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Oil Industry Profits—Perception vs. Reality
Charles J. DiBona

Oil Company Profits
Guy T. McBride, Jr.

Proposal for Mines
Clarence W. Leeds, III

Knowledge for Resource Development—Know-How & Know-What
Dr. Edward E. David, Jr.

The Resource Fund is People

The cover painting for the March MINES Magazine was executed by Ben F. Rummerfield, Geol. E. 1940, in 1976. Mr. Rummerfield is founder and president of GeoData, Inc. in Tulsa, and an active member of the Alumni Association and the CSM Foundation Resource Fund Committee, in addition to many philanthropic and community activities in Tulsa. This painting, "The Rig Floor," was one of his first efforts, and has been critically acclaimed.
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comments...

AGAIN? by Gary Nydegger

Why did they send me another one of these damn magazines this year? or what's in it for me?

If you don't identify with the above question, you can skip this page and see what's happening to your classmates in the Alumni Update. You've been a member of the Alumni Association for the last seven years.

If you've ever asked yourself the above question you are one of the people I'm trying to reach. You've been getting a copy of the MINES Magazine once each year to "spark" you into joining the Alumni Association, but it obviously hasn't worked. Clever you! Nor has the altruistic approach--"Give to the ol' Alma Mater." So I'll take a different approach--GRIZED. You see, I think it pays to be in the CSM Alumni Association. Yes, I'm talking dollars--BUCKS! Got your attention? Read on.

Mines graduates are leaders in business as well as science and engineering. FACT: Mines with 8000 non-renewed alumnae ranks among the top 100 schools (out of 3000), with alumni in top-level management positions. These are the decision makers in the petroleum and mineral industries and they are your fellow alumni. There are many reasons why certain people are promoted and seem to move up the ladder of success so effortlessly. Definitely not all of these reasons are tangible, but certainly having a "higher profile" doesn't hurt. What better way to informally meet a prospective employer than at a local alumni section luncheon or kegger?

Perhaps you're not the big company type and you'd like to consult or start your own company. Over 12% of the Mines alumni are listed as consultants or self-employed. The association is a good place to develop and maintain those valuable contacts that can later help in your own business. I've often heard people tell me that the school you graduate from doesn't make a difference after a few years of experience in the industry. Maybe so. But the 229 companies that sent personnel to Golden to interview the 292 Bachelor of Science graduates last year think that Mines has a great "raw" talent. Also the 195 companies that have 406 job orders with the alumni placement service believe there's "Something Special" in Miners with experience, AND the INDUSTRIES ARE WILLING TO PAY FOR IT. Once in the industry, the placement service can keep you informed of what other Mines graduates are making and the types of jobs available.

As a member of the Alumni Association you have a strong influence on the direction Mines takes. A School whose graduates accounted for 13% of the new petroleum engineers, 50% of the mining engineers, 90% of the geophysical engineers, and 75% of the geological engineers in the U.S. last year. You can have a voice in the direction of a School that has the number one placement service believe there's "Something Special" in Miners with experience, AND the industries are willing to pay for it. Once in the industry, the placement service can keep you informed of what other Mines graduates are making and the types of jobs available. You, along with the 292 Bachelor of Science graduates last year think that Mines has a great "raw" talent. Also the 195 companies that have 406 job orders with the alumni placement service believe there's "Something Special" in Miners with experience, AND the industries are willing to pay for it. Once in the industry, the placement service can keep you informed of what other Mines graduates are making and the types of jobs available.

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There are benefits in belonging to the Alumni Association, many intangible, but some that will pay off in dollars. Of course, the benefits are not automatic—you have to exert a little effort. You can start your benefits by filling out your membership card, and mailing your annual membership fee, which enables the Alumni Association to operate, can actually reap much greater rewards for your school's fund-raising activities—such as the $63 million Re­source Fund drive. When the president of a potential "charitable" mining or petroleum corporations discovers 60% or 70% of the graduates of Mines are in the Alumni Association, he's going to think, "These Miners do have pride in their School, they are an exclusive group of individuals"—which is something we've known for over 100 years!

The membership committee has set a goal of active alumni participation by 60% of the 7500 known living alumni, and a goal of finding 30% of the 1000 "missing" alumni, whose names are so designated in the Directory, and which may appear from time to time in the MINES Magazine.

There are benefits in belonging to the Alumni Association, many intangible, but others that will pay off in dollars. Of course, the benefits are not automatic—you have to exert a little effort. You can start your benefits by filling out your membership card, and mailing your membership fee, if you have not already done so.

Remember, an alumni association is only as strong as its alumni support. A school's strength, indeed, is its alumni support. A school's strength, indeed, is its alumni support. A school's reputation, begins with its alumni association.

The Gourman Report, 1976

*The Mines Magazine, March 1980*
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- Contrary to the popular conception, most of the large U.S. oil companies have been operating at a loss when results are averaged over the past eleven years. Because these companies represent a significant part of the capital wealth of the United States, such a loss implies not only financial harm to individual stockholders but a fundamental weakening of the ability of the United States to increase productivity and thereby improve the well-being and security of its citizens.
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FACTORS IMPORTANT TO DISCOVERY OF NEW OIL & GAS RESERVES

GRAPH
The discovery of new petroleum reserves is related to the number of "wildcat" wells drilled which in turn is related to price of petroleum. The potential exists but price incentive has been inadequate for twenty-two years.

FACTS
1. Drilling of exploratory wells ("wildcats") increased in a uniform manner from 1947 to 1956.
2. Additions of new oil and gas reserves increased slightly from 1947 to 1960.
4. Number of "wildcat" wells declined from 1972 to 1978.
5. The finding rate of new oil and gas reserves declined approximately 57% from 1956 to 1971.
6. Undiscovered reserves in 1977 were 17 to 32 times 1978 consumption.
7. Undiscovered reserves in 1977 were 17 to 32 times 1978 consumption according to U.S. Geological Survey estimates based on 1974 price-cost factors.
8. Drilling of "wildcat" wells is very depressed compared with historical ratios of wildcat wells to reserves found or to consumption.
9. The current rate is 33% lower than in 1956 even though consumption is 91% higher.
10. Undiscovered reserves are at least equal to all the oil and gas produced in the United States in 1978.

CONCLUSION
1. A large but unknown amount of oil and gas remains to be discovered in the United States—of at least 17 times 1978 consumption. When proven reserves are added the total is at least 25 times total 1978 consumption.
2. There could reasonably be total reserves adequate to supply the United States for over 50 years based upon total consumption in the United States in 1978.
3. In order to find these undiscovered reserves, exploratory wells ("wildcats") must be drilled.
4. The present rate of drilling "wildcat" wells is sluggish.

GRAPH 2
Petroleum industry profits are average not excessive as charged. They are inadequate for the job that needs to be done.

FACTS
1. For the past 32 years oil and gas industry profits have been average, not excessive as charged. They are inadequate for the job that needs to be done.
2. An industry with only average profits is not in a position to substantially increase our oil and gas production.
3. It is the responsibility of members of Congress to become acquainted with the truth in this emotional matter and to clearly inform their constituents.
4. Adequate incentive to accomplish this "catch-up" cannot be generated without a major change in the attitude of government toward profits.

CONCLUSIONS
1. The oil and gas industry has been wrongly accused of making unreasonably high profits. This accusation is demonstrably false and has created an atmosphere of distrust—a dangerous relationship between the American people and the industry from which they derive 66% of their domestic energy.
2. An industry with only average profits is not in a position to substantially increase our oil and gas production.
3. It is the responsibility of members of Congress to become acquainted with the truth in this emotional matter and to clearly inform their constituents.

SUMMIT ENGINEERING & FABRICATING CO.
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122 N. 89th St.
Seattle, WA 98122

Colorado Mineral Brokers
Ray Kirkman
P.O. Box 582, Moab, Utah 84532
(303) 254-7223

Source: First American Bank
ALL MAJOR MFG. COS. & SELECTED GROUPS

PETROLEUM INDUSTRY NET INCOME AS A PERCENT OF NET WORTH COMPARED TO ALL MAJOR MFG. COS. & SELECTED GROUPS

Source: First American Bank

PETROLEUM INDUSTRY

FACTORS IMPORTANT TO DISCOVERY OF NEW OIL & GAS RESERVES

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The discovery of new petroleum reserves is related to the number of "wildcat" wells drilled which in turn is related to price of petroleum. The potential exists but price incentive has been inadequate for twenty-two years.

FACTS
1. Drilling of exploratory wells ("wildcats") increased in a uniform manner from 1947 to 1956.
2. Additions of new oil and gas reserves increased slightly from 1947 to 1960.
4. Number of "wildcat" wells declined from 1972 to 1978.
5. The finding rate of new oil and gas reserves declined approximately 40% between 1956 and 1977 in spite of an outstanding exception in 1968 when P呼falo Bay was discovered in Alaska.
6. Price of crude oil increased 74% from 1972 to 1978.
7. Drilling of "wildcat" wells has increased slightly but is still 33% below the peak year rate in 1956 even though consumption of energy in the United States increased 91%. Improvement in drilling rate is sluggish.
8. Consumption of oil and gas in the United States in 1978 was 57.0 quadrillion BTU (nearly 10 billion barrels of oil equivalent). This includes imports.
9. Proven United States reserves in 1977 were about eight times 1978 consumption.
10. Undiscovered reserves in 1977 were 17 to 32 times 1978 consumption according to U.S. Geological Survey estimates based on 1974 price-cost factors.
11. The U.S. Geological Survey recognized that an increase in the price-cost relationship could increase undiscovered reserves by 50%.
12. Undiscovered reserves could be 25 to 50 times 1978 consumption or up to 2% times total oil produced in the United States to 1975.
13. Undiscovered reserves are at least equal to all the oil and gas produced in 1975 in the United States.

CONCLUSION
1. A large but unknown amount of oil and gas remains to be discovered in the United States—at least 17 times 1978 consumption. When proven reserves are added the total is at least 25 times total 1978 consumption.
2. There could reasonably be total reserves adequate to supply the United States for over 50 years based upon total consumption in the United States in 1978.
3. In order to find these undiscovered reserves, exploratory wells ("wildcats") must be drilled.
4. The present rate of drilling "wildcat" wells is very depressed compared with historical ratios of wildcat wells to reserves found or to consumption.
5. The current rate is 33% lower than in 1956 even though consumption is 91% higher.
6. Based upon cause-effect relationships shown on Graph 1, it is logical to expect that "wildcat" drilling will increase significantly after sustained large price increases for oil and gas occur.
7. Adequate incentive to accomplish this "catch-up" cannot be generated without a major change in the attitude of government toward profits.

PETROLEUM INDUSTRY NET INCOME AS A PERCENT OF NET WORTH COMPARED TO ALL MAJOR MFG. COS. & SELECTED GROUPS

FACTS
1. For the past 32 years oil and gas industry profits have been average, not excessive as charged. They are inadequate for the job that needs to be done.
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PETROLEUM INDUSTRY NET INCOME AS A PERCENT OF NET WORTH COMPARED TO ALL MAJOR MFG. COS. & SELECTED GROUPS

Source: First American Bank
An excise tax. The tax will be levied on industry. Under this umbrella of from "obscene" in 1974 (Senator Henry Jackson) to "rip-offs" in 1977 (Jimmy Carter) to "pornographic" in 1979 (president Jimmy Carter) to "profit-gougers" because, by such tactics cleverly employed, they have been able to direct public rage against the oil industry. Under this umbrella of entrapment and confusion, the advocates of big government have succeeded in creating the biggest peacetime tax in history. The tax is of such magnitude and power of government is so enlarged by its enactment that the net effect is partial nationalization of the largest single segment of U.S. industry. This tax is referred to as a "windfall profit tax." It is represented that it is being levied on "profits" and that it will be paid by the industry. Nothing could be further from the truth. The tax is not on the profits. It is on gross production—on whatever is being sold even on wells which are operating at a loss, and in such a case will force premature abandonment of the wells. And it won't be paid by the industry. It will be paid by the consumer—just like all other taxes. And it will drive industry of a part of the free market price and by so doing will eliminate some high cost areas from development. This loss in domestic production will force the consumer to look elsewhere for the deficiency, including foreign and subsidized domestic sources—or do without.

The advocates of big government need this tax badly because their traditional revenue raising measures have been threatened by public reaction against taxes and by the growing public realization that inflation is the most basic cause of all taxes.

Corporate management has not effectively publicized the real changes in values to the owners of small wells. Who has ever heard the president of any major corporation publicly advise his stockholders that the profits shown in the annual report are flimsy and that the company has been operating at a loss in terms of real value? Even though he is probably aware of this likelihood, the first one to breathe such "heaviness" is apt to be hardly disposed of.

His personal incentive for complacency in this deception is that he may have spent his entire career in reaching the top. His substantial salary, stock options, and other benefits are all contingent upon his reporting success—not failure. And such a success is almost certainly produced to his community by his stockholders. He is also aware that a high profit" in protest taxes may subject his company to harassment by government. His personal incentive for complicity in this deception is that he may have spent his entire career in reaching the top. His substantial salary, stock options, and other benefits are all contingent upon his reporting success—not failure. And such a success is almost certainly produced to his community by his stockholders.

The news media, particularly on television and by lead articles in the newspapers, finds that "entertainment" gets better ratings than serious reporting and keeping good relations with the business community which rather read good news than bad. It would be interesting to see how many of such users of news are so controlled that important truths are being suppressed.

The accounting profession, without question, understands the serious problems which arise when the income of a given industry is being reported, but it appears to be resisting any changes that would present facts in terms of values, instead of dollars. It is assumed that they are responding to pressures of the financial community of its clients who pay their fees.

Supporting Evidence

The oil business, as any other business, when truly profitable will attract more people to invest greater amounts of money. In this business there is only one significant way to measure whether greater or lesser amounts of money are being invested. This measure is the number of wells being drilled. The category which is most significant is "wildcat" or exploratory wells. It is by the drilling of these wells that most new oil and gas discoveries are found.

The trend in drilling of these exploratory wells is shown on the accompanying Graph 2 prepared by the Institute of Professional Geologists, Colorado Section. Graph 2 shows how the anticipation of potential disaster causing that we presently depend on oil and gas to provide 65% of domestically produced energy. It shows that about 10,600 wildcat wells are drilled in the United States in 1979. This is 33% fewer wells than were drilled in 1956 even though concept of energy has increased 91% in this same period.

Each adjustment in the rate of wildcat drilling in 1979 failed to increase over the rate of 1976. Nothing could better confirm lack of awareness of the real changes in the oil industry. The sometimes expressed opinion that there is nothing worthwhile left to explore for is simply not valid in view of the most reliable estimates of undiscovered reserves, which are illustrated on Graph 1. The bar scale on this graph is based upon U.S. Geologic Survey estimates made in 1975 and indicates that undiscovered reserves of oil are approximately 10-year period ending 12/78 11 year period ending 12/79

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<td>Average</td>
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*Change in value of stock with dividends added after payment of personal income taxes and after correcting for dollar value years for year of purchase (December 1968), to account for inflation. (See previous note for explanation.)

DENVER WEST TRAVEL SERVICE

Your Complete Service

<table>
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<td>- Car Rentals</td>
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<td>- Packages</td>
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Don't start something you can't stop

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Oil Company Profits

by Charles J. DiBona
President, American Petroleum Institute

Petroleum industry profit reports have been the object of criticism recently in some segments of the press and in Congress.

An important point which does not always surface in earnings discussions is that the overall record of the oil companies is about the same as the record of non-oil companies in the U.S.—not only for the last 10 years, but for any other selected decade.

Over the past decade, the oil industry's return on total shareholders' equity averaged 13.9% compared with 13.7% for total manufacturing—including the abnormal years 1973 and 1974 when oil companies' rate of return rose sharply. The oil industry's rate of return was below that of total U.S. manufacturing in five of the last ten years.

Profitability in terms of return on total assets of the oil companies is also generally compatible with that of other industries. Where do the profits of oil companies go? Do they go into a sock? Do they go into department stores and other businesses unrelated to energy? They do not go into a sock. Worldwide expenditures by exploration and production of new oil and natural gas and other energy greatly exceed their profits.

On the basis of information available to date, capital and exploration expenditures in the first nine months of 1979 substantially exceeded net income for the period. The major portion of these expenditures were in the U.S., principally for exploration and production. Capital and exploration expenditures in the U.S. alone were equal to the worldwide profits of these companies, and 63% of worldwide earnings were expended for domestic exploration and production.

Not all expenditures go into businesses unrelated to energy. One hears a great deal about department stores, circuses and hotels. For instance, during the 1968-77 period, according to Chase Manhattan Bank data, less than 6% of the total capital expenditures by the 27 leading oil companies were made in non-energy, non-business ventures. Some went into other energy resources. (Because of the close relationship to energy, petrochemical expenditures have been included in these calculations).

One hears a great deal about department stores, circuses and hotels. For the 16 leading oil companies, one department store chain has been acquired, no circuses have been purchased, and I don't know of any point that say hotels have been bought. Given the puzzlement of the oil industry in the political arena, it is not surprising some responsible managers have found it desirable to diversify their stockholders' risk. But the non-energy diversification should be kept in perspective: less than 6% of the billions of dollars expended annually on petroleum and petrochemical operations was in department stores and circuses.

—Oil & Gas Journal, December 1979

FOOTNOTES

2. Data on prices and dividends from Standard and Poor Stock Reports and from The Value Line Investment Survey, and dividends for stock options and rights.

Mr. Saterdal and Mr. Marks are members, Public Affairs Committee, Colorado Section: American Institute of Professional Geologists, Denver, Colorado.

Proposal for Mines

by Guy T. McBride, Jr.

Special to the MINES Magazine

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Denver, Colorado 80222

Given the pummeling of the oil industry's rate of return on total stockholders' equity below that of total U.S. manufacturing in five of the last ten years, the oil industry's return on total assets exceeded net income for the period. The major portion of these expenditures were in the U.S., principally for exploration and production. Capital and exploration expenditures in the U.S. alone were equal to the worldwide profits of these companies, and 63% of worldwide earnings were expended for domestic exploration and production.

Not all expenditures go into businesses unrelated to energy. One hears a great deal about department stores, circuses and hotels. For instance, during the 1968-77 period, according to Chase Manhattan Bank data, less than 6% of the total capital expenditures by the 27 leading oil companies were made in non-energy, non-business ventures. Some went into other energy resources. (Because of the close relationship to energy, petrochemical expenditures have been included in these calculations).

One hears a great deal about department stores, circuses and hotels. For the 16 leading oil companies, one department store chain has been acquired, no circuses have been purchased, and I don't know of any point that say hotels have been bought. Given the puzzlement of the oil industry in the political arena, it is not surprising some responsible managers have found it desirable to diversify their stockholders' risk. But the non-energy diversification should be kept in perspective: less than 6% of the billions of dollars expended annually on petroleum and petrochemical operations was in department stores and circuses.

—Oil & Gas Journal, December 1979

Members of the education committees of the Colorado House of Representatives and the Colorado Senate General Assembly are mulling over a new policy for financing the Colorado School of Mines, presented to them in January by the trustees and the administration.

The objectives of the proposed policy are two-fold:

1. To avoid what is feared will be irreversible deterioration in the School's high level of achievement in mineral engineering education if present State funding policies are continued, and:

2. To give the CSM trustees sufficient control over the management of the School so that it can compete in the marketplace for mineral engineering students, even at necessarily higher tuition rates.

At the time of this writing, the proposal had captured the legislators' attention, and their reaction has been generally favorable. The Denver Post said the proposal "could break open a new era in financing Colorado higher education."

The Need for a New Policy

The survival of CSM as an independent institution of quality is threatened by the School of Mines has not been well funded for a decade. In point of fact, the decreasing real funding for CSM over the past ten years has been such as to raise serious questions about the School's ability to continue to deliver a quality product. Much of this decline in real funding is due to the ravages of inflation, but not all of it. An additional financial factor working against the School has been the increasing cost of engineering education, which is reflected in a continuing need for advanced scientific and technological equipment and the attendant costs of operating and maintaining this equipment.

In constant 1970-71 dollars, these latter costs increased by 20 percent between 1973 and 1979, with the overall inflation rate amounting to 43 percent.

The proposal presented to the Colorado Senate and other members of the Joint Legislative Committee of the Legislature did make one proposal which would be excessive. The Denver Post said the proposal "could break open a new era in financing Colorado higher education."

Under the proposed policy, students would receive a total educational and general fund appropriation of $3,900 per person, compared to $3,200 per student in constant 1970-71 dollars.

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By Guy T. McBride, Jr., Colorado School of Mines
means that CSM is now spending in constant dollars for its overall educational and general activities $4461 less per FTE student than it was spending all the beginning of the decade, or $44 now for every $5 spent then. In addition, the State of Colorado is now appropriating out of the general fund (in constant dollars) $842 less per FTE student enrolled at CSM than it was ten years ago, or less than $3 for every $5 appropriated then.

Under these circumstances, the School has not kept up with the increasing cost of technology, nor has it been able to deal with the legislatively approved growing enrollment. While all of the institutions in the State have felt the impact of inflation, the percentage loss suffered by CSM on an FTE basis is actually many times greater than that experienced by the other state research universities.

Due to the long-term impact of this continued decline of real funding, the School is now at the minimum threshold level of quality. The increasing demand for CSM graduates, due mainly to the national employment picture rather than to any increases in institutional quality, has tended to mask this deteriorating situation. The continuation of recent past appropriations practices for CSM at a time when the rest of the Colorado economy is moving at an annual inflation rate of 14 to 15 percent, though perhaps justified by the State’s overall budget situation, will lead to visible deterioration through loss of faculty and diminished value of graduates.

Proposed New State Policy

The general elements of such a proposed new State policy include changes in the management, financing, tuition and accountability procedures for the School.

Management of CSM

• The Trustees and the CSM administration will continue to have the authority to determine and establish the cost of education at CSM through the institutional budget process.
• The Trustees will continue to control the expenditure of all CSM funds using standard budgeting procedures.

Financing CSM

• CSM will continue to receive financial support from three sources: student tuition, State tax revenues, and externally generated gifts and grants. The proportion of student tuition will increase significantly.

The State will continue to contribute to the education of the legislatively approved number of resident students enrolled at CSM through an appropriation of general funds.

• The general fund appropriation to CSM will be in the form of a single line item, calculated from an agreed-upon contribution to each resident student (on the basis of dollars per FTE) and the total number of program students to be enrolled in that budget year.

• The State contribution to each FTE resident student at CSM will be reviewed annually and changed by the same percentage as that made in general fund appropriations to the other research universities in the State, or by the common upward general fund factor (7 percent in 1979-80) or other as may be appropriate. The base number, for 1979-1980, will be the appropriation in general funds of $6.5 million divided by the number of FTE resident students at CSM ($3,200/FTE resident).

Appropriations and expenditures for capital projects will be handled as in the past.

The total tuition and general appropriation to the School will be based upon the cost of education as determined by the Trustees and expressed in the School’s budget.

The Trustees will have the responsibility for providing for all other income to cover the cost of education, including continuation of the present statutory authority to self-fund.

• Externally generated gifts and grants will continue to be used to enrich the educational experience, as called for in State law, and will not be used to replace State appropriations.

Tuition at CSM

• Tuition rates for resident and non-resident students at CSM will be established and set by the Trustees.
• Tuition rates at CSM will be changed to cover the difference between the State’s contribution and the established cost of education at CSM.
• Students enrolled at CSM will be encouraged to make greater use of state, federal, and private loan funds to cover the higher tuition rates, particularly the Colorado Guaranteed Student Loans.
• State financial aid funds will continue to be available to residents enrolled at CSM, student eligibility and amount being determined in the same way as for students enrolled at the other State institutions.

Accountability

• The Trustees will present pro forma and detailed budgets for legislative review and appropriation, both in advance and currently.
• The Trustees will continue to be fully accountable for all CSM income and expenditures, using standard financial and accounting procedures and reporting annually to the legislative Audit Committee.
• The Trustees and the Public Affairs Administration will be held fully accountable for the educational output which they manage, including annual presentations to the Joint Budget Committee and the education committees of each of the Houses of the Colorado General Assembly.
• External State reporting and control will be limited to the financial and output accountability requirements mentioned above, to all other reports required by State law and to continued academic program and degree coordination by the Colorado Commission on Higher Education (CCHE).

Evaluation

• This program will be phased in over a period of three years, and will have a trial of no less than five years, for a total of eight years, in order to reach equilibrium and evaluate results.

Dr. Gay T. McBride, Jr., has been President of CSM for ten years. He has a wide background in school and public education and is chairman of APCUP (Association of Public University and College Presidents).

Expertise in geological and mining engineering

- Geological investigations
- Planning and supervision of exploration
- Planning and supervision of programs to obtain pilot plant ore
- In-house computer programs for ore reserve determination
- Geostatistical evaluation
- Area surveys and reconnaissance of mineral potential and resources
- Rock mechanics and slope stability
- Property examination and evaluation
- Open-pit mine design with in-house computer programs
- Shaft and underground mine design
- Open-pit and underground equipment selection with computer optimization
- Design, procurement, and construction management of open-pit and underground facilities

James V. Thompson ....... 40
David L. Watson .......... 60
Richard J. Miley ........ 60
Douglas G. McIntosh ... 66
Larry G. Hayes ........ 52
Curtis J. Temple .. 53
John J. Chulich ......... 68

Colorado School of Mines

Colorado School of Mines

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Some people approach life only one way. And that's "all out." Fortunately, most of the people who work at Stearns-Roger fit this description, and they are justifiably proud of what they accomplish. Their mental toughness, ingenuity and total dedication to the job has enabled us to complete the many demanding and challenging assignments that have been awarded to us for the past 94 years.

We design and build power plants, petroleum and petrochemical facilities, as well as refining and fuel processing plants. For other industries, we've developed many unique or "one of a kind" projects where bold, innovative engineering was the requirement to success. We know what it is to be successful and we know that competent people are the key to this success. That's why a career at Stearns-Roger can provide you with exciting opportunities to test your talents on important and imaginative projects. We believe you get the most out of a job when the job gets the most out of you.

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Stearns-Roger

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The Resource Fund is People

by Clarence W. Leeds, III

Secretary, CSMF

"People give to people," Bill Coors didn't coin that. But he's said it enough to own it. The Resource Fund is people giving to people for people. Yes, the cause is important. Perhaps, nothing short of a conspiracy to save Western civilization.

People put things in place for The Resource Fund. An idealistic and pragmatic bishop started an institution 106 years ago that has never had more relevance to societal needs than today. Fifty-one years ago a group of miners laid the groundwork—not surprisingly called a foundation, the Colorado School of Mines Foundation—for the School to earn support from private sources as well as from the public sector.

In 1976, more people: faculty planning committees, trustee planning conferences with alumni and other constituency participation, administrative recommendations; then three significant trustee decisions (discussed by Dr. McBride on page 3 of the December issue of Mines): to grow to 3,000, to expand the dimensions of Mines, to determine appropriate characteristics of future graduates; and now a fourth decision: to ensure quality, retain trustee autonomy and accountability by bringing tuition costs more in line with those appropriate for an excellent engineering school.

People of The Resource Fund include the president of the School and the board of trustees, who have committed more than $1.5 million of their own personal resources to the cause. Resource Fund people are administration and faculty members who have pledged more than $250,000 from their personal resources as well as serving on committees to determine priorities and implement programs responsive to today's needs and future graduate profile aspirations. Faculty members tell needs to potential donors with credibility that comes from years of productive association with industry.

Resource Fund people include a campus development council with representatives from the Alumni Association, faculty, administration, and the CSM Foundation. The CSM Development Council meets for the fifty-third time in March 1980.

The Resource Fund is a group of extraordinary human beings known collectively as the International Development Council. More than 100 strong—strong it is—this is the group of people, predominantly alumni, who open the doors for the president of Mines to state the case of support.

Resource Fund chairman, Bill Coors, president of the board of trustees, takes the opportunity of this expanded circulation issue of Mines to acknowledge with appreciation the efforts of all members of our International Development Council.

These magnificent people are helping Mines respond to challenges—economical, political, and technological—
headed by Pierson Ralph, Geol. E., Mnes honor) as secretary of the committee in his lifetime, much for Mines during his lifetime. E.M. '23; Medalist '51; Hon. Mem. '68, in Oklahoma City; Bill Kellogg, Geol. E., '43, current chairman of our Los Angeles committee, who, under the initial direction of Bob Thurnmond, E.M. '43, set the pace.

headed by Ralph Hennobach, Met.E. '41; Medalist '95, for personal pledges exceeding $300,000, and for activities, commanding especially Charlie Irish, P.E. '50, president of the New York section. Newell Orr, Met. E. '54; George Wunder, E.M. '29; Medalist '72, Norm Zorn, E.M. '52; Misc. '56; Medalist '77, Jack Thompson, Asso. Mem. '47; Medalist '74, who has been responsible for corporate contributions during the past year, the expected to exceed $650,000, Dick Wandelhorn, E.M. '52; Medalist, '73.

Weimer's stimulating influence, his committee are to be commended. "Getty Professor in one's career is able to take the case to the gasoline pump lines to a frustrated tax-caller driven on route to the airport in New York, to the corporate executive officer, or to upper management, to the corporateコミュニティ from Oklahoma to Texas to Massachusetts.

Not one has done more to earn the greatest support in Mines history for the School than Chuck Fogarty, E.M. '72; Disc. '52; Medalist '62, inside, New York.

My gratitude to those in key positions of administration such as Marshall Crouch, Geol.E. '67, president of the alumni Association, who has coordinated AADF efforts with The Resource Fund, and his son, donors, predecessors Bob Brace, Geol. E. '49, and Don Craig, Met. E. '48, now serving on the Foundation board. Participation phase of The Resource Fund exemplary of inter-regional cooperation are the efforts of our Los Angeles committee, headed by Jack McBride, Geol.E. '64, of the southern California committee with Houston and New York.

Note with gratitude that Ghath Pharon serves on our International Development Council as international advisor, Bruce Rockwell in several advisory capacities, John McKinney as corporate gifts chairman, Gordon Jones as donations chairman, Foundation gifts chairman and Lindy Barker E.M. '31; Medalist '70; Hon. Mem. '79, as alumni gifts chairman. I wish to extend, on behalf of the entire Mines community, special appreciation to the following individuals who hosted Resource Fund informational meetings for business and community leaders around the country: Sam Scovill in Cleveland, and confidential, trusted alumni participation phase of The Resource Fund.

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We are living in a fascinating time—a time of transition on many fronts. The one relevant today is the transition from a time which began at the end of World War II to one which began to take shape in the 1960's. The earlier era was one where know-how was king and jet flight faster than the speed of sound, what was the Belgian Congo were shut down in 1978 when the copper mines in Zambia were poured into the enterprises that were then competing for the highest profile capabilities. Within the last two decades many materials critical to the nation's economy and defense. This share is a result of the efforts of an earlier era where resource development was the area, however, where there is the most new product potential. We are making great strides in this area, and we must drastically curtail the growth of the economic system results in increases in resources rather than decreases. We have seen this happen in almost every economic sector as a result of new technology, which is usually demand-driven. Furthermore, we know that it is possible to find and extract less accessible resources, typified by the frontier oil areas mentioned earlier. We can also extract lesser resources as a tertiary recovery of oil. Currently exploded iron ores have a concentration of about 1% which is the earth's crust as a whole. With aluminium, it is only four times. These ratios can be driven lower and resources thereby increased. The finite resources view seems simplistic when seen in this light.

Recovery of Resources

We should note also that material resources are not lost irretrievably even though they can be expended in providing a service to people. Resources can always be recovered by the expenditure of energy and, of course, at a cost. At any time in history, we may not be able to afford such recovery, but new technology can often overcome, given sufficient technical wisdom and foresight. Actually, the problems in the know -what arena are two. First, international action against resource depletion is needed. Resource expansion to proceed in its own right is not the answer. As we develop our knowledge, we may come into use.

The economics and politics may not allow the process of reclamation but perhaps the past and present are not too far removed.

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- Pipe trench excavated on slopes greater than 100% grade.
- Pipe laid on slopes greater than 100% grade.
- Limited right-of-way width—15 ft.
- Job located at 10,000 ft. elevation.
- Diversion structure of concrete placed by helicopter.
- Construction cable way—single span of 3200 foot.
- A SIPHON PIPELINE AT THE GRANITE CREEK

PROJECT, NEAR BASALT, COLORADO

HARRISON WESTERN CORPORATION
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in memoriam

JAMES A. APPLINGTON
James Armstrong Appleton E.M. 1937
Died January 5, 1980 in Seattle, Washington, near his home in Mercer Island, Washington. At the time of his death, he was employed by the Robbins Company. Appleton served as a submarine officer in the U.S. Navy during WWII. Following his service, he was employed by General Manufacturing Company in Chicago and Canada. In 1977, he moved to the Seattle area with the Robbins Company.

MRS. JUANITA APPLETON survives him, as do his children: Russell, Patricia, Susan and Judith; his mother, Blanche Stevenson; and five grandchildren.

A scholarship loan fund has been established in the name of James A. Appleton through the CSM Foundation.

SAMUEL A. GUSTAVSON
Samuel Anthony Gustavson, E.M. 1922
Died December 11, 1979, in Pittsburgh, Pennsylvania.

Mr. Gustavson retired in 1971 from his position of Northeast Regional physical science administrator for the U.S. Bureau of Mines in Pittsburgh. A native of Nebraska, he moved at an early age to Denver and attended high school in that city. During World War II, he served with the Corps of Engineers, retiring as a major in the Reserve Corps.

A life member of the CSM Alumni Association, he was also active in the Masonic Lodge and as a member of Park Hill Lodge #149.

His wife, Joan, survives, also a daughter, JoAnn and son, William R. and one granddaughter.

GEORGE M. ROLL
George H. Roll E.M. 1919, died recently in Naples, Florida, where he made his winter home since retirement. Mr. Roll was 88 at the time of his death.

Active as a volunteer capacity in the CSM Alumni Association activities in New York and Pennsylvania for many years, Roll became director of the Alumni Association in Denver. He was very influential in the move bringing the Association back to the CSM campus, after it had been located in downtown Denver for a long period of time.

Mr. Roll maintained an extensive correspondence with various active members of the Association after his retirement, and assisted Wendall Fortly with suggestions and advice. He was a life member of the Association.

He is survived by several children.

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The mines magazine • march 1980

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letters

To: President Carter
Senator Alan Cranston
The Wall Street Journal
The Los Angeles Times
The Daily News
The Mines Magazine

Subject: The "windfall profit tax"

Gentlemen:

Of all the misnamed taxes that have been levied on the American people, this is the ultimate insult to the voter. It is nothing more than an "excise tax." To the uninitiated an "excise tax" is the same as a tax levied on the manufacture, sale or consumption of a commodity within a country. "Windfall profit tax" is ludicrous. No knowledgeable American believes that the corporation pays taxes. People pay taxes. In order for a corporation to exist in the capitalist system It must make a profit or go out of business. A corporation pays taxes. People pay taxes. Therefore, when a corporation pays an "excise tax," it is simply charge more for its product, in this case oil. So who is paying the tax? The consumer and tax payer.

I am sure you agree on the majority of your constituents. It is not a tax, it is an insult to the voter. It is nothing more than a doubling of the "windfall profit tax" and simply levied on the consumer and tax payer in the majority of instances.

Very truly yours,

Frank A. Foley, E.M., 1949

La Mirada, Calif.

35 Earl R. Parker, M.E., was recently accorded a signal honor w when he received the National Medal of Science, presented by President Carter at a White House cere mony. The Medal is the highest award given by the Federal Government to the nation's scientists and engineers engaged in re search. Parker is professor of Metallurgy, University of California, Berkeley.

36 Charles M. Tenn P.E. has retired from Conoco. His service with that company dates from 1936, and he retires with the title of Senior Staff Engineer. His new residence will be in Sun City, Arizona.

39 Harry J. McMichael M.E., who recently founded McMichael's Inc., in Salt Lake City, has retired and will make his home in Lakewood, Colorado.

Donald W. Gunther, M.E., has also joined the ranks of retirees, and will continue his residence in Acme, Pennsylvania. He is presently working for the Conoco Corporation, and his new residence will be in Sun City, Arizona.

"47 William H. Erickson, P.E., has accepted a position with Barringer Geomeco as a mining sales specialist. He was with Towsley Engineering and Manufacturing previously.

"47 William H. Erickson, P.E., has been named to a national commission to promulgate standards for state and local tax enforcement agencies, according to the Law Enforcement Assistance Administration. Erickson is Chief Auditor, Colorado Supreme Court.

Jack E. Ebel '71
Stephen A. Grattan
Attorneys at Law
Patents & Trademarks & Copyrights
1401 Saulsbury St.
(303) 232-1130
Suite 203
Lakewood, Colo. 80215
156 William E. Seager, Geol. E., who was formerly with Dias Minetades De Los Cuatro Río, Mexico, is now with Kaiser Aluminum and Chemical Corp., Hayward, Calif.

157 Chester F. Budd, Jr., P.E., is vice president and general manager of U.S. Philips Corporation, N.Y.

158 Robert Meeder, Geol. E., was recently in the Denver area recruiting for summer student workers for the Duval Corp., Tucson.

159 G. Roy Lance, Jr., Geol. E., is executive vice president of Rexcon, Inc.

160 James B. Copeland E.M., was recently promoted to assist superintendent of the Sunrise Mine, Guaymas, Wy. Sunrise, owned by CFI & I Corp., is one of the three remaining underground mines located in the United States. The entire operation consists of 8000 men. The mine is being used, and the Chicago, a small open pit mine, started in 1908, when it was begun as an open pit operation.

161 Edward J. Johnson, '49 Petroleum Geology, Inc.

162 John Read Beers, '34 Consulting Professional Engineer

163 Frank Van Dok, P.E., '73 Consulting Engineer

164 William C. McClain, E.M., is executive vice president of REP/SEC Inc., in Maplev, Ind. Smith, Geol. E., was a project engineer for Union Carbide prior to accepting this position. John J. O'Shaughnessy has been appointed general manager of development test for the Rio Blanco Oil Shale Co. The property is located near Silt, S. 500,000 Federal Oil Shale Prototype Tract C-in Colorado's Rio Blanco Project, a Division of Resources Co., for nine years, was most recently a senior project manager for that company in Grants, N.M.

165 Bruce Hester, BSc. Met., has been promoted from vice president, marketing and sales, to president, Alcan Cable Division, Alcan Aluminum Corp. He is located in Dunwoody, Ga.

166 William K. Smith, BSc. Met., is now the owner of Bali Hai Polynesian formerly with Cia. Minerias Disputada de Los Rios, located in Dallas.

167 S. Bruce Heister, BSc. Met., has been appointed operations manager for the new Candelina Silver Operations, Occidental Minerals Corp. The company is building facilities at Newman, Nevada, for a startup of mining operations late in the summer. Steels is most recently supervisory superintendent for Homestake Mining Co. in Gurnison, Wyo.

168 Donald L. Matchett, Geol. E., is manager of mineral states engineering.

169 Edward J. Johnson, '49 Petroleum Geology, Inc.

170 John Read Beers, '34 Consulting Professional Engineer

171 Frank Van Dok, P.E., '73 Consulting Engineer

172 William C. McClain, E.M., is executive vice president of REP/SEC Inc., in Maplev, Ind. Smith, Geol. E., was a project engineer for Union Carbide prior to accepting this position. John J. O'Shaughnessy has been appointed general manager of development test for the Rio Blanco Oil Shale Co. The property is located near Silt, S. 500,000 Federal Oil Shale Prototype Tract C-in Colorado's Rio Blanco Project, a Division of Resources Co., for nine years, was most recently a senior project manager for that company in Grants, N.M.

173 Lytie B. Wightfield, '73 BSc. Met., and MS. Met., '75, is process engineer for the Bethlehem Steel Wire Corp. Richard K. Wightfield, BSc. Geo-Chem., is currently with Chiron Resources, after a stint with the USGS.

174 Gerald L. Stanser, BSc. Geol., has left the U.S. Army and is now a geophysicist with Micro Geophysical Co., Detroit, Mich.

175 Russell J. Louis, BSc. Geol., is employed by D. Esplin Oil and Gas as a geophysicist in the Denver, CO office.

176 Donald L. Piekarski, BSc. Met., has been promoted to mine foreman of the Alcoa Foil Co. in Wyoming, is now mining superintendent for Texoma Oil Co., in Oklahoma City, Okla.

177 Jaycees.

178 Michael B. Woldyee, BSc. Met., Econ., is the assistant president of the Montreal National Loan Corp., Pittsburgh, Pa.

179 Harry M. Conner, IV, has been promoted to E&P and fleet general foreman, Kennecott Copper Co., Utah Division. Sharon G. Roness BSc. Met., formerly quality control engineer for Kentucky Coal Div. of U.S. Steel in Covington, Ky., has been named to a similar position with Smith Tool Company in Oklahoma City. She is currently with Chevron Resources, after a stint with the USGS.

180 Truce R. Ellis, BSc. Met., Econ., is currently with Mobil Energy Minerals. Williams H. John, BSc. Met., is now design engineer, Texas Power and Light Company, San Salvador Mines in Refugio, Texas. He was previously employed by Brown and Root, Inc.

181 Chris R. Cadee, BSc. Met. and Geol. Geol. is based in Denver as a geologist for Anmac Exploration Co.

182 Anton W. Bosch, E.M., has accepted a position with Smith Tool Company in Oklahoma City.

183 James A. Hodson, Min. E. Phy., is the current president of the Denver, CO Jaycees.

184 Clark K. Geisinger, BSc. Geol., is a coal exploration geologist with Northern Coal Mines.

185 John C. Wilton BSc. Min., is now mining superintendent for the Pittsburgh and Midway Coal Co., in Pittsburgh, Pa.

186 Orval A. Shanam BSc. Min., has been promoted from mine engineer to director of technical services by the J. R. Simplot Company.

187 Claude C. Corbellah, III BSc. Met., is accounts manager for the Energy Minerals Division of the Mid Oil Corp.

188 COMMENCEMENT MAY 8, 9, 10 1980 Reunion Classes 1925, '30, '35, '40, '45, '50, '55 BANQUET MAY 9
Brennecke in Hall of Fame

Fritz Brennecke, who endorsed himself to hundreds of Mines athletes over his 22-year stint as Athletics director, head football coach and physical education instructor, has been recognized by the highest honor in the Colorado lexicon of sports greats. Brennecke was inducted into the Colorado Sports Hall of Fame at the 16th annual banquet February 19, 1980.

The honor culminates a career characterized by a philosophy which seems a little strange today—"athletics for fun." This attitude led Brennecke to a special place in the sport world, and a special place in the school he was proud to be associated with for so many years. He became an outspoken critic of the professionalism practiced by small colleges, and trained his teams to regard sports as an endeavor which would benefit them all of their lives—not a kill-or-be-killed activity for a brief number of years. His teams at Mines produced one Rocky Mountain Conference football championship, in 1951, a title with Colorado College in 1958 and three RMC runners-up. He proudly pointed to these championships in tournaments conducted by the National Collegiate Athletic Association in the state In many of Northern Colorado. He has served 25 years of duty in the United States Navy, he returned to coach the Rebels to another grid crown. Then came his 22-year tenure at Colorado School of Mines, which became his "permanent" niche in athletics.

"Retirement" for Brennecke has been a busy time. He became coordinator for the Adolph Coors Co. in its employee recreation program. Previously he had done part-time work for the company in its guest relations department. He also writes a weekly sports column for the Golden Transcript. The honor culminates a career characterized by a philosophy which seems a little strange today—"athletics for fun."

Brennecke enrolled at Colorado Teachers College in 1935 and worked his way through college to a degree in history and political science in 1938. Later he earned a master's degree at the University of Southern California.

At CTC Brennecke earned three letters and a freshman numeral in football and four letters in baseball, making the All-Rocky Mountain Conference team as a catcher in his senior year. He started every game for the Bears in his three varsity football seasons and still is remembered for his play as a blocking back in a stunning upset of the University of Denver in his senior year.

Brennecke served on the Colorado Athletic (boxing) Commission from 1949 until it was dissolved in 1977 and has been active in many community services. He was a member of the Golden City Council for four years and served as a director of the Jefferson County American Cancer Society. Recently he was named a director of the National Industrial Recreation Association.

While at Steamboat Springs, Brennecke met Betty Anne Lockeby and married her in 1939. They are the parents of three grown children, Paul, Anne Edwards and Louise. The Brennecke family owns a home in Loveland, Colorado, where he attended high school, and has three years in each of three sports. He also carved out a name for himself as an amateur boxer on the Western Slope.

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under the “M”

ROTC Appointment Told

Kathleen Rahm, a junior in geology at Colorado School of Mines, has been appointed captain, lieutenant colonel, by the ROTC teaching staff, according to Lt. Col. Robert D. Howe, head of the ROTC military science department.

Rahm, daughter of Kenneth and Carol Rahm of Lakewood, Colo., is the first woman to attain the rank of cadet lieutenant colonel, and also the first woman at CSM to receive the designation of M.S. 4, top classification for students in the ROTC program. She is a member of the Pershing Rifles, Pathfinders and the honorary military fraternity of Scouting and Boys.

The cadet lieutenant colonel is chosen on the basis of academic performance, both general and in military science, participation in ROTC advanced camp activities and overall ability in the military science projects. Rahm will be supervising the cadet staff in training M.S. 3 cadets, scheduling courses and providing assistance for the Pathfinder program.

The appointment is for one semester, and is designed to give experience in command to those ROTC leaders who will be putting that experience to work in the Corps of Engineers reserve upon graduation.

Silver Diplomas

Graduates receiving their degrees in May will not get silver diplomas at least on time. The trustees want along with a request by Gordon Scott, vice president for business affairs, that receipt of the diplomas be deferred because of retirements in the instrument shop.

He said that taking the business outside the school "would take money we don't have," and that deferred presentation will avoid the scrapavage problem caused when students don't graduate as planned.

...
Can't Stop Dancing
by Kathy Rahm

Mines was built on its rich traditions and as 1980 evolves we'll find new traditions being established as well as the commemoration of the old. March 29th will be the start of what is to become a "rich tradition." The Alpha Gamma Delta Women's Fraternity is sponsoring a Dance-a-thon in conjunction with the Loretto Heights College and Colorado Women's College to benefit the Muscular Dystrophy Association. This twelve-hour event will be held at the Russell V. Holt Gymnasium from 9 a.m. to 9 p.m. Following the Dance-a-thon, the dancers will move to the Student Center cafeteria for a party open to the students of all three schools which will feature the final tally of the day's endeavors.

MDA provides services to patients suffering from any of 35 muscle diseases covered by the Association's program. Each year, more and more young people join the love train which has provided MDA with over $2 million during 1979-1979. The Dance-a-thon raises money by having each of the dancers recruit sponsors who will pay them either an hourly wage for each hour they dance or a lump sum of money for participating in the event.

Alpha Gamma Delta anticipates that the Dance-a-thon will become a regular event at the school. "Can't stop dancing" for Muscular Dystrophy is sweeping the nation and will establish "dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school, "Can't stop dancing" for Muscular Dystrophy is a tradition at the school.

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Sigma Kappa at Mines

Initiation ceremonies at the Ben Parker Student Center, a banquet at the old Heidelberg Inn, and a reception at the Green Center, Jan. 2-27 formally installed Zeta Pi Chapter of Sigma Kappa national sorority at the Colorado School of Mines. Chartered in 1974, the same year in which CSM was founded, Sigma Kappa is one of the oldest women's sororities.

Mrs. William M. Muller, whose husband is vice president of academic affairs; Mrs. Michael S. Nykyias, whose husband is dean of students; and Mrs. J. S. Petty (Patricia), MINES Magazine editor and wife of Jack S. Petty, E.M. 1952, became honor initiates of Sigma Kappa chapter.

Student initiates Shereen Coonsent, Cherelyn DeWitt, Roxanne Pitcher, Cynthia Smith, and Lisa Yeomen joined student members Karen Barker, Lisa Breemer, Diana Burn, and Diana Boeming.

Melanie Edwards, Pattie Griffith, Kathy Heinlein, Linda Sue Lee, Joanna Sixta, and Tracey Smink joined to form the new Sigma Kappa chapter.

National officers of Sigma Kappa here for the installation were President Mrs. Leslie Collins; former National President Mrs. Field T. Brown; National Director of Expansion Mrs. John Valentine; Director of Chapter Finance Mrs. Ralph Clarkston; and Insurance Officer Mrs. Fred F. Moessner (wives of Fred Moessner, Good E. 1950 & M.S. 1954), Mrs. Cliff T. Timan, installing officer, Mrs. Jacques Robertson, president of Zeta Pi Advisory Board; Mrs. Frank Reynolds, asked by other members of the Advisory Board and Denver alumnae, all were responsible for setting up the various events.

Special guests at the installation banquet were CSM President and Mrs. Guy T. McBride, Jr., Director of Student Activities Janell Goedick, honor initiates and their husbands, student initiates and members, and Mrs. Ben H. Parker, Sr. Sigma Kappa aluma whose husband was the only CSM graduate to serve as president of Mines. In addition to their many activities, Sigma Kappa earned the second highest academic rating of all sororities and fraternities in the Mines campus last spring.

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St. Joe Minerals Grant


The St. Joe Minerals Corporation has announced it is continuing its professorship and fellowship programs in extractive metallurgy at the Colorado School of Mines through 1980. Benefits of the grant are St. Joe Minerals Corporation Professor of Extractive Metallurgy, Dr. John P. Hager, and graduate student Deena Lee Kaiser, recipient of the St. Joe Minerals Corporation Fellowship in Extractive Metallurgy.

Dr. Hager, a member of the CSM faculty since 1976, has held the professorship since 1975. Now in its sixth year, the program supports the professor as well as provides funds for travel and research.

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$400,000 Grant

A $400,000 grant from Newmont Mining Corporation of New York City to the Colorado School of Mines Foundation, Inc., was announced by Dr. Guy T. McBride, Jr., CSM president, and will provide the school's mining department with badly needed laboratory equipment. The grant will fund compression and testing machines for Mines' Newmont Rock Mechanics Laboratory to be housed in the school's George R. Brown Hall of Engineering, now under construction.

"This gift will enable the school to have the best equipped educational research labs in the country," said Dr. Thys Johnson, head of the mining department. It will provide expanded opportunities for our students to prepare themselves for challenging careers in the mining industry."

Mining engineering students at CSM study the principles and techniques of mineral exploration and underground and surface mining operations. Studies include rock mechanics, rock penetration, fragmentation, plant design, mine ventilation and operations research.

J. E. Thompson, president of Newmont, said, "Newmont is pleased to establish this important facility at CSM, reflecting a commitment by both of us to excellence in mining education and practice."

This gift was made to The Resource Fund, a $63 million ten-year major development effort which is in the first phase of providing long-term private support for the public institution. More than $23 million has been raised to date.

Scheduled for occupancy in the fall of 1980, Brown Hall is the new $5.5 million mining and basic engineering building on the CSM campus. The building will house 60,000 square feet of classroom, office, and laboratory space and will replace obsolete housing for the departments which are now located in turn-of-the-century buildings on the campus.

Brown Hall was made possible by an early $4.4 million gift to The Resource Fund by Brown Foundation of Houston, Texas, and is named after George R. Brown, a 1922 Mines alumnus and retired chairman of Brown & Root, Inc.

Wilson Chosen

James C. Wilson, president of Rocky Mountain Energy Co., has been elected Chairman of the Wyoming Coal Information Committee (WCIC) for 1980.

The WCIC was formed as a subcommittee of the Wyoming Mining Association in January 1978 to develop and distribute accurate information about the Wyoming coal industry. Prior to the organization's establishment, there was no industry-wide vehicle for communications with the public, Wilson pointed out.

Wilson replaces Gerard K. Drummond, president of Northern Energy Resources Company, who served as chairman in 1979. Roy Colmer, president of Kiemmerer Coal Company, was reelected vice-chairman, and Tom Kudl, Western Natural Resources Counsel for Union Pacific Corporation, will continue as Treasurer. Rocky Mountain Energy Co. is a partner in the Medicine Bow, the Black Butte, and the Stansbury Coal operations in southern Wyoming. In addition, it operates the Prosper Point coal processing and loadout facility near Point of Rocks, Wyoming.

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the mines magazine • march 1980
Kay Kodak
Coach of the Year

Colorado School of Mines football coach Marvin Kay has been named a Kodak Coach of the Year. College Division, by his American Football Coaches Association (AFOA) colleagues in District 8. The district includes Colorado, New Mexico, Arizona, Utah, Nevada, Wyoming and Montana.

Kay is a 1963 mining engineering graduate of Colorado School of Mines. He joined the CSM coaching and physical staff in 1966 and was head football coach in 1969.

Under Kay, the Oredigger football team this year compiled a 6-4 overall record and was 6-3 in the Rocky Mountain Athletic Conference (RMAC) play. His overall record is 36-10.

At CSM, Kay won two letters as a heavyweight wrestler and three letters as a varsity tackle. He received All-RMAC play.

Kay has been head wrestling coach since 1966 and a graduate of Colorado School of Mines.

Kay was honored at the annual Kodak Coach of the Year banquet.

CSM Wrestling

Starting with one of the youngest teams of the past 25 years, the Mines wrestling team was given no chance for a team win in early season predictions by Amateur Wrestling News. This dubious distinction was dispelled in January when the Orediggers upset tough Idaho State 24-22.

With 8 freshman, one junior, and one senior filling out the ten team weights, the wrestlers will have the most inexperienced team entered in the conference championship this year. Losses at the time of printing were to Northern Arizona 22-20, Wyoming 49-11, Utah 36-9, Weber State (Ogden, Utah) 36-9, Utah State College 41-6, New Mexico 29-16, Ft. Lewis College 27-20, and Mesa State 22-20, Wyoming 40-11, Utah 38-9, Lewis College 27-20, and Mesa State 22-20.

Eligibility is a perennial problem for the mat squad at Mines, last year, only seven to eight wrestlers were available for workouts and meets. The Orediggers placed third in the Conference Championship this year, however, winning one individual championship and qualifying its wrestlers for the NCAA-II championships in 1979.

The second semester of this year is an about face in numbers, with the addition of two transfers in January from Arizona State. The Orediggers now list fifteen on the roster, although four presently are not working out because of injuries, residence requirements, and one is redshirting this season. Looking ahead to the end of the season, it doesn't seem likely that the predominantly freshman team can survive the pressure in post season tournaments. Bruce Tunget, Jr., heavyweight (6'2" 215) and Tom Young, Sr. at 124 will be the best hope for the Mines mat team.

A quick look at the wrestling team records and hometowns: 118, Long Rosenzwieg, Fr. 6-7-0, Nucla, Colo.; 126, Mike Rabinov, Fr. 7-10-0, Garden Mounds, N.Y.; 134, Bill Myrick, Fr. 4-12-1, Castle Rock, Colo.; 134, Mark Huppenthal, Jr. (ASU transfer), Tucson, Arizona; 134, Frank Uhlarik, So. (ASU transfer), Onaha, Nebr.; 142, Tom Muth, Sr. 1-7-0, Rino, Nev.; 142, Tom Young, Sr. 15-9-0 (1979 RMAC Champ), Denver, Colo.; 202, Mickey McCandless, Fr. 1-10-0, Sterling Springs, Colo.; 158, Karl Kimball, Fr. 5-13-0, Pullman, WA.; 167, Greg Lang, Fr. 1-14-0, Denver, Colo.; 177, Jim Hancock, Fr. 2-12-0, Norman, Okla.; 180, Rod Montry, Fr. 4-8-0, Garden City, Kan.; 222, Bruce Tunget, Jr. 9-5-0, Defts, Colo.; 250, Larry Keller, Jr. 6'5" 250, transfer from NE Colorado Junior College, Gering, Nebr.

The newest innovation for CSM wrestling is the CoOp Services Available

The Cooperative Education Program is alive and well at CSM and several CSM students have now taken advantage of its unique benefits.

For those of you who are unfamiliar with CoOp, it is a program in which study and student activities are linked with an academic work with a "real world" work experience. The CoOp Office will endeavor to place a student in a full-time position relating to his/her option, thus giving a student first hand experiences in an engineering student's environment.

For the student who is still undecided, CoOp can be a great way to find the "right" major.

We have 21 students out on CoOp this semester. Their job locations range from Denver to Arizona, from Wyoming to Pennsylvania, and from Indiana to Texas. Average stipends are $1200 per month. Students generally are responsible for all their living and travel arrangements, although some companies help pay for part of an apartment's cost and some travel expense.

What do CoOp students do on the job? Well, the answers to that question are as varied as there are CoOp students. Many Wiley and Mike Naporka, both sophomores in metallurgy, are working as engineering trainees (J A & L Steel in Whiting, Indiana). Roger Redlen is interpreting geologic field data for a consultant in Texas. Joel Brown and Jim Korber, both CPR juniors, are working as engineer trainees for Phillips Petroleum in two different Texas refineries. We have several GP students working for the Geology Department collecting field data. Six mining students are out in industry in Colorado, Wyoming, and Arizona working both cost and hard rock.

The CoOp Office is interpreting geologic field data for an engineering consultant in Texas. Joel Brown and Jim Korber, both CPR juniors, are working as engineer trainees for Phillips Petroleum in two different Texas refineries. We have several GP students working for the Geology Department collecting field data. Six mining students are out in industry in Colorado, Wyoming, and Arizona working both cost and hard rock.

The newest innovation for CoOp students is the option, beginning this semester, to take CoOp for up to three hours of academic credit. While in almost all cases this credit is "aided" and does not count toward graduation, it does appear on the transcript as a School-sanctioned course. A letter grade is assigned by the departmental CoOp representative based on a report written about the work experience, and thus the academic integrity of the Program is assured by the student's departmental approval. Tuition is charged per quarter student, but a student may take the course for "zero hours" and thus save this tuition payment. This keeps the program financially attractive even to non-resident students.

To enter CoOp, a student must 1) have at least 45 hours of credit; 2) have been enrolled as a full-time CSM student the semester immediately preceding the CoOp work period; 3) have a 2.00 cumulative GPA; and 4) be in good academic and behavioral standing with the School.

If you are interested in learning more about CoOp and how it can benefit you, contact Mr. Greg Staff, CSM Extension 2222, or come by his office on First Floor Guggenheim. Application deadline for summer placements is April 1.
Establishment of a $105,000 endowment fund by Kaiser Aluminum and Chemical Company to support scholarships for qualified students at the Colorado School of Mines was announced January 23 by CSM President Guy T. McBride, junior. The money is to be given to the first 100,000 requesters by the end of March. The award of annual scholarships of $1,000 will be based on the broad public interest—is to assist the education office, Golden, Colorado

U.S. Department of Energy; P.O. Box 801, Oak Ridge, TN 37830; Attn: Fuel

Uranium Resource/Technology Seminar

A seminar to examine the issues of uranium and its future in the mining and milling fields will be held March 10-12 at Colorado School of Mines. "Uranium Resource/Technology Seminar II" will examine improved procedures for identifying and selecting processes that are leading to an expanded awareness of uranium and its potential. The session will be conducted by the University of Missouri, Columbia.

Earnings from the endowment will be used to support a new Kaiser Aluminum Scholarship Program built around the award of annual scholarships of $1,000 or more. In any case where earnings are less than the amount required to support the number of scholarships to be awarded, the company will make up the difference with an additional contribution. Earnings in excess of the requirements of the program are to be reinvested in the fund.

The Kaiser Aluminum executive added that the company will determine the number of scholarships to be awarded to each student, as well as the amount of each award and the field of study from which the selections are to be made. The recipients will be selected by the school in accordance with its standard procedures for identifying students with a high degree of merit and promise. Check said the company expects to continue to have a similar close relationship with students selected to receive its scholarships under the new program as it has enjoyed under the previous year-to-year programs.

"One of the best investments we can make—in the corporate interest and in the broad public interest—is to assist the students in preparing for careers in the sciences and business," Check added.

BE Computer Addition

With the introduction of a new computer system, basic engineering department, students are able to become more proficient in less time than in the past, said Fred Marshall, an associate professor in the department. The Hewlett-Packard 3000 Series II system includes 15 terminals, a central processing unit, a magnetic tape unit, a magnetic disk, a video display screen, and a hard copy line printer. Valued at $14,700, the system was a gift of the Hewlett-Packard Company.

The system, installed in Chauvenet Hall, will be first used this weekend with more than 350 freshmen in 24 lab sections. The students logged more than 4,000 hours of computer usage with their nine programs, but still used less than half of the 50 megabyte magnetic disk (25 megabytes, according to Marshall). Upperclassmen who recall spending hours in the Green Center waiting in lines and punching cards are anxious to hear that students using the new system will no longer be required to work two hours plus homework with the old system.

MITIGATION ISSUES will be discussed during the morning of Tuesday, March 11, with the panel discussion that afternoon. Ross Scarano, chief of uranium milling for the Nuclear Regulatory Commission, will be discussing the new system.

The rest of the day will be devoted to presentations on technologies. Mitigation issues will be discussed on Wednesday, March 12, with the panel discussion that afternoon.


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"We are carrying out a national campaign to place reliable information about ethanol production in the hands of every American farmer," said Dennis Haynes, SERI's Director. "The expanding support for gasohol in this country provides an opportunity to direct U.S. oil imports now and increasingly in the future."

Since ethanol, commonly known as grain alcohol, is produced from materials whose carbohydrate (starch and sugar) content can be fermented.

"We are preparing for careers in the sciences and business," Check added.

"We are preparing for careers in the sciences and business," Check added.

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The AMAX Foundation lectures are always thought-provoking, with exciting new ideas expanded for the large crowds attending. This was true of this Westly Leontief lecture on January 30. Unfortunately, much of Mr. Leontief’s empathy with his subject, indeed, the grit of his talk was lost to me as I moved away from the microphone in his enthusiasm, thus leaving the audience at a loss from time to time. I was pleased that it was high time for AMAX President, had made some background material on Leontief available to me. Reading the story of his life is a stimulating exercise. Leontief had an excellent education and was awarded a degree as a “honed economist” before his 18th birthday. A degree in Russia was not destined to do him much good—he kept getting put into jail for his criticisms of the regime!

More and more, world decisions are based on economic theory, for which he received the Nobel Prize in 1973. An ironic twist—after being unable to return to Russia in 1925, at 19, he published an article, “The Balance of the Russian Economy—A Methodological Investigation” in a German economics journal. It was to form the cornerstone for his input-output economic theory, for which he received the Nobel Prize in 1973. An ironic twist—after being unable to accept the young Leontief’s theories and behavior while he remained in Russia, the Soviets eagerly embraced the article, published it without his knowledge or permission, and used its methods to establish their claim to having found input-output economic systems.

The history of input-output economics is fascinating, and the ultimate implications for a planned world economy both intriguing and frightening. I would recommend that the material pertaining to Dr. Leontief in The Economics, by Leonard Silk, c. 1976, Basic Books, New York, NY, be required reading for all of us.

With the history of important, world decisions being based on input-output economics, we should try to study and understand the rationale for these decisions.

The history of economics sometimes seems to be far removed from the everyday balancing of the checkbook, the concerns about overhead, production costs—all of those financial tasks which must be done in a successful organization. Getting a larger picture recently has been good for me, taking me away from the routine of balancing income vs. outgo at MINES Magazine. For a change, we get to talk about the input-output—the material pertaining to Dr. Leontief in The Economics, by Leonard Silk, c. 1976, Basic Books, New York, NY, be required reading by Leonard Silk, c. 1976, Basic Books, New York, NY, be required reading to the Miners—witness OPEC, the Common Market, the planned world economy both intriguing and frightening. I would recommend that the planned world economy both intriguing and frightening. I would recommend that the planned world economy both intriguing and frightening. I would recommend that the planned world economy both intriguing and frightening.

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More and more, world decisions are based on economic theory, for which he received the Nobel Prize in 1973. An ironic twist—after being unable to return to Russia in 1925, at 19, he published an article, “The Balance of the Russian Economy—A Methodological Investigation” in a German economics journal. It was to form the cornerstone for his input-output economic theory, for which he received the Nobel Prize in 1973. An ironic twist—after being unable to accept the young Leontief’s theories and behavior while he remained in Russia, the Soviets eagerly embraced the article, published it without his knowledge or permission, and used its methods to establish their claim to having found input-output economic systems.
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