking classes while raising her children. Pat graduated in 1969. While at CSM she experienced discrimination on some field trips to mines because of the miners’ superstition that a woman underground spells disaster. Fortunately, her husband did not hold such views. Al has always counted on Pat’s expertise in engineering to complement his practical mining experience in their business, the Mosch Exploration and Mining Co. in Idaho Springs, Colorado. Pat and Al are still investigating several mining properties in the area to determine if they can be operated economically. The Phoenix

Mine in Idaho Springs is owned and operated by the Mosch family and is their primary focus at present. Pat has also worked for Dames and Moore and The Oil Shale Corp. (TOSCO).² Pat has four children and three grandchildren. Pat remembers she chose Mines because of an interest in geology generated by her mother and because her high school counselor told her Mines was no place for a woman and she would not make it. While at Mines, Pat’s favorite professors were Sam Shaw and Harry Kent, as well as Carl Nordquist and Paul Keating. She enjoyed the friendships she had with the foreign students, especially those from the Middle East and Europe.

Rosalyn Temple married a Miner, Harry (Bud) Temple (P.E. ’69), while still in school. Ros was the first Mines woman to graduate with a Math Engineering degree. She worked for several years as a programmer/analyst for Honeywell Information Systems in Massachusetts. She then was a General Partner of a dental laboratory, and currently is the Business Manager for her husband’s dental practice. She has two children, one attending the University of Pennsylvania in Philadelphia and one in high school. Rosalyn remembers that her high school counselor at South High in Pueblo, Colorado, suggested she look into attending Mines because of her good math and science skills. He told her that Mines was a good engineering school and he did not feel Ros would have any problems getting along in a male-dominated school. When Dean Burdick visited her high school, he made Mines sound like an interesting school to attend and gave encouragement to women who might consider attending the school.

Mary Anne Wheeler was very active in campus activities while at Mines. She was on the *Prospector* staff, and a member of the Engineer’s Day Committee, Chi Rho, and the student Society of the American Institute of Physics. Mary Anne worked as a graduate assistant at Northwestern University for two years¹ while getting her Master of Science in Material Science, “really Metallurgy, since that was my area rather than plastics.” Her first position at Ford Motor Co. was in research. Mary Anne intended on being an engineer, not a scientist. She had interviewers tell her they did not hire women as engineers. So to get out of research she obtained a Master of Business Administration from the University of Michigan. Mary Anne is currently a business planner for Ford Motor Co. and lives in Michigan with her husband, Paul. They have a 19-year old son who is enrolled in college. Even though in high school Mary Anne had only a vague idea of what an engineer did, she says she came to Mines because she wanted to be an engineer and Mines was the best engineering school in Colorado. Mary Anne graduated with a Physics Engineering degree, the first woman at Mines to do so.

ACTIVITIES

Women participated in various activities on campus in the ’60s including editing the yearbook, band, chorus/glee club, student chapters of professional societies, and rifle team. During the 1968 homecoming, the coeds challenged the married student wives (Dames) to a game of powder puff football! This started a tradition that continued for many years. Marty Ausanka was the first coed in glee club, the predecessor to chorus, and can be seen in the 1964 yearbook. Claudia Gancar was the first woman in band the fall of 1965.



Joan Bacon, Marty Ausanka and Rick Hague working on the Prospector.



Claudia Gancar Blauer, first woman in band.



Mary Beth Patterson Beach, AIME 1967



Powder puff football, 1968, (left to right) Nancy Ridenour, Tammy Johnnie, Jean Smith, Pam Tittes, Peggy Garrison, Mary Anne Zemitis, Kathy Altman, Sandy Thielan, Jackie Jetton and Jody Knudsen.



Chorus, 1967 (front row, left to right) Colleen Cummins Skinner, Cathy King Skokan, Ramona Douglass, Kathy Altman and Carrie Petrello Bisdorf.



Mary White and teammates, 1969

CHANGES

The decade of the '60s saw changes at Mines, too. The most significant was the termination of the Professional degree and silver diploma as the undergraduate degree. The Professional degree, when compared to degrees at other universities, required more academic hours for graduation, and was nearly comparable to a Masters degree from other institutions. This was confusing to some businesses and was difficult for the national college accreditation board to reconcile with other schools. As a result, the CSM Board of Trustees decided to change to a Bachelor/Masters/Doctoral degree program. Mines modified its curriculum somewhat, combining some lab and class requirements and changing other classes to remain more current with industry demands. While the Professional degree is still available, today's

students rarely select it.

The first silver diplomas at Mines were awarded in 1934.⁴ The first Mines woman to receive the coveted award was Jacquelyn Borthick in 1949. The class of '69 was the last full class to receive the Professional degree and a silver diploma. A total of twelve women received Professional degrees with silver diplomas, the ten women in the '60s, Jacquelyn Borthick, and Claudia Gancar ('70). Recipients of postgraduate degrees still get the silver diploma.

Another change that occurred in the 1960s, a result of an increasing number of women entering Mines, was an expanding physical training (PT) curriculum during the second half of the decade. This was a welcome change for the women. Previously, physical training and military requirements had been waived for coeds. Women had to work to find substitute courses available to them. Band was one substitute for PT, while swimming, rifle team, skiing, or bowling were other options by the end of the decade. In fact, Mary White ('70) lettered in rifle in 1968 and was the first woman to letter at Mines. Participation in the Reserve Officers Training Corps (ROTC) was still required for two years in the '60s. Again coeds were not allowed to participate, and instead had to substitute other class credits. It was not until 1970, when ROTC became a voluntary course, that women were allowed to enroll in the class. This was probably a reflection of the social-political culture of the period. In order to meet graduation requirements women had to take additional courses, such as chorus, humanities, geology, and chemistry electives.

Housing for coeds became an issue for the administration during the '60s. The fall of 1964 saw the reality of housing for women with the conversion of the Dean of Students' house, located across 15th street from the Engineering Hall. The dormitory could house "six women, the largest group of coeds in the School's history"¹ to date. Women could also seek housing from individuals in the Golden area or rent an off-campus apartment. In the spring of 1968, the school was actively planning a woman's residence hall on campus. Francis E. Smiley, Dean of Students, contacted the coeds who were on campus that spring and asked for their input on what they would like to have in a dormitory. By the fall semester of 1968, Mines had purchased the old Kappa Sigma fraternity house, located at 1622 Illinois, and renovated it for a woman's dormitory. The first women residents arrived in the fall of 1968. Originally known as the Women's Residence Hall, it was later renamed Florence Caldwell Hall. All single freshmen and sophomore coeds were required to live in the dormitory unless living at home with their parents. If space allowed, junior and senior coeds were also welcome to live in the dorm. Although it has been reported that the coeds were not required to keep hours,¹ some of the coeds who were original residents of the house do remember "breaking hours."

Women became part of the faculty in the '60s, as opposed to being supporting staff. In the fall semester of 1968, Barbara

FIRST WOMEN FACULTY AT MINES



Barbara Fisk



Jerri Hamilton



Ruth Simon



Pat Mosch in Edgar Mine



Betty Gibbs in Edgar Mine

already toured the Homestake underground mine, various underground trona mines, and underground coal mines! At the Idarado old superstitions were still alive.

Women in geology field courses had previously taken their summer work at the University of Wyoming, which provided facilities for women students.¹ Pat Mosch took her summer field course with CU in western Colorado and the White River Plateau camping in tents and waking up to elk in the morning.

TRADITIONS

There were several traditions in effect during the '60s. For example, Joan Bacon was the first woman to wear a senior Stetson. During agitation freshmen had to wear a soft miner's cap, carry a "Miner's bible," and appear before the Senior Court. A gauntlet was still being run in the early '60s; members of Blue Key escorted the coeds through the gauntlet. But, by the end of the decade, the gauntlet was history, although clothes worn backward, the "Miner's bible," and "sounding off" were still around. The climb to the "M" by the entering freshmen included much whitewash and a large rock for everyone then, as now. A special tradition remembered fondly by the women was the presentation of a red rose at graduation by the President of the school to each coed as she accepted her diploma. Joan Bacon's favorite memory of Mines is President Childs giving her a rose. The rose tradition began in June 1966 and was discontinued shortly after the end of the decade.

SUMMARY

The women of the '60s decade overwhelmingly report that their education at Mines gave them the confidence to go into the world with strong skills to pursue any career they wanted. These dedicated women were the dawning of the expanding presence of women at Mines and in the work force. They also feel that now, just as in their own era, hard work pays off. The message to women at Mines seems to be timeless.



Mary Anne Zemitis Wheeler, Senior Court, 1965.

Right: Sandy Wilson and Mary White, Senior Court, 1967.



"M" Climb, 1965: Barbara Light and her rock.

Right: Jody Knudsen, Senior Court, 1968

Below: Nancy Ridenour and Jackie Jetton, Senior Court, 1968.



BIOGRAPHICAL SUMMARIES

JOAN IRENE
BACON



Maiden name: Bacon
Title: Retired
Mines Degree: Chem E. '66

LIFE AT MINES
Biggest challenges: Keeping my old Jeep operating

Favorite Memories: President Childs giving me a rose at graduation

“First woman to . . .” at Mines: Wear a Stetson as a senior. Edit the yearbook

What lasting impact did you have on Mines? Probably not much

What lasting impact did Mines have on you? About the same

What would you tell a woman student at Mines today? Mines is no different from any other school. Hard work pays off.

HIGHLIGHTS SINCE GRADUATION

Current professional field: Retired

Job experiences: Geochemist, rancher, investor, whitewater river guide and outfitter

Professional groundbreaking experiences: First woman to do lots of things, but that is ancient history

Publications: Also ancient history

Special interests outside work: River running, outdoor activities

Other significant achievements (including family): Volunteer work including EMT, grant writer, river ranger, backcountry ranger

What personal goals do you have to carry you into the next century? To give back to the outdoors (especially wild rivers) a small fraction of what it gave me.

Additional Comments: So much of these questions pertain to things I did so long ago, it seems like another century. I prefer to look forward. So many rivers to run, so little time . . .

MARY BETH BEACH



Maiden name: Patterson
Title: Owner, Knit With Care

Mines Degree: P.E. '69

Spouse's name: Richard A. Beach
Mines grad? Yes

Year: '66,
Degree: Geol. E.
Children (#): 2, **Ages:** 29, 27

LIFE AT MINES

Biggest challenges: Working past the “invisibility” of being female; field surveying; and summer field camp (furry rats!)

Favorite Memories: Mud labs; Professor Nordquist's stories in Econ 101; working for Professor Campbell in Basic Engineering

“First woman to . . .” at Mines: First woman to have a son attend Mines

What lasting impact did Mines have on you? Mines provided me with a technical education that made it possible for me to seek employment in several areas, and when employed, made it possible for me to perform a multitude of functions inter-actively with other employees, bankers, and consultants.

What would you tell a woman student at Mines today? The world can be your oyster but the pearl must be sought through consistency and hard work.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Self-employed knitter

Job experiences: While at Petro-Lewis Corp. I worked in development, drilling, and production, and was responsible for over 100 wells being drilled, and maintaining and/or improving production of about 200 additional wells in California. I also worked in property acquisitions and was liaison between the Company, bank engineers, and consultants during semi-annual reserve updates. At Ensign Oil & Gas, I was the first engineer/manager for the company, responsible for reviewing non-operated properties and evaluating potential acquisitions.

Special Interests Outside Work: Hiking, rafting/canoeing, cooking, travelling

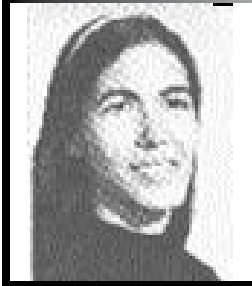
Other significant achievements (including family): Our son, Richard W., chose Mines for his college education (BSc. Math '91, BSc. Chem. '91).

What personal goals do you have to carry you into the next century? To live a full, interesting, and productive life through volunteer work and my business, and to enjoy the successes of my family and friends.



Mary Beth Beach climbing the Grand Canyon

ELIZABETH GIBBS



Maiden name: Gibbs
Title: Owner

Mines Degree: E.M. '69, MSc. Min. Ec. '72,

Spouse's name: Don Eldhart
Mines grad? No

Children (#): 4, **Ages:** 32, 27, 19, 17
Grandchildren (#): 2

LIFE AT MINES

Biggest Challenges: Going to school, raising my daughter, and working concurrently

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Computer software for the mineral industry

Job experiences: Consolidated Coal; CONOCO (part-time); Climax Molybdenum; Gibbs Associates

ROSALYN RIESNER
TEMPLE



Maiden Name: Riesner
Title: Business Manager

Mines Degree: Math E. '69

Spouse's Name: Harry V. Temple, Jr.
Mines grad? Yes,

Year: '69,
Degree: P.E. '76, D.M.D—Harvard Dental
Children (#): 2, **Ages:** 16, 18

LIFE AT MINES

Biggest Challenges: Strength of Materials taught by Professor Ronald Preston

Favorite Memories: The camaraderie developed with squadmates while trying to survive the summer surveying requirement.

What lasting impact did you have on Mines? There were only eight women students when I began at Mines. I hope our presence and ability to make it through caused more women to apply.

What lasting impact did Mines have on you? The rigors of my Mines education and the organizational skills I had to develop to get through prepared me well for the business world.

What would you tell a woman student at Mines today? Don't be intimidated. The opportunities for women today are much improved from when I graduated, and if you make it through Mines, you can make it anywhere.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Accounting

Job experiences: Systems analysis first within manufacturing and then for government projects; general partner of a dental laboratory; business manager for dental practice

Other significant achievements (including family): A daughter who is a freshman at the University of Pennsylvania; a daughter who is a junior in high school; a husband who is also a graduate of Mines that I have been married to for 30 years

Additional Comments: Biggest disappointment: Neither of my daughters has the slightest interest in engineering!!!!!!

MARY ANNE
WHEELER



Maiden Name: Zemitis
Title: Business Planner

Mines Degree: Physics Engineering '69

Other Degree(s): MSc.—Metallurgy '71,

Northwestern University; MBA '77, University of Michigan—Ann Arbor

Spouse's Name: Paul Wheeler
Mines grad? No
Children (#): 1, **Age:** 19

LIFE AT MINES

“First woman to . . .” at Mines: First woman member of Tau Beta Pi at Mines

What lasting impact did Mines have on you? It was great for me because I got an excellent education and learned how to compete in the “real world.”

What would you tell a woman student at Mines today? The women graduating today probably cannot appreciate the hurdles those of us (in the '60s) went through. Without things like affirmative action, we would still be being told “we don't hire women as engineers.”

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Business Planner for the Climate Control Division of Ford Motor Co.

Job experiences: Ford Motor Co.—initially in the Research Laboratory doing electron microscopy, x-ray diffraction, and ion scattering spectroscopy. Then I moved to a planning area in 1977, working on lightweight materials planning in response to the oil crisis and the need for fuel economy improvements. Lightweight materials such as aluminum and plastics were in vogue. From there I moved to Advanced Engineering and then to program engineering on the Tempo, Escort, and Mustang programs. Later I moved to the Climate Control Division where I was the Program Manager for the new Taurus. Now I am Business Planner for the Climate Control Division.

Other significant achievements (including family): You can read about me in the book, *Car*, by Mary Walton; my husband, Paul Wheeler, is a graduate of Northwestern with a PhD. in Theoretical and Advanced Mechanics. He is a manager at General Dynamics, manufacturer of the Abrams tank. Paul and I have a son, Michael, who is 19 and a sophomore at Ringling School of Art and Design in Sarasota, Fla. He is majoring in computer animation.





THE 1970S

THE CALDRON

THE CALDRON

Timeline

The 1970s:
THE CALDRON

1970

- Environmental Protection Agency (EPA) established
- U.S. troops invade Cambodia in expansion of the Vietnam War
- During a war protest at Kent State University, National Guardsmen kill four students

1971

- U.K. converts from the pound system to decimal system of money
- Prison revolt at Attica State Correctional Facility lasts four days, 42 die
- China formally enters the United Nations
- Detective Serpico exposes corruption in the NYC police department

1972

- Passage of the Equal Rights Amendment (ERA) by Congress
- First Earth Day was celebrated
- Arab terrorists murder 11 Israeli Olympians in Munich
- Nixon visits China and the U.S.S.R.

1973

- Roe vs. Wade decision legalized abortion
- U.S. participation in the Vietnam war ends
- OPEC quadruples the price of oil

1974

- Nixon resigned in wake of Watergate scandal
- Arab oil embargo creates oil shortages

The Colorado School of Mines celebrated its 100th anniversary in 1974, as the rest of the country argued about the morality of the Vietnam War and struggled with ratification of the Equal Rights Amendment. The issues of civil rights, equal rights and Vietnam had caused such turmoil in the United States by this decade that even Mines felt the effects of the struggles and became part of the Caldron. In spite of the unrest, by the end of 1974 a total of 51 women had graduated from Mines.

The number of graduating women continued to increase during the 1970s. This decade began with the class of 1970 graduating five women and ending with the class of 1979 graduating 36. By 1979, a total of 167 women had graduated from the School. This was a significant contrast to the 14 females that had graduated from Mines from 1898 through 1969. For the first time in the 98-year history of the school, 100 coeds were enrolled simultaneously in 1972.¹ The total student body was 1688 students, of which 1308 were undergraduate students.¹ Between 1970 and 1979, 153 women graduated and the average class had 15 women graduates. The class of 1980 graduated 99 women, another reflection of the number of women that began attending CSM in the late '70s. The 100th woman graduated from Mines with the class of 1977.

Compared to the national figures, Colorado School of Mines was graduating classes with approximately 1% women as compared to a national average of 3% in accredited engineering programs.

Highlights of the '70s include:

- First sorority house: Alpha Delta, 1975²
- First female department chair: Dr. Betty Willard, Department of Environmental Sciences, 1977
- First athletic scholarships for women's sports, 1976³
- First women allowed to join the Mines Quarterback Club, 1975
- 100 women graduate by 1977
- First woman to receive three degrees: Dr. Catherine Skokan, BSc. Geop. 1969, MSc. Geop. 1971, PhD. Geop. 1975²¹
- First Director of Student Activities: Dr. Patsy Wegner, 1976²⁰

In 1970 the women's residence hall was named the Florence Caldwell Hall. The "girls" who lived in the hall suggested the name to President McBride and the change was approved by the Board of Trustees during their October, 1970 meeting.⁴ The former fraternity house, known as Caldwell Hall was officially named during Homecoming 1970. The building was located at 1622 Illinois Street until 1979 when it was demolished to facilitate the construction of the Brown Building.



Florence Caldwell Hall

Due to the increasing female student population, other on-campus residences became available for women during the '70s. This includes the first floor of Morgan Hall in 1976 and the basement of Bradford Hall in 1977. By the end of the decade plans to build Twin Towers also included accommodations for women students. In addition to the rigors of the studies, the freshman coeds living in Morgan learned quickly the various types of attention they may get from the

male students. For 1st floor Morgan, these included disruptions from adjacent Thomas Hall or the lowering of objects from the male residences on the Morgan floors above. One of the many pranks executed late one night included sod being placed meticulously in the Morgan 1st woman's bathroom. The sod had been "borrowed" from a construction area adjacent to the library. Women living in Morgan Hall were subjected to a curfew. Doors were locked at

10:00 p.m. on weeknights and reopened at 8:00 a.m. the following morning. On weekends residents were allowed to stay out until midnight.

An incident occurred between young men and women on campus in the late '70s. A male student from one of the coeducational dorms wrote to the school newspaper complaining about the attire and "character" of the female students including the lack of dresses and other criticism. The women were amazed that the men of the campus, who were not neatly dressed and even somewhat unsightly, would dare comment. The female students were offended. A group of coeds, primarily from Morgan 1st, responded one night at dinner in the cafeteria. They gathered prior to attending dinner and donned the worst, most offensive costumes that could be found. The young women attended dinner as a group and received considerable attention. The women coined the description "Sick Up and Fed!"

The women's Greek system evolved on campus in the '70s beginning with the Alpha Delta sorority. The Alpha Delta chapter formed on November 4, 1974, with nine founding members. The members felt the need for better communication among Mines coeds and for more loyalty to school and profession.² The first sorority house on the Mines campus was dedicated on September 14, 1975. Mrs. Guy T. (Rebecca) McBride, wife of President McBride, officiated at the red ribbon cutting ceremony. At the time of the dedication the sorority boasted 10 active members and 13 pledges.⁵ Notable memories include two significant events. Pat Smith (MN, '78), one of the original founders of the AGD,⁶ attended school with three brothers, including twins.⁶ Another member and president, Laura Sorrontino (P.E. '81) won the Homecoming arm wrestling competition for three consecutive years.

The Sigma Kappa chapter began with a group of 12 charter members on April 22, 1979. Officially, the charter was signed on January 20, 1980. One of the advisors for the sorority was Mrs. Parker, wife of Ben H. Parker, Sr. for whom the student center is named.²² Today, the Sigma Kappa sorority remains on campus with a house located at 1207 16th Street across from the Student Center.

The female students of the '70s achieved notable accomplishments in a variety of venues. These included awards, team sports, internships and jobs. Women were named Outstanding Young Women, Who's Who, received ROTC awards and athletic awards. Graduates became first in their field. Pam Tittes (Bsc. Met. '72) joined Kennecott Copper Co., in Salt Lake City, Utah, as their first woman engineer.⁷ Cathy Skokan became the first woman to receive a

Bachelor of Science, Master of Science, and Doctor of Philosophy at CSM, and received a variety of awards.⁸ Sandy Kramer (BSc. Min. '73) was the first woman mining engineer for Utah International and the first female Mine Health and Safety Inspector for the Department of the Interior Mine Enforcement and Safety Administration.

The campus reflected the effects of the presence of women in engineering as well. The Mining Department hosted the newly organized Women in Mining (WIM). Seventy members and their families toured the Edgar Experimental Mine in Idaho Springs on November 11, 1972.⁹ Dr. Beatrice E. Willard visited the school in 1976 to discuss environmental education in an engineering curriculum.¹⁰ She later founded the department. Dr. Willard was appointed head of the environmental sciences department in 1977. She was the first female Department Chair at CSM.

The CSM Quarterback club voted to admit women to all future meetings in 1972. The organization previously had a men-only membership policy with one open meeting a year when women could participate as guests. Following the approval for admittance, the women were allowed to attend all activities. They were required to become members of the club and pay the \$1.75 tab for lunch or come as a guest.¹¹

Events on campus included Casino Nights, the Big Event, featuring country swing music, the Dating Game, and the traditional E-Days Talent Show. Typical Homecoming and Engineer's Days' events included cross cut sawing, jackleg drilling, arm wrestling and various drinking contests. Women contestants became more common in these events in the '70s.

Freshman Cindy Harr (daughter of Neal Harr Geol. E., '54) was named the Homecoming Queen, in 1972, the first CSM coed to win the queen title since Jackie Borthick won in 1948.¹² The norm for Homecoming Queen candidates became women attending Mines as opposed to women from other local colleges. In 1973, Cindy Harr was crowned Colorado Mine Peak Queen in commemoration of the school's peak near Berthoud Pass.¹³ The Mines Peak climb was an annual event for freshman orientation week during the '70s.

The ongoing rivalry between the CSM coeds and the Dames continued into the '70s. The annual powder puff football game at Homecoming typically provided plenty of entertainment following its inception in 1968. The undefeated CSM Coeds tied the Dames 12-12 in 1970. In the fourth annual football game (1971) the CSM Coeds defeated the Dames, 18-6, with Debbie Carnell responsible for two of the three coed touchdowns.¹⁴ Again, the two teams tied 6-6 in 1972 with reports of hair tugging that was

1974

- Oil rationing and daylight savings time implemented in the U.S.
- Patty Hearst abducted, joins Symbionese Liberation Army

1975

- Saigon surrendered ending the Vietnam War
- U.S. and U.S.S.R. launch Apollo-Soyuz Test Project. First international manned space mission
- In Helsinki, 35 nations sign human rights agreement

1976

- Viking 1 lands on Mars
- U.S. celebrates bicentennial
- Israeli commandos free 105 hostages from Palestinian hijackers at Entebbe Airport
- The U.S. Military Academy at West Point becomes coed

1977

- Ugandan President Idi Amin holds 240 American hostages
- George Lucas creates science fiction legend with *Star Wars*
- The miniseries, *Roots*, draws record TV audiences

1978

- First human heart transplant
- First test tube baby born
- Pope John Paul VI is succeeded by Pope John Paul I and then by John Paul II
- President Sadat of Egypt and President Begin of Israel receive the Nobel Peace Prize for the Camp David Accord
- Congress extends the deadline for ratification of the ERA

1979

- Accident results in radioactive release from Three Mile Island



Sick Up and Fed



Alpha Delta ribbon cutting



AGD

overlooked by officials as an accident.¹⁵

At the beginning of the '70s, athletics for women on the Mines campus included competing on the rifle team, bowling or participating on the cheerleading squad. At the end of the decade, many women participated competitively in swimming, basketball, volleyball, and track.

In 1972, five of the six veterans of the CSM rifle team were women including Sandra (Thielen) Kramer (BSc. Min. '73), Debra Carnell (BSc. Met. '74), Joan Stratton (BSc. Geol. '74), Nancy Money (BSc. Geop. '74, MSc. Geop. '77) and Melody Ulen (BSc. Geol. '75).¹⁶ Sandy Kramer was chosen "Athlete of the Week" for her marksmanship ability on the CSM women's rifle team in 1973.⁷ The 1973 Cheerleading squad consisted of 14 members including five male students and nine female students.¹⁷

Four women received CSM athletic scholarships for the first time in 1975. These scholarships went to: Vera Fowler, a sophomore on the ski team; Colleen Lynch, a freshman on the varsity rifle team and ROTC rifle team; Eloise Montoya (BSc. Met. '79), a freshman on the men's golf squad; and Leslie Puttuck (BSc. Min. '79), a sophomore and first woman to be a member of the varsity swimming squad.¹⁸

The decade saw such diversity and changes as the "green" movement beginning with Earth Day in 1972 and the disco music rage closing the '70s. Technology raced ahead with calculators replacing slide rules, the first human heart transplant and birth of a test tube baby (1978). The '70s saw the creation of the Environmental Protection Agency (1970), the passage of the equal rights amendment (ERA) by congress (1972), the resignation of Nixon (1974), Roe vs. Wade (1973), and the Three Mile



Bannerman drilling during mining contest



Sigma Kappa Charter Members

Island nuclear disaster (1979). On a global level, the Vietnam peace agreement was put into place in 1973. Saigon surrendered, ending the Vietnam war in 1975. Nixon visited both China and USSR in 1974. John Paul II became pope in 1978. While the world saw the progression of technology and struggled with peace, the United States also faced the birth of the environmental age and the changes of the social status of women in the work place and at home.

In a more micro perspective, Colorado School of Mines experienced fluctuations and changes from the impacts of these and other national and international events. The school saw an increase in student population and interest in the petroleum related fields due to the quadrupled price of oil by OPEC (1973). Astronaut Harrison Schmitt of the Apollo 17 mission visited the campus and brought the notorious "moon rocks" collection.¹⁹ In addition, the ERA prompted change in all aspects of domestic society thus bringing forth a larger presence of women in all arenas on campus. In campus classes, in addition to the introduction of hand-held calculators to replace slide rules, freshman computer classes featured computer cards to be processed in a "main-frame" in the Green Center's computer center. The decade abruptly ended with the Iranian hostage crisis in Nov. 1979. The large old trees bordering the former 15th street in front of Guggenheim Hall were decked with large yellow bows, placed by female students, in hopes of a safe return of the hostages and a reign of world peace.

The conservative environment of the Mines campus was slow to join the national turmoil with regard to political pressures and social change. Yet, as the decade of the '70s unfolded, even this protected school became part of the caldron boiling with the issues regarding the morality of the Vietnam War and the economic strain it imposed, the impact of the equal rights movement and the changes brought about by the Civil Rights Act of the previous decade.



Cheerleaders



Powder puff football



Women's basketball



Women's volleyball



Women's rifle team



Mining contest

NANCY ALEXANDER

What lasting impact did you have on Mines?

A few of us

worked hard to get CSM to start a women’s intercollegiate sports program—we wanted to play basketball but were turned away several times. Thank you Coach Allison for coming to CSM and allowing women to be athletes, too!

What lasting impact did Mines have on you? Mines has opened doors for me and I am very thankful for that so being a Mines graduate has had a very positive impact on my career. However, actually going to college at Mines in the late ’70s was more like attending boot camp—so it took several years to recover from the terror.

What would you tell a woman student at Mines today? Have fun and enjoy your college years, make some really good life-long friends, and get a C once in a while if it allows you to balance your life. Also, be sure that the field you have chosen is one you truly enjoy. If you aren’t thrilled with it, try something else and stay an extra semester or year if you have to. Don’t worry about the job market because it is wonderful to find your “niche” and enjoy your work.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Project manager for Flour Daniel—I’m the Deputy Directory of the Hanford Site Groundwater, Vadose Zone, and Columbia River Project. Environmental compliance, remediation, and hydrogeology are the key technical aspect of this project. Hanford is the Department of Energy’s 560 square mile nuclear clean up site in eastern Washington State with an annual budget of one billion dollars.

Job experiences: I have been a Project

Manager for several years—constructing several wastewater treatment facilities, then managing chemical engineering and environmental compliance for the operations of the facilities. My first 10 years were spent as a petroleum engineer with big oil. This experience gave me strong business/management skills, which have helped me work by way into senior management.

Professional ground-breaking experiences: It seems like it is always ground breaking when you work as a female engineer. Beginning with summer work while at Mines, I was the only woman on a 90-man crew working offshore out of Venice, La. (I was really scared!). But the most fulfilling experience I had, was being promoted to a key management position one week after returning to work from a leave-of-absence I had chosen to take to spend six months at home with my second child. Needless to say, I continue to utilize my senior management authority to be a proponent of alternate work schedules and act as an advocate of employing part-time professionals, in order to support the needs of working parents.

Special Interests Outside Work: Our family is quite active—jet skiing (wake boards, water skis), snow skiing, biking, windsurfing, rock climbing, camping, and travel everywhere! Also, I am “Science Mom,” teaching my 10-year-old daughter’s “gifted” class and my 7-year-old son’s “very active” first grade class. We do hands-on science throughout the

school year and get really dirty!

Other significant achievements (including family): Just balancing family and career is our significant achievement! Our daughter, Dallas, is a talented gymnast/pianist and our son, Troy, is a budding soccer star/comedian. My husband, Bruce (Mines ’80), is a Senior Research Engineer with Battell’s

National Laboratory/wonder dad.

What personal goals do you have to carry you into the next century? My goals are quite simple these days—keeping our family healthy and happy and figuring how to spend less time at the office! We are kicking off the century with a trip to the Olympics in Australia and plan to continue our travels and adventures—while continuing to climb the corporate ladder in the world’s #1 engineer firm. . .

Additional Comments: I’d love to hear from old friends. Send me an e-mail or write to me!!! (address & phone available at CSMAA)

Title: Former Vice President, Product Licensing, Amgen (retired 7/98)

Professional Certifications, Registrations, and Titles: P.E

DR. EMMY BOOY,
P.E.

Mines Degree: BSc. CPR ’77
Other Degree(s): MBA ’84, Harvard

Spouse’s Name:John W. LaValle
Mines grad? No
Children (#): 2, **Ages:** 5½, and 21 months

LIFE AT MINES

Biggest Challenges: Getting through first year. Deciding on a major.

Favorite Memories: My teachers in CPR, whom I remember well.

“First woman to . . .” at Mines: pledge a fraternity—no sorority then! I took my meals and studied at ATO (old house by dorm)

What lasting impact did you have on Mines? Finished near top of my class—women can do it!

any support from my parents, my husband had “fake” jobs and stole money from his family. It was a mess. I had to work, go to school, figure out what to do with a marriage which I knew was bad about one month after it happened. I really focused on school and work and that got me through. I should have enlisted the help of my family and professional counselors, but I was too proud to admit things were bad or I had made a mistake. I now know to move on if you don’t like a spouse or job. There is so much happiness to be had out there; don’t get stuck in a rut.

Favorite Memories: My most fond memory of Mines is my summer trip to Australia between the junior and senior years. There were 17 of us who went to Australia one summer, jobs found courtesy of Dr. Frank Lawson and Dr. Rex Bull. I headed to Tasmania and had a wonderful couple of months. It changed my perspective about life, gave me courage to travel anywhere, and was my first taste of the mining industry.

I remember one day the winds were very bad in Golden. I was walking up the street and a gust of wind picked me up and threw me into the middle of the street. I got up and ran over to a sign post and held on. One of my professors stopped and asked if I needed help and drove me home. The next day you could see terrible damage from this storm. This story leads to what I liked most about Mines. The professors. I still communicate with some of them, I considered them my friends, we all knew each other. This is in contrast to Harvard where you

are a number, you don’t know your professors, the classes are large, and you

are processed.

HIGHLIGHTS SINCE GRADUATION

Job experiences:I worked in the mining industry for five years and loved it. I moved mountains; what a feeling. As an attorney, I now just move paper.

Current Professional Field: My current professional field is law. I am a registered patent attorney. You must be a scientist or engineer to be a patent attorney. I graduated from Harvard Law School in 1985,

started with a large firm in Albuquerque, N.M., left that firm to join a small firm, that small firm merged with a big firm, and then we de-merged and I formed Peacock & Myers. At that time, we had two attorneys. Now we have nine attorneys and a total of 22 employees. We are the largest intellectual property firm in New Mexico and have clients worldwide. I love being a patent attorney because I get to do engineering everyday. And, we help make people’s dreams come true. I work on all sorts of technologies: brain surgery, sewer systems, chemical formulations, mechanical devices, etc.

Special Interests Outside Work: Outside of work, my passion is music. I played the piano and percussion in high school and college but then dropped it. Last year, I joined the Albuquerque Concert Band as a percussionist and am now taking piano lessons.

Title: Hydrogeologist

Mines Degree: MSc. Geol. ’80, PhD. (in progress)

Other Degree(s): B.S. ’79, Salem State College,

Spouse’s Name: Christopher Schenk
Mines grad? No

Children (#): 4, **Ages:** 24, 21,17, 9

First woman to . . .” at Mines: have a daughter graduate from CSM. (Tara, BSc. Geol. ’97)

Current Professional Field: Hydrogeology, Groundwater Modeling
Job experiences: Graduate research at CSM, 8/88–12/89; consultant 1/90–10/90; Senior Hydrologic Engineer, James L. Grant & Associates, 10/90–6/91; Engineer, Office of Surface Mining, 6/91–11/95; Hydrogeologic Engineering Consultant, 2/95–11/98; Hydrogeologic Engineer, HRS Water Consultants, 11/98–present

Other significant achievements (including family): Two children have attended Mines: Tara (BSc. Geol. ’97) and Liam (BSc. Met. 2000)

Maiden Name: King

NANCY S. DORSEY

Title: Associate Professor

Mines Degree: BSc. Geop., ’70,

MSc. Geop. ’72, PhD. Geop. ’74

Spouse’s Name: Jacob
Mines grad? Yes
Year: ’74

Degree: PhD. Geop.

Children (#): 5, **Ages:** 24, 22, 19, 16, 14

LIFE AT MINES

Biggest Challenges: Fortunately, I received lots of encouragement during my studies and early in my career as a professor at Mines—I have George Keller, my advisor to thank. He also hired me for my first job at CSM.

Favorite Memories: Receiving a rose at graduation (MSc. and BSc. but not for PhD.). I also have fond memories for John Hollister, my department head in undergraduate school. Hollister was quite concerned for the safety of the first three women to attend field camp. He made sure we had housing close to him and on Friday evenings, while the “guys” were out drinking, he would invite Colleen Cummins, Claudia Blauer, and me in for a glass of sherry. These are dear memories of a very caring leader.

“First woman to . . .” at Mines: receive MSc. and PhD., be professor in geophysics

What lasting impact did you have on Mines? My work with McBride Honor program

What lasting impact did Mines have on you? A good well-rounded education which allowed me to move from geophysics to electrical engineering easily.

RAMONA HEIKEL

What would you tell a woman student at Mines today? Enjoy your studies.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Associate Professor of Engineering

me down to her new sorority house) ... sorority friendships: I was in the 2nd pledge class of the original sorority at Mines, Alpha Delta. It was a small group of fabulous people, very down-to-earth and full of energy and mischief, which involved its members in positions of responsibility and leadership, loyalty and deepening friendships, academic encouragement and practical help, and best of all, our highest calling, raiding fraternities ...cheerleading and sports: autumn cool and campus leaves changing meant wild homecoming contests and staying up all night making a float with Dairy Queen napkins (and twice being a queen candidate! A small female population had so many advantages!); ...witnessing an earthquake while doing homework in a normally quiet place in the Green Center by the USGS seismograph, and deciding on-the-spot to pursue geophysics as a minor; ...changing the color of the M; ...stretching myself academically, including all-nighters; ...working part-time for Betty Pantel, the Dean’s secretary ...E-Day Parade: walking all the way from the campus pulling a heavy ore cart to the State capital to see the Governor chug a beer.

What lasting impact did Mines have on you? The lasting impact Mines had on me is focused on two areas: 1) personal pride in accomplishing the difficult task of graduating from such a rigorous curriculum, and the continual experience of respect and job success because of a degree from CSM (no matter what happens in the industries, it’s held in high esteem around the world, just like we were always told); and 2) continuing relationships with students (mostly sorority members).

What would you tell a woman student at Mines today? Regarding classes, homework, tests, grades, graduating, I would tell her to ...balance out the academics with fun activities and organizations; this is a unique time of your life with relatively few responsibilities (such as a spouse, children, or a mortgage). You can “live it up” even at Mines, and it will energize you for the grind of studying, too.

Get a realistic understanding of what job opportunities your degree will open for you. There are at least two of us that I know who were surprised after graduation

at the limitations of our degrees. (My friend found out that a degree in Mineral Engineering Chemistry is NOT a degree in Chemical Engineering, which is what she actually needed. I believe that I could get a job as the company mathematician, but there aren’t any of those anymore!) If you are indecisive or dissatisfied about a lot of it, take some aptitude tests. Use the student services—they really are worthwhile.

Get help from professors and fellow students right from the start; it’s hard and you’ll probably need help the whole time you’re there. Take advantage of “Test Anxiety Workshops,” etc. I wish I had done those things, instead of stubbornly trying to “get it” all by myself.

Make sure you learn the concepts! I know there is a lot of memorization, but you will forget a lot of what you memorize, and in the real world you will have reference books and tables so you won’t have to depend on memory in critical situations.

Diligently work to successfully graduate. A degree from the Colorado School of Mines shows potential employers that you are mature, and able to work hard and complete a difficult task. That is far more important to them than your GPA. So if you were used to A’s all your life, don’t use up too much valuable energy fretting of Cs and Ds at Mines, like I did. Don’t quit because it’s “too hard,” hang in there and just graduate!

Regarding life in general, I would tell her to ...make up your mind one way or the other about having children versus a career. Children need a mom who is focused on being their mom. The rewards of taking off from work, at least during the years before a child goes to school, will follow you the rest of your life, and your child’s life. If you end up with a career-and-child(ren) dilemma, don’t delude yourself into thinking that your company or profession can’t do without you. It can. You can be replaced at the office so fast it’ll make your head spin. Not so with your child. No one can replace a Mom.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Sulphur Processing

Job experiences: Since graduation I have worked in ocean research, college administration, petroleum software, math tutor, contract technical support, Hewlett-Packard

merchandising rep, oil & gas administration, engineering document control

Upon graduation, I turned my back on all that reminded me of Mines. After a mental break of two years, I returned again to intellectually challenging work for several years. Then I married, had children, and worked part time/temp/at home for twelve years. A year ago I started working full-time.

Special Interests Outside Work: I have played for three years on a ladies soccer team, and we recently won the Calgary city championship for the 2nd time, and have won the Alberta provincial silver medal twice. I also enjoy writing fiction (am trying to get my novel published) and personal experience articles, sketching portraits, making scrapbooks, photography and hiking in this beautiful area, and church and bible studies.

Other significant achievements (including family): Raising two boys (now 11 and 13 years old) has been the joy of my life. I have also gotten great satisfaction from caring for many other children in my home, and teaching Sunday school. I have self-published two 50-page works, *Adventure Math Stories*, a math supplement for grades 4–6 students; and a 20-year anniversary booklet for CSM’s Alpha Delta/Alpha Gamma Delta Sorority in 1995.

What personal goals do you have to carry you into the next century? Publish novels and articles, and obtain a teaching certificate so I can teach children and young adults.
Maiden Name: Honer
Title: Sr. Project Engineer

Mines Degree: BSc. CPR, ’74, MSc. ’97 Env. Mgmt. & Policy

Spouse’s Name: Donald
Mines grad? No
Children (#): 1, **Ages:** 13 (son)

LIFE AT MINES

Biggest Challenges: Being a “co-ed,” i.e., female at Mines

Favorite Memories: Freshman year in Caldwell Hall—all 12 of us

“First woman to . . .” at Mines: I believe—first woman named

MICHELINE L. JOHNSON

neering at Michigan Tech and Mines; research on soils at McGill; mate-

rials research on radioactive waste disposal for U.S. Nuclear Regulatory Commission; consulting on soils (U.S. and Venezuela and Canada), oil, gas, and metals.

Professional ground-breaking experiences: First woman to teach geological engineering at Michigan Technological University and CSM, and Irish Wolfhounds

What personal goals do you have to carry you into the next century? Recovering sufficient health to do volunteer work.

Title: State Geologist & Director of the Colorado Geological Survey

Mines Degree: MSc. Geop. ’77

Other Degree(s): BSc. ’75, Worcester Polytech. Institute

Spouse’s Name: Christopher Hayes
Mines grad? No

LIFE AT MINES

Biggest Challenges: Frank Hadsell’s courses—graduate level linear systems.

Favorite Memories: Driving to Fairplay early in the mornings to go to GP field camp in the late summer. South Park was (still is) beautiful.

“First woman to . . .” at Mines: First CSM woman to be a State Geologist; First CSM grad to be Colorado State Geologist.

What would you tell a woman student at Mines today? Build a strong network of female friends—on campus or off—find a support system. Nurture your sense of humor!

HIGHLIGHTS SINCE GRADUATION

Current Professional Filed: Public agency sciences

Job experiences: Oil biz: 1977–1993
1) As an oil company geophysicist—

SANDY KRAMER

Mobil, American Quasar, ARCO
2) As a contractor—

Schlumberger—onshore and finally as offshore district manager.
3) 1993–current: State Geologist of Colo.

Professional ground-breaking experiences: First female district manager in Schlumberger’s Gulf Coast Division (e.g. Louisiana) 1991; was thrown out of Casper Petroleum Club dining room because they didn’t serve women (1980); serves as first nationally elected president of the Association. for Women Geoscientists (AWG) and helped organize Denver Chapter.

Special Interests Outside Work: Pro-choice grass roots politics—do a lot of fund raising and organizing for Democratic political candidates and served on Colorado NARAL board, off and on for twenty years.

Other significant achievements (including family): Asked to join the Colorado Women’s Forum in 1996

What personal goals do you have to carry you into the next century? I keep trying to make a difference (i.e. “do some good”) but still have a sane and balanced life. I want to still be skiing and climbing mountains when I’m 65!

Maiden Name: Dorsey
Title: Senior Reservoir Geologist

Professional Certifications, Registrations, and Titles: AAPG—Registered Petroleum Geologist in Processing

Mines Degree: BSc. Geol. ’76

LIFE AT MINES

Biggest Challenges: Surviving a heavy course load especially taking surveying during the fall, and the year following when I worked all summer.

Favorite Memories: Clear blue skies after rain or the first snowfall.

What lasting impact did Mines have on you? Security of having struggled and won a degree with a high quality, strong background in my field.

What would you tell a woman student at Mines today? Learn not to let the ultra conservative attitude of male dominance, not ‘push your buttons.’ Industry is no different.

DEBORAH A. PEACOCK

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: International reservoir geology

Job experiences: Triton Energy, 4/94–present; Marathon Oil Co., ’87–4/94; Natural Gas Pipeline Co., ’80–’81; Southern Natural Gas Pipeline 7/76–9/80

Special Interests Outside Work: Healing arts and crafts

Maiden Name: Nicks
Title: Documentation Specialist, Enersul Inc.

Mines Degree: BSc. Math., ’79

Spouse’s Name: Larry Heikel
Mines grad? No
Children (#): 2, **Ages:** 13 and 11

LIFE AT MINES

Biggest Challenges: One of my biggest challenges was being overwhelmed with the volume and time involved in doing homework and keeping up with new concepts. WOW. In my junior and senior years I don’t think I ever got all of my homework done. Also, I lost interest during my junior year, and it was a challenge to finish and graduate!

Favorite Memories: Freshman orientation: traditions, dances, painting the “M”, songfest/egg throw, SO MANY MEN (I was walking across Green Center commons and asked a young man, “Aren’t there any girls here ANYWHERE?!” He took me to the I-Club and introduced me to Ace Van Lieu, who in turn walked with

Job experiences: Taught variety of geophysics, electrical engineering and honors classes. Research in electrical properties of earth materials. Active in K–12 connections with higher education.

Publications: As an academic, I have a long list with over 50 published papers and abstracts.

Special Interests Outside Work: Music—play violin in local orchestra (Evergreen Chamber Orchestra) and at church weekly. Also do freelance playing.

Other significant achievements (including family): Five children: Margaret (b. 1974); Jacob (b. 1976); Paul (b. 1978); Thomas (b. 1982); Mary (b. 1984). Took a sabbatical in the 1995–96 school year and worked with Adams 50 School District to introduce a pre-engineering curriculum for 11th and 12th grades and “classroom” tested it.

What personal goals do you have to carry you into the next century? Continue learning!! Get a few more degrees.

Maiden Name: Johnson

Mines Degree: BSc. Geop. ’78

Spouse’s Name: Dwight Smith
Mines grad? Yes
Year: ’78
Degree: BSc. Geop.
Children (#): 3, **Ages:** 11, 8, 5

LIFE AT MINES

Biggest Challenges: I think the biggest challenge was staying on top of all subjects while still allowing a little time for life on the outside.

Favorite Memories: I enjoyed the intelligence of Mines. I enjoyed the climb to the M both times and the sports, whether we won or not.

“First woman to . . .” at Mines: I believe I was one of the first women at Mines to earn a letter. It was for the rifle team.

What lasting impact did Mines have on you? I learned to solve problems well. Every problem has an answer, eventually.

What would you tell a woman student at Mines today? Stick with it – you can do anything.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Manager at home. Nearly 10 years with a major oil company before starting my family

Special Interests Outside Work: Genealogy, quilting

Other significant achievements (including family): I have a spouse and three wonderful children that I adore.

What personal goals do you have to carry you into the next century? To teach my children that they can do anything they wish to if they learn how.

Maiden Name: Jennings

Title: Energy Trading Representative

Mines Degree: MSc. Geochem. ’76

Other Degree(s): BS BioChem. ’69 Cal State Polytech College, San Luis Obispo

Spouse’s Name: Jim Stickney
Mines grad? No, Episcopal priest
Children (#): 2, **Ages:** 19 & 22

LIFE AT MINES

Biggest Challenges: Finding a place to live when I arrived. Getting through the bureaucracy and mindset that I wanted to take classes to learn, not just for credit; that just because I was married,

didn’t mean I didn’t still have to work and pay for my own schooling; that just because I married a professor didn’t mean I should lose my teaching assistantship; that just because I was pregnant, didn’t mean my mind stopped functioning nor was I instantly fragile.

Favorite Memories: Walking the ore cart down to the Capitol; finishing geology field camp; when spring crocus peak through the snow; walking across stage at graduation receiving my silver diploma, my 10-month old son waiting for me.

“First woman to . . .” at Mines: I think I was first female Homecoming chairman, but not sure. I was co-chair of the Centennial Homecoming, 1974 (as Joni Hiltrop). I was a founding sister of the first sorority on campus, Alpha Delta (as Joni Hiltrop). We named it Alpha Delta for the Beginning of Change. Since the Department of Chemistry and Geochemistry, just added the Geochemistry in the fall of 1976, I would have been the first female graduate with a degree in Geochemistry, MSc. ’76 (degree under maiden name of Jennings).

What lasting impact did you have on Mines? I’d like to think that by attending Mines and completing the graduate program, I became a part of the incremental increase of women in the sciences that would allow other women to view the sciences as a viable option for themselves, and to see Mines as a means to achieve it.

What lasting impact did Mines have on you? To successfully experience, that when I believe in my goal, even if it seems that I am standing still, as long as I continue to focus on that goal, I am making progress.

What would you tell a woman student at Mines today? Hang in there. If you make it through Mines, you can make it anywhere.

Title: Vice President and Director of Contract Management Services

Mines Degree: BSc. Met. ’72, MSc. Min. Ec. ’77

LIFE AT MINES

Biggest Challenges: Becoming “one of the guys”

Favorite Memories: Being “one of the guys”

“First woman to . . .” at Mines: be a Mines co-ed cheerleader; be student body treasurer; graduate in Met., belong to the school’s drinking club (Press Club)

What lasting impact did you have on Mines? Changed the semester system to end before Christmas (circulated a petition

Maiden Name: Balderston (graduated Sauls)
Title: Mrs.

Professional Certifications, Registrations, and Titles: Active member Society Exploration Geophysicists

Mines Degree: BSc. Math. ’76
Other Degree(s): MS ’78, St. Univ. NY—Stony Brook

Spouse’s Name: Ernest R. (Rick) Alexander
Mines grad? No
Degree: BS EE ’88, CU
Children (#): 3, **Ages:** 8, 11, 14

LIFE AT MINES

Biggest Challenges: “Make it or break it” reputation of the whole Basic Engineering Department.

Favorite Memories: Freshman year—Florence Caldwell Dormitory for women—forming life long friendships via comaraderie. Autumn—the smell of the air, the crunch of leaves underfoot, the beauty of the campus, the sense of belonging.

“First woman to . . .” at Mines: Of the 25 women in my freshmen class (fall, ’73), most of us graduated (16) and enjoyed professional careers. We went to Mines to get a good education. We went to Mines not as pioneers, but as “sustainers” — proving that women are not anomalies, but *regular* students.

What lasting impact did you have on Mines? None that I know of. Perhaps I positively influenced a few individuals.

What lasting impact did Mines have on you? I have the self-confidence to tackle challenging projects.

What would you tell a woman student at Mines today? Believe in yourself. Depend on yourself. Mines is worth the struggle. You’ll cherish your Mines memories, so make the most of the whole experience there!

HIGHLIGHTS SINCE

GRADUATION

Current Professional Field: Homemaker, volunteer in public schools, Cub Scout den leader

Job experiences: 18 years—Geophysics 1978–1988, Phillips Petroleum—seismic processing, seismic stratigraphy, interpretation, Bartlesville, Okla. and Denver, Colo.; 1988-1996 Mobil Oil—interpretation, production geophysics, Midland, Texas.

Special Interests Outside Work: Touring the United States, learning about other people, places, culture, history; sewing, crafts, and making useful items out of discards

Other significant achievements (including family): Mother of three fine sons, who are just AWESOME; wife of a wonderful man who is dedicated to the family

What personal goals do you have to carry you into the next century? The Golden Rule—treating other people as I’d want to be treated; enjoy what’s here and now, as well as look forward

Maiden Name: Gancar
Title: Sr. Data Analyst
Mines Degree: Geop. E. ’70

LIFE AT MINES

Biggest Challenges: The discrimination in the classes offered to the women in terms of reaching the required number of semester hours needed for graduation; that is, there was no physical education or R.O.T.C. credit and so we had to make up that portion with real classes, whose grades counted toward our G.P.A.

Favorite Memories: The sound of the carillon.

“First woman to . . .” at Mines: to receive a professional degree in Geophysical Engineering.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Creating corporate well log database for Marathon Oil Co.

Job experiences: Seismic work for Phillips Petroleum; well log work for Marathon Oil.

Special Interests Outside Work: Quilting

Professional Certifications, Registrations, and Titles: Professional Engineer, Certified Professional Geologist, Formerly Associate Professor

Degree(s): BSc. ’60, Alfred University; M.A. ’63, Columbia University; PhD. ’68, Columbia University

Spouse’s Name: William J. C. Merrill
Mines grad? No

LIFE AT MINES

Biggest Challenges: Getting senior staff’s respect

Favorite Memories: 1) Most of my students. 2) Field Camp. 3) Many of my colleagues—faculty and staff.

“First woman to . . .” at Mines: teach Geological Engineering
What lasting impact did you have on Mines? Women CAN teach male and female engineers

What lasting impact did Mines have on you? The “family” of Mines provides backup worldwide.

What would you tell a woman student at Mines today? “Illegitimi non carborundum?” Just keep working and you will succeed—and have fun and friends along the way.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Retired/disabled (arthritis)

Job experiences: Teaching night school—in New York City in the ’60s; teaching geological engi-

“Outstanding Senior CPR Student”

What lasting impact did you have on Mines? I broke the biggest beaker used in CPR lab.

What lasting impact did Mines have on you? Logical approach to problems

What would you tell a woman student at Mines today? Persevere—but for a lifetime.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Engineering

Job experiences: Two years in petroleum refining; 8 years in synfuels; 12 years in nuclear waste/environmental/engineering

Professional ground-breaking experiences: First woman engineer hired in refining division at ARCO

Special Interests Outside Work: BSA (Boy Scouts of America) leader

Other significant achievements (including family): Camped in 5-ft zone—blizzard of ’97

What personal goals do you have to carry you into the next century? Help clean up Rocky Flats.

Maiden Name: Thielen

Professional Certifications, Registrations, and Titles: Mining Engineer, Architectural Technologist

Mines Degree: BSc. Min., ’73
Other Degree(s) AAS ’97, FRCC

LIFE AT MINES

What would you tell a woman student at Mines today? Be 100% positive you want to be an engineer. Be ready to put up with flagrant discrimination and harassment. Stand tall & straight—it shows confidence and pride. Conduct yourself with dignity at all times. Stand up for yourself, don’t be intimidated. Women are permitted to work in “male” professions but we are still not wanted there. Be ready to work longer and harder for less pay and

no recognition. Don’t let work take over your life. Make and take time for yourself and your family every day. Enjoy life to its fullest. You only get one chance and you never know how long you have.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Architectural Technology

Job experiences: Mining engineer Utah International, Cedar City, Utah; mining engineer/Mine, Health & Safety Inspector, Mine Enforcement & Safety Admin., Lakewood, Colo.; lab tech., U.S.G.S Oil & Gas Resources, Denver Federal Center; mining engineer, Minerals Availability Field Office, Bureau of Mines, Denver Federal Center; house painter, Denver, Colo., architectural technologist, The Keating Partnership, Golden, Colo.

Special Interests Outside Work: Volunteered with Habitat for Humanity for two years while I was out of work. Was asked to be field supervisor for HFH Woman’s Build Project; do volunteer work for the National Park Service at Carlsbad Cavern, N.M., Wind Cave, S.D., and Jewel Cave, S.D.

Other significant achievements (including family): Have taken four abused and neglected dogs and given them love and attention. Watched these four dogs plus my other two turn into outstanding and loyal companions.

What personal goals do you have to carry you into the next century? 1) To be happy and unstressed. To work no more than absolutely necessary to be able to keep my dogs in dog food and to allow me to continue with my volunteer work. 2) To design and build my own home.

Title: President

Professional Certifications, Registrations, and Titles: Professional Engineer New Mexico 1986; Professional Engineer Colorado 1983

Mines Degree: BSc. Met. ’78,

Other Degree(s): J.D. Law, 1985, Harvard Law School

Spouse’s Name: Nathan Z. Korn
Mines grad? No

LIFE AT MINES

I went to Colorado School of Mines because I liked rocks. I grew up in Denver, saw the old mines, collected rock samples, and loved the history. It was a natural to go into metallurgical engineering and I focused on mineral processing. I later went to work at Kennecott Copper, as a front-line foreman. It wasn’t until this first job that I really found out what mining and metallurgical engineering were all about; it’s not about rock collecting. Work is all about communications (writing, personnel, management) and making a profit or obtaining funding. The skills I learned in the mining industry have been invaluable in my law firm.

Mines was not difficult for me academically. I was a very good student and graduated at the top of my class. When I went to Harvard, I was just average. That was difficult. I recommend to everyone who is in undergraduate school to get good grades; it is essential if you want to get into a good graduate school. Even though I had a high grade point average for Mines, it was the lowest level accepted by Harvard. You compete with students from other disciplines who can more easily get straight “A” averages. I thought I would never go to school again, but later did decide to get another degree.

The strangest thing about Mines, which continued into the working environment of the mining industry, were the stares from all the guys. In 1974, there were only about 10% women, so there was constant scrutiny of every move. Then, I got used to the stares and was surprised when I went to a mall and no one even looked at me!

Biggest Challenges: The biggest challenge I had at Mines was the year my dad died. He died of a heart attack, unexpectedly, at 56 years old. I got married three days later (the wedding was in motion and

we felt compelled to continue), to a “bad apple” who later died of substance abuse. I was no longer receiving

What lasting impact did Mines have on you? Learned to work hard, figure things out, and awarded CSM Scholarship at Harvard Business School

What would you tell a woman student at Mines today? Work hard! Participate! Stay in touch with the non-technical aspect of life—the arts. Treat yourself to a nice dinner out.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Biotechnology, business executive

Job experiences: 1) Procter & Gamble 1977–1982: Process Development Engineer, Section Head, Product Development 2) Amgen 1984–1998: Business Development Manager; Co-Product Development Team Leader; Marketing Director; Vice President, Product Licensing

Professional ground-breaking experiences: Excellent first job at Procter & Gamble; MBA; Joining a start-up company that succeeded

Special Interests Outside Work: My daughters, Alexandra and Whitney; family trips; music, opera, performing arts

Other significant achievements (including family): We are fortunate to have a nice home and the ability to enjoy a lot of family activities with our daughters. Both of us have become VP’s, and John is now a COO at a high tech start-up company.

What personal goals do you have to carry you into the next century? Be a good parent; enjoy more family time; work with great people on another start-up.

Additional Comments: An engineering

degree is a terrific asset for a woman, and a strong foundation to build a career on. It certifies you in math and science.

KATHLEEN M.
WILTSEY

and got over 1000 signatures out of student body of approximately 1700); sat on committees on this for more than one year.

What lasting impact did Mines have on you? Gave me a world of opportunity, and a lifetime of friends.

What would you tell a woman student at Mines today? You have to decide what you want in life and do what you have to do to get it. Don’t let other people decide what’s important to you and what isn’t. Any decision is a good decision as long as it’s your decision.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Consultant to construction companies and construction project owners on contract dispute mitigation

Job experiences: Kennecott Copper—metallurgical engineer in smelter and electrolytic refinery; Westinghouse—process metallurgist in uranium solution mining; 2nd Lead Industry—process metallurgist and manager in secondary lead smelting and refining; Business Development/ Sales of process engineering services and mineral processing equipment; Construction—contract administration, disputes avoidance and resolution

Professional ground-breaking experiences: First woman in Kennecott’s copper refinery (Utah) and first woman in plant at Kennecott’s Utah smelter. **Publications:** “Custom Precious Metal Smelting,” The Mining Record, 1982; “Coal Ash Fusion and Boiler Deposits,” State Electricity Commission of Queensland, 1977; “Managing “Killer” Clauses in Construction Contracts,” CFMA Building Profits, 1997

Special Interests Outside Work: Skiing, hiking, travel. Currently a Major in the U.S. Air Force Reserve in the position of Chief of Bioenvironmental Engineering Services for the 452 Medical Squadron, March ARB, Calif.

Other significant achievements (including family): Arbitrator with American Arbitration Association since 1987. Played rugby for 12 years, and organized a ground-breaking tour of 35 women from

12 states (both teams) to play exhibition rugby in England, Scotland, and Wales.

What personal goals do you have to carry you into the next century? I’m constantly striving to grow—in both knowledge and experiences (professionally and personally). This hasn’t changed since I left Mines, and I don’t expect it to change after 2000.

Additional Comments: I’m satisfied with where I’ve been and where I am now. My goal is to feel the same when I’m 90.

Maiden Name: Larson
Title: Dr.

Professional Certifications, Registrations, and Titles: Secondary Mathematics Education, Educational Foundations, Policy & Practices

Mines Degree: BSc. Geol. ’72

Other Degree(s): MA ’90, CU—Denver; PhD. ’97, CU—Boulder

Spouse’s Name: Thomas E. Kelley
Mines grad? No
Children (#): 5: Sarah & Emily Tonso, Sean, Maria, & Andrew Kelley
Grandchildren (#): 1

LIFE AT MINES

Biggest Challenges: Passing Fluids with Dr. Faddick
Favorite Memories: Surveying—all summer

“First woman to . . .” at Mines: (of 3) to attend geology field camp

What lasting impact did you have on Mines? Most likely my doctoral dissertation: “Constructing Engineers Through Practice—Gendered Features of Learning & Identity Development”

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Professor of Women’s Studies, Anthropology, & Education

Job experiences: Engineer—CONOCO, Hobbs, N.M., 1973–75; Reservoir Engineer—Marathon, Littleton, Colo. –

1975–81; Sr. Reservoir Engineer—Central Bank of Denver, 1981–87; College teaching—Metro State, CU—Boulder, and UNC, 1987–present

Professional ground-breaking experiences: 1995—Outstanding Paper American Society of Engineering Education, “Discourse in an Engineering Classroom: Whose Talk Counts?”

Publications: Too numerous to list

Special Interests Outside Work: Play piano, garden, backpacking

Other significant achievements (including family): Fellow – American Education/ Research Association/Spencer Foundation, 1994–95; 1998 Selina Greenberg Distinguished Dissertation Award, Am. Educational Research Association, Special Interest Group: Research on Women and Education

What personal goals do you have to carry you into the next century? Continuing to document the wide variety of experiences that women and men engineering students (and practicing engineers) have.

Maiden Name: Goodrich
Title: Deputy Director, Groundwater/ Vadose Zone/Columbia River Project
Mines Degree: BSc. Geol. ’78

Spouse’s Name: Bruce A. Williams
Mines grad? Yes
Year: ’80
Degree: BSc. Geol.
Children (#): 2, **Ages:** Dallas 10, Troy 7

LIFE AT MINES

Biggest Challenges: Trying to grow up surrounded by men!

Favorite Memories: Starting an annual “Casino Night”; trips to Central City, “hat” parties at the old house, and hanging out with the lacrosse team. (And there was Bob, Russell, Doug, Mar, Dave, Mike, and...) My “anti-favorite Memory” was geology field camp.

“First woman to . . .” at Mines: . . . to sign up for weight training! Yes, the coach did try to explain to me how I must have accidentally signed up for the wrong class.



THE 1980S
THE TRANSITION-
AL YEARS

THE TRANSITIONAL YEARS

Timeline

The 1980s:
THE
TRANSITIONAL
YEARS

1980

- Yugoslavian President Tito dies
- Mount St. Helens erupts
- CERCLA, or “Superfund,” enacted

1981

- Iranian hostage crisis which began 1979 ends
- President Reagan shot in assassination attempt
- US launched first reusable manned spacecraft, space shuttle Columbia
- Sandra Day O’Connor became first woman on the U.S. Supreme Court

1982

- Falklands War

1983

- Sally Ride became the first American woman astronaut to travel in space
- Barbara McClintock becomes Nobel laureate in medicine

1984

- AIDS virus identified
- Bhopal, India, leak of poisonous gas from pesticide plant kills over 2000 people
- Geraldine Ferraro is the first woman to run for Vice President of the U.S.

1985

- The movie “Out of Africa” is released

— continued on page 41

present: self-employed consulting engineer; 1991–present: designing and producing ceramic jewelry

Professional ground-breaking experiences:

First woman Control Center Supervisor for Chevron Pipe Line Co.

Special Interests Outside Work: Environmental Advisory Committee for the 2002 Winter Olympics in Salt Lake City

Other significant achievements (including family): I’ve been writing non-fiction as a hobby, and have had two articles published in local magazines.

What personal goals do you have to carry you into the next century? I’m hoping to expand my ceramics business, write a family memoir, and do more volunteer work.

Additional Comments: Sorry I’m missing the centennial, but thank you for undertaking this project.

Maiden Name: Dickerhoof

Title: Homemaker (full time), Creative Memories Consultant (part time)

Mines Degree: BSc Phy. ’87

Spouse’s Name: Gary M. Scott

Mines grad? Yes

Year: ’87

Degree: BSc. Pet.

Children (#): 2, **Ages:** 1, 3

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Homemaker; Creative Memories Consultant—help people preserve their memories & photographs in photo safe albums

Job experiences: IBM—Systems Engineer: Initially I supported marketing teams for electric utilities. After installing a large document imaging



Co-eds relaxing on campus



Homecoming Court, 1981



Co-eds compete in cross-cut, spring of 1982



1984 Ski Team

Mines grad? Yes

Year: ’75

Degree: BSc. CPR

Children (#) 2, **Ages:** 21, 22. Son, Roger, is a Mines Grad (BSc. CPR ’98)

LIFE AT MINES

Biggest Challenges: Getting my BSc. having Multiple Personality Disorder where three separate personalities that did not communicate, attended classes, did homework, and took tests. Funny part is that I found out it was unusual about eight years later.

Favorite Memories: Drafting TA drew a tree and a park bench on one of my best efforts and wrote that I forgot to put the flowers on; and using the “pencil hand” for the right hand screw rule being left handed.

“First woman to . . .” at Mines: to embarrass a man by being walked in on in the men’s room because I didn’t want to walk to the Physics building

What lasting impact did you have on Mines? Probably none

What lasting impact did Mines have on you? Being a Mines student taught me that I can do anything I put my mind to, even if it takes a while.

What would you tell a woman student at Mines today? Don’t worry as much about grades as learning what you have fun learning. If you learn what you want to learn, you are set for life. Also, the analogy of needing fertilizer (compost, manure . . .) to grow the flowers out of.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Student

Job experiences: since graduation—in order: worked for an oil and gas company; stayed home with kids; worked in a sports car shop, worked for the Disney Catalog, several depts.; and volunteer work with kids in school, as mentor and tutor

Professional ground-breaking experiences: First woman reservoir engineer for my company straight out of school. First woman allowed into several Petroleum Clubs—mostly in small towns.

Publications: None in the engineering field

Special Interests Outside Work: Needle work, weaving, piano, flute, sax, reading, and writing

Other significant achievements (including family): Two fine, independent sons who are nicely transitioned into friends who trade advice. Personally, have integrated over 30 separate personalities into one person who looks toward the future and enjoys life. (Ain’t it great! I didn’t know what I was missing!)

What personal goals do you have to carry you into the next century? My personal goals right now don’t have a lot to do with being a professional. I want to teach kids who don’t have a great opportunity to find out how much fun science and learning can be.

Additional Comments: I started at Mines in 1971, went back in 1979 and 1998. The place has changed much in the past 20 years but the changes are superficial and some are not at all superficial. I just hope it keeps the small school atmosphere.

Maiden Name: Crumb

Title: Sr. Applications Engineer

Mines Degree: BSc. CPR ’84

Spouse’s Name: Paul H. Wolfe

Mines grad? Yes

Year: ’84

Degree: BSc Pet.

Children (#): 2, **Ages:** 9, 6

LIFE AT MINES

Biggest Challenges: Be a student-athlete while passing classes; CPR Field Camp

Favorite Memories: E-Days were always the BEST TIMES! While President of the student section of SWE, we hosted the Regional Conference at CSM

What lasting impact did you have on Mines? Helped build a strong SWE student section. Helped make softball a varsity sport for women

What lasting impact did Mines have on you? Prepared me to function technically and professionally/socially in a male-dominated workplace.

What would you tell a woman student at Mines today? With a degree from Mines, the opportunities are endless. Find a mentor—and hold on tight!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Sales & Marketing for industrial equipment manufacturer

1986

- Space shuttle Challenger explosion on take off, killing all 7 crew members
- Chernobyl Reactor Accident, fire and explosion release large amount of radioactive debris into atmosphere
- Rita Levi-Montalcini becomes Nobel laureate in medicine

1987

- Congress releases the report on the Iran Contra investigation
- The Senate rejects the nomination of Judge Robert Bork for the Supreme Court

1988

- Gertrude Elion becomes Nobel laureate in medicine

1989

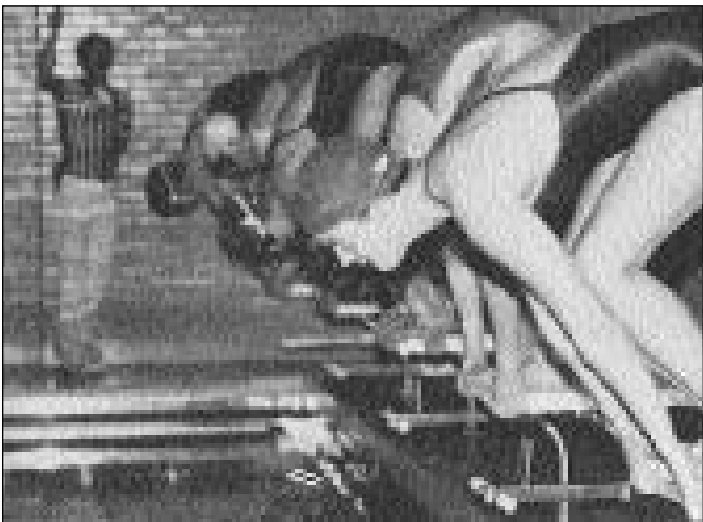
- Tienanmen Square.... student resistance ended in massacre
- Exxon Valdez runs aground and spills nearly 11 million gallons of crude oil into Prince William Sound



Cheerleader 1989



Anne Ralph, 1989



Swim meet, 1989

Job experiences: NALCO Chemical Co., Sales Engineer, 1985–1988; Eagle-Picher Industries (aerospace batteries), Project Manager, 1988–1990; Svedala Industries (Formerly Denver Equip. now alias ‘Filter Queen’), Applications Eng., 1990–present

Professional ground-breaking experiences: Have presented three technical papers (one in Peru). Worldwide travel

Special Interests Outside Work: Colorado High School volleyball official
Subcommittee co-chair for ‘Girl Power’ program to be hosted by Colorado Springs AAUW (American Association of University Women)

Other significant achievements (including family): 1994 Young Leader Award for Colorado from American Association of University Women, 1996 and 1997—President of Pikes Peak section of Society of Women Engineers

What personal goals do you have to carry you into the next century? Raise two sons. Continue to mentor young women to enter the career fields of technical science and math, by volunteering through SWE and AAUW.

Maiden Name: Weers
Title: Engineer/ Pharmacist

Professional Certifications, Registrations, and Titles: EIT, BS Engineering, Pharmacy RPIT, Graduate work at CU—Denver

Mines Degree: BSc. CPR ’84
Other Degree(s): Chemical BS ’81, CU Pharmacy School

Spouse’s Name: Rick R. Woodward
Mines grad? No
Children (#): 2, **Ages:** 1, 3

LIFE AT MINES

Biggest Challenges: My biggest challenge was working and going to school.



Mines band

As late as 1984, the new CSM Director of Student Activities was quoted as saying, “All I’d heard (about Mines) was....how there were no women on campus.”¹ While this was still Mines’ reputation, reality had changed.

The 1980s were the decade when women finally had a sizeable presence at the Colorado School of Mines. The average graduating class of this decade had 91 women. This was over a 600% increase from the average for the previous decade. In fact, in 1986, there were 126 CSM graduates who were women. Between 1980 and 1983, eight Mines women had each obtained a PhD.,² tripling the total number of doctorates CSM had granted to women. Among this group was Ramona Graves, the first woman in the U.S. to obtain a doctorate in Petroleum Engineering.

This acceleration of women graduating from CSM appears to have at least two sources. First, it reflected the women’s movement in America; the beginning of the ’80s saw continuing national debate on the women’s movement and the Equal Rights Amendment. Second, reflecting the downturn in the oil and metals industry, the school’s focus was moving away from mining and petroleum and towards an increased focus on mineral economics, environmental sciences, and basic engineering programs.

The fact that women were an established presence at Mines was being noticed. The January 1984 issue of *Mines Magazine* focused on women at Mines and their influence on the school.³ Included in this issue were articles on the first women PhD. graduates from Mines and an article discussing the impact of women administrators and faculty at Mines. In the same issue of *Mines Magazine*, it was noted that two Mines women had been included in the University of Michigan’s videotape series, “Women in Science.” By the end of the decade, CSM publications placed little special focus on coeds. It appears that women had become an accepted part of the Mines community and no longer warranted special attention. In the latter part of the decade, these publications shift their special focus to other minorities on campus.

This decade showed the first two significant drops in women graduates. Both of these drops can be attributed primarily to economic forces. The first drop occurred 1981 when the number of women graduates decreased to 71 from the previous year’s 99. This drop mirrored a general decline in enrollment and coincided with a reduction in the demand for engineers: “...(in 1981), some 150 companies conducted 4,165 interviews with the new BS degree holders from the School of Mines and offered 138 jobs...But in December 1982, only 85 companies conducted 2,432 interviews at the school and offered 33 jobs.”⁴

The number of women graduates resumed its climb in 1982, and reached a high of 126 women graduates in 1986. This was followed by four consecutive years of decline to a low of 74 women graduates in 1990.

As with American society in general, women were establishing their own culture within the larger institution. In 1980, 16% of the student body was female⁵, and it was quickly becoming unusual to find a class with just one coed. Women’s groups, such as



Sandy Craig, Marianne Brozovich and another co-ed present a Blue Key shirt to an unidentified gentlemen.



Janet Green paints the “M,” 1981



Environmental field camp



Haime Kim at graduation



KATHLEEN
A. ALTMANN



the Society of Women Engineers (SWE) and the sororities, were firmly established.

The professional woman's "dress for success" formula presents a good parallel for the

role that coeds were taking in the Mines community. In the first half of the decade, the dress for success look was effectively a woman's version of a man's suit.

Women were trying to establish themselves as "one of the guys" by doing the same things the men did. For example, Laura Klein recalls being the arm wrestling champion three years running prior to her graduation in 1982. Photos from the yearbooks and from *Mines Magazine* of the early '80s show women participating in the drilling competition and in the beer drinking competition. The need to prove that a woman can accomplish the same things as a man, the need to prove themselves as "one of the guys," began to fade in the middle of the decade.

As the decade progressed, a new era of women's self-acceptance began to emerge. This was again reflected in the metaphor of women's work attire: the suit and bow tie of the early '80s gradually shifted to a more feminine dress and scarf by the end of the decade. While the women of this decade were proud of their accomplishments, the emerging sentiment seems to have been summed up by a quote from Ramona Graves, "I get real tired of 'look what women have done' stories. I never think about my gender. I've often been the only woman in a class, or at a meeting, but I never think of myself in those terms."⁶

The attitudes of the women at Mines continued to parallel the national women's

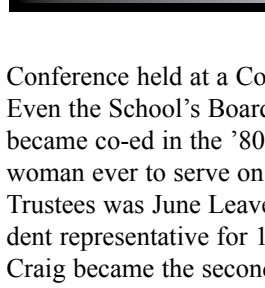
movement. In the wake of the failure of the Equal Rights Amendment in 1982, the women's movement advanced from confrontational to a more moderated, self-accepting style.

Some of this growing acceptance on campus also came from the increasing number of women included in familial Mines traditions. It had never been uncommon for men to be part of a family tradition of attending CSM. Now a growing number of the women students were daughters, sisters, or wives of Miners. Examples of this include Cathy Mencin, daughter of a Mines alumnus, and sisters Kerry and Christie Caldwell. All three were students at CSM in early '80s.

This decade did not see a significant change in the number or type of activities in which women were involved.⁷ In the 1980 yearbook, women are shown participating in 22 clubs or organizations and seven sports. There were three women's intercollegiate teams: basketball, soccer, and volleyball. Women participated on coed teams in swimming and diving, ski team, track, and bowling. The 1989 yearbook documents women participating in 28 clubs or organizations and 10 sports, including cross-country, softball, and women's swimming and diving team.

While the type of activities had not changed, there was a major transition in women's roles at CSM. Women assumed leadership positions in all aspects of the Mines community. An excellent example of this is found in the 1980 *Mines Magazine* which reported: "In student elections held this spring, twenty-eight percent or five out of eighteen student offices were won by women students, yet women constitute only 16% of the student population."⁵ Early in the '80s, coeds could be found chairing the E-Day committee, serving as president of Blue Key,¹ and selected as E-Day Engineers.^{8,9} In 1980, Kathleen Rahm became the first woman appointed Cadet Lieutenant Colonel.¹⁰ In 1984, the CSM chapter of

CANDY AMMERMAN



SWE hosted the first Society of Women Engineers Region V

Conference held at a Colorado school.¹¹ Even the School's Board of Trustees became co-ed in the '80s. The first woman ever to serve on the Board of Trustees was June Leaver, nonvoting student representative for 1980-81.⁵ Sandy Craig became the second woman to serve as student representative to the Board of Trustees in 1981.¹²

With the changes in the school's makeup came inevitable growing pains. In response to feedback received by President McBride and Dean of Faculty, William Mueller, the School commissioned a report to evaluate Mines as a work place for women. This report was called the Conway Report, but was actually titled "The Climate Report," authored by Jean Conway. The objective of the report was to investigate and articulate possible inequities in the work place for women at CSM. The report provided several recommendations for the school to improve perceptions of equity.¹³

Transition is also the theme running through the survey response from the '80s alumna.¹⁴ Whether in their memories of the school, their careers, their personal lives, or their plans for the future, these women continue to see change as the defining fact of their lives. As Allena Oppen said, "Life is dealing with changes and challenges – Mines was a part of that."

For some of the women, just attending CSM was a transition. At least one student had a previous degree in pharmacology, one had a degree in nursing, and several were wives and mothers. These women were building on the precedence set by previous generations of nontraditional students, including Florence Caldwell, Betty Gibbs, Patricia Mosch, and others.

When reflecting on their time at CSM, most of the women from this decade mention how they were changed and strengthened by their experience. Not uncommon is Becca Wissbaum's comment, "Being a Mines student taught me that I can do anything I put my mind to,

even if it takes a while." At least one woman tied this strengthening to the rigors

encountered at the school. Several women remembered, often with delight, some of the low points of their scholastic careers. Mary Pott recalls her biggest challenges, "Physics II – took it three times! Also learning how to pick myself up after failure and moving forward...I never failed at anything before attending Mines, and, therefore, I never knew what I was really capable of accomplishing." Still, these women had a lot of good memories, including E-Day, various professors, field sessions, and classmates. Patricia Cummings recalls her favorite memories as "Summer field course, meeting Ken, mineralogy labs..." Her comment about meeting her future husband is an appropriate reminder that about half of the married respondents were married to Mines men. On many levels, CSM had a lasting impact on all their lives.

When asked what they would tell a woman student at Mines today, the answers about school focused on persistence, perspective, and priorities. Summing it up, Pamela Edrich said, "Work hard. Learn all you can. Be involved with school activities and form strong friendships. These will be some of the most memorable days of your life." But as Beth McBride said, "There are only 24 hours in a day."

With respect to work, their recommendations reflect the continuing focus on change for both the individual and industry. Candy Ammerman stated, "don't have a 'chip on your shoulder' because it's difficult to be accepted as a 'woman engineer.' You will be accepted when you are confident, open to constructive criticism and do your best work." And Laura Klein said, "You don't have to compromise values or personal goals to have a career. The workplace has changed a lot and employers are more flexible. But you will need to have proved your value and need to be proac-

DEBORAH A.
CHAPMAN

tive about how the company can help you."

These women frequently were

on the forefront of transitions in the workplace. Several women cited first in job settings, including the first woman rig supervisor in the Norwegian North Sea, the first woman allowed into several Petroleum Clubs, and the first woman underground at a number of mines overseas. As at school, these women were part of the transitions the workplace and part of the shifting focus of feminism. Instead of ignoring the fact that a woman is different, Elizabeth Robinson suggests, "Balancing professionalism and femininity in all-male groups of colleagues in a way that earned me both respect and affection gave me the greatest satisfaction."

A look at the accomplishments of these women shows just how well they've succeeded. For example, Deborah Schwabach is on the Environmental Advisory Committee for the 2002 Winter Olympics firms, Susan Poos was the Chief Engineer at a three-million-ton per year coal mine and Candy Ammerman is frequently recognized by the students for her teaching skills at CSM. Several women have their own consulting firms, and several of the women have published

technical documents, and a few have received patents.

An interesting side note is that nearly a third of the women still in technical fields are working with environmental issues. While the majority of the respondents from this decade are still working in technical fields related to their degrees, many have been successful in other careers. Two of the respondents are lawyers, one is an auditor, and several have successful careers in the arts. A large percentage of the respondents balanced work with raising children, and several have chosen parenthood as their primary focus. It is a wonderfully diverse and successful group of women.

With this set of skills and talents, balance has been important to these women. The women of the '80s have shown an emphasis in their lives on managing multiple demands and interests. Several are working in the same company as their

husbands. Many have taken temporary "outs" for children. Many have changed careers.

Not surprisingly, these women are helping bring about a transition in the prioritization of work and personal life. In the stated goals, the common themes included an emphasis on balance and family life. As Beth McBride said, her goal is to "Semi-retire! To have time to travel, raise family, pursue other interests, stay involved in the oil and gas industry." And as for the future generations, and the most common goal is summed up by Lisa Woodward, "My personal goal is raising responsible, happy, and healthy children."

Graduation Name: Riddle
Title: Senior Metallurgist

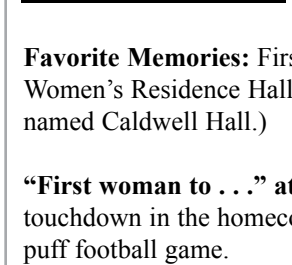
Mines Degree: BSc. Met. Eng. '80
Other Degree(s): M.S. Met. Eng. '94,
University of Nevada, Reno

Children (#): 4, **Ages:** 28, 26, 20, 18

Grandchildren (#): 3

LIFE AT MINES

CATHERINE
COLLINS



Biggest Challenges:
GETTING
DONE!

Favorite Memories: First year in the Women's Residence Hall (before it was named Caldwell Hall.)

"First woman to . . ." at Mines:...score a touchdown in the homecoming powder puff football game.

What lasting impact did you have on Mines? I hope I am becoming a better and better role model for younger women.

What lasting impact did Mines have on you? I learned how to set priorities and establish goals when it is impossible to get everything done!

What would you tell a woman student at Mines today? IT IS WORTH IT!!!!

HIGHLIGHTS SINCE

Exxon Baton Rouge Refinery; Design Engineer & Project Manager—6 years at Rocky Flats; Manager of various waste and environmental compliance groups—8 years at Rocky Flats

Professional ground-breaking experiences: Received 1st RCRA Operating Permit at Rocky Flats; implemented many cost savings initiatives

Publications: Presented four papers at 1995, 1997, and 1998 Waste Management Symposia

Special Interests Outside Work: Spending time with my family, especially outdoor and musical activities, running, flower gardening

Other significant achievements (including family): Married 13 years to a wonderful man; have two wonderful, though misbehaved, children who want to go to Mines; ran a half-marathon in 1996, and didn’t come in last.

What personal goals do you have to carry you into the next century? Raise my daughters to be happy, healthy, confident young women; remodel my bathrooms!

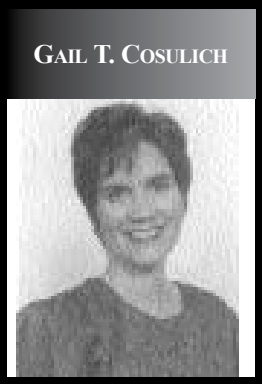
Maiden Name: Thompson

Professional Certifications, Registrations, and Titles: EIT—Colorado

Mines Degree: BSc. Eng. ’89

Spouse’s Name: Robert Farrar
Mines grad? Yes
Year: ’88
Degree: BSc. Eng.
Children (#): Two boys, **Ages:** 2 and 4 1/2 years-old.

LIFE AT MINES



Favorite Memories: White washing the “M” as a senior!

What lasting impact did you have on Mines? I helped to start the pom squad and Pi Beta Phi

What lasting impact did Mines have on you? It made me realize I can do anything that I set my mind on.

What would you tell a woman student at Mines today? Continue using the determination used to survive at Mines throughout our life, but remember to look at all sides of an issue.

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Motherhood

Publications: Wrote and assisted on numerous maintenance manuals for electrical power equipment

Special Interests Outside Work: Pi Beta Phi, various crafts, sewing, outdoors

Other significant achievements (including family): I ended my engineering career to become a mother. We feel this is more important than any money I could earn.

Title: Consultant

Professional Certifications, Registrations, and Titles: Certified Ground Water Professional

Mines Degree: MSc. Geochem. ’84
Other Degree(s): BSc. ’80, Southern Oregon University.

Spouse’s Name: Jim Pastorick
Mines grad? No

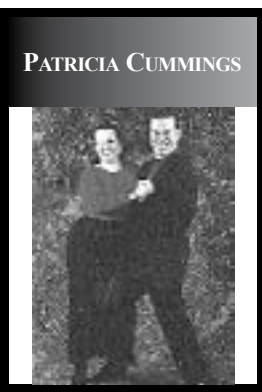
LIFE AT MINES
Biggest Challenges: Due to my youth and sex I found it difficult to be accepted at Mines in Graduate School as a serious student with an intellect.

Favorite Memories: The graduate students from Chemistry and Geochemistry playing softball on Friday nights.
What lasting impact did Mines have on you? I’m still grateful almost daily for CSM taking a chance and accepting me into graduate school from a small and relatively unknown undergraduate college.

What would you tell a woman student at Mines today? The environmental field is saturated and markets are declining—

choose an engineering career such as civil!

HIGHLIGHTS SINCE GRADUATION



Current Professional Field: Environmental consulting and litigation support

Special Interests Outside Work: Oriental art collecting, tandem bicycling

Other significant achievements (including family): Elected to Board of Directors of the Association of Ground Water Scientists and Engineers

What personal goals do you have to carry you into the next century? Personal happiness

Additional Comments: Sorry I won’t be there

Maiden Name: Bensema

Mines Degree: BSc Geol. ’86

Spouse’s Name: Jim
Mines grad? No
Children (#): 2, **Ages:** 4½ and 1½



LIFE AT MINES
Biggest Challenges: To

balance the demands of the classwork with the desires for a social life. I wanted good grades AND I wanted to be with my friends and have fun. Could I do both?

Favorite Memories: Geology Field Camp, 1985. That was the last year they had a food truck, and I just had an all around jolly good time! Even with the snow and rain! Other favorite memories include the wonderful feeling I got when I finally got my computer program to run in my programming class. Also the sense of accomplishment I felt when I got a good grade on a test or for a class.

“First woman to . . .” at Mines: Well, I

ball team, ski class, geothermal field trip to Hawaii

“First woman to . . .” at Mines: reach the “M” on freshmen “M Climb” in 1979

What lasting impact did you have on Mines? Revitalized SWE on CSM campus as SWE President

What lasting impact did Mines have on you? My CSM education enabled me to find employment in a “down” market and continued to open doors for a successful career thereafter.

What would you tell a woman student at Mines today? Participate in extracurricular activities and be a well-rounded person. Strive to achieve your personal best and don’t let anyone steal your dreams. Commitment to excellence and integrity will always pay off.



HIGHLIGHTS SINCE GRADUATION
Current Professional Field: International marketing

Job experiences: Exploration Geophysicist, ARCO 1984–1987 (Texas); Engineering Geologist, Zeiserkling Consultants 1987–1995, (California)

Special Interests Outside Work: Travel, and mommy activities.

Other significant achievements (including family): Retired from the engineering consulting business to enjoy motherhood and to build my own marketing business.

What personal goals do you have to carry you into the next century? Financial independence; to achieve successes in both family and business, without compromising either one; and to be all I am intended to be.

Additional Comments: Favorite quote: True success is not measured by monetary wealth . . . “Success is the progressive realization of a worthwhile dream or goal” (D. Yager).

Maiden Name: Beckley

Mines Degree: BSc. Geol. ’80

Spouse’s Name: Kenneth Ben Cummings
Mines grad? Yes
Year: ’73
Degree: BSc. Min.
Children (#): 2, **Ages:** 17, 14

LIFE AT MINES
Favorite Memories: Summer field course, meeting Ken, mineralogy labs.

HIGHLIGHTS SINCE GRADUATION
Special Interests Outside Work: Ballroom dancing, ballet, Argentine tango, ultra-marathon cycling

Other significant achievements (including family): Spring recital ’98—Pat and Ken Cummings choreographed and danced “Fire”, an Argentine tango, on stage in Costa Mesa, Calif.

Maiden Name: Carey
Title: Deputy Executive Director

Mines Degree: BSc. Geol. ’80:

Spouse’s Name: Doug Hart
Mines grad? Yes
Year: ’92
Degree: PhD. Math.
Children (#): 1, **Age:** 5

LIFE AT MINES
Biggest Challenges: 1) Staying out of trouble. 2) Keeping the fraternity guys from stealing everything in our house

Favorite Memories: Drinking beer. Dean of Students—Mike Nyikos



“First woman to . . .” at Mines: help get a nationally affiliated sorority at CSM

What lasting impact did you have on Mines? I think I received more tickets from the campus police than anyone else.

What lasting impact did Mines have on you? I still hate surveying!

What would you tell a woman student at Mines today? Get out of taking organ-

ic chemistry any way you can!

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Higher education administration

Special Interests Outside Work: Quilting, historic buildings

Maiden Name: Woods
Title: Technical Manager

Mines Degree: BSc. CPR ’82

Spouse’s Name: Richard Edrich
Mines grad? Yes
Year: ’82
Degree: BSc. CPR, MSc. CPR ’86,
Children (#): 2, **Ages:** 5, 8

LIFE AT MINES
Biggest Challenges: Learning how to study—how to balance having fun with the boys and concentrating on classes.

Favorite Memories: Working with other teams of students on Senior Design Project and Summer Labs, Dances, Casino Night, Road Rally, E-Days

What lasting impact did you have on Mines? As E-Days Chairman, my committee initiated the bike race up Mr. Zion. I think they are still running the race at E-Days.



What lasting impact did Mines have on

you? Mines gave me a lot of self-confidence. I’m not afraid to tackle any job, because I know, with hard work, I can do it.

What would you tell a woman student at Mines today? Work hard! Learn all you can. Be involved with school activities and form strong friendships. These will be some of the most memorable days of your life.

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Hazardous waste characterization, database management

Job experiences: Operation support and facility design engineer—2 years at

GRADUATION

Current Professional Field: I have been employed as a metallurgical engineer since graduation in 1980.

Job experiences: Management Trainee at CF&I Steel Corp.; shift boss at the Climax Molybdenum Co.; worked for Barrick Gold the first three years they owned the Goldstrike property (three startups in three years.); my own consulting company; working for an engineering company with extensive overseas travel.

Professional ground-breaking experiences: The title of my position at CF&I was changed for me...from “practice man” to “practice engineer.”

Publications: Several

Special Interests Outside Work: Gourmet cooking, fishing, writing

Other significant achievements (including family): Numerous

What personal goals do you have to carry you into the next century? I must finish my PhD. in the next year.

JANET LYNN HALL

Additional Comments:

Mines has been a solid basis of my life. I went

back to school five times before I finally graduated in 1980 after starting in 1967. I attended CSM nearly every way possible. I commuted from my parents’ home the first year, lived in the “girls dorm” the first year there was one on campus and then commuted from off campus as a married student. I lived in our own home, married student housing and faculty housing. I even acted as Head Resident Supervisor in Caldwell Hall for the 1976–77 academic year.

As my career has progressed, the most important thing I have realized is that the only thing that really matters is I FINISHED! My grades, the time lapse, etc. are of little consequence. Employers have focused on the tenacity and the determination to meet the goals I have set.

Maiden Name: Brown
Title: Instructor—CSM

Professional Certifications, Registrations, and Titles: EIT

Mines Degree: BSc. Eng. ’81

Spouse’s Name: Ravel F. Ammerman
Mines grad? Yes,
Year: ’81,
Degree:BSc. B.E.
Children (#): 2, **Ages:** Rob (12), Eryn (10)

LIFE AT MINES

Biggest Challenges: A 45% on a Physics I exam as a Freshman, but ending up with a B!

Favorite Memories: Lots of hard work academically, but good friends (male and female) to share it and many fun times with, too.

“First woman to . . .” at Mines: First alto-sax player (woman) in CSM Jazz Band—yes, there was a jazz band!

What lasting impact did you have on Mines? On the serious side, I remember being a student. As an instructor, I strive to challenge my students and yet maintain open communication with them.

What would you tell a woman student at Mines today? Always do your best—don’t have a “chip on your shoulder” because it’s difficult to be accepted as a “woman engineer.” You will be accepted when you are confident, open to constructive criticism and do your best work.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Education—Instructor in Engineering Division, CSM
Publications: CSM “Call of Stories”: “A ‘true’ engineer: intertwining lives”

Special Interests Outside Work: Biking, skiing, hiking, roller-blading, reading, running

Title: Mining/ Environmental Engineer

Mines Degree: BSc. Min. ’82, MSc.-Env. Sc. ’92

LIFE AT MINES

Biggest Challenges: Getting through second semester Physics

Favorite Memories: All the good friends, good professors and sunny days in Golden. Learning how to muck ore and drill in the Edgar Mine for a Mining class.

What would you tell a woman student at Mines today? Work hard but follow your heart’s desire when choosing your career upon graduation.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Environmental Engineering

Job experiences: Mining Engineer at the US Bureau of Mines. Graduate Student at CSM. Environmental engineer at a Boulder-based consulting firm. Currently working on a complex rails-to-trails conversion combined with remediation of a 72-mile rail line in northern Idaho.

Publications: Iron Ore Availability—Bureau of Mines 1987; various conference publications on wetlands treatment of acid mine drainage

Special Interests outside work: Gardening, bicycling, turn-of-the-century home renovation, knitting

What personal goals do you have to carry you into the next century? To maintain balance with the many facets of life and enjoy the daily small thing in life we all take for granted

PAMELA HERBERT

Maiden Name:

Kootz

Mines Degree:

BSc. Met. ’82

Spouse’s Name: John J. Chapman, Jr.
Mines grad? Yes
Year: ’81
Degree: BSc. Geol.
Children (#): 4, **Ages:** 13, 11, 9, 7

LIFE AT MINES

Biggest Challenges: Learning to study

Favorite Memories: Morgan 3rd floor sodding the Morgan 1st floor restroom in 1978 (laying sod from the library landscape project)

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Homeschooling mom

Job experiences: Joining engineer for Rockwell International, Rocky Flats Plant 1982–1985

What personal goals do you have to carry you into the next century? To raise my children to be responsible, Godly young men and women for the next generation.

Professional Certifications, Registrations, and Titles: E.I.T

Mines Degree: BSc. Chem. E. ’86

Spouse’s Name: Greg Mitchell
Mines grad? No
Children (#): 2, **Ages:** 3 years, 4 months

LIFE AT MINES

Biggest Challenges: Finishing lab in Organic Chemistry

LYNNETTE HOERNER

Favorite Memories:

Casual discussions on streets

with other Mines students regarding social, political or philosophical issues.

“First woman to . . .” at Mines: to be the 50m dash record (I think)

What lasting impact did Mines have on you? Persistence. Summer session at the chemical engineering field session teaches you to be persistent at doing things.

What would you tell a woman student at Mines today? Enjoy the days at school, the richness in the faculty and student body is hard to gather once you leave the campus. In the end, it is the individual interactions that remain on your memory, not the book stuff.

HIGHLIGHTS SINCE GRADUATION

GRADUATION

Current Professional Field: “Temporarily out” to be a mom.

Job experiences: Associate engineer at CONOCO (1 yr); process engineer at Kerr McGee (4 yrs); certification engineer at SCS (3yrs); project manager at Weston (2 yrs); part-time contract engineer (2 yrs)

Other significant achievements (including family): 3-year-old daughter and 4 month old baby boy, and married to another Chemical Engineer from UT—Austin

What personal goals do you have to carry you into the next century? To be the best in what I do and be happy that I did my best.

Maiden Name: Wightman

ANN JOHNSON

Title:

Environmental Engineer

Mines Degree: BSc. CPR ’88

Spouse’s Name: Stephen Collins
Mines grad? Yes
Year: ’86
Degree: BSc. Phy
Children (#): 1, **Age:** Elisabeth “Elise” (2 years-old)

LIFE AT MINES

Biggest Challenges: To get through all of the classes. The “fearsome foursome” was the most difficult semester.

Favorite Memories: I enjoyed dorm life

ALISON H. JONES

and the McBride Honors Program. The most fun was

participating in Mines Little Theatre.

What lasting impact did you have on Mines? I was president of SW (’88) & Mines Little Theatre (’88)
What lasting impact did Mines have on you? Gave me the skills to think things through logically and taught me that with hard work you can do anything.

What would you tell a woman student at Mines today? Explore the area that you want to work in. Find something that inter-

CYNTHIA ANNE JONES

ests you and something you can believe in and then work towards your

goals.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Environmental Engineering

Job experiences: Worked for the U.S. Environmental Protection Agency for nine years—three years in Region 8 (Denver) and six years in Region 5 (Chicago). I have focused on enforcement and compliance assistance for petroleum refiners in both air and water.

Professional ground-breaking experiences: Have worked on negotiating teams to settle enforcement cases that involved multi-million dollar penalties.

Special Interests Outside Work: Ballroom dancing, reading, crafts and puppets

Other significant achievements (including family): Have earned two bronze medals for work on environmental projects I worked on at the U.S. Environmental Protection Agency. Gave birth to a spunky and determined daughter and have enjoyed travelling with my family.

What personal goals do you have to carry you into the next century? My goals are to raise an independent daughter, to protect the air and water we breathe and drink and to be the best possible person I can.

Maiden Name: Vogt

Professional Certifications, Registrations, and Titles: Registered Geologist, Certified Engineering Geologist
Mines Degree: BSc. Geop. ’83

Spouse’s Name: John Cosulich
Mines grad? No
Children (#): 1, **Age:** 3

LIFE AT MINES

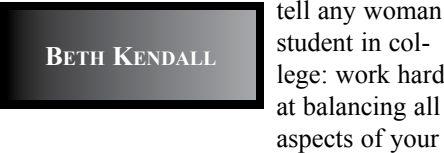
Favorite Memories: Intramural volleyball, intramural tennis, women’s volley-

don’t think I have any of those. After graduation, I was the first female Engineer Officer in my unit in the Army.

What lasting impact did you have on Mines? Probably none.

What lasting impact did Mines have on you? Where do I start? There were/are so many! Probably the greatest is that people take me seriously when I tell them what school I went to.

What would you tell a woman student at Mines today? ~~The same thing I would~~



tell any woman student in college: work hard at balancing all aspects of your life, but remember that that diploma and those grades follow you around for the rest of your life. Also, be careful with regards to your personal life, since both AIDS and children are forever. And don’t get married or have kids too early! Although these are both wonderful good things that almost everyone should experience, they involve drastic changes and should not be approached too lightly or while one is still immature.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Geotechnical Engineer for the US Army Corps of Engineers. ~~I work on civil projects, mainly~~



ly flood control for municipalities. I also conduct safety inspections of the 26 dams that the Corps has jurisdiction over in central Texas.

Job experiences: Upon graduation, I was commissioned as a Second Lieutenant, and entered into active duty with the Army. I served for four years, stationed at Fort Rucker, Ala., as an Engineer Officer. After I got out of the Army, I worked for a consulting engineering firm, Law Engineering, in Nashville, Tenn., performing mainly Phase I Environmental Site Assessments. After a year and a half with Law, I got a position with the Corps of Engineers in Nashville, and then transferred to Fort Worth, Texas in 1993.

Special Interests Outside Work: Well, I used to be interested in gardening, religion and new age topics, and traveling, but then I had two boys, and now I’m just interested in surviving. No, just kidding, but kids do tend to take up all your time and energy. I’m still interested in the above topics, but realize that it will be a few more years before I’ll be able to pursue them again.

Other significant achievements (including family): I feel like one of my most significant achievements was simply being in the Army, and serving as a female officer in an almost all-male unit. Although I was only in for four years, and there were other female officers that followed me, my very presence helped make the Army, and as a follow-on the country, more amenable to female leadership.

My other arena of achievements is my family, including staying married to my husband Jim (it’ll be 14 years next June!), and raising two boys. As anyone with kids knows, being a parent is harder than any job, and the feedback that you are doing a good job is a long time in coming.

What personal goals do you have to carry you into the next century? Gee, that’s only two years away. My goals center around my family, as luckily, my husband’s job will enable me to quit working in several years. My main goal is to raise two boys to be responsible, disciplined men who can be productive members of society while still exhibiting such traits as kindness, patience, and an appreciation and empathy for others. I suppose that’s every parent’s goal, but with my rowdy, high-energy boys, it seems like a lofty enough goal for me.

Additional Comments: Thanks for giving me the opportunity to share my experiences with you. I hope this is not too late! And, obviously, I am not planning on attending the celebration next week.



Maiden Name: Quintero

Mines Degree: BSc. CPR: ’87

Spouse’s Name: Henry Herbert

Mines grad? Yes

Year: ’87

Degree: BSc. Met.

Children (#): 3, **Ages:** 18 months, 4, 6

LIFE AT MINES

What would you tell a woman student at Mines today? The academic life at Mines may prove to be difficult and a challenge, but engineering training does well to prepare you for the business world, whether you pursue a technical field or some other. The focused effort and discipline required to go through Mines prepares you well to succeed in industry and career goals.

HIGHLIGHTS SINCE GRADUATION

Job experiences: Lead Engineer, Engineering Standards at Boeing Commercial Airplane Group, Renton, Wa.; Sales Engineer, Mobil Oil Co., Fairfax, Va.

Other significant achievements (including family): After 6½ years in a challenging and rewarding career at Boeing, I’ve decided to take a leave of absence to raise my children.

What personal goals do you have to carry you into the next century? As soon as all my children are in elementary school, I want to return to engineering, at first on a part time basis, and then full time. I’d like to return to the aviation industry or environmental engineering field.

Maiden Name: Mobley

Mines Degree: BSc. Phy. ’86

Other Degree(s): MSc. ’90, University of Texas—Dallas

Spouse’s Name: James Hoerner

Mines grad? Yes

Year: ’86

Degree: BSc. Pet.

Children (#): 4, **Ages:** 4, 5, 8, & 11

Lynnette is currently living in Castle Rock, Colorado, taking care of her children.

Maiden Name: Morton

Title: Attorney



Mines Degree: BSc. Geop. ’80

Other Degree(s): JD

’90, Harvard Law

Spouse’s Name: Jordan Jacobsen

Mines grad? No

Children (#): 1, **Ages:** 16 (stepdaughter)

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Law—Natural Resources & Environmental, Corporate and Personal Injury Defense

Publications: Ship Shoal 91 Field, Geophysics, 1987

Special Interests Outside Work: Cross country skiing, running, hiking, knitting

Other significant achievements (including family): I have a wonderful home life, terrific friends and live in a fabulous place—and have a great relationship with my jazzy 16-year-old stepdaughter.

What personal goals do you have to carry you into the next century? Retire soon and sail around the world.

Maiden Name: Kramer

Mines Degree: MSc. Geol. ’84

Other Degree(s): Bsc ’77, Beloit College

Spouse’s Name: Curtis

Mines grad? No

Children (#): 2, **Ages:** 3 and 4

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Parent

Job experiences: Exploration Geologist for Tenneco, Noranda, FMC; Hydrologist for U.S.G.S.

Title: Hydrogeologist

Professional Certifications, Registrations, and Titles: Maine Certified Geologist

Mines Degree: MSc. Geol. ’83

Other Degree(s): BSc ’79, Louisiana State

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Environmental consultant

Special Interests Outside Work: yacht racing, mountain biking, playing tenor sax in big band and concert band

Maiden Name: Kraver

Professional Certifications, Registrations, and Titles: Certified Business Continuity Consultant

Mines Degree: BSc. Math. ’84

Other Degree(s): MS CS ’91, UTD

LIFE AT MINES

Biggest Challenges: Graduating . . . in 4 years . . . with a 3.0 average

Favorite Memories: Helping students with their computer programs, playing pinball at the student center



“First woman to . . .” at Mines: be on the rifle team

What lasting impact did you have on Mines? Students in the CPR department were scheduled in groups for experiments by my randomizing program.

What lasting impact did Mines have on you? There is always a solution to every problem, even if it is to ask your colleagues or to give up.

What would you tell a woman student at Mines today?

As you already know you can do anything you set your mind to. Reach for your dreams, it is the only way you will reach them. Cultivate a broad and diverse network of friends and acquaintances.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Computer Security, Disaster Recovery, Year 2000 Consultant

Job experiences: Geophysical Services Inc., 1984–85, programming; Electronic Data Systems, 1985–98, security; Perot Systems Corp., 1989–98, security, Disaster Recovery, UNIX; Leader Conseil Informatique, 1998, security, Year 2000, Consulting

Professional ground-breaking experiences: Installed security products worldwide

Publications: CPM Proceedings—Play the Disaster Recovery Game

Special Interests Outside Work: Travel

Other significant achievements (including family): Moved to France 1998; Outward Bound 1996; Toastmaster 1995

What personal goals do you have to carry you into the next century? Start investing group in France; learn the piano; improve written and spoken French

Additional Comments: Coming to France? Give me a call (phone number available at CSMAA)

Maiden Name: Winkelman

Title: Senior Geophysicist

Mines Degree: BSc. Geop. ’80

Spouse’s Name: Jesse Kendall

Mines grad? No

Children (#): 2, **Ages:** 11, 13

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Exploration

Job experiences: Atlantic Richfield (ARCO), 1980–1997; Oryx Energy Co., 1997–present

Special Interests Outside Work: Cross stitch, weaving, quilting

Maiden Name: Sorrentino

Mines Degree: BSc. Pet. ’81

Spouse’s Name: Mark Klein

Mines grad? No

Children (#): 2, **Ages:** 1, 3

LIFE AT MINES

Biggest Challenges: Finding balance between school, work and play, and maintaining focus on priorities.

Favorite Memories: Nearly freezing to death in Clear Creek raft race; co-ed vs.

Additional Comments: Life is dealing with changes and challenges – Mines was part of that.

Maiden Name: Ostrander
Title: Attorney

Mines Degree: BSc. Pet. ’84
Other Degree(s): PhD. JP Lewis & Clark

Spouse’s Name: Jack A. Krug
Mines grad? Yes
Year: ’69
Degree: P.E., MSc. Pet. ’72, PhD. Pet. ’77
Children (#): 2, **Ages:** 20, 24 (step)

LIFE AT MINES
Biggest Challenges: P.E. exam and the Bar Exam

Favorite Memories: Billie Jo Mitchell’s class

What would you tell a woman student at Mines today? You are attending a great school!

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Attorney—oil and gas; international and domestic

Job experiences: Registered Engineer—Colorado—’76; Attorney, Krug & Sobel (present)

Professional ground-breaking experiences: Trustee, CSM; work international (Kazakhstan, Uzbekistan) Adjunct Professor: DU Law School: International Petroleum Transactions

Publications: Numerous on Natural Gas Regulatory issues (Order 636, etc.), and electric restructuring

Special Interests Outside Work: Ski, snowshoe, sail

What personal goals do you have to carry you into the next century? Slow down and enjoy life.

Maiden Name: Reeder
Title: Senior Mining Engineer

Professional Certifications, Registrations, and Titles: Professional Engineer, State of Colorado

Mines Degree: BSc Min. ’82
Other Degree(s): MS ’87, Purdue Univ.

Spouse’s Name: Henry W. Poos, Jr.
Mines grad? Yes
Year: ’81
Degree: BSc. CPR

LIFE AT MINES
Biggest Challenges: Graduating
Favorite Memories: Graduation and Senior Day

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Mining Consulting

Job experiences: Chief Engineer at a three million ton per year coal mine; computer modeling and mine planning

Publications: An integrated computer-based approach to remediation design; computer applications on the mineral industry, second Canadian Conference

Special Interests Outside Work: Bicycling

Other significant achievements (including family): President, Denver Chapter Women In Mining

Maiden Name: Capra

Mines Degree: BSc. CPR ’83

Spouse’s Name: Stephan N. Pott
Mines grad? No
Children (#): 4, **Ages:** 12, 10, 8, 1

LIFE AT MINES
Biggest Challenges: Physics II – Took it three times! Also, learning how to pick myself up after failure and moving forward. Choosing engineering was risky for me. I never failed at anything before attending Mines, and, therefore, I never knew what I was really capable of accomplishing.

Favorite Memories: playing tennis with

Cathy (Lund) Rhodes

“**First woman to . . .**” **at Mines:** have a baby while holding office as President of the Alumni Association.

What lasting impact did Mines have on you? I can do anything I put my mind to doing.

What would you tell a woman student at Mines today? Same thing I’d tell any student; hang in there!

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Higher Education admissions counseling

Job experiences: Superior Oil, 1980–1984; Mobil Oil, 1984–1990; Legacy Energy Corp., 1990–present

Special Interests Outside Work: Family, skiing, hiking, gardening

What personal goals do you have to carry you into the next century? Semi-retire! To have time to travel, raise family, pursue other interests, stay involved in the oil and gas business.

Maiden Name: Opekar
Title: Principal, ACM Inc.

Mines Degree: BSc. CPR ’83

Spouse’s Name: Alan
Mines grad? Yes
Year: ’79
Degree: BSc. CPR
Children (#): 2, **Ages:** 10, 13

LIFE AT MINES
Biggest Challenges: Learning about myself.

Favorite Memories: SCAC, Home-coming committee, and CR summer session

What lasting impact did Mines have on you? Challenged me to exceed my own expectations.

What would you tell a woman student at Mines today? Your Mines experience is always teaching you new aspects of the world and yourself, even after you leave.

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Engineering

KARLA S. MERCER

Job experiences: CSM Admissions office —14-plus years

Special Interests Outside Work: 1) Reading 2) Needlework 3) Watching children’s sports. I hope to travel and ski more when my kids get a bit older. I miss this right now.

Other significant achievements (including family): Sean—12; Daniel—10; Stephanie—8; Jakob—1

Professional Certifications, Registrations, and Titles: Professional Engineer

Mines Degree: BSc. CPR ’82

Spouse’s Name: Jeff Rhodes
Mines grad? Yes
Year: ’82
Degree: BSc. CPR
Children (#): 2, **Ages:** 11 & 14

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Engineering

(co-founder)

Mines Degree: BSc. Geop. ’80

Spouse’s Name: Barry McBride
Mines grad? No
Children (#): 3, **Ages:** 14, 5, 3

LIFE AT MINES
What would you tell a woman student at Mines today? There are only 24 hours in a day!

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Geophysics

Job experiences: Superior Oil, 1980–1984; Mobil Oil, 1984–1990; Legacy Energy Corp., 1990–present

Special Interests Outside Work: Family, skiing, hiking, gardening

What personal goals do you have to carry you into the next century? Semi-retire! To have time to travel, raise family, pursue other interests, stay involved in the oil and gas business.

Maiden Name: Opekar
Title: Principal, ACM Inc.

Mines Degree: BSc. CPR ’83

Spouse’s Name: Alan
Mines grad? Yes
Year: ’79
Degree: BSc. CPR
Children (#): 2, **Ages:** 10, 13

LIFE AT MINES
Biggest Challenges: Learning about myself.

Favorite Memories: SCAC, Home-coming committee, and CR summer session

What lasting impact did Mines have on you? Challenged me to exceed my own expectations.

What would you tell a woman student at Mines today? Your Mines experience is always teaching you new aspects of the world and yourself, even after you leave.

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Engineering Consulting

Job experiences: I have worked with the Highway Dept. and later held a number of smaller jobs between family commitments.

Professional ground-breaking experiences: Helping my husband to start our own company.

Special Interests Outside Work: Church, family, history, outdoors

Other significant achievements (including family): I have been very involved with volunteer work with Girl Scouts and church.

What personal goals do you have to carry you into the next century? Making the many challenges for women more manageable by breaking through many of the limiting mind-sets held by our world.

Maiden Name: Paxson
Title: Associate

Mines Degree: BSc. CPR ’81

Spouse’s Name: Steve
Mines grad? No
Children (#): 3 stepdaughters, **Ages:** 14, 17, 18

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Divestment Consulting—Energy Industry

Job experiences: Ladd Petroleum, 1981–1989; Snyder Oil Corp., 1989–1998; Albrecht & Associates, Inc.. 1998–present, Manager, Acquisitions & Divestiture

Special Interests Outside Work: Christian ministry, music, sports

Title: Assistant Professor

Mines Degree: BSc. Phy. ’83

Other Degree(s): PhD. ’91,Indiana; MS ’90, University.

Children (#): 1, **Age:** 12

LIFE AT MINES
Biggest Challenges: Getting through the program at Mines while going through a tumultuous situation at home— but you have to do what needs to be done!

Favorite Memories: Working on home-work in the physics building all night with my friends, E-Days

What lasting impact did Mines have on you? Academic background and confidence to succeed—if I could get through Mines I could do anything.

What would you tell a woman student at Mines today? It’s hard and wonderful— if you don’t love it, it will never be worth the effort.

HIGHLIGHTS SINCE GRADUATION
Current Professional Field: Professor—research and education

Job experiences: Post doc at University of Alberta, ’91–’95; Assistant Professor at Ohio University, ’95–present

Professional ground-breaking experiences: Spokesperson on a high precision measurement of a fundamental symmetry, Principle Investigator on NSF grant

Publications: In Physical Review

Special Interests Outside Work: Social issues (civil liberty, reproduction rights, human rights), modern art, live theater, trashy mysteries, my daughter

Other significant achievements (including family): Good marriage—for a while, daughter, survived a divorce, surviving and succeeding happily

What personal goals do you have to carry you into the next century? See my daughter grow to a happy adult, get tenure and begin a new research topic


student wives powder puff Football; AGD Champipples parties

“First woman to . . .” at Mines: Win Homecoming arm wrestling three times running

What lasting impact did you have on Mines? I continue to be a presence on campus via my recruiting efforts

What lasting impact did Mines have on you? Most importantly an unshakable confidence in my ability to face challenges. You don’t have to compromise values or personal goals to have a career. The workplace has changed a lot and employers are more flexible. But you will need to have proved your value and need to be proactive about how the company can help you.

HIGHLIGHTS SINCE GRADUATION


	Current Professional Field: Petroleum industry, drilling
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Job experiences: Drilling Engineer, Offshore Rig Supervisor, Technical Recruiter; assignments have been both domestic and foreign

Professional ground-breaking experiences: Spent most of my early career as “First Woman” including first female rig supervisor in Norwegian North Sea.

Special Interests Outside Work: Fly fishing, whitewater rafting

Other significant achievements (including family): 2 years on Board of Directors of Children’s Bureau of New Orleans. One of the initial founders of

	John P Hebert Memorial Redfish Classic—a fishing tournament that raises money for Children’s Bureau. Tournament has gone from \$1000 to \$20,000 in five years and is still growing
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What personal goals do you have to carry you into the next century? Raise my two boys to be good men.

Maiden Name: Draper
Title: Senior Process Engineer

Mines Degree: BSc. CPR ’89

Spouse’s Name: Chris Kruger
Mines grad? Yes
Year: ’88
Degree: BSc. Pet.
Children (#) 1, **Age:** 18 months (Ryan Christopher)

LIFE AT MINES

Favorite Memories: Sigma Kappa

What would you tell a woman student at Mines today? Not take Mines too seriously and have fun while you are there.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Process engineer with Williams Energy Services (only working part-time so can spend more time at home with son).

Job experiences: 1989–1993: ARCO Oil & Gas, Process Engineer (Gas Processing), Lafayette, La., and Longview, Texas; 1993–current: Williams Energy Services, Process Engineer (Gas Processing), Salt Lake City, Utah and Bloomfield, N.M.

Professional ground-breaking experiences: Wrote and received patent for new method of producing LNG (liquefied natural gas).

Publications: U.S. Patent

Special Interests Outside Work: Hiking, photography, cooking

Other significant achievements (including family): Birth of son, Ryan (Mines was a breeze compared to the years of heartache and problems we had before finally having him!)

	What personal goals do you have to carry you into the next century?
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Retire soon (in the Rockies) and spend more time with my family.

Additional Comments: Chris Kruger (husband) is an operations manager for

Williams Field Services in Bloomfield, N.M. Chris and I have somehow managed to work for the same companies throughout our careers (~nine yrs.) without getting divorced!

Title: President and Senior Geophysicist

Mines Degree: MSc. Geop. ’86
Other Degree(s): BS ’83, Bates College

LIFE AT MINES

Biggest Challenges: 1) Overcoming isolation of women on campus, 2) Fighting the sexism within my department and campus-wide, 3) Frank Hadsell’s GP 501 class

Favorite Memories: 1) Ice cream parties for socials and the women’s soccer team and fans, 2) Opportunity to learn/work with Dr. Catherine Skokan and Dr. Gary Olhoeft (formerly U.S.G.S.), 3) The outdoors.

“First woman to . . .” at Mines:...to do a hybrid degree between hydrogeology (Geol. dept.) and engineering geophysics (GP dept.)

What lasting impact did you have on Mines? On my own initiative, got a job w/USGS, Golden, with Dr. Gary Olhoeft. Since then, at least one student every year in the GP dept. has been funded by U.S.G.S.

What lasting impact did Mines have on you? Mines gave me the tools to succeed and the patience and stamina to keep going.

What would you tell a woman student at Mines today? Listen to what your heart says— not the advice of others. Persevere in your endeavors and life’s goals. Put yourself first when making career decisions.

HIGHLIGHTS SINCE GRADUATION

	Current Professional Field: Geophysicist—Environmental/Engineering/Geotechnical fields
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Job experiences: 1984–1986: USGS—Assistant Geophysical Researcher; 1986–1987: Geophysicist, Ground Water

Associates; 1987–1993: Weston Geophysical Corp., 1993–1995: Geophysical Applications, Inc., 1995–1996: Hager Geo Science; 1996–present: President and Senior Geophysicist/Radar Solutions International

Professional ground-breaking experiences: 1979: DAR Good Citizen Award; 1983: Milt Lindholm Scholar Athlete Award; 1984–1986: Assistant Geophysical Researcher at USGS for Dr. Gary Olhoeft; 1994: Co-chair technical session, SAGEEP; 1996: Founded Radar Solutions International.

Publications: 13

Special Interests Outside Work: Backpacking/hiking, Native American social pow-wows; soccer

What personal goals do you have to carry you into the next century? Complete PhD., grow RSI to a moderate size, and implement progressive benefits for employees; establish not-for-profit geophysical service firm to help urban communities.

Maiden Name: Trotman
Title: Owner, Peek A Boo Shoes

Mines Degree: BSc. Pet. ’84

Spouse’s Name: Kevin Legg
Mines grad? No
Children (#): 2, **Ages:** Audrey (7), Erika (2)

LIFE AT MINES

Biggest Challenges: Handling the heavy workload and graduating in four years

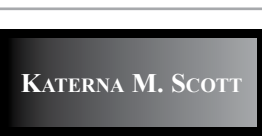
Favorite Memories: The friendships I made, both male and female and how we all helped each other get through the tough times.

What lasting impact did you have on Mines? All women who have attended Mines have helped pave the way for future women undergraduates.
What lasting impact did Mines have on you? Graduating from Mines gave me the confidence and determination to tackle, or at least try, anything.

What would you tell a woman student

at Mines today? Stick to your goals and don’t let anyone tell you that you won’t succeed!

HIGHLIGHTS SINCE GRADUATION

	Current Professional Field: Small business owner Job experiences: Petroleum Engineer with UNOCAL, ’84–’90; Environmental Consultant, ’90–’91; small business owner, ’91–present; mother, ’91– present (my most important job!!)
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Special Interests Outside Work: Skiing, quilting, hiking, travel

Other significant achievements (including family): I have been married 13 years and have two beautiful daughters, Audrey (age 7) and Erika (age 2)

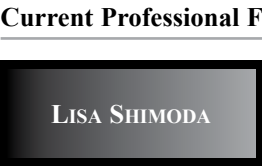
What personal goals do you have to carry you into the next century? My primary goal is to raise my two daughters, support my husband’s career, and use the gifts God has given me to serve God, serve my family, my church and my community.

Additional Comments: Gave up my engineering career when I had my first child. I have never regretted it! My seven years in the industry gave me the skills and confidence to pursue other goals and I am grateful for what Mines gave to me!

Title: Development Associate

Mines Degree: BSc CPR ’87
Other Degree(s): PhD. ’94, NCSU

HIGHLIGHTS SINCE GRADUATION

	Current Professional Field: Chemical Engineering Job experiences: Idaho National Engineering Lab, post-doc; Praxair, Development Associate
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Publications: approximately five papers, three patents

Maiden Name: Vannurden

Mines Degree: BSc. Geop. ’87
Other Degree(s): Prof. Certificate. Meteorology ’88, Florida State University; MBA/Technology Management (in progress), University of Phoenix

Spouse’s Name: Craig
Mines grad? Yes
Year: ’87
Degree: BSc. Math.

	Children (#): 1, Age: 7
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LIFE AT MINES

Biggest Challenges: Statics

Favorite Memories: E-Days, “The Deadwood House,” Ski Team

What lasting impact did Mines have on you? Confidence building. Another one of those, “If I can do that, I can do anything” experiences.

What would you tell a woman student at Mines today? Stick it out. In the long run, you will be glad you did.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Configuration Analyst for a sales force automation software company

Job experiences: Air Force Weather Officer; Operations Manager at Eagle Engineering Services, a small engineering firm specializing in mine site remediation

Special Interests Outside Work: Skiing, walking, motorcycles, work on my MBA and possibly starting a business with my thesis group doing customer satisfaction consulting; CSMAA; and Copper Mountain Ski Team

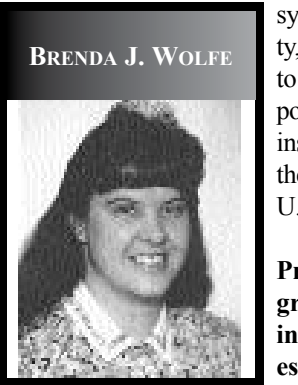
What personal goals do you have to carry you into the next century? Haven’t made any definite plans, but thinking of working up to a marathon (walk/run) after I finish this degree. Possibly moving to Europe for work

Maiden Name: Grant
Title: Legacy Energy Corp.—President

Job experiences: Colorado Air Quality Division; National Park Service—Air Resources Division	Special Interests Outside Work: Hiking, skiing, quilting
Title: Environmental Advisor	
Professional Certifications, Registrations, and Titles: EIT	
Mines Degree: BSc. CPR ’86 Other Degree(s): B.S. Nursing ’77, University of Northern Colorado	
LIFE AT MINES Biggest Challenges: Getting into CSM. At the time, there were not a lot of non-traditional students, and Mines didn’t really have systems in place to accept significant career changes. I had a B.S. in Nursing, and the registrar’s office didn’t know how to fit that in their normal admission procedure so they sent me to Metro State College for a year to get “some serious education.”	Spouse’s Name: Marcel Thomas Mines grad? No
LIFE AT MINES Favorite Memories: Traveling with the Energy and Minerals Field Institute.	
What lasting impact did you have on Mines? Continue to chair the Visiting Committee for the Division of Economics and Business.	“First woman to . . .” at Mines: receive the Van Diest Gold Medal (1990).
What lasting impact did Mines have on you? Gave me a career, which took me around the world, from corporate boardrooms to the remotest mining sites.	
HIGHLIGHTS SINCE GRADUATION Current Professional Field: 1) Wealth advisory; 2) Artist management	
Job experiences: 1982–83, Mobil Oil; 1983–94, J. P. Morgan—investment banking; 1994–present, BRincor, Inc.— my own production and artistic management company, currently under contract with Brown House Management; International Skye—partner in a firm offering advisory services to wealthy families and individuals.	
Professional ground-breaking experiences: I was the first woman underground at a number of mines overseas. Balancing professionalism and femininity in all-male groups of colleagues in a way that earned me both respect and affection gave me the	

greatest satisfaction.	Spouse’s Name: Kevin Shimoda Mines grad? Yes Year: ’86 Degree: BSc. CPR Children (#): 3, Ages: 5, 3, 1
Special Interests Outside Work: I am fortunate to be doing two very different types of work that encompass the range of my interests.	
What personal goals do you have to carry you into the next century? To pass on to both men and women in positions of leadership the best of what I have learned in my careers.	
Title: Ceramic Artist and Consulting Engineer	
Mines Degree: BSc. CPR: ’80	
LIFE AT MINES Biggest Challenges: I came to Mines my sophomore year as a transfer student from another university. It was difficult at first to get to know people, but joining the sorority helped.	
Favorite Memories: I really enjoyed my senior year: graduation was in sight, I had made good friends, and the job offers came pouring in. The hard work finally paid off!	
“First woman to . . .” at Mines: I ran for “Student Trustee” in my junior year. I lost, but two years later another woman ran and won. It made me glad.	
What lasting impact did you have on Mines? I didn’t blaze any new trails at Mines, but I did later in my career and in the oil industry.	
What lasting impact did Mines have on you? I think going to Mines helped me develop the confidence and determination to succeed later in life.	
What would you tell a woman student at Mines today? Going to Mines can provide you with career opportunities that are not open to most college graduates. You will work harder as a student, but the rewards will come.	
HIGHLIGHTS SINCE GRADUATION Current Professional Field: Environmental Engineering and Ceramic Arts	
Job experiences: 1980–1991: Chevron USA and Chevron Pipe Line Co.; 1991–	

late afternoon in front of Guggenheim.	Spouse’s Name: Robert Mines grad? No Children (#): 1, Age: 3
“First woman to . . .” at Mines: play goalie on new women’s soccer team?	
What lasting impact did you have on Mines? My footprints have worn away . .	
What lasting impact did Mines have on you? The difference between engineers and scientists : how and why?	
What would you tell a woman student at Mines today? Get out and get a life beyond school.	
HIGHLIGHTS SINCE GRADUATION Current Professional Field: Geochemist, College Instructor	
Job experiences: University of Hawaii—research on Mid-Ocean Ridges; California. State University —Bakersfield—full-time instructor two years; Metro State and Front Range Community College—geology and chemistry instructor	
Publications: Sinton, Smaglik, Mahoney, Macdonald, JGR, 1989.	
Special Interests Outside Work: Community science education, Girl Scouts, outdoor sports, swimming, aerobics, and hula	
Other significant achievements (including family): Eight years in Hawaii. Research cruise to Tahiti and Easter Island	
What personal goals do you have to carry you into the next century? To finally settle down, have a family and build a house; continue work in alternative (eco-friendly) living; get/make a permanent job in something I love to do.	
Additional Comments: Wrote B.A. thesis on “History of Women” in geology which included the first women to attend Mines in 1981.	
Favorite Memories: Playing soccer in	



system at a utility, I moved over to the group supporting image installations in the southwestern U.S.

Professional ground-breaking experiences: I was on the cutting edge of document image systems.

Special Interests Outside Work: Gardening

What personal goals do you have to carry you into the next century? My mission is to attain complete faith in Christ, and by my life, model and encourage Christian faith to those around me

Maiden Name: Wagner
Mines Degree: BSc. Phy. ’86
Other Degree(s): MS EE ’92, Ohio University

Spouse’s Name: Kevin Shimoda
Mines grad? Yes
Year: ’86
Degree: BSc. CPR
Children (#): 3, **Ages:** 5, 3, 1

HIGHLIGHTS SINCE GRADUATION
Job experiences: 1986–1989, engineer at Ball Aerospace; 1990 consulting; 1990–1992, O. U. for grad school; 1993–present consulting expert system at Shell Chemical

Mines Degree: MSc. Geochem. ’87
Other Degree(s): BA ’82, Beloit College; PhD. (ABD) ’99? University of. Hawaii

Spouse’s Name: Warren C. Ulmer
Mines grad? No

LIFE AT MINES
Biggest Challenges: Finishing M. Sc. Thesis, planning wedding and getting married, applying for grad school and preparing to go (to Hawaii) all in less than five months!

Favorite Memories: Playing soccer in

Favorite Memories: Ordering pizza to be delivered at the library and having homework parties there

“First woman to . . .” at Mines: attend both CU, Mines, and work at the same time.

What lasting impact did you have on Mines? I brought up the idea that environmental issues were a consideration in all projects.

What lasting impact did Mines have on you? Some of my professors have continued to provide insight and expertise on some of my projects.

What would you tell a woman student at Mines today? Take all the management classes you can, because in today’s market you need technical as well as business skills.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Environmental Engineer

Job experiences: I have worked as a pharmacist and an environmental engineer.

Professional ground-breaking experiences: I have had to learn how to be in a meeting with eight to ten men and no other woman present. I took my 8-week old son to a technical conference.

Publications: I have written articles on Bioremediation and how to write a RD&D Hazardous waste permit.

Special Interests Outside Work: Past President of Horsemen’s Association, trail planning, Children’s Hospital volunteer, Bright Beginnings volunteer

Other significant achievements (including family): My most significant achievement is my family. I have a beautiful three-year old boy and an equally beautiful one-year-old girl.

What personal goals do you have to carry you into the next century? My personal goal is raising responsible, happy, and healthy children. I would also like to work on children’s and health care issues



THE 1990S
PART OF THE CROWD

Timeline

The 1990s:
PART OF THE CROWD

1990

- Noriega surrenders
- Nelson Mandela freed
- More than 1400 pilgrims die in a stampede in Mecca
- Iraq invades Kuwait
- East and West Germany reunite, the Berlin Wall comes down

1991

- Allied forces begin Operation Desert Storm to force the Iraqi army out of Kuwait
- Warsaw Pact dissolved
- Gulf War ends, Kuwait is liberated
- Middle East peace talks begin
- USSR dissolved, Gorbachev resigns as president

1992

- Whites vote to end apartheid in South Africa
- Rioting after the acquittal of the police who beat Rodney King, Los Angeles
- U.S., Canada and Mexico sign NAFTA
- Clinton elected President of U.S.

1993

— continued on page 61

Spill”, Feature Article, Environmental Solutions, January 1996; author. “San Joaquin Crude Oil Spill into a Freshwater Stream: A Case Study,” Proceedings, 1995 International Oil Spill Conference, Long Beach, Calif.; presenter and contributing author. “Fate and Effects of Crude Oil In a Southern California Stream Drainage,” Proceedings, 1995 International Oil Spill Conference, Long Beach, Calif.; contributing author.

Special Interests Outside Work: Hiking, scuba diving, biking, gardening, backpacking

Maiden Name: Nuttleman

Title: Business Analyst—Business Acquisition Brown & Root Energy Services

Mines Degree: BSc. CPR ’93

Other Degree(s): MBA ’99, University of Houston

Spouse’s Name: R. Travis Rein

Mines grad? Yes

Year: ’93

Degree: BSc. CPR

LIFE AT MINES

Biggest Challenges: Trying to balance study time against social time. Also, any class that included Fortran programming

Favorite Memories: Carving pumpkins with Debbie, Jen, and Julia at the Pi Phi house my first semester; Jose O’Shea’s with the CR crew after finals; T.C.’s wedding shortly after we graduated; watching the purple sunsets behind the M; and E-Day’s every year.

“First woman to...” at Mines: Be the older sister of the first Mines Pi Phi legacy, Lisa Nuttleman, BSc. Geop. ’95

What lasting impact did you have on Mines? I left a rock up on the M my freshman year and I wore out a few chairs in the library.

What lasting impact did Mines have on you? A fascination with learning new technical sub-



Sigma Kappa participates in the tug-of-war during Homecoming 1993



CSM Cheerleaders



Mines Little Theater



CSM cross-country team



Women's dorm floor picture



SWE building competition



SWE's first entry in the Boeing TeamTech competition



Sigma Kappa's participate in the E-Days bat race



CSM E-days ore cart pull

Jen and Priscilla); swimming; going to Alma during field camp to watch Avalanche games; dancing downtown Denver

“First woman to . . .” at Mines: receive an M.E. in geophysics

What lasting impact did you have on Mines? As president of the Society of Student Geophysicists, I worked to have record number of students attend SEG in Denver and obtain a room in the basement of the Green Center for students while expanding the technological resources.

What lasting impact did Mines have on you? No matter where you are, there is always a Mines grad around!

What would you tell a woman student at Mines today? Never give up. Be confident in yourself, apply the knowledge you gain from school and don’t let anybody tell you you can’t do it. You can!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Geophysical Engineering

Job experiences: Geophysical assistant for Geco-Prakla Schlumberger (1995); geoscientist with Burlington Resources (1996); geoscientist with CONOCO, Inc. (1997 and 1998)

Special Interests Outside Work: Swimming, softball, volleyball, church, dancing, traveling, being with family

Other significant achievements (including family): SEG Scholarship (1993– 1997); Academic Honor Roll (1995, 1996); Dean’s List (1997); Varsity Volleyball Scholarship (1993); Varsity Swimming Scholarship (1994–1997; Society of Student Geophysicists President (1996–1997); Society of Women Engineers member (1994–1997); Outstanding Woman in Geoscience (1997)

What personal goals do you have to carry you into the next century? I want to become a role model for young geoscientists and my family, an employee respected by my peers and a person who knows I have helped make a difference.

Title: Design Engineer, E.I.T.

Professional Certifications, Registrations, and Titles: Engineer In Training (EIT)

- 130 countries sign chemical weapons treaty
- Terrorist attack on the World Trade Center in New York
- Davidian cult compound burns after attack by federal agents, Waco, TX
- Mississippi floods for two months reaching a record crest of 49.4 feet
- Israel and PLO recognize each other and sign Palestinian autonomy agreement

1994

- Worst year for air safety in the U.S. since 1988
- Nelson Mandela inaugurated as the President of South Africa
- U.S. Navy Tailhook scandal
- U.S. Baseball player’s strike
- Northridge earthquake in California

1995

- Whitewater scandal in U.S.
- Death to Affirmative Action in the U.S.
- Ebola virus scare in Africa
- Oklahoma City Bombing

1996

- Explosion in Centennial Park, Atlanta, Georgia Summer Olympics
- Eight climbers die in a storm on Everest
- IMAX camera taken to the top of Everest
- TWA Flight 800 explodes over Long Island, NY

1997

- Heaven’s Gate cult members commit suicide when the Hale-Bopp comet is visible
- Gianni Versace, fashion designer is murdered by Andrew Cunanan

- Princess Diana is killed in a car accident in Paris, France

— contin-

1998

- President William Jefferson Clinton is impeached
- John Glenn, former astronaut and senator is the oldest man to travel to space
- Alan Shepard, the first American to travel to space dies
- Genetic scientists successfully clone a sheep
- The United Nations attack Iraq in Operation Desert Fox because Saddam Hussein refused access to U.N. weapons inspectors
- Anti-Trust lawsuit against Microsoft

1999

- NATO forces bomb Kosovo
- Fifteen die in Columbine High School shooting in Littleton, Colorado
- Concerns grow about the "Y2K" bug

As we progress toward the 21st century, the face of corporate America is changing. No longer do students graduate from college and expect to stay with the same company for 30 years or more. The downsizing atmosphere of big companies is contributing towards this change in attitude. Thus the student must be well rounded, flexible, and continuously learning.

The role of women in industry has also changed. Women hold senior management positions in companies, and even start their own businesses. Major strides forward in the equality between men and women in the workplace have taken place, although women still have to contend with lower salaries and the glass ceiling.

The comfort level women experience in the workplace has increased and is somewhat reflected in the current fashions for business attire. In the '80s, the dress for success fashions ran from the tailored "man's" suit to the softer dresses. In comparison, the '90s dress code has become more casual, and formal work attire is less the standard.

Women are now an integral, accepted demographic at the Colorado School of Mines (CSM). In an October 1990 article, *Mines Magazine* cites women and ethnic minorities as the fastest growing segment at Mines. The article also makes the statement that "Although women are no longer considered to be a minority in higher education, they still make up a small percentage of students in the engineering, math, and science disciplines."¹ As of 1997, women made up only 25% of the student population at CSM. While this is above the national average for engineering schools, there is an effort to recruit women to the science and engineering fields through various outreach programs on campus. The Society of Women Engineers (SWE) regularly holds outreach activities for elementary and junior high school students. Another example is the 1997 initiation of the Women in Science, Engineering, and Mathematics (WISEM) program. The "Expanding Your Horizons" Program, which was active until 1995, was an annual program for middle school girls. Despite the small number of women on the campus, the attitudes toward women are those of acceptance. The women are generally comfortable with the environment, even if there are still only one or two women in a class.

Women are also active in every aspect of extracurricular activities at CSM. Women take part in almost all campus organizations in both support and leadership roles. Some of the leadership roles women have occupied between 1990 and 1997 are Homecoming Chair, E-Days Chair, Student Representative on the CSM Board of Trustees, and Editor of the *Oredigger*. There are also several



SWE outreach activity 1996.



Pi Beta Phi spring formal 1992.



Stacy Allison running the surveying field.



CSM women's soccer 1992.



SWE goes to the National Convention, Pittsburgh, Pa., 1995.



Freshman "M" Climb—the "after" picture!



Wendy Domeyer at bat.

MINES WOMEN ALUMNAE (1990-1999)

BIOGRAPHICAL SUMMARIES



VICKI ALEXANDER

track.

The SWE chapter at the school has grown immensely from a few members in 1990 to over 150 in 1998. The membership in the two sororities, Sigma Kappa and Pi Beta Phi, has also grown dramatically. Both sororities have had over 50 active members the last few years. Inviting a third sorority to the campus is being considered by the Panhellenic Council.²

Several women have been featured in recent *Mines Magazine* articles for their accomplishments as women in industry. Beth Jordan (BSc. Geop. '80) and Claudia Rebne (BSc. Geop. '84) formed the Legacy Energy Corporation in October 1990, an independent oil and gas exploration company. They both had previously worked for Mobil Oil Corp. in Denver and at first had attempted to form a small company within Mobil. When Mobil rejected the business plan they decided to form their own company.³ Sasha Karpov (BSc. Met. '80) is now a lawyer who offers business consulting to Russians and Americans in joint ventures. After receiving her degree from CSM, she

established women's varsity teams including swimming, basketball, volleyball, and

her life in Mexico before moving back to the U.S. She graduated salutatorian of her high school class despite having to work 30 hours a week to help support her mother and siblings and earned a scholarship to CSM. She worked as an environmental engineer before enrolling in the South Texas School of Law.⁵

Non-Traditional female students have also been featured in *Mines Magazine*. A non-traditional student is defined by the Colorado Commission on Higher Education

CARMEN LORENA BASTIDAS

as a student aged 25 and older enrolled as an undergraduate at one of the state's colleges or universities.⁶ Joey Roth (BSc. Min. '92) attended CSM after working in the oilfields of Alaska for thirteen years. She found returning to school difficult because of the difference in age between her and the other students and because she had been away from school for an extended period of time.⁷ Karen Mattson is an excellent example of a woman coming back to school to pursue a degree in engineering with the added responsibility of juggling a family. She attended CU—Boulder for one semester after high school then went to work for Mountain Bell. After working for several years and establishing a family, she decided to study electrical engineering at CSM.⁶

Some interesting statistics about the women at CSM include the number who graduate each year. In 1989, CSM graduated the 1000th woman. In 1994, the 1500th woman graduated. The 2000th woman graduated in December, 1998.⁸ The fascinating analysis of these numbers shows that in this decade, the amount of time to graduate 500 women from the school has been cut almost in half! What's even more fascinating about this is that there was an enrollment drop among entering freshmen students around 1993 when the requirements for admission were raised.⁹ Despite the enrollment drop at

that time, more women are graduating from CSM than ever before.

The Biographical Summaries received for the Centennial Celebration follow. Many women have continued to practice engineering. Some have struck out into other fields, using their engineering education as a springboard, and still others are continuing their studies in graduate school. Many, like most women in the United States today, are balancing a family life and a career. Several have completed their degrees with two or more children in tow.

Although women have been at the Colorado School of Mines for 100 years there is still room for some "firsts." Priscilla Thompson (BSc. Eng. '97) was the first woman to build and row a concrete canoe for an American Society of Civil Engineers competition. Toni Bowden (BSc.

J. SALLY WYCISLAK BOMMEN

CPR '95) was the first black woman to become a Resident

Advisor. Judy Schenk (MSc. Geol. '90) and Tara Schenk (BSc. Geol. '97) are the first mother/daughter pair to receive degrees from the school. Karen Krug (BSc. Pet, '84), appointed to the Board of Trustees in 1996, is the first CSM alumna to hold the position.

Female students at the Colorado School of Mines have finally come into their own. The number of women on campus continues to grow and the number of women in the science, engineering, and math fields continues to grow. Although we are still far from a 50/50 split between women and men in these fields, the number of women in these fields continues to grow. In the future the Colorado School of Mines may even be able to boast having 50% of the students on campus be women.

Title: Project Engineer/ Training

Mines Degree: BSc. CPR '96

LIFE AT MINES

Biggest Challenges: Graduating

Favorite Memories: Pi Phi house

What lasting impact did Mines have on you? Great friends and a great education

What would you tell a woman student at Mines today? Stick with it. The rewards are worth it.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Project engineer/trainer/CBT author

Job experiences: Environmental testing group—project engineer

Special Interests Outside Work: Quarter and Paint horses

What personal goals do you have to carry you into the next century? Start a family

Maiden Name: Guilkey
Title: Environmental Chemist

Mines Degree: BSc. Chem. ’95

Spouse’s Name: James Barron
Mines grad? Yes
Year: ’95
Degree: BSc. Geol. ’97, MSc. Geol.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Environmental consulting

Job experiences: Field/ Lab sampling techniques, research on acid mine drainage, geochemical modeling

Other significant achievements (including family): Recently accepted to University of Colorado (Boulder), Environmental Engineering Master’s Program

Professional Certifications, Registrations, and Titles: EIT, Order of the Engineer, McBride Honors Program &

Minor in Public Affairs

Mines Degree: BSc. Eng.

(Mech) ’98

LIFE AT MINES

Biggest Challenges: Deal with “men’s” minds; every class was a challenge that made Mines an exciting place to be in.

Favorite Memories: E-Days, especially the fireworks year ’98. The professors—Karl Nelson, Gaby, Candy Ammerman, John Steele, among others.

What lasting impact did Mines have on you? Hard work, good preparation, good network, lasting friendships, responsibility, organization, challenge, and creativity

What would you tell a woman student at Mines today? It is not hard to compete against men; actually is fun, challenging and rewarding. This environment prepares you to face the real world always with the chin up. And security. Success is around the corner—go for it.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Engineer working in gas production for CONOCO
Special Interests Outside Work: Biking, tennis, music (piano), dance, painting, drawing, crafts, cooking, community activities, aerobics, kick boxing, horse-back riding.

Other significant achievements (including family): Come from a different country (Columbia) with a different language (Spanish) and culture and become adapted to the system. Always getting the best out of both cultures to reach my goals and understand other people’s ideas and projects for life and work in general.

What personal goals do you have to carry you into the next century? Go into the international arena in the oil or gas field.

Maiden Name: Wycislak

Mines Degree: BSc. Geop. ’96 (minor/ Geol)

Spouse’s Name: Espen Bommen

LIFE AT MINES

Favorite Memories: Some of my favorite memories are of playing in the band,

especially around homecoming. The entire Mines Band experience was very new to me, since I had come from a very structured band program in high school. The plaid shirts, blue jeans, hiking boots, and hard hats were a welcome relief from the old, musty wool uniforms with tassels. I really enjoyed the field shows. No one will ever see the splitting of the atom anywhere else!!! The homecoming Plunger Core was also great! It was a lot of fun.

What lasting impact did Mines have on you? I feel like Mines prepared me to do anything. I wouldn’t have traded the experience for anything. I have worked with people all over the world, and I feel that Mines has given me a definite advantage over the others. I think the hard work and massive course load prepared me to work hard and taught me how to work with all kinds of people.

What would you tell a woman student at Mines today? Keep it up. Mines is an experience that will prepare you for any adventure that might come your way, including areas outside your area of expertise. Also, the male/female ratio is virtually the same in any technical industry, which enables you to learn to deal with any adversity along the way.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: I currently work in software support as a geologist / petrophysicist for Schlumberger GeoQuest in Norway.

Job experiences: I held an internship at Conoco doing seismic interpretation for a summer, while I was still deciding whether or not to start a masters. I decided to start with GeoQuest, and it has been a wild ride ever since. I started out on phone support, and joined an international support team after eight months. Then, the opportunity came to transfer temporarily to Norway, and I took it.

Other significant achievements (including family): The one award that I have received is a “Total Customer Satisfaction” award while working on the

international support team. The other major accomplishments are that I have been able to hold my own against older and more experienced people in the workplace, and I have gained their respect, despite our differences in age, culture and experience.

What personal goals do you have to carry you into the next century? I can’t wait to pay off those student loans!!! I would like to become more involved with software development in the future. I would also like to get my MBA and see where that takes me. Somehow, I will figure out how to have a family too (and have the career).

Maiden Name: Shaner
Title: Life Safey\Fire Protection Engineer

Professional Certifications, Registrations, and Titles: B.S. Civil Engineering, M.S. Fire Protection Engineering

Mines Degree: BSc. Eng. ’96
Other Degree(s): MS. ’97, University of Maryland

Spouse’s Name: Ryan Borgman
Mines grad? No

LIFE AT MINES

Biggest Challenges: Physics (hee hee) Sometimes it seemed impossible to get through some of the classes. It was a challenge to keep up the high intellectual level needed at all times.

Favorite Memories: Cheerleading at CSM football games, hanging out at the Ace and Mesa

What lasting impact did you have on Mines? Helped build the cheerleading program

SARA THOMPSON BROWN

What lasting impact did Mines have on you? I learned

discipline, determination and integrity. My intuition was developed. I met some of my best friends. I learned teamwork.

What would you tell a woman student at Mines today? Stay with it. Even though classes seem unbearable and impossible sometimes, don’t give up. The lessons you

will learn at CSM are invaluable.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Fire Protection\Life Safety

Job experiences: Code consultant\Fire Protection Engineer—Indianapolis, Ind., Life Safety\Fire Protection Engineer—MKK Consulting Engineers, Denver, Colo.

Professional ground-breaking experiences: Graduating from University of Maryland with a Master’s degree, being hired by MKK to start and manage the fire protection\life safety division

Publications: Master’s Thesis

Special Interests Outside Work: Dancing, shopping

What personal goals do you have to carry you into the next century? I want to start my own business. I want to be known as an “expert” in the life safety field. Maybe publish a book or two.

Title: Ms.

Mines Degree: BSc. CPR ’95

LIFE AT MINES

Biggest Challenges: Initially, when I first enrolled in Mines, I was overwhelmed by the 4:1 male to female ratio. It was somewhat strange sitting in a class full of men and listening to jokes about engineering being a “man’s field”. But after a while, the whole “predominantly male student body issue” was not a big deal. Once my male counterparts were able to see that the other females and me were just as capable in doing the work, it became easier to interact and work together.

KRYSTA LYN COFFEY

Favorite Memories: I enjoyed being

involved in many activities and organizations on campus including Ambassador for the school, R.A. staff, yearbook/newspaper staff and secretary/activities chair for NSBE. All of these groups were rewarding because each offered me opportunities to learn so much about campus history (e.g. Ambassador) as well as

adding some variety to my otherwise stressful workload. And I must admit that I enjoyed the EPICS projects, which really exercised by ability of working in teams in order to achieve a solution.

“First woman to . . .” at Mines: First black woman to become a R.A.; graduate in four years in Chemical and Petroleum Refining Engineering; passed EIT test.

What lasting impact did you have on Mines? I think that one of the biggest impacts that I left on Mines was my ability to plan trips and encouraging even the most stubbornness people to attend. While I was at Mines, I planned a ski trip (which was a great success!), a retreat in Estes Park for the weekend, and several group dinners. I really enjoyed designing activities that involved everyone and brought people together for a short period of time.
What lasting impact did Mines have on you? “If you can get through Mines, you can do anything . . .” This was a statement that my other colleagues and me would joke about and say; but in actuality, there was a lot of truth behind it. Mines challenged me through coursework, especially the EPICS projects, as well as socially and culturally. Now that I have had the Mines experience, I have learned how to approach situations, be it job interviews, post grad schooling or just interacting with my peers, and be able to perform the necessary strategies to be successful.

What would you tell a woman student at Mines today? Take advantage of as

many functions that you can successfully balance! Participate in different

activities, especially the famous “M” climb at the beginning of the freshman year. You can meet so many people for future study groups and lifelong friendships. It is important to study; however, you should not become a hermit that is always in your room; try to be a part of school activities, not only to help you to be more well-rounded, but to also help you maintain your mental sanity.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Student in Dental School

Job experiences: Working in dental office

Special Interests Outside Work:



Reading, traveling, community activities

What personal goals do you have to carry you into the next century? Get married and have several children. Become a dentist.

Maiden Name: Thompson
Title: Process Engineer

Mines Degree: BSc. CPR ’93

Spouse’s Name: Kelly M. Brown
Mines grad? Yes
Year: ’93
Degree: BSc. Pet.

LIFE AT MINES

Biggest Challenges: Finding enough time to get all my homework done.
Favorite Memories: Finishing Field Session the summer after graduation. Then I knew I was really done!

What lasting impact did Mines have on you? My education taught me to be a good engineer and my experience helped to prepare me for “real life”.

What would you tell a woman student at Mines today? My advice to a woman student wouldn’t be any different than my general advice to all students: try to get good summer jobs so you’ll know what to expect and you’ll be more marketable.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Chemical Engineering—Process Engineer at a large engineering and construction company

Job experiences: First year in Environmental Industry—didn’t enjoy it because the work I was doing was completely regulation-driven (no engineering involved.) Been working for 3½ years now in engineering and construction. As a woman in my company, I’m treated no differently than the male engineers.

Special Interests Outside Work: Active in the Houston Alumnae of Sigma Kappa; tutor with the “I Have A Dream—Houston” program for “at-risk” children in the Fourth Ward of Houston.

What personal goals do you have to carry you into the next century? I would like to obtain my P.E. license and eventually start a family. I would also like to help my student (see tutoring note above) graduate from high school and go on to college.

Title: Metallurgical Engineer

Mines Degree: BSc. Met. ’98

LIFE AT MINES

Biggest Challenges: Not waking my roommate while juggling six choirs, four clubs, and 21 credit hours

Favorite Memories: Faxing my homework while on a plant trip

What lasting impact did you have on Mines? My roommate and I were the first people to try to be dual-RA’s (true job-sharing).



What lasting impact did Mines have on you? If you conquer the

obstacles, only then have you earned the reward.

What would you tell a woman student at Mines today? Take absolute advantage of everything that Mines offers—and then create your own opportunities.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Metallurgical Engineering

Job experiences: Failure analysis, material selection. I have already been the only Metallurgist in the plant (both of my coworkers were out-of-state).

Professional ground-breaking experiences: Creating and implementing new programs to improve quality and efficiency of analysis made by technicians

Special Interests Outside Work: Singing, church, tutoring, mentoring, languages

Other significant achievements (including family): Becoming a professional singer four months after graduating from Mines.

Maiden Name: Nunns



Title: Research Scientist

Mines Degree: BSc. Math. ’91

Spouse’s Name: David Cowley
Mines grad? No

LIFE AT MINES

Favorite Memories: Participation in Mines Choir, Mines Little Theatre, and Haunted Houses.

What lasting impact did Mines have on you? I have great faith in my ability to achieve.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Software Engineer



Maiden Name: Spinuzzi
Title: Transportation

Engineer

Professional Certifications, Registrations, and Titles: Engineer Intern

Mines Degree: BSc. Eng. ’97

Spouse’s Name: Matthew J. Christopher
Mines grad? Yes
Year: ’97
Degree: BSc. Eng.

LIFE AT MINES

Biggest Challenges: Balancing education with sorority life, being the cheerleading captain, and running on the varsity track team plus have a social life.

Favorite Memories: Travelling as a squad to away football games; being initiated into Pi Beta Phi on by birthday; Graduation Day

“First woman to . . .” at Mines: give the cheerleading squad a good reputation at Mines.

What lasting impact did you have on Mines? That is a matter of interpretation that only someone else can give to you.



What lasting impact did Mines have on you? Gave me the knowledge

and ability to gain knowledge that it takes to be a successful engineer. Taught me that the saying “when the going gets tough the tough get going” is a true phrase.

What would you tell a woman student at Mines today? Get involved in activities that broaden your experiences, and help you learn to interact with others in a “team” setting (clubs or sports, even I.M.).

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Transportation Engineering

Job experiences: Took from concept to construction a road widening project and parking access road at Copper Mountain Resort. Took from concept to construction a new intersection at 121st and Lowell Blvd in Broomfield.

Professional ground-breaking experiences: Too early in my career to have had any professional “ground breaking experiences”

Special Interests Outside Work: Coaching track and cheerleading at CSM; gardening; learning about “Lifetime Fitness” activities

What personal goals do you have to



carry you into the next century? Balance successfully a family, a career, and a

personal life. Advance steadily towards my P.E. and being a project engineer.

Additional Comments: Women in engineering should be celebrated. We have given, and are giving, a uniquely feminine

touch to a male dominated field. Thanks to the WISEM committee for drawing attention to our accomplishments in the last 100 years!!

Title: Process Engineer

Mines Degree: BSc. CPR ’95

LIFE AT MINES

Biggest Challenges: Worrying about an ill parent while at school

Favorite Memories: Volleyball road trips and FCA and Campus Crusade for Christ retreats

What lasting impact did you have on Mines? Time will tell that.

What lasting impact did Mines have on you? The friendships I made. Mines CAN be endured AND enjoyed!

What would you tell a woman student at Mines today? Well-roundedness is great, but have a balance: work diligently and put forth your best effort, but don’t forget to enjoy yourself and your friends. Have some quiet time to yourself. Take advantage of the surroundings.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Semiconductor industry (manufacturing)

Special Interests Outside Work: Anything outdoors (biking, running, hiking, backpacking), Bible study, and reading

Mines Degree: BSc. CPR ’96
Other Degree(s): B.A. ’84, UNLV; California State Bar, JD ’87, UC—Davis; Patent Bar

LIFE AT MINES

Biggest Challenges: Going back to school after working for five years

Favorite Memories: Meeting friends at the I-Club

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Patent Law

Job experiences: I write and prosecute patents and have started doing related

transactional work

Mines Degree: BSc. Eng./Civil ’96

LIFE AT MINES

Favorite Memories: Official and “unofficial” sorority functions and activities with frats

“First woman to . . .” at Mines: None that I want anyone to know about

What lasting impact did Mines have on you? Hard work is the only way to get what I want and succeed.

What would you tell a woman student at Mines today? You need to set a balance between work and fun. Work needs to be the priority but don’t stress about it. Stress will make you less efficient, and, more importantly, it will end up hurting your well being.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Civil Engineer I at Enron Energy Services
Job experiences: Civil Engineer I at Parsons Transportation Group

What personal goals do you have to carry you into the next century? I’m Still trying to figure that one out.

Title: District Manager

Mines Degree: BSc. CPR ’95

LIFE AT MINES

Biggest Challenges: Calculus III, Physical Chemistry 2, Kinetics

Favorite Memories: an “A” on a Physics 2 test, Rush, Sorority (Pi Beta Phi), retreats, M-climb (both freshman and senior), E-Days

What lasting impact did Mines have on you? Mines taught me that hard work paid off. Mines also taught me that no obstacle or goal is too large and it gave me a lot of pride in my education.

What would you tell a woman student at Mines today? Stick with it, the hard work is worth the effort.

tion of the greatest summer thus far.

What lasting impact did you have on Mines? I hope that as I look back years from now, I’ll be able to recognize changes I helped implement through my involvement in student government.

What lasting impact did Mines have on you? Mines taught me to fight for what I believed in. To never let anyone put you down and to be the best engineer you can.

What would you tell a woman student at Mines today? Don’t give up. You’ll have to fight a lot of battles to prove yourself as an engineer; but it is all worth it.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Geological Engineering/Hydrology

Publications: Digital Geologic Map of the Nevada Test Site Area, Nevada USGS 1996. Ron Wahl, David Sawyer, Scott Minor, Michael Carr, James Cole, W. C. Swadley, Randell Laczniak, Richard Warren, Katryn Green, & Colin Engle.

Title: Executive Vice President

Mines Degree: MSc. Math. ’91, PhD. Math ’93
Other Degree(s): BSc: ’90, Harvey Mudd College

LIFE AT MINES

Biggest Challenges: Defending my Ph.D. dissertation

Favorite Memories: I really enjoyed being part of Dr. Woolsey’s Operations Research Guild program

“First woman to . . .” at Mines: I was probably one of the youngest women to earn a PhD. from the math dept. at age 24.

What lasting impact did you have on Mines? I completed a masters degree project to study the length of time needed by students to complete graduate degrees at CSM which was used in consideration of changes to the tuition structure.

What lasting impact did Mines have on you? I learned to become an independent critical thinker and to stand up in situations where I knew I was correct.

What would you tell a woman student at Mines today? Don’t let them treat you any differently just because you are a woman.



HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Analytical consulting for the energy field

Job experiences: ARCO—Planning & Evaluation Dept. 1993–1994; Tenneco—Strategic Planning/Trading, 1994–1996; Unocal— Risk Management & Commodity Trading, 1996–1997; Coopers & Lybrand—Energy/Utilities Consulting 1997–1998; FEA Energy Consulting—start-up in 1998

Professional ground-breaking experiences: I started a consulting firm with another business partner and left the security of the corporate world!

Special Interests Outside Work: Road cycling, rollerblading, gourmet cooking

Other significant achievements (including family): Purchased a house in 1998!

What personal goals do you have to carry you into the next century? I wish to be well respected and known in my field!

Maiden Name: Kristin Skye Stock
Mines Degree: BSc. Geol. ’97

Spouse’s Name: Patrick MacCarthy
Mines grad? Yes
Year: ’98
Degree: BSc. Eng. (father-in-law is Dr. Pat MacCarthy in the Chemistry department)

LIFE AT MINES

Favorite Memories: All the time spent with my friends both in the educational setting and in any spare time we found, the relaxed setting. And of course, meet-

ing my husband! Graduation! It was wonderful, although a little long!

What lasting impact did you have on Mines? As far as the sorority world goes, hopefully the Mines sorority women won’t be seen as fluffy during rush to the incoming women since I got rid of the Theme night party.



What lasting impact did Mines have on you? All nighters in the computer lab in the geology building working on labs and reports. Six weeks in a tent: days filled with geology, nights filled with beer.

What would you tell a woman student at Mines today? Study hard, but take time to enjoy yourself too, pretty soon you will be out in the real world and you might not have homework, but you have to get up every morning and go to work!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Staff geologist/geological engineer at an environmental/geotechnical consulting firm in California

Job experiences: Field geotechnical technician for an environmental/geotechnical firm in Colorado

What personal goals do you have to carry you into the next century? I would like to go back and get my masters in the next five years. I would like to get my P.E. or RG as soon as I have enough work experience.

Additional Comments: I know that every year there are more and more women at Mines, but it is still a major accomplishment for those who are trying to make it in a still male dominated field. In my work experience so far, I have found that usually I get more respect as a woman, and I hope that everyone else has the

same experience.

Maiden Name: McDonald

Title: Consulting Petroleum Geologist;

What lasting impact did Mines have on you? Mines provides you with an unparalleled technical education, but more importantly, Mines teaches you how to learn. I learned how to be outgoing, confident, capable of working with others and willing to learn!

What would you tell a woman student at Mines today? Insist on equality but also relish the fact that men and women are different. Don’t ever assume that you won’t have the same opportunities as your male counterparts. Mines is like all other facets of life: It’s what you make of it.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Project Manager

Job experiences: KOCH Industries, Inc. — hired as an intern and again for full-time after graduating in May. Currently working as a project manager, supporting Koch Materials Company, with a special focus in the realm of environmental, health and safety (EH&S)

Special Interests Outside Work: Involvement with various organizations such as Big Brothers/Big Sisters of America, Race for Hunger, and church groups.

What personal goals do you have to carry you into the next century? Attend graduate school to study either law or receive an MBA. Use my engineering degree as a springboard to pursue other career opportunities.

Maiden Name: Cristofano
Title: Production Engineer
Mines Degree: BSc. CPR: ’97

Spouse’s Name: Kirk L. Johnson
Mines grad? Yes
Year: ’96
Degree: BSc. CPR

LIFE AT MINES

Biggest Challenges: Summer field session

Favorite Memories: E-Days

What lasting impact did you have on Mines? Great friends



What lasting impact did Mines have on you? Great friends

What would you tell a woman student at Mines today? Shoot for the Stars!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Oil and gas industry

Job experiences: Working on offshore facilities

Professional ground-breaking experiences: Being the only female engineer in my group

Special Interests Outside Work: Outdoor activities with my husband

Other significant achievements (including family): Becoming Mrs. Johnson

What personal goals do you have to carry you into the next century? Experience everything and leave nothing undone

Maiden Name: Jack
Title: Process Engineer

Mines Degree: BSc. CPR ’96

Spouse’s Name: Travis Lange
Mines grad? No

LIFE AT MINES

Biggest Challenges: Field session, Organic Chemistry II

Favorite Memories: Late night chats with my roommate, the cool mountain evenings, hanging out with my friends at the Ace High Tavern or wherever else we happened to be.

What lasting impact did Mines have on you? Mines taught me to be myself and to have faith in my own abilities. It also taught me that the mountains are beautiful, and that you miss them when they’re gone.



What would you tell a woman student at Mines today? Have faith in yourself, do your best, make time for friends and fun, and never forget that everything will be all right. It’s never as bad as it seems, especially before a test, a mid-term, or a final.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Process Engineer in Yield Enhancement for Motorola in Austin, Texas

Job experiences: Spent one year completing four rotations through various engineering fields in Motorola, and final placed into yield enhancement process engineering August 1997.

Special Interests Outside Work: My two dogs, my husband, mountain biking, camping, hiking, gardening

What personal goals do you have to carry you into the next century? I’d like to start a family and work on a completion of my Masters Degree in a field yet to be determined.

Additional Comments: CSM is a very good school, and I’m glad I had the opportunity to go there. I look back with mostly fond memories. My only regrets are from getting too caught up in the stress of the moment and forgetting what really matters in life when it all comes down.

Maiden Name: Green

Mines Degree: BSc. Geol. ’96

Spouse’s Name: Chris Leone
Mines grad? Yes ’95
Degree: BSc. Eng.

LIFE AT MINES

Biggest Challenges: Physics and the constant struggle of maintaining your GPA. “Just because you were an ‘A’ student in high school, doesn’t mean you’ll always earn ‘A’s at Mines”

Favorite Memories: Geology Field

Camp. Six weeks of the beautiful scenery, fickle weather, and wonderful friends have earned the distinc-

A CENTURY OF WOMEN AT MINES

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: District Manager for gas utility in N.M.

Job experiences: ’95–’98, Production Engineer for Mobil in California

What personal goals do you have to carry you into the next century? My personal goal is to understand the natural gas utility industry well enough to become Vice President of our utility division by the year 2010.

Maiden Name: Mackenzie Title: Civil Engineer

Professional Certifications, Registrations, and Titles: Engineer-In-Training Certificate (State of Colo.)

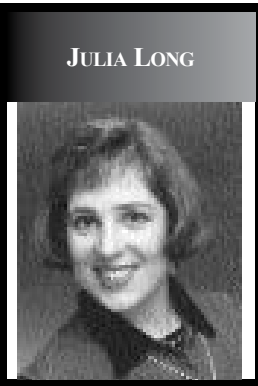
Mines Degree: BSc. Eng. ’95

Spouse’s Name: Matthew B. Hayes Mines grad? Yes Year: ’95 Degree: BSc. CPR

LIFE AT MINES

Biggest Challenges: Graduating from Mines with a good GPA while still having fun. As you can see from my “favorite memories,” they are not all about sitting in class and studying hard. Most of the best memories are from the relationships and friends that you make. They are rooted in the tradition we call Mines. The actual events may change over the years, but they are essentially the same.

Favorite Memories: Pi Phi preference rush parties at Friedhoff hall; walking in front of the ore cart to the Capitol at E-Days; geology labs; ecology field trip



to Arches National Park and Canyonlands—after a sixteen-hour day in the field to find our tent in 6” of standing water; Surveying “Repeat Hill” during Engineering field session with Karl Nelson and Candy

Ammerman; meeting my to-be-husband at “Coors Lab”; ASCE student chapter’s first try at the Concrete Canoe Race—it is still sitting on the bottom of Cherry Creek Reservoir; trying to make our calculations “work” at quant lab; “tieing” the campus with the Fiji’s; attending E-Day’s luncheons as a Pi Phi; working at the engineering department; FAC’s at the I-Club—and 50 cent beers! Homecoming field events; movies at the Tivoli downtown; touring Coors Field while it is being built with the ASCE Student Chapter; watching the last-ever “dynamite” fireworks display at E-Days; Gaby Neunzert’s famous “Bridge” presentation; senior bus; whitewashing unsuspecting freshmen at the “M”; working for a whole afternoon in the computer lab, and then walk outside to find six inches of newly fallen snow; spending a snow day sledging down the hill instead of catching up on homework; living in the new Pi Phi house; honors class on Wednesday nights....

“First woman to . . .” at Mines: First woman (or man) to be the youngest-ever National Park Ranger at Dinosaur National Monument while being a Mines student.

What lasting impact did you have on Mines? I hopefully helped make the Society of Women Engineers CSM Student Chapter a force to be reckoned with. I helped lay the groundwork that will make the chapter a strong entity at Mines for years to come.

What lasting impact did Mines have on you? Mines taught me that I must prioritize my life. There aren’t enough hours in the day to do everything you want to do. We all must look closely at our lives, and realize what is important. Sometimes the important things are hard to determine, but if you look close enough, you’ll find them.

What would you tell a woman student at Mines today? Expect the unexpected. All of the best made plans in the world hardly ever happen exactly as planned. I entered Mines with a notion of a big career, traveling the world, moving up the corporate ladder. I came out of Mines wanting more than just a career, but also a wonderful, fulfilling life and family. I “grew-up” by realizing that money isn’t



everything. When your “life flashes before your eyes,” you don’t think back to your big house, nice car, and career. Instead, you think back to your family, friends, children, and spouse. Hopefully other women (and men!) will come out of Mines realizing and understanding this important concept.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Government Civil Engineer. I work as a civil engineer for the City of La Porte, Texas (a city near Houston), and am a supervisor of engineering department employees. I design and manage capital improvement projects within the city (including overpasses, street extensions, storm sewer and drainage facilities, sanitary sewer, waterlines, sidewalks, park facilities, etc.).

Job experiences: Project Engineer at Exxon Chemical Co. Baytown Plant; Project Controls Engineer at Bayer Chemical Baytown Plant; and I graduated in 1995 with a B.S. in Engineering with a Civil Specialty, as well as two minors in Environmental Engineering and Public Affairs. I was very active at Mines, as president of the student chapter for the Society of Women Engineers, president of the student chapter for the Associated General Contractors, vice-president for Pi Beta Phi, and class representative for the Guy T. McBride Honors Program. I was also a member of the student chapter of the American Society of Civil Engineers, Order of Omega, a CSM Ambassador, Tau Beta Pi, and Blue Key. I was selected as the Outstanding Graduating Civil Engineering Student for Dec 1995, as well as the Colorado Engineering Council Outstanding Graduating Engineer at CSM for Dec. 1995 and May 1996.

Professional groundbreaking experiences: First woman engineer at the City of La Porte. Working as a project controls engineer on the \$1.5 billion expansion of the Bayer Chemical Plant. Receiving a special recognition award and bonus for my work as coordinator of the plant-wide shutdown at Bayer.

Publications: Winner of: American

Society of Civil Engineers—1998; Daniel W. Mead Prize for Younger Members, Houston Branch, Texas Section, and Zone III

Special Interests Outside Work: Society of Women Engineers—Houston area section newsletter editor, homeless pet placement, society volunteer, American Society



of Civil Engineers—Houston Branch, Chair of the Offshore Technology Conference Committee, Member of the Kingwood Chorale

Other significant achievements (including family): I am married to Matthew B. Hayes, who graduated from Mines with a BSc. in Chemical Engineering and Petroleum Refining in 1995. We were married in 1996, and held our reception at the newly renovated Ben Parker Student Center. Matt works for Phoenix Heat Exchanger Works as a design engineer. We own a beautiful house and enjoy spending time at the beach with our two dogs. I have been very active with the CSM Alumni Association since graduation. I assisted past-Houston Section Coordinator Chuck



Russell in setting up local events. I have also been an Alumni Admissions Representative, which involves attending local area high school college fairs to represent Mines. In May of 1998, I was appointed to fill the remainder of Chuck Russell’s term as Gulf Coast Regional Director.

What personal goals do you have to carry you into the next century? I am looking forward to applying for (and hopefully receiving) my professional engineering license next year. After receiving my professional license, I will be promoted to the City Engineer of La Porte. I will be the first woman ever to hold this position.

Title: Director of Marketing

Professional Certifications, Registrations, and Titles: Associate in Reinsurance

Mines Degree: BSc. Eng. ’90 Other Degree(s): MBA ’95, NYU—Stern

LIFE AT MINES

Biggest Challenges: Balancing study time with party time.

Favorite Memories: My friends and the creative ways we came up with for studying

“First woman to . . .” at Mines: Complete field camp in flip-flops (and even get an “A”!)

What lasting impact did you have on Mines? Teaching Professor Groves that you can “go through life with a smile on!”

What lasting impact did Mines have on you? Taught me that being a woman is not a disadvantage—it’s an advantage! (80–20, guy–girl ratio)

What would you tell a woman student at Mines today? Follow your dreams and always live life to the fullest.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Reinsurance underwriting and marketing

Job experiences: One year at M. W. Kellogg (engineering and construction), two years at Honeywell (project engineering), three years at Centre RE (reinsurance underwriting), four months at GGFP (see above)

Professional ground-breaking experiences: MBA in finance

Special Interests Outside Work: Snowboarding, mountain climbing, running

Other significant achievements (including family): Completed two marathons, climbed Mr. Rainier

What personal goals do you have to carry you into the next century? Health and happiness, and starting a restaurant

Title: Graduate Teaching Assistant

Mines Degree: BSc. Geop. ’96 Other Degree(s): MS ’97, Ohio St. Univ

LIFE AT MINES

Biggest Challenges: Taking 20+ hours and doing well in all of them while stay-

ing sane.

Favorite Memories: All of my friends, participating in Mines Little Theatre

What lasting impact did Mines have on you? It gave me the confidence and ability to do whatever I want.

What would you tell a woman student at Mines today? Stick with it and enjoy yourself.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Graduate student in geologic science studying geophysics (Ground Penetrating Rada)

Job experiences: Summer intern Western Geophysical (science data processing), 1994; summer intern Colog (well log data processing), 1996; Masters field work and processing, 1997

Special Interests Outside Work: Ice skating, reading, traveling

What personal goals do you have to carry you into the next century? I am working on a PhD. After that I would like to do a post doc and then teach.

Title: Project Engineer

Mines Degree: BSc. Eng. ’98

LIFE AT MINES

Biggest Challenges: Not once did I ever feel as though being a woman at Mines was a challenge. Mines, itself, was an incredible challenge, but it never stemmed from the fact that I’m female. By far, the biggest challenge I dealt with was learning how to balance it all—studying, participating in various organizations, and having fun at the same time.

Favorite Memories: Homecoming; traveling to Indonesia with McBride Honors Program; singing the national

anthem for volleyball, basketball and wrestling; E-Days; M-Climb(s)

Adjunct Assoc. Prof. CSM Computer Resource Center; Manager—Petroleum Technology transfer Council

Professional Certifications, Registrations, and Titles: Registered Professional Geologist, Wyoming; Certified Petroleum Geologist AAPG

Mines Degree: PhD. Geol. ’95
Other Degree(s): BSc ’72, San Jose St. University; MS ’75, North. Arizona Univ.

Spouse’s Name: Fred Mark
Mines grad? No
Children (#): 1, **Ages:** 9

Title: Consultant (sequence and seismic stratigraphy)

Mines Degree: PhD. Geo. ’97, MSc. Geol. ’91
Other Degree(s): BS Geol/GP ’80, UT—Austin

Spouse’s Name: Mike Blaskowski
Mines grad? No
Children (#): 3, **Ages:** 7, 4, 1^{1/2}

LIFE AT MINES

Biggest Challenges: *Intellectual:* 1) Navigating the development of stratigraphic concepts in T.A. Cross’ seminar 2) Having 3 kids during graduate studies . *Physical:* 1) Getting anything to plot on the Geology Department’s “new” plotter 2) Bicycling Lookout Mountain in under 45 minutes!

Favorite Memories: Field work in the French Alps...with kids!; the evening Baby #1 in backpack blew pacifier across the room during really boring seminar

“First woman to...” at Mines: Haven’t checked the history books

What lasting impact did you have on Mines? History must decide

What lasting impact did Mines have on you? Intellectual challenges met

What would you tell a woman student at Mines today? It is still a white man’s world, but hang in there. Don’t let anyone decide what you should do except yourself; keep your confidence high and your mind sharp. Be proud of yourself, and

HAVE FUN.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Petroleum Industry—consulting in seismic stratigraphy and sequence stratigraphy

Job experiences: Five years Exxon geophysicist—Western U.S. Basins; six years consulting—international work in seismic and sequence stratigraphy; teaching undergraduate stratigraphy (CSM); teaching short courses (Elf Aquitaine, Ecopetrol)

Professional ground-breaking experiences: Mentoring—was hired as a consulting “expert” to work on integrated interpretation of seismic data and wireline data in sequence stratigraphic context, (one year at Elf Aquitaine) mentoring done in French.

Publications: Journal of Geophysical Research, American Association of Petroleum Geologists, Journal of Sedimentary Research (in press)

Special Interests Outside Work:

Parenting, hiking, photography, teaching geology to kids, cross-country skiing, canoeing, gardening (native plants and herbs), culling good jokes from e-mail.

Other significant achievements (including family): Three kids!

What personal goals do you have to carry you into the next century? To raise three feminist males to carry us into the next century! To raise the professional level of stratigraphy being done in the petroleum industry. To continue advocating for cooperative education.

Additional Comments: Thanks for doing this. I won’t be at the weekend celebration but have a good time anyway!

Maiden Name: Smith
Title: Petroleum Engineer
Mines Degree: BSc. Pet. ’91

Spouse’s Name: Randy Meador
Mines grad? No

LIFE AT MINES

Biggest Challenges: Physics II

Favorite Memories: M-Climb and track and field competition

What lasting impact did you have on Mines? Worst hurdler ever

What lasting impact did Mines have on you? Persistence and hard work pay off.

What would you tell a woman student at Mines today? Foundation is the key to success.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Energy Industry. Consulting with Ryder Scott.

Job experiences: Worked on management buy-out, IPO, merger

SUSAN DENISE RANKIN
Special Interests Outside Work: Semi-professional beach doubles volleyball

Other significant achievements (including family): Sister at Rice—star volleyball player. Husband—played AVP (associate pro volleyball)

What personal goals do you have to carry you into the next century? All financial

Maiden Name: Smith
Title: Geologist

Mines Degree: BSc. Geol. ’96

Spouse’s Name: Geoffrey Louis Pearson
Mines grad? No
Children (#): 2, **Ages:** 4 years and 4 months (Stacia & Elizabeth)

LIFE AT MINES

Biggest Challenges: The biggest challenge I faced while at Mines resulted from my determination to prove everyone wrong when they said I wouldn’t be able to finish school due to my pregnancy early in my sophomore year. Not only did I graduate, I graduated on time (in 4 years) with better than a 3.0 GPA. It was hard work, but I also managed to raise my

daughter to the best of my ability while at Mines, too.

Favorite Memories: Sitting in the commons between classes; watching the Homecoming parade and fireworks; mapping during field session in the snow—in June.

What lasting impact did you have on Mines? I’d like to believe that professors are more sensitive to women with children because of my situation.

What lasting impact did Mines have on you? Mines taught me perseverance. It taught me to set high standards for myself and my colleagues, and to accept nothing less than the best.

What would you tell a woman student at Mines today? Hang in there! Your completion of your degree is worth every painstaking moment that you put into it.

CATHY REIN

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: In-Situ Leach (ISL) Uranium Geologist

Job experiences: After school, I began working for Geomex Minerals (a small uranium exploration company). I soon found out that GM’s parent (Cameco) was the world’s largest uranium company in the world. Cameco bought Power Resources and transferred all GM employees (two geologists—myself included) from Denver to Casper where I have worked since.

Professional ground-breaking experiences: In addition to successfully running a six-month, five-rig field operation, I have assisted in bringing my company to the current computer age by updating archaic databases and ridding the company of ancient software to be replaced by current programs. Also, in addition to two other women (both Wyoming grads), we have brought the Wyoming mining industry to head with equal, fair rights for professional women in the mining community.

Special Interests Outside Work: Watching my 4-year-old daughter in her dance classes and soccer practices. I enjoy church socials and women’s circles from work. Also, I enjoy reading professional magazines to keep current in my field.

Other significant achievements (including family): Since graduation, my husband and I have had another daughter, and I have resumed working. Currently, I am awaiting my certification as a geologist in training.

What personal goals do you have to carry you into the next century? Professionally, I wish to become a project geologist of a mine site. I also am looking forward to going back to school to earn a Masters or PhD. Personally, I am hoping that I can keep up with my daughters.

Title: Research Assistant

Mines Degree: BSc. Chem. ’92, MSc. Chem. U of AL-Huntsville

Spouse’s Name: Kyle Hoover
Mines grad? No

LIFE AT MINES

Biggest Challenges: Physics II—Electricity & Magnetism

Favorite Memories: Working with football team, two years varsity softball, Coors short tours, and learning to ride motorcycle

“First woman to . . .” at Mines: receive a varsity letter in football in 100 years

What lasting impact did Mines have on you? Made me a more well-rounded scientist and person

What would you tell a woman student at Mines today? Get involved outside the classroom! Don’t be intimidated!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: PhD. candidate in Materials Science and Space Chemistry
Job experiences: Lawrence Livermore National Lab Intern before grad school

Professional ground-breaking experience-

TARA SCHENK
es: Have flown several experiments on satellites, shuttles, and space station

Special Interests Outside Work: SCUBA diving, motorcycle riding, softball, travel

Other significant achievements (including family): Married best friend, Kyle Hoover, in 1996

What personal goals do you have to carry you into the next century? Striving to become an astronaut

Maiden Name: Susan Webster
Title: Engineer II

Mines Degree: BSc. Geol. ’92

Spouse’s Name: Thomas James Rankin
Mines grad? Yes
Year: ’91
Degree: BSc. Eng.

LIFE AT MINES

What would you tell a woman student at Mines today? Attending and graduating from CSM is the best decision you’ll ever make.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Municipal solid waste landfills – siting, groundwater monitoring, landfill gas control system design and monitoring

Job experiences: 1992 – 1995: Kennedy – Jenks Consultants – landfill siting, oil spill emergency response, wastewater treatment and water supply projects, environmental characterization and remediation. 1995 – present – Kern County Waste Mgmt Dept – see experience under current professional field.

Professional ground-breaking experiences: Response to oil pipeline ruptures in Los Angeles area after Northridge earthquake – response to a natural disaster was challenging and insightful – I hope the big one doesn’t happen!

Publications: “Rapid Response, Flow Diversion Save Wildlife Habitat After Oil



Mines Degree: BSc. Eng. ’97

LIFE AT

MINES

Biggest Challenges: Studying. The biggest challenge was finding the discipline to study especially on Saturdays.

Favorite Memories: Girls Night Out. Either going to the movies or staying at home and having chicken fajitas and margaritas.

“First woman to . . .” at Mines: Build and row a concrete canoe. There were three women of a team of five for our senior design project to build a concrete canoe. Then we had to row the canoe in the ASCE competition in South Dakota. The two other women were Mary Wasgatt and Allison Christner.

What lasting impact did you have on Mines? Hopefully, I left a few laughs.

What lasting impact did Mines have on you? Irreplaceable friendships and education.

What would you tell a woman student at Mines today? Enjoy your time at Mines because your time at Mines doesn’t last forever. Take the time to study, but also take the time to be social and create lasting friendships.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Civil Engineering

Job experiences: Designed a residential bike path and sidewalk. I was the lowest man on the totem pole when we had to set up meters at a sewage plant, so it became my job to be in charge of the meter. Then we got another meter that had to be installed in man-holes, which also became my responsibility. So I was nicknamed the Queen of Sewage. Although I only had to show up with the computer and download the data. I used my ‘girl’ card so I would not have to climb in the manhole. However, to show everyone I have a sense of humor, I dressed up as the Queen of Sewage (picture included) for a day with a potty seat crown and toilet brush

wand.

Special Interests Outside Work: A member of the Glenwood Springs Jaycees, aerobics, hiking, biking and swimming

What personal goals do you have to carry you into the next century? Continue on my career path and keep maturing as a human being

Title: Engineering Instructor

Mines Degree: BSc. Geol. ’93

Spouse’s Name: David Wurts
Mines grad? No

LIFE AT MINES

Biggest Challenges: Making a positive difference in the world—not just trudging along with what others say/do.

Favorite Memories: Friends and peers—spring breaks, field camp, learning and growing through classes and activities.

“First woman to . . .” at Mines: Moon the library during finals week (maybe not first!)

What lasting impact did you have on Mines? Certainly I’m not a “typical” engineer—never was!

What lasting impact did Mines have on you? I can do it if I put my mind to it and really try.

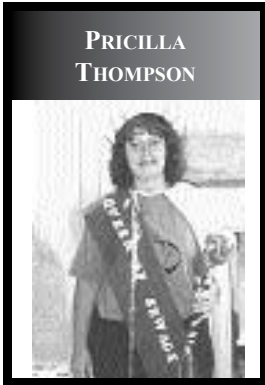
What would you tell a woman student at Mines today? Set goals and don’t let yourself get too distracted! Spend so much time improving yourself that you have no time to criticize others.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Teaching (yikes!) and grad school (CSM)

Job experiences: Environmental engineering in Colorado, Alaska, Texas; community relations for engineering projects; site geologist; engineering instructor

Special Interests Outside Work: Animal behavior/vet work; backpacking, mountain climbing, skiing; yoga; accupressure; Chinese medicine; herbs; gardening



Other significant achievements (including family): Nominated for teacher of year 1997–98; innovative high school engineering program; many rescued furry family

members!

What personal goals do you have to carry you into the next century? Inspire others, follow my dreams, and learn from my experiences—good and bad

Title: Chemical Engineer

Professional Certifications, Registrations, and Titles: P.E. Chemical and environmental engineering (Oregon and Colorado)

Mines Degree: PhD. CPR ’94
Other Degree(s): BSc. ’76, University of Maine—Orono, MS ’79, University of Maine—Orono

Spouse’s Name: Richard Perkins
Mines grad? Yes
Year: ’79
Degree: BSc. CPR, PhD. CPR ’83
Children (#): 3, **Ages:** 12, 9, & 7

LIFE AT MINES

Biggest Challenges: Balancing graduate school and having two kids!

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Chemical engineer

Job experiences: ’80–’85 U.S. Bureau of Mines, Albany Ore, Chem./Env. Engineer; ’85–present NIST, Boulder, Chemical Engineer

Maiden Name: Godette
Title: Sr. Metallurgical Engineer

Mines Degree: BSc. Met. ’90
Spouse’s Name: Scott E. White
Mines grad? Yes
Year: ’89

jects and better understanding of the ingenuity and hard work that goes behind many of the things that people take for granted. Also, a better understanding of how connected we are to the rest of the world, through our economies, technology and the environment.

What would you tell a woman student at Mines today? You’ve made one of the best decisions in your life to begin your education at Mines. Remember that learning should last a lifetime and don’t back down from any challenges.

HIGHLIGHTS SINCE



GRADUATION

Current Professional Field: Oil and gas upstream services sector. I work as a business and market analyst for the U.S. Business Acquisitions Manager (a woman!) for Brown & Root Energy Services.

Job experiences: 1993–1996, Sales and Applications Engineering in Chicago for Air Liquide; 1996–1997, Project Engineer for Marketing Group in Houston for Air Liquide; 1997–1998, Project Manager and Marketing Manager in Houston for Air Liquide

Special Interests Outside Work: Started training for my first marathon this year; do volunteer work for environmental and sustainable engineering groups; working on my MBA

Other significant achievements (including family): Married fellow Mines grad Travis Rein, BSc. CPR ’93, in May 1994. Traveled most of U.S. Visited Paris, Lyon, and Normandy, France on business.

What personal goals do you have to carry you into the next century? I’d like to continue graduate studies after my MBA perhaps pursue my doctorate in Sustainable Technology and the economics needed to drive our societies towards cleaner and more sustainable energy sources.

Title: Support Specialist /Geologist

Mines Degree: BSc. Geol. ’97

LIFE AT MINES

Biggest Challenges: Learning how to work with a team dominated by men. Learning how to think through and solve open-ended problems.

Favorite Memories: Being in the CSM Marching Band, especially during Homecoming! McBride Spring Break trip to Washington D.C., geology field trips, Geology Field Camp, and friends I made in Sigma Kappa.

“First woman to . . .” at Mines: possibly first mother (’90)/daughter (’97) duo to graduate from Mines.



What lasting impact did Mines have on you? The name

certainly gains instant respect in industry. Now I just have to live up to it!

What would you tell a woman student at Mines today? Stick with it. The benefits of a CSM degree are great, and teach you skills that are useful in any career.

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Geological software technical support

Job experiences: A three-month internship at Phillips Petroleum introduced me to the importance of keeping up with technology development and led me to my current job.

Professional ground-breaking experiences: I haven’t been working long enough to have ground-breaking experiences!

Special Interests Outside Work: Ballet, hiking, camping, cross-country skiing

Other significant achievements (including family): Several relatives to attend



Mines: mother: Judith Schenk, MSc. Geol. ’90; brother: Liam Schenk, BSc.

Min. ’99

What personal goals do you have to carry you into the next century?

Constantly learn
Title: President

Professional Certifications, Registrations, and Titles: Professional Engineer Co.

Mines Degree: BSc Eng. ’91

Spouse’s Name: John Sprackling
Mines grad? Yes
Year: ’86
Degree: BSc. Eng.
Children (#): 2, **Ages:** 4, 10

LIFE AT MINES

Favorite Memories: Too many to list

HIGHLIGHTS SINCE GRADUATION

Current Professional Field: Electrical Engineer—Entrepreneur

Job experiences: Five years as a High Voltage Substation Designer for Western Area Power Administration; two years as President of Sprackling Consulting Company, designing and installing control systems for AMOCO, Western Aggregate (TXI, Inc.), Industrial Controls, Inc., and a number of other interesting clients.

Professional ground-breaking experiences: Starting my own company and making it a success. Working on a 500-Kv transmission line and three substations

Special Interests Outside Work: Soccer, skiing/snowboarding, ultimate Frisbee, and coaching youth soccer teams

What personal goals do you have to carry you into the next century? I plan to grow my client base with my company, vacation as much as possible, and enjoy the good life.

Mines Degree: BSc. Geop. ’97

LIFE AT MINES

Biggest Challenges: Time Management; Fall semester (too long—not enough breaks); Chem 121

Favorite Memories: My 22nd birthday party on the final night of E-Days (thanks



THE FLORENCE CALDWELL CENTENNIAL CELEBRATION



THE FLORENCE CALDWELL CENTENNIAL CELEBRATION

In October 1998, the Women in Science, Engineering and Mathematics (WISEM) program commemorated the 100-year anniversary of the graduation of Florence Caldwell, the first woman to receive an engineering degree from the Colorado School of Mines. Alumnae from four decades and members of the Mines administration gathered in October 1997 to plan and develop the event. The changes that have taken place for women in the field of engineering and at Mines in the last forty years were apparent when this group compared their experiences.

The committee organized three days of activities on the

The organizing committee set three primary goals for the Florence Caldwell Centennial Celebration:

- Celebrate women at Mines and their accomplishments in life
- Create an opportunity to get in touch with old friends and acquaintances
- To host activities that would give Mines women the opportunity to pool their unique experiences

Colorado School of Mines campus and selected the first weekend in October 1998, for the celebration. A kick-off dinner and dessert social followed by sorority reunions took place on Friday. Activities on Saturday included a continental breakfast, workshops, luncheon, group photo, wine tasting, and awards banquet. Sunday was a family day that included a breakfast, climbing to the "M," and a picnic lunch. Each attendee received a registration packet and commemorative bag. In addition commemorative T-shirts, sweatshirts, bags and mugs were available for purchase. Approximately, one hundred alumnae participated in one or more of the weekend events.

FRIDAY OCTOBER 2, 1998

Kick-off Dinner and Dessert Social

The Mines Chapter of Society of Women Engineers (SWE) sponsored the kick-off dinner and dessert social held in the ballrooms at the Ben H. Parker Student Center. At each table alumnae and current students enjoyed visiting with old friends and finding out what was new on campus. Everyone received a commemorative mug as a gift from the SWE chapter. After dinner

Heather (Knapp) Hernandez, '98, former CSM SWE chapter president gave a presentation about SWE and its history at Mines. Following Heather, Dr. Theodore Bickart, CSM's new president, presented the welcoming remarks for the weekend. The highlight of the evening came when Kim Blair, a present graduate student, enticed everyone to share their memories and experiences from their days at Mines. Some of these memories included student's favorite professor, lowest test score, and most times enrolled in a class. Nancy Easley Ise, the Mines student featured in the November 24, 1952, issue of *Life* magazine, reminisced about being the only female student on campus. Following the social, the Sigma Kappa, and Pi Beta Phi sororities hosted parties for their returning alumnae, at their respective houses.

SATURDAY, OCTOBER 3, 1998

Continental Breakfast and Welcome

Following an early morning breakfast, Dr. Bickart welcomed the group and gave an interesting overview of the progress of women in engineering and in engineering education. He discussed how Colorado School of Mines contributed to this advancement of women and shared his hopes for Mines in the future. Karen Ostrander-Krug, '84, a member of the CSM Board of Trustees, and Mary Pott, '83, former CSM Alumni Association President also gave insights to the changes for women, both at Mines and in industry.

Workshops

The workshops covered a wide range of topics for professional and personal development. These included financial planning, career management, humor in the workplace, stress management, leadership skills, and tips for succeeding in the global workplace. In addition there were workshops focusing on non-verbal communication, analyzing personality strengths, and a historical overview of women who have won the Nobel Prize. Everyone could participate in up to three different workshops during morning and afternoon sessions.

Lunch and Group Picture

Comedian and speaker Melody Soell, a self described "recovering computer programmer" added a light touch to the day's luncheon. Melody had everyone laughing as she spoke about her "recovery." To celebrate the tremendous changes since the 1952 *Life* magazine photo, the alumnae, Dr. Bickart and Nancy Ise gathered on the steps of Guggenheim for a reunion picture.

at Hill Hall.

Conclusion

The Florence Caldwell Centennial Celebration presented unique opportunities for Mines alumnae. The women were given the opportunity to look back and gain an appreciation of the early female pioneers in the world of engineering. They reviewed the different challenges that faced the women who followed. And they recognized that professionalism and competence are what make women viable members of the engineering community. The weekend allowed everyone the opportunity to learn from each other and establish contacts within the industry.

Members of the Mines community were able to acknowledge the individuals who made significant contributions while on campus. They presented the many changes that have taken place both on campus and in the field of engineering education in the Terre Deegan-Young and Mary Pott during a workshop

United States. Finally, those in attendance were given a preview of the plans Mines has for the future.

Colorado School of Mines has a unique opportunity to use the feedback from those who attended. Those who worked on the Centennial Celebration will use these ideas and suggestions to plan activities in the future aimed at helping women in engineering and other technical fields. The input from participants will also become part of the larger Mines community as the School keeps pace with the trends and changes affecting women in the engineering industry.



Beer and Wine Tasting

After the day of workshops, it was time to kick back, relax and sample some of Colorado’s light alcoholic beverages in the Geology Museum. Cathy Skokan provided wines from the west-ern slope while John Higgenlooper of the Wynkoop Brewing Company supplied a keg of microbrew.

Awards Banquet

Saturday evening everyone enjoyed good food and conver-sation at the Centennial Celebration Awards Banquet. Dr. Joan Gosink, Head of the Engineering Division at Colorado School of Mines, gave the keynote presentation on wind research in the Antarctic.

Presentation of awards by President Theodore Bickart and Dr. John Trefny, Vice President for Academic Affairs, concluded the evening. These awards commemorated women who have made significant contributions to the history of women at Mines.

CENTENNIAL CELEBRATION COMMITTEE

Mary Pott, '83, Chairman
Tiffany Abbink, '94, Assistant Chairman

- | | |
|-----------------------------|-----------------------------|
| Kathy Altman, '80 | Cathy Mencin, '83 |
| Candy Ammerman, '81 | Debbie Mooney, CSMAA |
| Mary Beth Beach, '69 | Jane Raunika Taylor, CSM |
| Kim Blair, graduate student | Public Information |
| Judy Bolis, '82, '92 | Claudia Rebne, '86 |
| Abby Browder, student | Melanie Rich |
| Wendi Cooksey, '84 | Susan Riebe, '86 |
| Chontel Cordova, student | Carrie Salimeno, student |
| Vicki Cowart, MS '77 | Tara Schenk, '97 |
| Jodi Davidson, '91 | Maureen Silva, OIA |
| Mary Jo Giddings, CSMAA | Cathy Skokan, '70, '72, '74 |
| Joan Gosink, Engineering | Pamela Tittes, '72, '77 |
| Shannon Hines, student | Liz Townley, student |
| Linda Sue Hoops, '81 | Gina Vaccari, student |
| Sandy Kramer, '73 | Louise Wildeman, CSM |
| Karen Ostrander-Krug, '84 | Career Center |
| Laila Matthews, '87 | |



Mary Beth Beach, Judy Bolis, and other participants share a laugh

could view new additions such as the large stained glass window



Above: President Bickart and Dr. Cathy Skokan

in Alderson Hall, the atrium in the recently remodeled Coolbaugh Hall, and the additions currently under construction



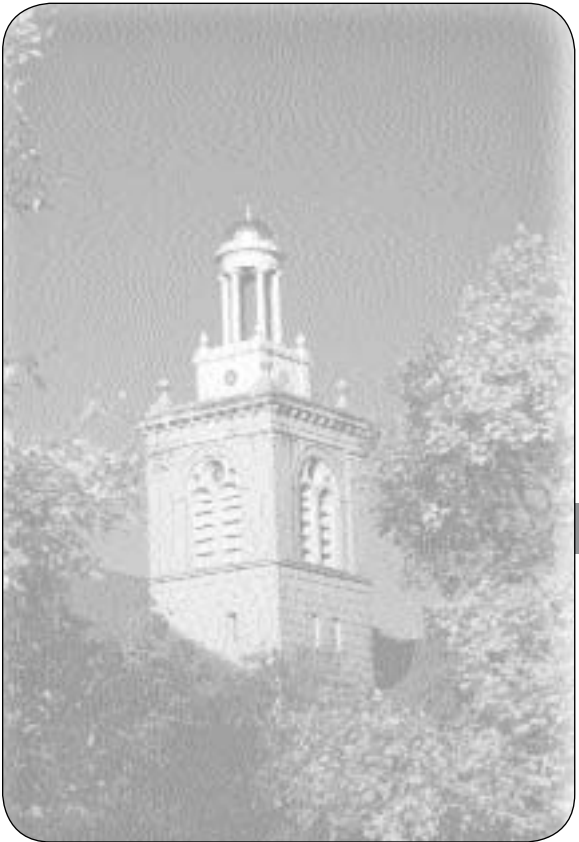
SUNDAY, OCTOBER 4, 1998

Family Day

Sunday was a day for family fun. An “M” climb followed a continental break-fast in the Coolbaugh House. At the “M” everyone received a souvenir button stat-ing “One Hundred Years and Still an Uphill Climb.” The group par-ticipated in a group photo. A member of Blue Key was on hand to locate the lights on the “M” purchased by the alumnae dur-ing the recent lighting project.

The group returned to the Coolbaugh House to enjoy a picnic lunch. Students conducted tours of campus so participants

Left: Group picture at the “M” October 4, 1998



THE FUTURE
COMMENTS FROM
PRESIDENT BICKART

21 March 1999

Dear Alumni and Friends:

Our task at the Colorado School of Mines is to identify and educate those who would be engineers, scientists, and business leaders. We have been doing so for 125 years. For 100 of those years we have counted women among the ranks of our graduates. And, today women are 25 percent of our baccalaureate graduates. Both of these are remarkable facts in the realm of engineering schools and colleges, probably more so for an institution bound to the extractive disciplines. However, we should not be satisfied. Since women constitute slightly more than half of the population, we must presume that there is latent talent for engineering to be awakened among the women who will be university bound in the future.

Our task must be to inform young women of the opportunities and rewards of engineering, a profession committed to creating products and processes to improve the human condition, and the positive experiences that will be theirs while learning to be scientists and engineers at the Colorado School of Mines.

If we sustain a welcoming and supportive environment within which a diverse student body and faculty can thrive, we believe that women in our ranks will grow to about 50 percent. Additionally, we will also surely find that the various ethnic minorities at Mines will achieve parity with their numbers in the population.

Some of us in the family of Mines have defined roles in the process. For example, the Admissions Office staff members are always looking for talented women and ethnic minorities who might be drawn to a Mines education in science, engineering, or economics and business. However, all of us in the family of Mines have an opportunity to inform talented prospective students about these professions and the mind-expanding and life-fulfilling educational experiences provided by Mines.

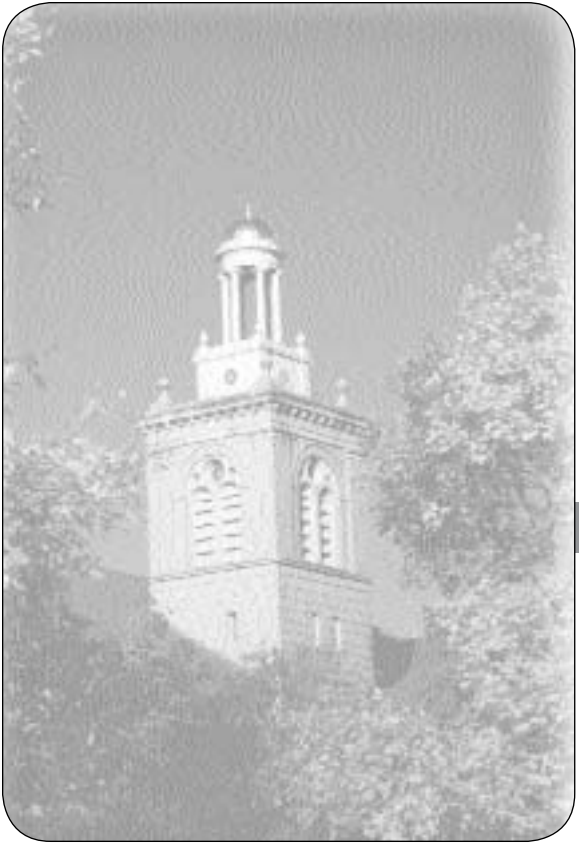
Faculty members—our students' intellectual mentors—are in a position to encourage their students, especially those in underrepresented groups, to consider graduate study and the practice of their professions within the academy. In time this will lead to a more diverse faculty at Mines.

Let us join together to achieve full diversity and increased intellectual vitality at Mines.

Sincerely,



Theodore A. Bickart



REFERENCES AND BIBLIOGRAPHY

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BIBLIOGRAPHY

THE EARLY YEARS

1. "One Hundred Years of Engineering Give 'Em Hell Mines!," Den Galbraith, *The Mines Magazine*, February 1974

2. A World School The Colorado School of Mines, Jesse R. Morgan, 1955, Sage Books, pp. 109-112, "Women in a Man's School"

3. "A Century of Mines Women in Engineering," Virginia Wilcox Herold, *The Mines Magazine*, June 1974

4. "A Century of Success: Reflections on Women at Mines," Karen L. Tichenor, *Mines Magazine*, January / February 1998, pp. 12-13

5. "In Memoriam Grace C. Updike McDermut Mulligan," *The Mines Magazine*, January 1980

6. "College Bound Coed Packs Rocks Along With Formals," Jean Lipscomb, *Corpus Christi Times*, June 19, 1952

7. "A Co-educational Mines Once More; Nancy Easley Dons Freshman Cap," Wes French, *The Oredigger*, September 30, 1952

8. "Mines Unique Fashions," Wilmont Reid, *The Oredigger*, October 7, 1952

9. "Mines Terrorized by Aspect of Coeducational Institution," Fred Meissner, *The Oredigger*, October 21, 1952

10. "Life Will Feature Mines Coed In Story On 'Coeds Problems'," Ray Keller, *The Oredigger*, October 28, 1952

11. "Homecoming Finalists," *The Denver Post*, October 28, 1952

12. "'Darn It Anyway' On His Way," *Rocky Mountain News*, November 16, 1952

13. "Mines Holds No Terrors For Its Only Girl Student," *The Western Graphic*, November 21, 1952

14. "Pretty Texan Most Popular Co-Ed on Campus Nancy's Lone Gal Among 912 Mines Men," *Rocky Mountain News*, November 21, 1952

15. "All Alone with 900 Boys Colorado School of Mines One Coed Never Lacks Male Company," *Life*, November 24, 1952

16. "School of Mines Graduate Advises College's Only Coed," Jean Lipscomb, *Corpus Christi Times*, January 2, 1953

17. "I've Got a Secret," personal letter from Ann Westbrook, March 6, 1953

18. Western Union Telegraph personal communication, March 19, 1953

19. "Nancy Easley To Be On TV Show Tonight," unknown

20. "Cheerleaders Elected to Liven School Spirit," *The Western Graphic*, unknown date

21. "Empire Makes News Life Features Colorado Stories," unknown

22. "What Happened to Nancy Easley? The Only Woman in 1952 Remains True to Her School," Charles Warren, *Mines Magazine*, January/February 1998, pp. 14-15

23. "Colorado's First Woman Engineer," Helen Morgan Huckenhahler, *The Mines Magazine*, June, 1962, pp. 27-29

24. "In 1903...The Graduate was a Lady," *The Mines Magazine*, November 1978, pp. 16-18

25. *The Colorado School of Mines Magazine*, March 1913, p. 68

26. *The Colorado School of Mines Magazine*, April 1913, p. 94

27. *The Colorado School of Mines Magazine*, December 1913, p. 292

28. *The Colorado School of Mines Magazine*, July 1914, p. 155

29. "Mines Established in 1874 As Co-educational School," *The Mines Magazine*, January 1978, p. 19

30. "Three Co-Eds At Mines," Frederick C. Steinhauer ('99), *The Mines Magazine*, April 1940

31. Personal Communication with Jacqueline Borthick Kircher, January 22, 1999

32. Hofstadter, Richard, Miller, William, Aaron, Daniel, *The United States: History of a Republic*, Prentice Hall, Inc., 1957

THE 1960'S: THE BEGINNING

1. "A Century of Mines Women In Engineering," *The Mines Magazine*, June 1974, pp. 24-33

2. "Pat Mosch Featured In Empire Magazine." *The Mines Magazine*, February 1974, p. 50

3. "HEY! WHERE'S 99?" *The Mines Magazine*, April 1971, pp. 14-16

4. "GIVE 'EM HELL, MINES!" **The Mines Magazine**, February 1974, p. 24

4. "Sasha Karpov, New Business Seeks Clients in the Culture of Envy," *The Mines Magazine*, June/July 1992, p. 3

5. "Hispanic Woman Overcomes Lifetime of Obstacles to get to Law School," *The Mines Magazine*, February 1992, p. 34

6. "Non-Traditional Student Balances Academic Demands with Family Responsibility," *The Mines Today*, Vol. 6 No. 4, Fall 1992, p. 7

7. "Student Miners," *The Mines Magazine*, February 1991, p. 8

8. Women Graduates at CSM 1898-1998, Colorado School of Mines Alumni Association

GENERAL RESOURCES

Grun, Bernard, *The Timetables of History*, New updated edition, New York: Simon and Schuster, 1979

Legrand, Jacques, Coordinator, *Chronicle of the World*, Ed. Jerome Burne. Liberty, Missouri: JL International Publishing, 1989, Reprint Belgium, 1993

CSM Women's History Interesting Factoids

REFERENCES AND BIBLIOGRAPHY

5. "Listening to the Whispering Wind" *The Mines Magazine*, October 1991, pp. 2-4
 6. "Betty Gibbs Selected as Candidate For Outstanding Young Woman" *The Mines Magazine*, August 1971, p. 25
 7. *The Mines Magazine*, 1993 Alumni Directory
 8. Biographical Summary sheets
 9. Phone conversations with graduates
 10. Photo Credits: Prospector Yearbooks 1960 – 1969 and Arthur Lakes Library Archives
- THE 1970'S: THE CALDRON**
1. *The Mines Magazine*, November 1972, p. 44
 2. Alpha Delta, *The Mines Magazine*, October 1975, p. 45
 3. Athletic Scholarships, *The Mines Magazine*, 1976, p. 38
 4. Caldwell Hall, *The Mines Magazine*, December 1970, p. 41
 5. Alpha Delta, *The Mines Magazine*, October 1975, p. 45
 6. Pat Smith, *The Mines Magazine*, December 1976, p. 14
 7. Pam Tittes, *The Mines Magazine*, June 1973, p. 32
 8. Skokan, *The Mines Magazine*, November 1976, p. 17
 9. WIM, *The Mines Magazine*, January 1973, p. 36
 10. Betty Willard, *The Mines Magazine*, May 1976, p. 25
 11. Quarterback Club, *The Mines Magazine*, September 1972, p. 42
 12. Homecoming Queen, *The Mines Magazine*, December 1972, p. 12
 13. Mines Peak, *The Mines Magazine*, December 1973, p. 17
 14. Powderpuff Football – Debbie Carnell, *The Mines Magazine*, December 1971, p. 40
 15. Powderpuff Football, *The Mines Magazine*, December 1972, p. 13
 16. CSM Rifle Team, *The Mines Magazine*, 1972, p. 45
 17. Yearbook, 1973, page unknown
 18. Women's Athletic Scholarships, *The Mines Magazine*, March 1976, p. 38
 19. Harrison Schmitt, *The Mines Magazine*, October 1973, pp. 11-15
 20. *The Mines Magazine*, December 1980, p. 25
 21. *The Mines Magazine*, January 1980, p. 8
 22. *The Mines Magazine*, March 1980, p. 28
 23. *The Mines Magazine*, December 1970, p. 43
 7. "E-Day Engineers," *The Mines Magazine*, May 1983, p. 15
 8. "Colorado School of Mines E-Day Engineers," *The Mines Magazine*, May 1984, pp. 12-13
 9. "ROTC Appointment Told," *The Mines Magazine*, March 1980, p. 27
 10. "Under the 'm', Society of Women Engineers," *The Mines Magazine*, January 1984, p. 15
 11. "New Student Trustee," *The Mines Magazine*, September 1981, p. 35
 12. "The Conway Report," *The Mines Magazine*, January 1984, pp. 6-7
 13. Caldwell Centennial Celebration, Survey Responses
- 1980'S: THE TRANSITIONAL YEARS**
1. "Mines is Different," *The Mines Magazine*, January 1984, p. 16
 2. "Women PhD's at CSM," *The Mines Magazine*, January 1984, p. 9
 3. *The Mines Magazine*, January 1984, "Petroleum Engineers Fuel Growth," p. 5
 4. "Leave It To Leaver," *The Mines Magazine*, September 1980, p. 34
 5. "Petroleum PhD," *The Mines Magazine*, January 1984, p. 9
 6. *The Oredigger* yearbooks for 1980-89
- THE 1990'S: PART OF THE CROWD**
1. "Women and Minorities Fastest Growing Segment at Mines," *The Mines Magazine*, October 1990, p. 21
 2. "Sorority Expansion at Mines," *Mines Oredigger*, September 29, 1998
 3. "Beth Jorden, Claudia Rebne, Defying the Odds," *The Mines Magazine*, April 1992, p. 4