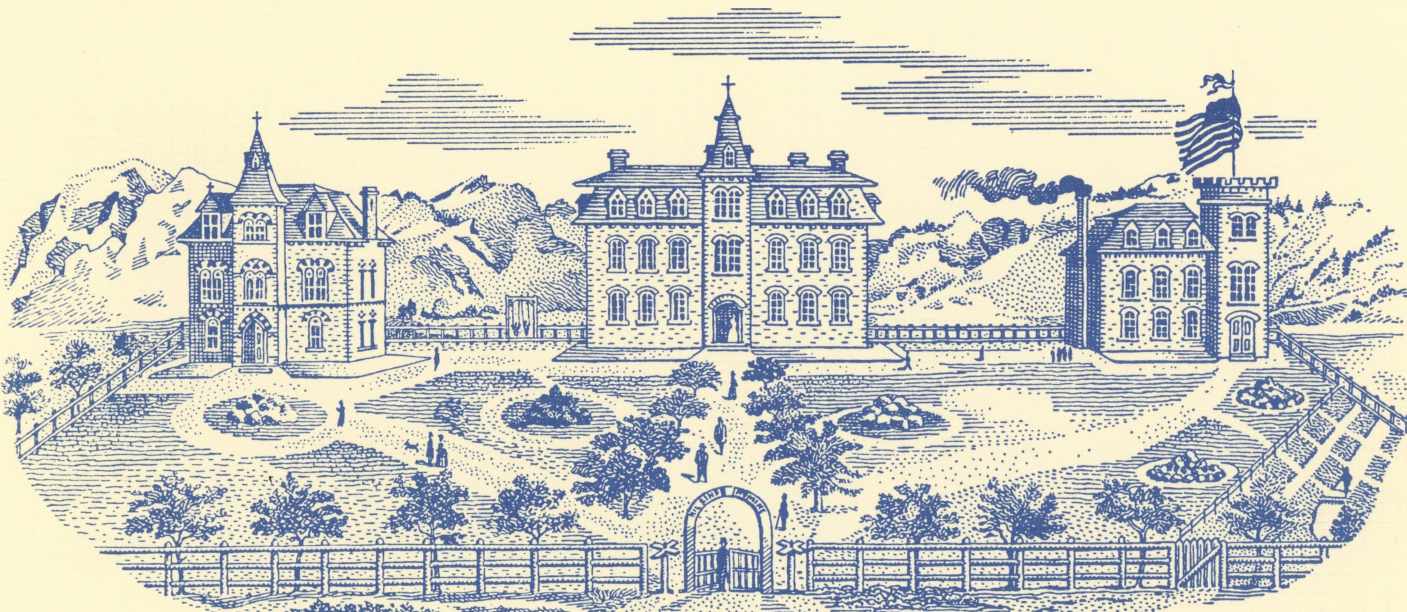


Colorado School of Mines  
MID-YEAR DEGREE CONVOCATION  
December 18, 1987



*Matthews Hall*

*Jarvis Hall*

*School of Mines*



# Colorado School of Mines

## MID-YEAR DEGREE CONVOCATION

3:00 p.m., Friday, December 18, 1987

Green Center  
Golden, Colorado

### Board of Trustees

Sally V. Allen  
Don K. Henderson  
Donald E. Miller  
Monte Pascoe

Fred R. Schwartzberg  
Brian Warren  
James C. Wilson  
Russell L. Wood, President

### Program

#### \*Processional

Wayne Richmond  
Assistant Professor  
Humanities and Social Sciences

#### Star Spangled Banner

Wayne Richmond

#### Invocation

Reverend Bruce I. Hermann  
Faith Lutheran Church of Golden

#### Address

Monte Pascoe  
CSM Trustee

#### Presentation of the December Class to the Board of Trustees

Dr. George S. Ansell  
President

#### Acceptance of Class

Mr. Russell L. Wood  
President, Board of Trustees

#### Presentation of Candidates for Engineering Degrees

Dr. Donald W. Gentry  
Dean of Engineering and Undergraduate Studies

#### Conferring of Engineering Degrees

President George S. Ansell

#### Presentation of Engineering Degrees

Dr. Michael S. Nyikos  
Vice President for Student Affairs and  
External Relations

#### Presentation of Candidates for Professional Degrees

Dr. Samuel B. Romberger  
Dean of Graduate Studies

#### Conferring of Professional Degrees

President George S. Ansell

#### Presentation of Professional Degrees

Dr. Samuel B. Romberger

#### Presentation of Candidates for Graduate Degrees

Dr. Samuel B. Romberger

#### Conferring of Graduate Degrees

President George S. Ansell

#### Presentation of Graduate Degrees

Dr. Samuel B. Romberger

#### Recognition of Commissioned Cadets

LTC Bruce Goetz  
Military Science Department

#### Presentation of Mines Medals

Mr. Russell L. Wood

#### Benediction

Reverend Bruce I. Hermann

#### \*Recessional

Wayne Richmond

\*The audience will be seated.

---

Members of the audience are requested not to leave their seats to take pictures.

Graduation is a solemn occasion at which only applause is appropriate. The audience is asked to refrain from any other form of expression and to reserve celebrations until after the program is concluded.

Reception for graduates, their families and friends, Friedhoff Hall, Green Center, immediately following the ceremony.

Daycare service is available from 1:45 p.m. to 5:30 p.m., room 267, upstairs in The Green Center. The CSM Married Student Wives Club is providing service for infants to eight years of age.

# CLASS OF 1988

December 18, 1987

## Bachelor of Science (Mining Engineering)

Dr. Miklos D. G. Salamon, Department Head

\*\*Jon Eric Johnson                      Lincoln, Nebraska  
Thomas Andrew Schiff                San Marino, California

## Bachelor of Science (Metallurgical Engineering)

Dr. William D. Copeland, Department Head

\*Daniel Ian Ash                      Littleton, Colorado  
Jay Levan Cowden                    Yakima, Washington  
Cameron Jae Freiboth                Boulder, Colorado  
Roger Aaron Jaramillo                Alamogordo, New Mexico  
Christopher Richard Roll            Newport Beach, California  
John Neil Schwartzberg              Denver, Colorado  
\*Robert George Warren              St. Joseph, Michigan

## Bachelor of Science (Geological Engineering)

Dr. Samuel S. Adams, Department Head

Tanya Lea Antoniuk                   Daytona Beach, Florida  
Hilarius Edwin Budhiman            Jakarta, Indonesia  
Thomas Eugene Cannon              Littleton, Colorado  
Hilary Ann Green-McGuire            Arvada, Colorado  
Silke Susanne Gross                   Singapore, Republic of  
Singapore  
Jeffery Wayne Handy                Winston Salem, North  
Carolina  
Mitzi Ann Nielsen                    Boone, Colorado  
\*Barri Cameron Schultz              McGregor, Iowa  
Steven Patrick Smith                Coquitlam, British Columbia,  
Canada  
Ikhtiarso Agus Sulistyono            Pringsewu, Lampung,  
Indonesia  
Peter Douglas Tilton                South Pasadena, California  
Douglas Kenton Umland              Lakewood, Colorado

## Bachelor of Science (Petroleum Engineering)

Dr. Craig W. Van Kirk, Department Head

Robert Dean Beierle                   Arvada, Colorado  
\*George Raymond Buck, III           Cortez, Colorado  
John Wayne Burnett                Pueblo, Colorado  
Jess Dan Kelley                      Farmington, New Mexico  
John Dennis Norwood                Greenville, Texas  
Iman Permana                        Banjarmasin, Indonesia  
Bambang Setyo Roesdyoko            Madiun, Jawa Timur,  
Indonesia  
Uwe Sager                              Germany  
Craig Harold Schurig                Willingboro, New Jersey  
Gary Michael Scott                Tulsa, Oklahoma  
James Mitchell Shaw                Minnetonka, Minnesota  
Darry Duane Stansbury              Golden, Colorado

## Bachelor of Science (Chemical and Petroleum- Refining Engineering)

Dr. Arthur J. Kidnay, Department Head

Ibrahim Aris                            Johor Bahru, Johore,  
Malaysia  
Ahmad Fakhurrrazi B.                Lekir, Perak, Malaysia  
Arshad                                  Colorado Springs, Colorado  
Brian Keith Bowden                    Arvada, Colorado  
Robert Lee Cleek                      Northglenn, Colorado  
Pamela Lynn Drabek                Tunisia  
\*Ali Elkamel                            Scott City, Kansas  
\*Patrick Clay Gilcrease                Greeley, Colorado  
Deborah Anne Hakanson              Jeddah, Saudi Arabia  
M. Khaldoun Akram Hejazi            Thorshavn, Faroe Islands  
JoAnn Hurley                          Moknine, Tunisia  
\*Naceur Jemaa                        Roban, Sarawak, Malaysia  
Laga Ak Jenggi                        Arvada, Colorado  
Carol Ann Johnson                    Englewood, Colorado  
Michael Patrick Kellison              Littleton, Colorado  
Thomas Kevin Kelly                  Colorado Springs, Colorado  
Michael Christopher Kimble            Colorado Springs, Colorado  
Thomas Leroy Lewis                  Golden, Colorado  
Mike Allen Maurer                    Flushing, New Jersey  
Alexander Stephan                    Denver, Colorado  
Noguerola                              Lakewood, Colorado  
Scott A. Noland                        Denver, Colorado  
Gary Lawrence Parham                Wheat Ridge, Colorado  
Minh Ngoc Phan                      Casper, Wyoming  
Gregory Alan Pickerel                Brighton, Colorado  
Lana Corinne Propp                  Sarawak, Malaysia  
Pamela Elaine Quintero              Grand Junction, Colorado  
Lucas Takip                          Franktown, Colorado  
Juliana Louise Thaler                San Diego, California  
\*Joseph Vincent Waldinger, Jr.  
Darren Ray Warren

## Bachelor of Science (Geophysical Engineering)

Dr. Phillip R. Romig, Jr., Department Head

\*Kimberly Hope Cullifer              Edmond, Oklahoma  
Timothy Michael Deignan            Lakewood, Colorado  
Daniel William Donoho                Montrose, Colorado  
Rumlan Dwiyatno                      Klaten, Indonesia  
\*Gary Joseph Elkington                Midland, Texas  
Rodney L. Hall                        Texarkana, Arkansas  
\*Susan Dawn Hollingsworth            Golden, Colorado  
Nikolay Korsunsky                    Moscow, Union of Soviet  
Socialist Republics  
Mary Elizabeth Ludwick                Nederland, Colorado  
Melanie Kaye Marquardt              Golden, Colorado  
Julio E. Rodriguez                    Golden, Colorado  
Leslie Marie Rush                    Arvada, Colorado  
Gehrig Stannard Schultz              Mexico City, Mexico  
Laila Ruth Vannurden                Spokane, Washington

\*With High Scholastic Honors  
\*\*With Highest Scholastic Honors

## Bachelor of Science (Mineral Engineering Chemistry)

Dr. George H. Kennedy, Department Head

Michael John Dammann Pueblo, Colorado

## Bachelor of Science (Chemistry)

Dr. George H. Kennedy, Department Head

Nicholas Bryan Gomez Denver, Colorado  
Thomas E. Street Denver, Colorado

## Bachelor of Science (Mineral Engineering Mathematics)

Dr. Ardel Boes, Department Head

Michael Gulio D'Attilio Manitou Springs, Colorado  
\*Ali Elkamel Tunisia  
Joanna Margaret Forbes Marietta, Ohio  
Jenni Anne Hufnagel Denver, Colorado  
Craig Dylan Matthews Albuquerque, New Mexico  
Teresa Lynne Nealon Colorado Springs, Colorado  
Patricia Ann Sutton Lakewood, Colorado  
Handi Belamande Syarif Jakarta, Indonesia

## Bachelor of Science (Mathematics)

Dr. Ardel Boes, Department Head

Julio E. Rodriguez Golden, Colorado

## Bachelor of Science (Engineering Physics)

Dr. John U. Trefny, Acting Department Head

Ronda May Bonan Pueblo, Colorado  
Bradley Mark Cohen Denver, Colorado

David Arthur Fleming  
Philip Edward Hecker, Jr.  
Stephan Scott Storms  
Eric Joseph Tarsa

Golden, Colorado  
Pueblo, Colorado  
Littleton, Colorado  
Plainfield, New Jersey

## Bachelor of Science (Engineering)

Dr. Mogens Henriksen, Acting Department Head

Daniel Abenicio Booco Arvada, Colorado  
Robert Daniel Bopp Lakewood, Colorado  
Todd Patrick Courtney Moraga, California  
\*Peter Douglas Duryea Pittsburgh, Pennsylvania  
Kelley Vincent Fetter Grand Junction, Colorado  
Paul Joseph Guthner Brush, Colorado  
Mohamad Subri Hat Jitra, Kedah, Malaysia  
Henry Scott Calder Leighton Georgetown, Colorado  
Paul Richard Lower Northglenn, Colorado  
Daniel Gene Mar Pueblo, Colorado  
Daniel James McElhinney Colorado Springs, Colorado  
Karen Lori McOllough Evergreen, Colorado  
Elizabeth Anne Monica Musich Lakewood, Colorado  
\*Bradley Keith Neitzke Lakewood, Colorado  
Jeffrey W. Ohmart Littleton, Colorado  
James Brian Plouf Stratton, Colorado  
Todd Michael Pottorff Denver, Colorado  
Michael John Serra Ava, Missouri  
Andrew D. Smith Lakewood, Colorado  
Steven Michael Spaeth Littleton, Colorado  
Stephan Scott Storms Denver, Colorado  
Janet Frances Watkins Longmont, Colorado  
Judith Caroline Whittaker Wray, Colorado  
Rebecca Kathryn Wilson Grand Junction, Colorado  
Ronald William Yater

# CLASS OF 1988 December 18, 1987

## Professional Degree Geology Department

Dr. Samuel S. Adams, Department Head

### Professional Degree (Hydrogeology)

James Q. Brown Long Beach, California  
Peter E. Penoyer Denver, Colorado

## Petroleum Engineering Department

Dr. Craig W. Van Kirk, Department Head

### Professional Degree (Petroleum Engineer)

Rahn G. Pitzer

## Geophysics Department

Dr. Phillip R. Romig, Jr., Department Head

### Professional Degree (Geophysics)

D. Eric Adams Hartwell, Georgia  
Hasan A.A. Al-Kaf Saudi Arabia  
Michelle Anne Bell Colorado Springs, Colorado  
John Alfred Hecht Tucson, Arizona  
James Russell Hyde Lead, South Dakota  
Andrew R. James Birmingham, England  
Alberto Negri Milano, Italy  
Brian Robert Pluemer Faribault, Minnesota

\*With High Scholastic Honors

# Master of Engineering Master of Science

December 18, 1987

## Mining Engineering Department

Dr. Miklos D. G. Salamon, Department Head

### Master of Science (Mining Engineering)

Roger Williams Fish Arvada, Colorado

## Metallurgical Engineering Department

Dr. William D. Copeland, Department Head

### Master of Science (Metallurgy)

Jeong Han Kim Seoul, Korea

### Master of Science (Metallurgical Engineering)

Yavuz Atasoy	Yatagan, Turkey
David A.K.C. Chang	Aiea, Hawaii
Nicholas Michael Giallourakis	Tarpon Springs, Florida
Douglas D. Kautz	Merino, Colorado
Peter Todd Mazzare	Simi Valley, California
Philip Bruce Rittgers	Imlay City, Michigan
Peter Curtis Sanford	Denver, Colorado
Michael Phillip Sheridan	Conifer, Colorado
Robert D. Turner	Denver, Colorado
Craig Robert Van Thyne	Inverness, Illinois
Mark August Zaccone	Darien, Illinois

## Geology and Geological Engineering Department

Dr. Samuel S. Adams, Department Head

### Master of Engineering (Geological Engineer)

Edward W. Tschupp Santa Barbara, California

### Master of Science (Geology)

Dirceu Abrahao	Sao Paulo, Brazil
Roger Ellis Amerman	Pendleton, Oregon
Rodney W. Graham	Scott City, Kansas
John Forist Hall, Jr.	Bloomfield Hills, Michigan
John Robert Hicks	Golden, Colorado
Craig F. Horlacher	Chatham, New Jersey
Holly A. Rhoads	Arvada, Colorado

## Petroleum Engineering Department

Dr. Craig W. Van Kirk, Department Head

### Master of Engineering (Petroleum Engineer)

Eric D. Emerson Rio De Janeiro, Brazil

### Master of Science (Petroleum Engineering)

Paul Michael Welch Miami, Florida

## Chemical Engineering and Petroleum Refining Department

Dr. Arthur J. Kidnay, Department Head

### Master of Science (Chemical and Petroleum-Refining Engineering)

Trent S. Brown	Golden, Colorado
Craig Douglas Cowdery	Lakewood, Colorado
Mamadou Samba Diallo	Dakar, Senegal
Stephen S. DiGiacinto	Omaha, Nebraska
John William Flanigan	Golden, Colorado
Gerald Francis Giacomelli	Burlington, Ontario, Canada
Timothy Patrick Joyce	Arvada, Colorado
Abdelhamid Ouar	Algiers, Algeria
Dalbuin O. Valera	Caracas — Venezuela

## Geophysics Department

Dr. Phillip R. Romig, Jr., Department Head

### Master of Science (Geophysics)

Mohammad H. Al-Fares	Dammam, Saudi Arabia
Amir A. Al-Shakhis	Dhahran, Saudi Arabia
Michael F. Fry	Evergreen, Colorado
Jeffrey Wade Harwell	Westminster, Colorado
J. David Keller	Dallas, Texas
Yuesheng Li	Guangdong, P.R.O.C.
Robert A. McEntee	San Diego, California
Robert S. Pawlowski, Jr.	Golden, Colorado
Ma Xiaochun	P.R.O.C.

### Master of Science (Geophysical Engineering)

Mohammed Nasir Al-Faraj	Qatif, Saudi Arabia
Jaafar Muhammad Al-Nemer	Saudi Arabia
Daniel Mark Larson	Arvada, Colorado
Duff Clinton Stewart	Topeka, Kansas

## Chemistry and Geochemistry Department

Dr. George H. Kennedy, Department Head

### Master of Science (Chemistry)

Kelly P. Coleman Mankato, Minnesota

### Master of Science (Geochemistry)

Suzanne Marie Smaglik Milwaukee, Wisconsin

## Mathematics Department

Dr. Ardel J. Boes, Department Head

### Master of Science (Mathematics)

Michael August Rome Rifle, Colorado

## Physics Department

Dr. John U. Trefny, Acting Department Head

### Master of Science (Physics)

Steven James Shattil Wilmette, Illinois

## Mineral Economics Department

Dr. John A. Cordes, Department Head

### Master of Science (Mineral Economics)

Rita Regina Beale Langhorne, Pennsylvania  
Sahin Bozdogan Ankara, Turkey  
James K. B. Hesketh Morrison, Colorado

David J. Kelly  
Shusuke Kori  
Karen Laney-Cummings  
Nancy Jo Rusho  
David Steven Schramm  
Jeffery Gautier Wilkinson

Silverdale, Washington  
Osaka, Japan  
Tecumseh, Oklahoma  
Newport, Washington  
LaGrange Park, Illinois  
Lillian, Alabama

## Environmental Sciences and Engineering Ecology

Dr. John Emerick, Acting Department Head

### Master of Science (Ecological Engineering)

William Webster Huskie Golden, Colorado  
Warren Stephen Lewis Richland, Washington

# Doctor of Philosophy

December 18, 1987

## Metallurgical Engineering Department

Dr. William D. Copeland, Department Head

### Doctor of Philosophy (Metallurgical Engineering)

Dwight Aaron Burford Canon City, Colorado  
Brian Kirk Damkroger DeWitt, Nebraska

## Geology and Geological Engineering Department

Dr. Samuel S. Adams, Department Head

### Doctor of Philosophy (Geology)

James David Doyle Memphis, Tennessee  
Ronald Russell McDowell Boscobel, Wisconsin

### Doctor of Philosophy (Geological Engineering)

Gordon Moore Matheson Falls Church, Virginia

## Petroleum Engineering

Dr. Craig W. Van Kirk, Department Head

### Doctor of Philosophy (Petroleum Engineering)

Susan Mary Howarth Arvada, Colorado  
Saad Turky Saleh Golden, Colorado

## Chemical Engineering and Petroleum Refining Department

Dr. Arthur J. Kidnay, Department Head

### Doctor of Philosophy (Chemical and Petroleum-Refining Engineering)

Gregory Brian Asher Westminster, Colorado

## Geophysics Department

Dr. Phillip R. Romig, Jr., Department Head

### Doctor of Philosophy (Geophysics)

Paul C. Docherty Stockton, England

### Doctor of Philosophy (Geophysical Engineering)

Freyr Thorarinsson Reyjavik, Iceland

## Chemistry and Geochemistry Department

Dr. George H. Kennedy, Department Head

### Doctor of Philosophy (Applied Chemistry)

Paul Gregory Tratnyek Sudbury, Massachusetts

### Doctor of Philosophy (Geochemistry)

Timothy J. Grundl Gaithersburg, Maryland  
Robert E. Tucker Pinecliffe, Colorado

## Mineral Economics Department

Dr. John A. Cordes, Department Head

### Doctor of Philosophy (Mineral Economics)

Christopher Mbànefo Chima Akuku, Nigeria  
Gerhard Johannes Plenert Sacramento, California

# Senior Awards

THE ROBERT F. ALDREDGE MEMORIAL AWARD is presented in Geophysics for the highest scholastic average in Geophysics courses. KIMBERLY H. CULLIFER

\*\*\*\*\*

THE BRUNTON AWARD IN GEOLOGY is awarded in recognition of highest scholastic achievement and interest in and enthusiasm for the science of Geology. DOUGLAS K. UMLAND

\*\*\*\*\*

THE DWIGHT D. "IKE" EISENHOWER AWARD, provided by Mr. & Mrs. R. B. "Ike" Downing, is awarded to the outstanding ROTC cadet commissioned each year, based on demonstrated exemplary leadership within the Corps of Cadets and academic excellence in Military Science. JULIANA L. THALER

\*\*\*\*\*

THE PROF. EVERETT AWARD is presented to the outstanding senior in Mathematics through the generosity of Frank Ausanka, '42. ALI ELKAMEL

\*\*\*\*\*

THE JOHN C. HOLLISTER AWARD is presented to the most deserving student in Geophysics and is not based solely on academic performance. GARY J. ELKINGTON

\*\*\*\*\*

THE HUMANITIES AND SOCIAL SCIENCES SENIOR SEMINAR PRIZE is awarded for the best Humanities and Social Sciences Senior Seminar paper each semester.

\*\*\*\*\*

THE GEORGE C. MARSHALL AWARD is presented to the most outstanding ROTC cadet who demonstrates those leadership and scholastic qualities which epitomized the career of General Marshall. JULIANA L. THALER

\*\*\*\*\*

THE OUTSTANDING GRADUATING SENIOR AWARD is presented by each degree-granting department to its outstanding graduating senior.

Mining Engineering  
 Metallurgical Engineering  
 Geological Engineering  
 Petroleum Engineering  
 Chemical and Petroleum-Refining Engineering  
 Geophysical Engineering  
 Mathematics  
 Engineering Physics  
 Engineering (Civil)  
 Engineering (Electrical)  
 Engineering (Mechanical)

JON E. JOHNSON  
 DANIEL I. ASH  
 BARRI C. SCHULTZ  
 JOHN W. BURNETT  
 PATRICK C. GILCREASE  
 KIMBERLY H. CULLIFER  
 TERESA L. NEALON  
 ERIC J. TARSA  
 BRADLEY K. NEITZKE  
 PAUL R. LOWER  
 DANIEL A. BOOCO

\*\*\*\*\*

THE GEORGE R. PICKETT MEMORIAL AWARD is presented to a graduating senior on the basis of demonstrated interests and accomplishments in the study of borehole Geophysics. RUMLAN DWIYATNO

\*\*\*\*\*

THE PRESIDENT'S SENIOR SCHOLAR ATHLETE AWARD is presented to the graduating senior who has the highest academic average and lettered in a sport in the senior year. PETER D. DURYEA

\*\*\*\*\*



# The Mines Medal

The Mines Medal, established in 1979 by the Board of Trustees and given for the first time at Commencement in 1980, is awarded to those persons, whether or not alumni and whether or not members of the university community, who have rendered unusual and exemplary service to the Colorado School of Mines. Previous recipients are:

- |  |   |
|--|---|
| *Baxter, Robert A., M.S., '23, 1980 (posthumously) | *Carpenter, Clark B., 1983 (posthumously) |
| *Burger, William V., 1980                          | Rockwell, Bruce M., 1983                  |
| Vanderwilt, John W., 1980                          | Weimer, Robert J., 1983                   |
| Brennecke, Fritz S., 1981                          | *Barker, Claude L., 1984 (posthumously)   |
| Hazen, Wayne C., 1981                              | Jordan, A. Raymond, 1984                  |
| *Morgan, Jesse R., 1981 (posthumously)             | Manhart, Thomas A., 1984                  |
| del Rio, S.M., E.M., '28, 1981                     | Merideth, George T., 1985                 |
| Steinhauer, Gurnett, 1981                          | Stockton, Ruth S., 1984                   |
| Babcock, Henry A., 1982                            | Weigand, Virginia M., 1985                |
| Conrey, Bernetta, 1982                             | Jarnagin, Ruth P., 1986                   |
| Dinkmeyer, Elvera, 1982                            | Johnstone, James G., 1986                 |
| Reeves, John A., 1982                              | Ostrander, F. Taylor, 1986                |
| Anderson, Fred A., 1983                            | Wright, Dr. W. Lloyd, 1986                |

\*Deceased



## Sophronia Dyar

Mrs. Sophronia Dyar, a Golden resident, first came to Colorado School of Mines as an infirmiry nurse in 1956 and stayed until her retirement in 1985.

She is being honored not only for the medical service she performed at Mines but also for her personal caring of Mines students.

She received her training in Alabama, served at Baylor Hospital in Dallas, Texas and at St. Anthony's in Denver before joining the Mines' staff in 1956. She also attended Wheeler Business College in Birmingham and received laboratory and x-ray training at the Simon & Williamson Clinic in Birmingham.

Mrs. Dyar also worked as a pediatrics nurse, a private physician's nurse and a floor supervisor in a surgical ward before joining Mines.

In a letter sent her by Dr. Michael S. Nyikos, CSM vice president for student affairs and external relations, at the time of her retirement, he said, "Your many years of devotion, loyalty, and superior performance at CSM are well documented ... by the legions of students who have been made better through your care and from your caring. It is a mark of excellence that you now minister to their sons and daughters."

Mrs. Dyar and her husband are longtime Golden residents.



## F. A. Foss

Fredrick Allen "Heinie" Foss is the owner of Foss Company and has run the family business since the late '30s. The store is regarded as the cornerstone of Golden's retail sector. Foss' parents, Henry and Dorothy, opened the store in 1913 and turned over management of it to their son in the late '30s.

Foss Company under "Heinie's" management has expanded from 1,200 square feet to more than 44,000 and is undergoing further expansion this year. It has always been run as a "family" business and Foss Company has taken care of many CSM student and organization needs throughout its existence.

Foss not only has been a successful businessman in Golden, he has many times over returned much of his own personal gain to the community. As the **Golden Transcript** said in 1984, "He's the town's largest, if quietest, philanthropist. He has contributed much to numerous local causes. He takes no accolades, however, for his success and contributions. He prefers to see the praise directed at his employees and customers because he feels they are the ones who make Foss Drug great."

Foss' father died in 1918 so "Heinie" grew up helping his mother with the store and had an active hand in its operation by the time he was in his teens. The store once was the largest general store west of the Mississippi River. It is still the largest store of its kind in Colorado and one of the largest in the West.

Foss is a pharmacist and during World War II served as an Air Force pilot. He and his wife Barbara reside in Golden.



## Dan Noble

Dan D. Noble, who served four terms in the Colorado Assembly as a senator from District 6, is being honored by Colorado School of Mines for his outstanding service to the state and his special interest in furthering Colorado higher education.

President and director of San Miguel Basin State Bank, Noble represented nine southwestern Colorado counties in the state senate. His district covers the counties of Archuleta, San Miguel, Delta, Dolores, La Plata, Montezuma, Montrose, Ouray and San Juan.

Noble was senate majority leader in the 52nd, 53rd, 54th and 55th General Assemblies, elected by his peers in 1978. He retired from public office in January 1987 after 17 years in the Senate, eight of them as majority leader. In 1984 he received the Fort Lewis College Distinguished Service award. Other honors include the Outstanding Service Award for Colorado from the National Council of Community Mental Health, several 4-H honors, "Man of the Year" award from Telluride, an appreciation award from the Community Mental Health Centers and an appreciation award from the city of Durango and LaPlata county.

Upon his retirement from the senate, one colleague said, "Mining, small colleges, agriculture, water, local government, schools or transportation, Dan was always a voice to make sure things were not neglected."

He attended the University of Colorado School of Banking and also serves as vice president and director of the San Miguel Investment Company. A Nebraska native, he and his wife Donna have five children. They reside in Norwood.

# Academic Regalia

The academic costume, processional, and the program of ceremony are all tied into an ancient tradition of learning; it underlines a oneness and the ceremony marks a beginning for the new professional. **It is a solemn occasion at which only applause is appropriate. The audience is asked to refrain from any other form of expression and to reserve celebrations until after the program is concluded.**

In the United States, the great majority of the academic costumes now worn are in accordance with the general provisions of the intercollegiate Code of 1895. Under the code, bachelors' gowns are made with pointed sleeves; masters' gowns are made with long closed sleeves with an arc near the bottom; doctor's gowns are made with round open sleeves. Usually gowns are black, although some American and many foreign universities use colors.

Bachelors' and masters' gowns are untrimmed. Doctors' gowns are faced down the front with velvet with three velvet bars across the sleeves. The velvet facing and bars may be black or they may be the color of the field of study. Women may wear white collars with a bachelor's gown.

Hoods are also black. The doctor's hood is four feet in length, the master's three and one-half feet. Colorado School of Mines hoods are lined with silver and blue, the official School colors. The velvet border on the hood, which is three and five inches wide for the master's and the doctor's degree, respectively, identifies the field of study to which the degree pertains. Colorado School of Mines hoods have yellow velvet borders for Master of Science, orange velvet borders for Master of Engineering, and blue velvet borders for Doctor of Philosophy.

The black mortarboard cap is standard in the United States. Doctors wear a gold tassel; Master of Science a yellow tassel; Master of Engineering an orange tassel; and Bachelor of Science a black tassel. Caps are customarily removed only during prayers, and then by men only.

## Allen Organ

Commencement music is performed on the Four Manual Allen Digital Organ. Comparable in range to the major pipe organs in the nation, the Allen Organ uses ten digital computers in the production of musical notes and sounds. The organ was made possible by a gift from Dr. Cecil H. and Ida Green.

## University Mace

On May 5, 1984 the Colorado School of Mines inaugurated use of the University Mace. Carried by LTC Bruce Goetz, the Mace, symbol of academic authority, stands four feet, eight inches tall and weighs sixteen pounds. The core is rosewood staff, covered by fitted brass and cast bronze, silver plated, and topped by Blaster, the rendering of the School's mascot by Manuel Martinez. Professor Robert Taylor executed the design and Emil Dangreau produced the finished standard with the seal photoengraved on the base of the staff.

As a symbol of academic authority, the mace comes out of a rich history. David A. Lockmiller in his definitive **Scholars on Parade** recounts:

The mace, which is now being used by several colleges and universities in the United States, has an ancient history as a symbol of authority. Originally it was a weapon of offense, made of iron and capable of breaking armor. It was a giant club, which came to be associated with brave men who fought to protect the king's person. Maces were born by sergeants-at-arms to protect Phillip II of France and Richard I of England.

The use of maces for civic purposes began about the middle of the thirteenth century. By the sixteenth century or earlier they were covered with silver and used by several cities. In 1649, the House of Commons obtained a mace, and in 1756, a silver mace was made for the Colony of South Carolina, which is still used in the state capitol of Columbia. The famous mace of the Lord Mayor of London is made of crystal and gold and set with pearls. As a symbol of authority, the mace usually has arms engraved on or near the top and these or a cross may be protected by a coronet or arched crown. In commencement processions the mace is carried before the president or chancellor and the dignitaries composing the platform party. The British term beadle, to mean mace bearer, is not generally used in the United States.

The mace is but an additional note of pomp in academic life. Along with historic and colorful costumes, flags, and regalia of office, it stands for order and authority in the never-ending pageantry of scholars on parade.

