

*Traveling through Vietnam
A veteran takes a second glance*





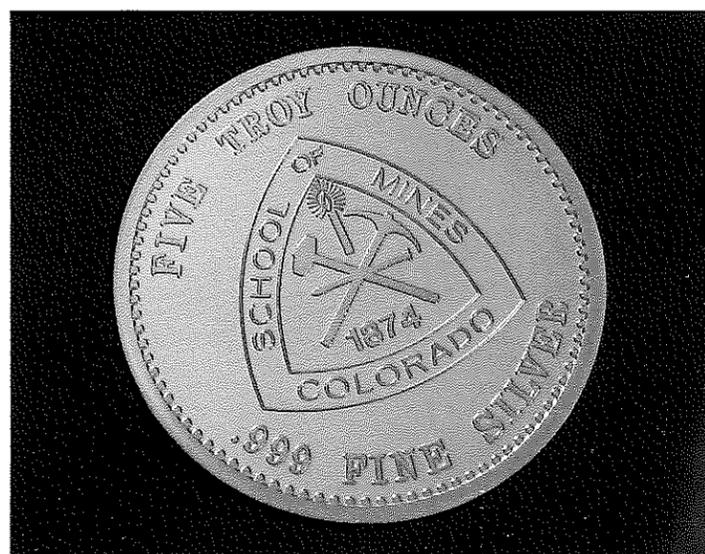
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Photographs by John McMillin

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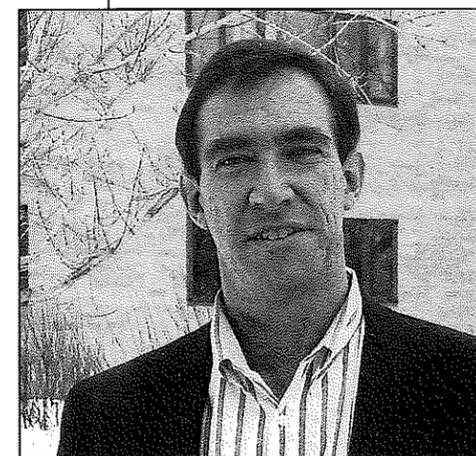
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Clark Davenport '64 and his son, Sam, are greeted by villagers in Vietnam (photo by Jad Davenport)

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PRESS AWARD

Ellen Glover, editor of *Mines Magazine*, was awarded first prize by Colorado Press Women for a four-color magazine from a non-profit association. The magazine is judged by an out-of-state board of journalists on its editorial content, graphic arts and whether it serves its audience. Ellen also won a third prize for advertising.

Mines Magazine now advances to national competition in June in Albuquerque, New Mexico, at the convention of the National Federation of Press Women.

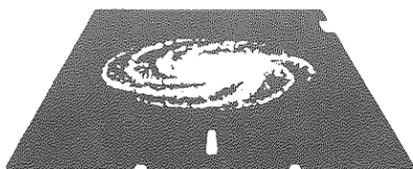
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“BS PH RVN”

A MINES VETERAN RETURNS TO VIETNAM FOR A SECOND GLANCE

by G. Clark Davenport '64

We live and work in an environment of acronyms: OSHA, SARA, RI/FS, SWMU and a host of others. Seven years ago my son, Jad, returned from running our dog at the local cemetery and asked me the meaning of “BS PH RVN.” I asked in what context he was using this acronym, and he said he had seen a headstone with those letters and that the young man had died the same day Jad was born.

With a bit of searching, we were able to determine that the young man had died in the Republic of Vietnam (RVN) and was awarded the Bronze Star (BS) and Purple Heart (PH). Jad became very interested in Vietnam and in particular the impact of war on children. Since graduating from high school he has traveled and worked with refugee children in Peru, Guatemala, Northern Ireland and Thailand.

In January 1990, the heat on the tarmac at Tan Son Nhut Airport was as intense as I remembered in May 1966. This time I was accompanied by both my sons, Jad, a senior at

Vassar, and Sam, a sophomore at Connecticut College. The trip was arranged by Jad to acquire thesis material for school by seeing Vietnam through the eyes of a returning veteran. After leaving Mines as an ROTC graduate, I spent one year in Vietnam with the 168th Combat Engineers, assigned to the First Infantry Division.

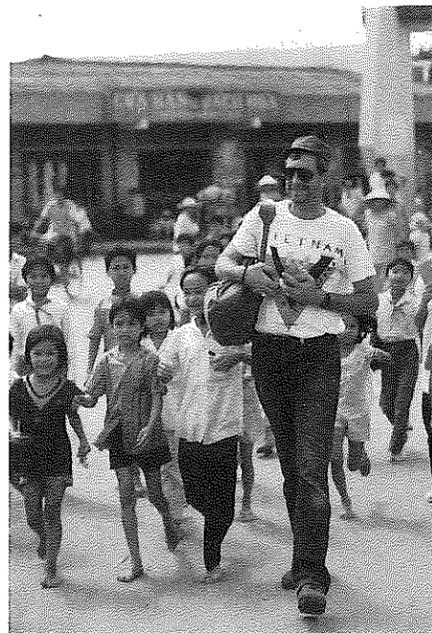
Returning to Vietnam is not quite as easy as it may first appear. This year has been designated as the Year of Tourism by the Vietnamese government, however there are obstacles. The Vietnamese government was extremely interested in Jad's proposal, primarily because this would represent one of the first, if not the first, times a veteran had returned with his sons. One major obstacle was our unwillingness to begin the trip in Hanoi. Another obstacle was our wish to hike through the Iron Triangle, an area closed to Americans since the end of the war.

After three months of negotiation between Jad and the ambassador to the United Nations Mission, we were granted

“...the most haunting reminders by far, were the young faces that leapt out at us from the dark crowd, American faces with light hair and bright eyes, the vaguely familiar features of Amerasian teenagers.”



Left: Clark Davenport as a 22-year-old soldier in Vietnam. Right: Clark Davenport, ex-soldier, geophysicist and pied piper, walks through the small village of Lai Khe outside of Saigon. In his day pack were school supplies for the children of the village; the school he helped build in 1966 was destroyed by invading Viet Cong in 1975.



Three boys share a bicycle on a dirt road near an abandoned French rubber plantation.

“We walked deep into the cool shade of rubber plantations once owned by Michelin. Among the straight rows of trees he found the eroded remains of the bunker where he’d lived for several months. It was just a weed-covered mound of dirt now. A few yards away Sam found a live hand grenade half buried in the clay.”



Jad Davenport, a senior at Vassar and one of Clark’s sons who accompanied him to Vietnam. Jad has traveled worldwide using his writing and photography to research refugees and children caught in wars.

permission to pick up our visas in Bangkok and fly directly to Ho Chi Minh City (Saigon). During our three-day wait in Thailand, we journeyed to the Cambodian border and spent two days talking to refugee workers, refugees and soldiers. There is still a shooting war in progress on the Thailand-Cambodia border.

Upon arrival in Saigon, as it is still known by the inhabitants, we were met by representatives of Vietnam Tours, the government agency that all tourists deal with. We were informed that lodging for our two-week stay would be at a “tourist hotel,” at a cost of \$60 per night. After some rather serious negotiations, a compromise was reached: we would only spend one night at the hotel, and then move in with a family for approximately \$20 per night. We were not able to negotiate the price of the ten-minute drive from the airport to the hotel, \$65!

The next morning our guides arrived at the hotel and offered to provide a full-day tour of Saigon, in an air-conditioned minivan for \$250 for each person, including lunch. We declined, obtained directions to our host family’s home and checked out of the hotel. We did, however, take most of a day to tour Saigon by pedicab, for a cost of about five dollars each, including lunch.

Saigon is as beautiful as it was during my one-day stay in 1967. The black market is still prospering and the street shops stock a wide variety of goods, both necessities and luxuries such as VCRs, televisions and cameras. The Rex Hotel is still open and catering to tourists, with a beauty shop, curio and artisan shops and a well-stocked bar. The side streets within the barrios away from city center show the effects of the 1975 takeover—boarded up mansions, rusted concertina wire and shell-pocked walls. There are very few vehicles, and life basically passes by via a bicycle ballet.

People were very friendly once they realized that we were not Soviet technicians. We were constantly stopped and asked hundreds of questions, primarily about relatives in California,

New York or Texas. Letters were clandestinely given to us to mail to relatives in the States. Everyone in Saigon has a story to tell, most concerning life since 1975, the date of the Communist takeover.

One particularly sobering afternoon was spent touring the War Crimes Museum. The photos and anti-American captions are very harsh. It was interesting to note that the Rocky Flats Nuclear Weapons Plant near Denver is prominently depicted on a United States map, and described as the manufacturing center for chemical, biological and radiological weapons used during the war.

As much as we enjoyed the relaxed atmosphere of Saigon, our goal was to hike through the area I served in, the Iron Triangle, approximately 40 miles north of the city. Vietnam Tours was adamantly opposed to this part of the trip, with excuses ranging from the proximity to the Cambodian border, the number of unexploded ordnances and the danger from the resistance groups in the mountains (even when we pointed out that there was only one isolated mountain, Nui Ba Dinh, in the area). Permission was not granted. We were able to discreetly arrange for a vehicle and driver, made two trips into the area, and walked into Cambodia.

The contrasts I noted between the Vietnam of 1966–67 and 1990 while driving north to the Iron Triangle were very sharp: roads are now paved and in fair to good condition; the paddies appear to be more productive; and the countryside is clean. At points during our travels I was certain that I had never been in the same area, however familiar landmarks always seemed to pop up to reassure me that this was the same Vietnam I remembered.

We had two goals in visiting the Iron Triangle: first to locate a school I had built in my spare time in the village of Lai

Khe, and second to visit the village of Ben Suc. The school proved to be the most difficult objective.

When we arrived in Lai Khe, we were greeted by mobs of people, adults and children. I passed around photos of the school and one lady, who had been a student at the school, became very excited. We were literally taken by the hand on a twenty-minute walk to a jungle clearing. All that remains of the school is one wall bleached white by the sun. The building was destroyed by the invading communists in 1975, and the school yard is now being used as a cemetery. My day pack was full of pens, pencils and assorted school supplies in hopes that we could make a small contribution to the students. Those supplies were left with the village council of Ben Cat, a village ten kilometers away and the location of the closest school.

Lai Khe, once a major French rubber plantation and rubber research center, appeared much poorer than when I left in 1966. The rubber trees are not being worked as they once were, and the airfield I helped build stands in mute disrepair. The pierced steel planking surface we used has been torn up, and individual sections are now being used in home construction and to fabricate truck bodies. Unexploded ordnances are evident everywhere, posing grave problems to workers and children. Our visit to the village of Ben Suc was an emotional one. The village had been totally destroyed during Operation Cedar Falls in the fall of 1966. The destruction was carried out to punish the villagers who openly supported the Viet Cong. The village has been rebuilt and by all appearances is prosperous. As with most places we visited, we were initially mobbed by children and curious adults. Everyone seemed very friendly, however members of the military village guard informed us that it would be to everyone’s

benefit if we did not take pictures or ask any questions. We left rather quickly. Memories of the war die hard on both sides.

Upon our return to Saigon, I was invited by officials of the Ministry of Labor to spend a day viewing their water well drilling operations. Since 1983, over 800 water wells have been drilled in the provinces adjacent to Saigon. The effort is headed by a young North Vietnamese hydrogeologist, a very dynamic individual.

In general, it takes four hours to drill to a depth of fifty meters, and another two hours to case, screen and complete each well. The wells are hand drilled, and the cost per well averages \$40. This cost may seem very low until one realizes that top government officials in Saigon earn approximately \$30 per month. Each drilling team, consisting of three individuals, is housed and fed by the village desiring wells, and the villagers pay for the fresh water used in well completions. At an afternoon banquet, ministry officials expressed a fervent hope that relations between the United States and Vietnam would soon be established such that we could provide materials and advisors to assist in a number of resource related projects.

Although there are some difficulties, a trip to Vietnam is well worth the effort. We were treated well, and basically allowed to see just about anything we wanted. The people are warm and friendly, the food is very good, and living costs can be inexpensive—we averaged \$11 per day per person, but on our terms, not theirs.

“Almost from the moment we set foot on the streets we were constantly engaged in friendly conversations. University students wanted to practice their English and discuss the latest news from Prague and Berlin, former soldiers and POWs of the South Vietnamese Army wondered where my father had served and told us about life after the fall of Saigon, shopkeepers with relatives in the States asked what San Francisco was like and gave us letters to post. Everyone, it seemed, was doing their best to ignore the government and forget their present situation.”

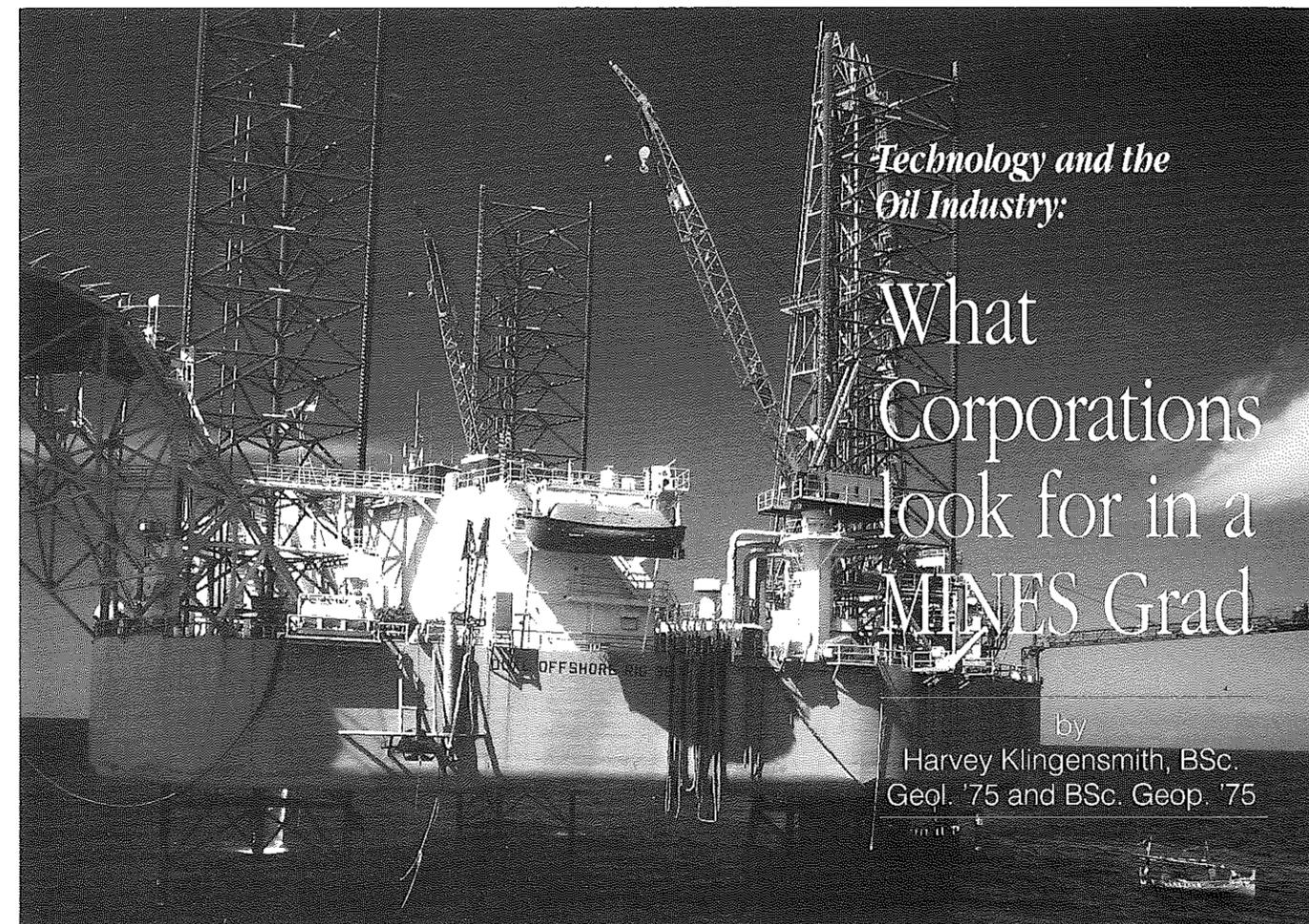


Clark Davenport, left, asked people in Saigon to direct him to a village in an area closed to outsiders since the war. The Vietnamese government opposed this part of the trip, but Davenport and his sons discreetly arranged for a vehicle and driver and made two trips to the Iron Triangle. (Photos by Jad Davenport)

Perhaps the most surprising thing was the general contentedness of the people, who finally after years of war are now living in peace, although perhaps not under conditions of their choice. I hope to return again, soon—perhaps to rebuild the school in Lai Khe, to develop a team to remove explosives in an area being reforested, and to offer advice in water well drilling operations. ▲

G. Clark Davenport graduated from the Colorado School of Mines in 1964 as a geophysical engineer. Since graduation, he has devoted his career by applying geophysical surveys to engineering, environmental, archaeological and criminal investigations. He has lectured and taught courses in Spain, France, England, Saudi Arabia, South Africa, Mexico, Peru, Iran, Canada and the Dominican Republic. He is currently the manager of remedial investigations for Rocky Mountain Operations, Ebasco Environmental Division.

Highlighted quotes are by Jad Davenport.



Technology and the Oil Industry:

What Corporations look for in a MINES Grad

by
Harvey Klingensmith, BSc.
Geol. '75 and BSc. Geop. '75

Photo courtesy of Maxus Energy

As I look out the windows of my hotel room in Bogota, Colombia, where I have come for a series of meetings with industry partners and government officials, I am not only reflecting upon the last 15 years in the oil industry, but also trying to peer into the future and make a guess at what role Mines will be play in it. This article will necessarily be a brief, subjective, qualitative look backward, and forward, at primarily the upstream end of the oil business.

So to understand my perspective, a brief biography is required. Upon graduation from Mines in 1975 with two degrees, a BSc. in geophysical engineering and a BSc. in geological engineering, I joined Texaco, Inc. in their Denver office in May 1975 as a geophysicist. In November, 1977 I left Texaco and joined Diamond Shamrock (predecessor to Maxus, Inc.) as a geophysicist. I transferred to Houston in July 1980 as district geophysicist for the offshore district.

In March 1983, I moved back to Denver and became exploration manager for the northern division. After a brief stint in Dallas (10 months), I became an officer of Maxus, Inc. (April 1987), and was named vice-president and general manager of the northern division in Denver, with responsibility for all exploration and operations functions.

January 1989 brought a move back to Dallas, as vice-president of exploration for North America. In September 1989 I was named vice-president for international exploration, the position I now hold.

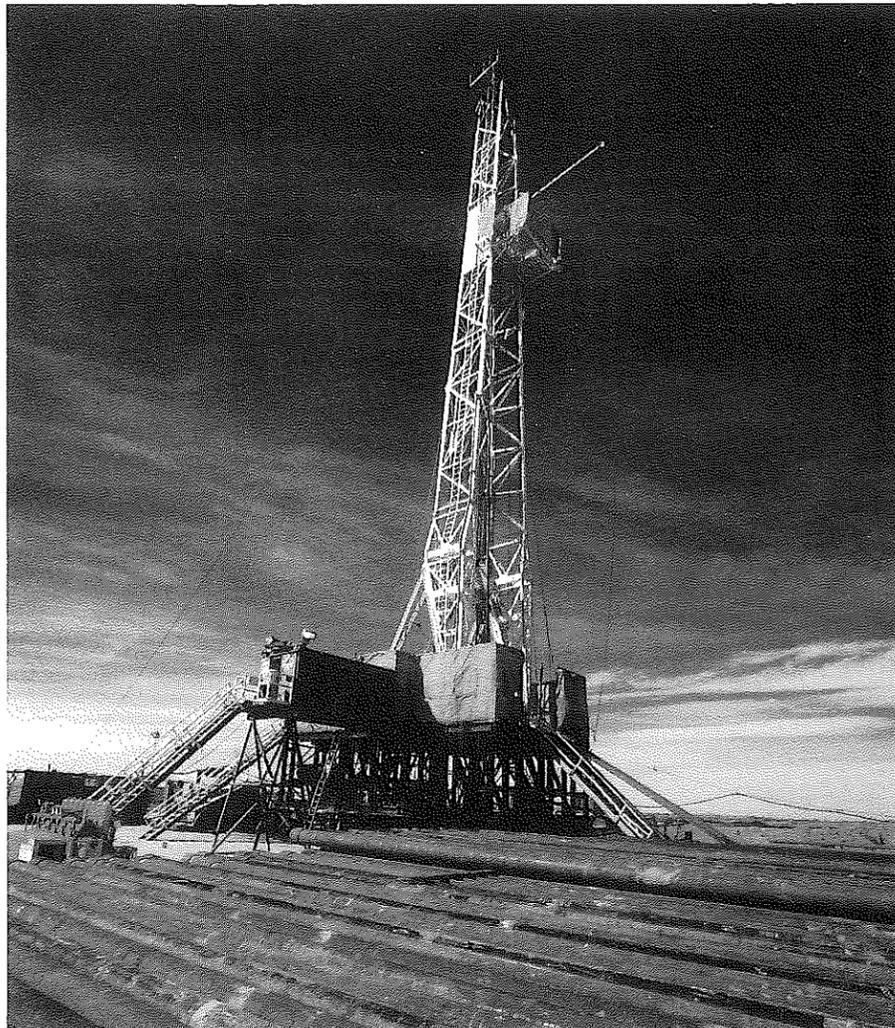
WHERE HAVE WE BEEN

As is all too familiar to everyone, the late 1970s and early 1980s saw the boom, the middle, and in the late '80s, the bust of the oil industry, while the last 18 months have been a relatively stable period.

As a graduate in 1975, I interviewed with six companies and had four job offers. The good times were just begin-

ning. But were they? As prices climbed and companies' revenues increased, the pressure was to find more oil and gas quickly and the emphasis was put on quantity of work, rather than on quality. As a result, the efficiency of the oil industry in finding and developing new reserves (measured in dollars/barrel) slipped. This was caused not only by a large rise in the cost of goods and services, but by fewer reserves being found per foot of hole drilled. The work force was unstable, with people changing companies often. Technological advances were being made in drilling, evaluating, and completing wells and the first generation of personal computers was beginning to appear.

As prices peaked and then started their downward trend in the mid- and late '80s, the rig count declined, many companies went under, and enrollment in petroleum and related sciences declined at a number of schools. Many people lost their jobs and left the industry. But interestingly enough, the in-



dustry's efficiency improved. Finding and development costs came down and more reserves were being added per foot of hole drilled than in the previous years.

Technology continued to advance. The first horizontal wells were drilled. New geologic thinking opened many areas to exploration. Well logging continued to become more sophisticated (although nothing replaces a good drill stem test), and geological and geophysical work stations became commonplace. The use of personal computers in day-to-day exploration and engineering grew as the machines became more powerful.

WHERE ARE WE GOING

This greatly condensed recount of the last 15 years is nothing new. But, it does contain pieces of the answer to the question, "where do we go from here?" I believe we have good indications of where we're going by looking

talk to a geologist, we look for some exposure to geophysics; and if we talk to a geophysicist, we look for a good, strong geologic background.

If we are interviewing graduate students, we again look at what courses they took and at their thesis. We do not so much look at the specific subject of a thesis, but rather evaluate it to determine if the thesis demonstrates an ability to think through and understand basic concepts. And, finally, we look for enthusiasm. Does the graduate want to look for and help produce oil and gas; does he or she want to play an active role in one of the world's largest treasure hunts?

The Geological, Geophysical and Petroleum Engineering Departments must continue to provide good, practical, up-to-date courses in their respective areas, with a qualified group of instructors teaching them. Too often we are seeing courses taught by graduate assistants and teaching assistants, while the professors are engaged in either fund-raising projects or research (sometimes one and the same), although this does not seem to be as common at Mines as it is at other universities around the country. This is not a job at teaching assistants but rather a job at faculties and administrative people.

The school must maintain a commitment to providing industry with graduates who are ready, willing and able to contribute from their first day on the job. One very important step has been taken toward this goal with the announcement of the joint CSM/IBM agreement to establish a center for exploration at CSM.

As the personal computer has become an invaluable tool in the oil industry, it will be necessary for graduates to understand how PCs can aid in the search for and production of hydrocarbons. And as the disciplines mentioned above become more integrated, the PC will be the tool common to everyone.

The Colorado School of Mines has a reputation worldwide for providing the kind of earth scientists that are needed in our business. A conscious decision to stick to the basics will ensure that this will continue in the future. ▲

at the last 18 months. Prices have improved and have been relatively stable, and are forecast to remain so. The domestic rig count improved some, but will not approach the levels of 1979-83 anytime soon. There has been and will continue to be interest in international exploration by United States companies. The demographics of the work force, combined with the fewer number of graduates, will lead to increased job opportunities for these graduates.

What can Mines do to best prepare these graduates and future graduates for careers in the oil industry? To explain this another way, what does Maxus Energy look for in a potential new employee?

We look at a number of criteria, the first of them being "smarts." An overall grade point average, and grade point average in major field courses, are key indicators. We also look at the specific courses taken, particularly in their major. We look for explorationists, so if we

Editor's Note: Mines Magazine checked with the various departments on their efforts to integrate disciplines. Dr. Robert Thompson of the Petroleum Engineering Department gave some thoughts on what an engineer's education should include.

"The education of our engineers must, and more so than in the past, include not only sound basic fundamentals, but it must also be broad. The education must be broad in the sense the engineer must be an effective communicator both orally and written and be able to address a wide range of technical issues including our environmental concerns. Petroleum engineers, geologists, and geophysicists must work together to find cost effective solutions to exploration as well as environmental problems, he said.

"Design courses in the curriculum will likely change to meet the challenges of these open-ended problems. The future graduates must be able to 'think', he added."

One new course on the CSM campus designed to address these needs is an interdisciplinary course offered by the Geology, Geophysics, and Petroleum Engineering Departments. Integrated Exploration is a graduate level course open to undergraduates as well as graduate students, and this year the focus is on carbonate reservoirs.

It is being taught by Dr. John Warne of Geology and Geological Engineering, Dr. James Crafton of Petroleum Engineering and Dr. Tom Davis of Geophysics. This important interdisciplinary group will cover a broad range of topics from reservoir engineering, well testing, core analysis, thin section analysis, completion technology, and analysis of seismic lines.

"A class like this helps bridge the gap that exists in most companies today. The gap is the lack of understanding each group has for the other group. This lack of synergism has, I am sure, cost the industry many dry holes and inefficient field development," said Thompson.

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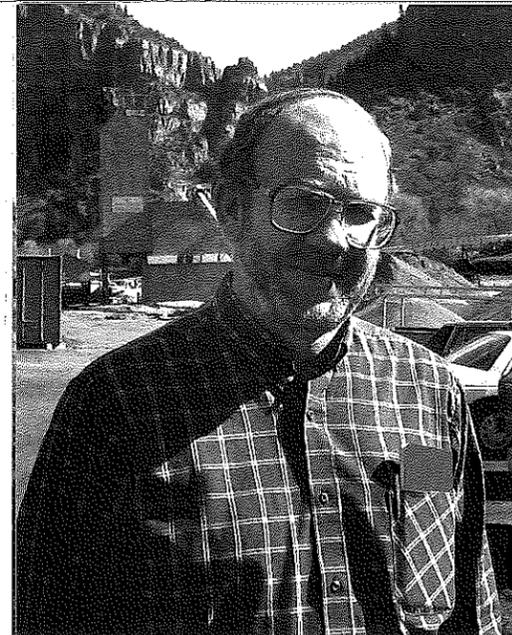
*Colorado River and steep canyon walls are
backdrop for highway tunnel project*

by Ellen Glover

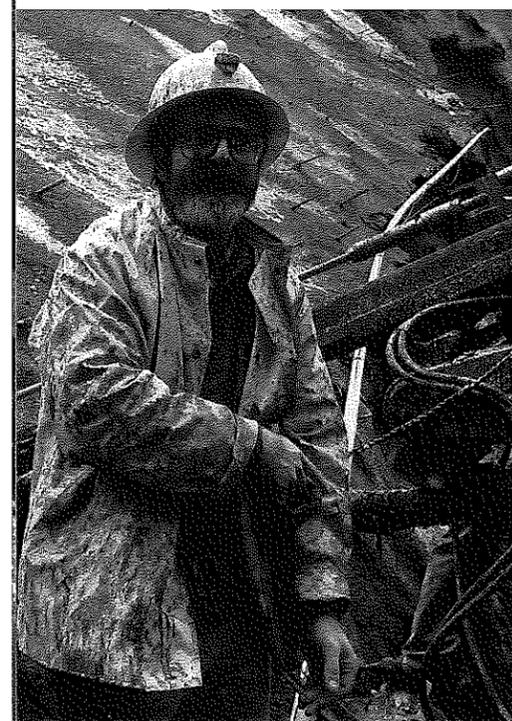
You couldn't have picked a prettier setting to work in if you tried. A number of alumni are working in Glenwood Springs, Colorado on a \$67 million highway construction project in Glenwood Canyon which will divert traffic along Interstate 70 through twin tunnels at Hanging Lake, and when completed in 1993, will be the last link in the interstate highway through Colorado.

The Hanging Lake Joint Venture is managed by the western office of Frontier-Kemper Constructors, Inc. Frontier-Kemper and its affiliated companies are headquartered in Evansville, Indiana, and is presided

continued on next page



Denis McNerny is project manager for the Hanging Lake Joint Venture and says building the tunnels in Glenwood Canyon has been a tight squeeze.



Mud-covered Paul Pendleton, a true picture of a Miner, is working on the soil stabilization system at Cinnamon Creek.

(Editor's Note: an earlier article about the Hanging Lake Joint Venture appeared in Mines Today, Fall 1989)

over by CSM alumni Dyke Howell, president, and Dan McFadden, executive vice president.

The tunnels will be located in the central portion of the canyon near Cinnamon Creek, and each tunnel is about 4,000 feet in length, and about 43 feet high and 42 feet wide. Traffic will cross the Colorado River and pass through the tunnels on the south side of the river to create a recreation area at Hanging Lake, a popular spot located above the existing highway nine miles east of Glenwood Springs. A three-story building in Cinnamon Creek Valley will cover the road so motorists will be continuously covered once they enter the tunnels. Viaducts at either end of the project will ease traffic back to the north side of the canyon in a smooth curve.

The atmosphere around the site is very positive: everyone who is working for either Frontier-Kemper or the Colorado Highway Department is experienced and requested to be on this project—from the engineers to the blasters and the front end loader operators. Denis McNerny (E.M. '66) is the project manager and Dan Harrison (BSc. Min. '71) is the project engineer in Glenwood, and both say once they learned about the construction project they both requested to be transferred to Colorado for the experience.

"The tunnel excavation sequence is pretty well cookbook, but we have brought in some equipment that is new to the United States—big hydraulic drills, dedicated rock bolters, and the drilling equipment is somewhat unique. This is really just drill-shoot tunnels which people have been doing for years. Some soil support methods we used were new to this area; we did some soil nailing, an innovation which people have never seen before," McNerny explained.

"The really unusual thing about this job is there is no space to move or work—the canyon is very narrow and is constantly under traffic. The open area in Cinnamon Creek will be a building foundation in six months for the maintenance building. We have trouble with access into the tunnels and it becomes messier than it is now. We don't anticipate any problems, but it makes it difficult. We probably have a quarter of the space we normally have for a job this size," he added.

Dan Harrison has lived and worked all over the country; he previously worked on the Washington, D.C. metro subway system before looking for a job that would let him return to the western states. "Everyone on this job requested to be here, and every person has several, if not many, years of experience. Everyone likes the challenge of working on a large project in tight quarters and being surrounded by the Rocky Mountains. My family and I bought a home in Glenwood Springs and we enjoy living in Colorado," Harrison smiled.

Harrison counted six other alums working at the site:

Thane Lincicome '62, an engineer with the Colo. Highway Department.

Mark Nord '82, an engineer with the Colo. Highway Department.

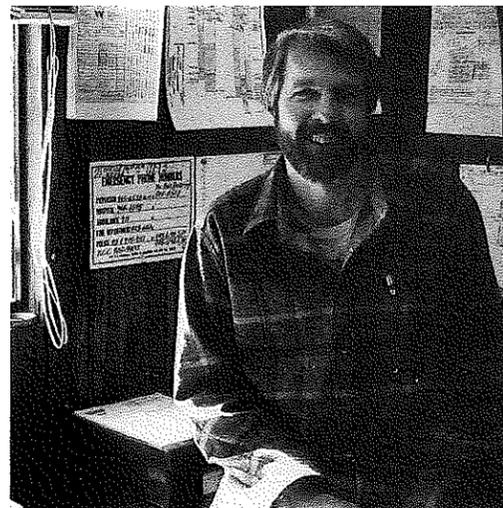
Ted DePooter '80, a consultant with the state of Colorado inspecting some of the engineering.

Jennifer Hill '83, an inspector with the Colo. Highway Department.

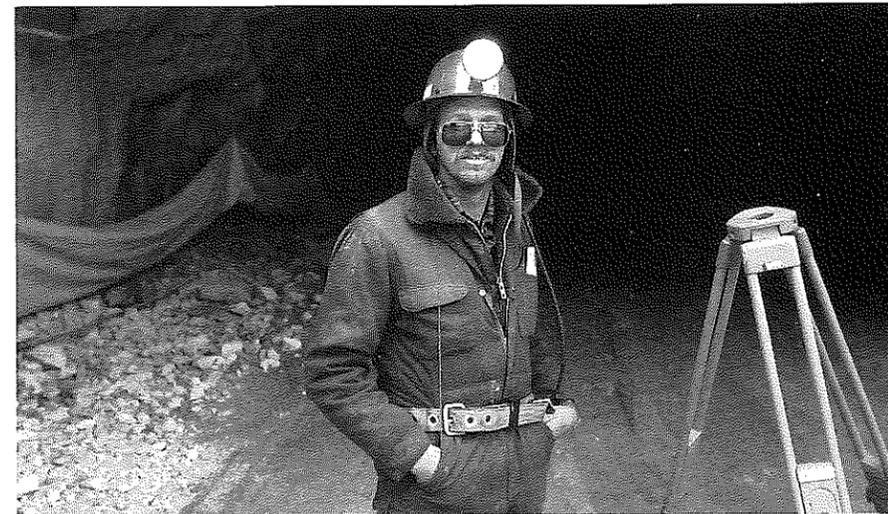
Paul Pendleton '74, Frontier-Kemper employee working on soil stabilization.

Michael Bertoldi '74, a surveyor with Natural Resources Company of Denver.

In addition several students from the CSM Mining Department will be working on the tunnels this summer. Blasting will continue through spring and summer, and construction of the viaducts and maintenance building will go on simultaneously. ▲



Dan Harrison says once the highway project is finished motorists will be able to drive smoothly through one of the prettiest spots in Colorado. He has enjoyed working in the canyon and with a dedicated, experienced group of people.

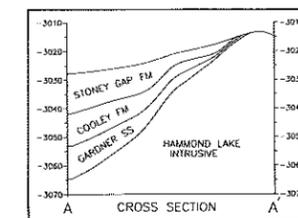


Mike Bertoldi, a surveyor with Natural Resources Co. of Denver, poses before one of the portals. Bertoldi is working as a consultant to the joint venture.

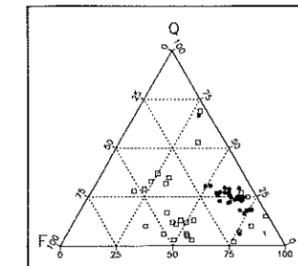
Below ground in one of the tunnels: a high-powered drill aims its bit at the left side of the photo while two workers look out from the other end of the tunnel. Working in the portals requires knee-high rubber boots, headlamps and a constant look over your shoulder for the front end loaders. (Photos by E. Glover)



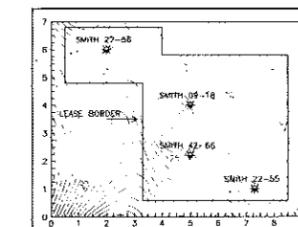
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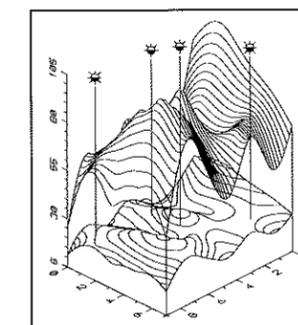
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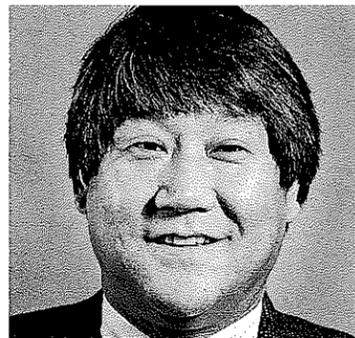
Recently, the United States government invited me to go on a Caribbean lecture tour. For an academic, any opportunity to get to know Third World realities from up close is always welcomed. A good social scientist is perpetually curious to know which discipline offers the best method of unraveling mysteries of Third World misery.

Suriname, with no economic growth, can claim the second highest gross domestic product per capita (\$3,420 in 1988, down \$300 from 1980) of all of South America—well ahead of Argentina and Brazil, the continent's two major industrial powers. I saw more BMWs and Mercedes in Paramaribo than I do in Denver, whose metropolitan population is twice greater than the total population of Suriname. No one is starving, but then again here are no jobs to be had. The young aspire to migrate to the Netherlands to get on the public dole. Two international mining companies produce upwards of 80 percent of the national revenues, and each one's annual corporate sales are greater than Suriname's gross domestic product.

In Georgetown, where an average Guyanese makes less than US\$1,000 per year and where a United States embassy welcoming kit includes a gallon of drinking water and a flashlight ("torch"), World Bank officials declare that the country is on the verge of falling apart. Undrinkable water and chronic power failures are part and parcel of Georgetown's life. A dire need for food and jobs is readily recognizable even to a short-term visitor. But in both countries, the black market is replete with anything one wants: from Evinrude outboard engines to Mont Blanc pens. Who is the consumer? Certainly, no existing economic theories explain the real

THE OTHER THIRD WORLD

by Dr. Eul-Soo Pang
Head of the Department
of Global Systems &
Cultures



workings of the Surinamer and Guyanese systems.

In Trinidad & Tobago (TT), the loss of the regional semifinal game of the world soccer match against the United States was a more terrible blow to the country than the economic crisis. Low oil prices have hurt the economy, but people do enjoy higher living standards than Guyana and Suriname. Here, people have hopes and dreams, both unknown to the other two countries.

In close geographical proximity to each other, all three countries are at once similar and dissimilar. How do I explain the differences? All have similar colonial histories; they were settled by Africans, Hindustanis, Chinese and other ethnic groups, the first two constituting over 80 percent of the populations of the three. All three used to be prosperous plantation economies, but mining (bauxite) in Guyana and Suriname and gas and oil in Trinidad are now the mainstay activities. The desire to develop industrial economies has resulted in the neglect of agriculture. Guyana, once a breadbasket for Caribbean plantations, now imports food. Suriname no longer has a thriving self-sufficient agricultural base. And Trinidad overspent itself in the heyday of high oil prices and is now forced to scale back many of its social and economic programs, a syndrome known as the Dutch disease.

One factor that has compounded the economic woes of Guyana and Suriname—but not in Trinidad & Tobago—is internal: strong ethnic rivalry (or cultural pride, as locals say) that has hindered the forging of a viable nation. TT is both a nation and a state, but Suriname and Guyana are states that have yet to emerge as viable nations. ▲

BOOK REVIEW

Where the Sun Never Shines. A History of America's Bloody Coal Industry

by Priscilla Long (N.Y.: Paragon House, 1989) 420 pages.

A history of America's coal industry—coal's role in industrialization, the corporate entities within the industry and the men who mined it—is a very broad topic. *Where The Sun Never Shines* narrows the historical scope to coal in the United States prior to John L. Lewis' rise to power in the United Mine Workers of America (UMWA) in 1920. The topic is then divided into: coal development and unionism in the eastern states, principally Pennsylvania, and the coal industry in Colorado.

Broad themes are skillfully broached without miring the reader down. For example: coal, the energy driving the wheel of the industrial revolution, and anthracite, the rock which became metallurgical fuel, but not until the discovery of blasting pre-heated air into the furnace for ignition are two subjects covered by Long.

There is an interesting description of room-and-pillar mining. The miner as craftsman was allotted his own room. He cut the coal hiring his own laborer/apprentice to load it. After the rooms in one section were worked out the most experience miners then mined the columns supporting the roof. "Robbing" the pillars sounded like a twist on the metal mining phrase "picking out the eyes of the mine." Long-wall mining slowly replaced the room-and-pillar method. Miners grudgingly moved from skilled craftsmen to industrial labor.

Ms. Long's writing interweaves quotations and facts in an easily readable style concentrating on the lives and grievances of the men in pits: low wages, scale fraud, irregular work and dangerous working conditions. Some men came to Colorado's precious metal boom towns to mine while others came to mine the miners. Ms. Long states that competition in the coal industry made the closed-market com-

pany town a significant source of company profit.

Coal in the American West, singularly coal in Colorado, is the focus of this book, which is the result of extensive research into the coal strike of 1903-1904, the interim period of 1905-1913 and the culmination in the C.F.&I. strike of 1913-1914. (The citations and bibliography cover 68 pages.) Interesting contrasts are drawn regarding the ethnicity and conditions between the bituminous fields in the Pueblo-Trinidad area, and the lignite fields in the Louisville-Erie-Marshall area. The Ludlow Massacre is one of the saddest moments in Colorado history, and Ms. Long carefully constructs the information her research has produced.

The book concludes in the post-Ludlow days as the coal industry used public relations as a way to improve the industry's public image.

—Reviewed by Harvey N. Gardiner, archivist, Western Historical Collections, University of Colorado.

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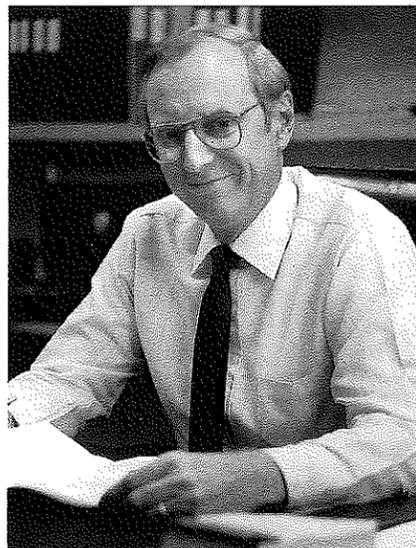
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by Norman Zehr, '52
Executive Director

Students Continue Tradition of Lighting the "M"

the "duty" to guard the "M" from the vandals who were attracted to it. They were usually students from some school we were about to play in football.

I guess they thought it would help their team if the "M" was in a disheveled condition. I doubt that had much to do with it as Mines' football record was about the same, with minor exceptions, in the '50s as it is today.

Each fraternity supplied a group of pledges to stay on the "M" all night. We had various surprises in store for potential vandals. I will not describe those surprises in detail as they are not in keeping with today's laws and "suit-happy" citizens.

But the methods were effective and some of the more daring offenders were apprehended and made to wish they had not decided on such an evening's entertainment. Their punishment usually lasted through the football game, and was not quickly forgotten by the recipients.

In recent years I had begun to wonder if the desire to protect the "M" had fallen by the wayside with today's students, but when I heard about a recent night the Blue Key Club spent on the "M", running an auxiliary generator to keep the lights on, I realized my fears were unfounded. The current project, which was not provoked by alumni as far as I know, reinforces that realization.

We had a scare a few years ago when some local residents decided to attack the idea of having a lighted letter, or other symbol, on a mountain. Their prime target was not our "M" but was in the same category. That effort failed and it was determined that the "M" is

not in danger from that direction.

Another event, about which you need to be informed, is the changing of the name of the "Mines Annual Fund" to the "Mines Alumni Fund". It will still be called the MAF, to avoid further confusion.

Last year 2,702 loyal alumni supported the MAF with a total of more than \$715,000 means a great deal to the school in terms of scholarship and faculty support. It's worth noting that parents and other friends also show their pride in CSM through their own gift support.

Because MAF is uniquely an alumni fund, and to help avoid confusion with gifts the development office receives from non-alumni, the Alumni Association Board believes that MAF more properly should mean "Mines Alumni Fund", rather than what we've been calling Mines Annual Fund.

What better way to identify the most important single factor in gift support by individuals to the school than by referring to our collective effort as the "Mines Alumni Fund"?

I hope that you understand the reason for the name change and are not confused by it. I also hope you will give this effort your complete support.

It bears repeating that contributions to the "Mines Alumni Fund" go into the CSM Foundation and are not used for direct support of the Alumni Association itself. These funds become unrestricted funds for the use of the school as described above.

Crystal Cave Exhibit Donation

Thanks to the Golden Civic Foundation, the Crystal Creek Cave exhibit slated for the Colorado School of Mines Geology Museum is nearing reality.

The Civic Foundation donated \$5,000 to the museum which brings the total funds for construction of the exhibit to \$15,000 of the \$20,000 needed. "We are close enough to our fund-raising goal to start construction," said Virginia Mast, museum curator.

Earlier O.R. Goltra, on whose property the cave was discovered, and the Greater Denver Area Gem and Mineral Council each gave \$5,000 toward the project.

"We appreciate the support of the

Civic Foundation, Mr. Goltra and the gem and mineral council," CSM President George S. Ansell said. "This is an important addition to our museum and will be enjoyed by many people in the future."

The cave, discovered May 12, 1988, in Clear Creek Canyon on Goltra's quarry property next to U.S. Highway 6, contained delicate crystals and flowstone formations. What made the discovery unusual was that the cave is in a fault zone that cuts the Precambrian metamorphic rocks of the core of the Rockies, not in limestone like most caves.

Many samples were moved to the geology museum at Mines and will be on display in early May when construction is slated to be finished.

"We will take a mixed media approach to our display," said Mast. "In

the lower level of the museum building, we will construct a walk-in exhibit, use photos and three-dimensional reconstruction of the original site. Items from the cave will be on display and we'll extend the exhibit to provide information discussing caves and faulting in general."

"The abundance and beauty of the decorations we found are unprecedented among caves in such rocks and we hope to demonstrate that to visitors to our exhibit," Mast said.

CSM PROFESSOR CHOSEN AAAS FELLOW

Colorado School of Mines Chemistry and Geochemistry Professor Don Langmuir was elected a Fellow by the Council of the American Association for the Advancement of Science during the annual AAAS meeting in New Orleans, Louisiana, February 15-20.

A fellow of the association is described as "a member whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished."

Langmuir earned AAAS recognition for his research on equilibrium geochemistry and thermodynamics of water-rock systems, and for his work related to radioactive waste disposal.

In January 1989, the CSM professor was nominated by the National Academy of Sciences and appointed by President Reagan to the Nuclear Waste Technical Review Board, an independent agency within the executive branch of the federal government. The board has powers to evaluate Department of Energy activities concerning nuclear waste transportation and disposal, and reports its findings to congress and the president.

Langmuir is also president of the Colorado Mountain Club.

CSM WETLANDS EXPERIMENT RECEIVES TOP ENVIRONMENTAL HONORS

A joint effort between Colorado School of Mines and Camp, Dresser and McKee, Inc. (CDM) to control toxic mine drainage was chosen the state's best environmental undertaking at the Consulting Engineers Council of Colorado's annual competition in January.

The winning project uses a man-made swamp, or wetlands, to keep acid and heavy metal mining waste from flowing into Clear Creek near Idaho Springs. Water draining from an abandoned mine tunnel is channeled through an artificial bog where bacterial reactions in the soil neutralize the acids and remove the metals.

Colorado mining districts are dotted with pits and tunnels, many dating to the 19th century. Pollution leached from the old mines has stripped the life from miles of the state's mountain streams.

CDM, a private consulting firm, entered the project in the competition. Entries were judged for origi-

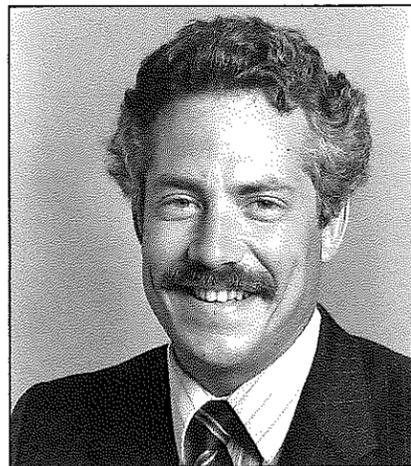
nality, successfully meeting the client's needs, technical value, social-economic considerations and complexity.

According to CSM chemistry and geochemistry Professor Tom Wildeman, similar wetlands may soon be used to treat wastes at several more locations near Idaho Springs and Central City.

"If all goes well, we'll go into a design phase to build some full-scale wetlands," Wildeman said. "What we have now is a pilot plant."

Funding for the pilot study is from the Environmental Protection Agency through its Superfund Innovative Technology Program.

By winning the state competition, the wetlands experiment qualified for national honors at the American Consulting Engineers Council competition in Washington, D.C., where it won first place for environmental solutions costing under \$2 million.



**RONALD W.
GEASON NAMED
VICE PRESIDENT
FOR BUSINESS
AFFAIRS AT CSM**

Ronald W. Geason has been named vice president for business affairs at Mines, effective June 1.

Geason, who previously served as associate provost at Northeastern University and budget director at Carnegie Mellon University, will oversee the accounting, budget, administrative services, administrative computing, personnel and plant facilities functions of the school.

"We are extremely pleased to have Dr. Geason join us at Colorado School of Mines," said CSM President George S. Ansell. "His numerous accomplishments at Northeastern and elsewhere speak highly of his talent and dedication."

Dr. Geason brings a broad set of experiences and accomplishments to the school. He has previously served in positions at The Ohio State University, the University of Detroit and the Wisconsin State Budget Office. His principal accomplishments and activities include long-run modeling and forecasting, capital budgeting, planning database development and initiation of various innovative administrative strategies.

Geason holds a master's degree from the University of Michigan, and a PhD. from Ohio State.

"I am looking forward to working with the fine faculty and staff of CSM to establish an appropriate administrative structure for the future," he stated.

Geason is married, and has three children. His wife, Jane, recently received a master's of education in curriculum and instruction from Northeastern University.

**CSM Student
Honored with
Thomas J. Watson
Fellowship**

Colorado School of Mines student Steve Oullette is among a select group of graduating college seniors from across the country to be awarded a 1990 Thomas J. Watson Fellowship grant.

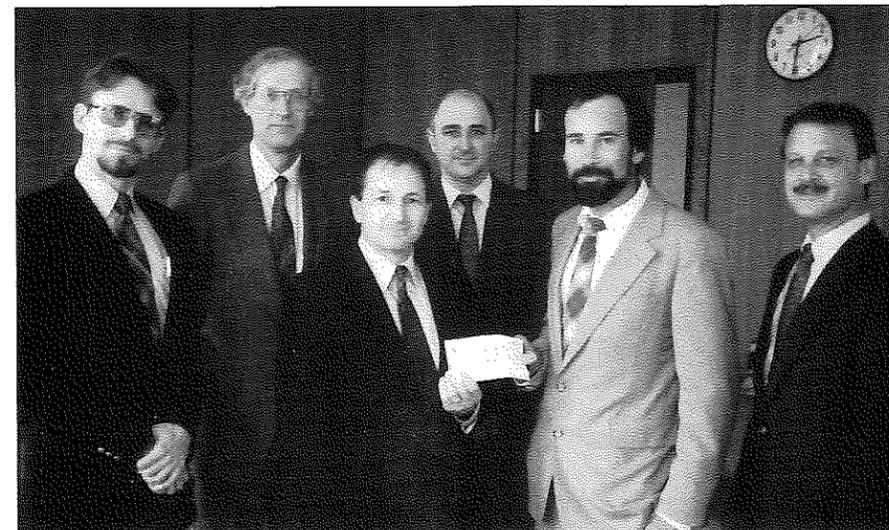
Oullette overcame national competition to earn the fellowship, which will provide him with a stipend of \$13,000 to support a year of independent foreign travel and research.

A metallurgy major, Oullette plans to use the grant to study the evolution, fabrication and social impacts of the sword in Western Europe. He intends to compile a history of the European sword and its effect on medieval politics.

The Thomas J. Watson Foundation has awarded annual fellowships to winners chosen from 54 participating colleges since 1969, and has distributed stipends totaling over \$14 million. The foundation provides this opportunity for travel and focused study to encourage students to explore their interests, test their aspirations and gain fresh perspectives on life and American society.

CSM is the only state-assisted institution and one of just three engineering schools invited to participate in the Watson Fellowship Program.

AMOCO Funds Geophysics Projects



From left to right: James Schofield, Richard Hansen, research professor, Center for Potential Fuel Studies, Norm Harthill, Jim Rossi, Gary Prost and Chuck Webb.

Gary Prost, senior project geologist from Amoco's Houston Region Geologic Exploration Technical Service (GETS) group, presented a \$25,000 check to Dr. Norm Harthill, director of the Colorado School of Mines, Center for Potential Fields Studies. The check was a donation in support of continuing projects at the center, including studying magnetic alteration over petroleum accumulations and regional gravity modeling.

Also present from Amoco's Denver Region office were Chuck Webb, regional geophysical manager; and James Schofield, staff potential fields geophysicist.

Three geophysical recruiters from Amoco were also present; Jim Rossi, exploration training manager, Toni Harvey, senior project geophysicist, and Betsy Lockhart, senior geophysicist.

Under the M continued on p. 28

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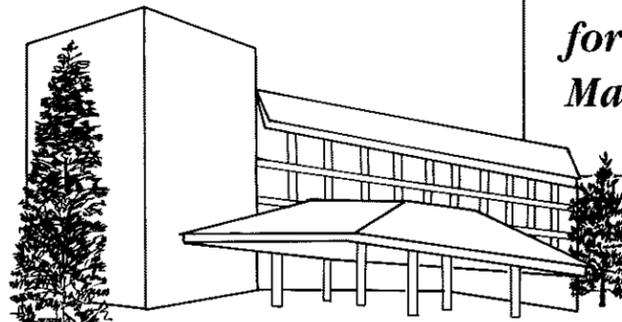
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LETTERS TO THE EDITOR

Dear Norm:

Your venture into political commentary seems mild enough and should not "stir up" too many people. Surely it's safe these days to note that communism does not work. Even Lenin had noted it by 1921 when he brought forth his new economic order, calling for a sharp turn toward private ownership and enterprise.

Some of us have seen the result first hand of the sudden application of state socialism. Cuba, the "Pearl of the Antilles," was turned, overnight, into a dreary third world slum. From a place where people seemed to live on chicken to being a place where one was allowed, twice a month, to stand in an endless line and to buy a scrawny pollo.

Today, Nicaragua offers a fresher example of the joys of communism. It will also furnish us with a look at the difficulty of getting from there to capitalism. We have already seen how difficult that is by observing Great Britain.

Mines, as you experienced it, must have been much like it was in my day. In my years (9/41-5/48) there I never heard anyone mention anything political. I grew up an apolitical person.

Fidel politicized me. I lived in Venezuela during the years when he, through force of Soviet arms, attempted to overthrow that country. Douglas Bravo, Teodoro Petkoff and their well-armed bands roamed the countryside. The rattle of gunfire was heard in the cities every night. The building I worked in, in Caracas, was machine-gunned several times. A bomb exploded in the bathroom 40 feet down the hall from me. When I walked to work, as I did every day, I moved through water-cooled 30 caliber machine guns behind sandbags placed alongside the front door.

When I went to the bank I found guards with shotguns pointed at the front door (at me!) because terrorists often ran through such doors with automatic weapons blazing to rob the bank.

Were our lives affected much by all this? No. The events were generally spaced so as to lend an air of unlikelihood to any untoward event. We went about our lives in a normal manner, just feeling a little spice from the threatening events.

It wasn't all laughs of course. A cou-

ple of tourists were maimed in a bomb blast in the bar of the main tourist hotel. Bankers and their messengers were killed. Other bombs killed people. And yet the whole thing created a lot of ruckus with little death. The people did not support the insurgents.

While sharing your interest in the rise and fall of communism, my own interest is mainly in social justice. It's a negative interest of course. Social justice is a concept which assumes that the world isn't a fair place and that governments at various levels, and individuals outside government, can act in such a way as to make it so.

Every time I turn on the television there are a couple of stories about government actions which will make the world a fairer place, and three or four stories about groups which have decided that there are further actions which will make the world fairer.

All of this will of course require votes and money. But votes and money have not been lacking. Not for the last 48 years.

I sincerely believe that, centuries from now, historians will view the social justice campaign much as we now view the Children's Crusade, wondering how a society could spend so much of its assets and cause so much anguish in pursuit of a goal so obviously unattainable.

My favorite recent social justice story appeared a couple of weeks ago in *TV Guide*. Young ladies in the Miss United States competition will henceforth be allowed to wear padding in strategic locations. It wouldn't be fair to keep a girl out just because she didn't have the right natural curves!

Keep up the good work!

Sincerely,

Miles Rader, Geol. E. 1948

Dear Ms. Glover:

The article "Mines on the Moon" by Dr. Miller in the October issue was very interesting. As he stated, geotechnology will be one of the most important aspects of establishment of facilities on the moon.

A recent press release of NASA men-



tioned production of cement for concrete from local limestone. No

way! There never was limestone on the moon. The remote possibility of carbonatite might be considered and would be extremely valuable if found, primarily because of the CO₂ contained. While carbon dioxide has a bad reputation currently, it is the second most important gas to life. Another remotely possible source of carbon will be graphite which could also be used as a lubricant. The most likely source of carbon would be from carbonaceous meteorites which may be quite abundant on the ancient surface.

Cement just would not work. It requires precious water which would tend to boil off in a vacuum or freeze and disrupt concrete before setting time. A more feasible building material, if available, would be sulphur. It is stronger than concrete, it can occur in volcanic areas and it is quite easy to handle, setting for maximum strength in minutes. Thus the most valuable materials on the moon will be oxygen, water, carbon and sulphur.

NASA speculates that there may be appreciable amounts of Tritium (H³) in the moon soil. This could be concentrated and used for fueling nuclear reactors. However, it has a half life of only 12.6 years, so large accumulation is not possible. One of the most productive exploration problems if it is successful would be the location of lava tubes. They might occur in the volcanic areas where the molten lava ran out, leaving the surface undisturbed and the cave possibly several kilometers long. They might be the order of five to seven meters in diameter. They would be essentially glazed on the inside and might be quite tight. It might be necessary to provide a gas tight lining, however.

In addition to the finding a natural shelter in a lava tube the volcanic areas would be the most likely for occurrence of sulphur (in native form or as pyrite) and some of the precious and heavy metals.

The surface of the moon is a me-

dium to dark gray color and any deviation from this color could be important for prospecting.

There has been considerable speculation bordering on science fiction that the story in Ezekiel I is his observation of a group of extraterrestrials. The transport vehicle from their orbiter is a sort of sled which discharged the four creatures and they, wearing back pack helicopters, approached the spot where Ezekiel was hiding under a bush. He describes the space helmet amazed at the transparency, communications gear comparing them to faces of animals and said "and they four had the faces of a man." This appears to have all of the characteristics of a geochemical sampling crew with their pick-up vehicle coming for them and landing near by. This occurred on July 31, 593 B.C. Ezekiel went back to the village in Babylon on the river Chibar and sat for seven days with his head in his hands. Our moon and Mars exploration teams might look much like this, sans helicopters.

Sincerely,

John A. Wolfe '47

Dear Norm,

Referring to your *Director's Desk* column in the February issue of the *Mines Magazine*, I'm certain that you and I could have a most interesting discussion on the socialist/communist movement or on the butter vs. guns problem. But Norm, don't you think that despite our brilliance and profundity, the bar at the Golden Holiday Inn or some other

suitable oasis would be a far better locale for such a discussion than the pages of the *Mines Magazine*? After all, our fellow alumnae/alumni are not all U.S. citizens and they may feel that our flag-waving, dictator-smashing talks are outside the scope of the tie that binds us; namely, our past association with the Colorado School of Mines.

Norm, despite my strong interest in foreign affairs, in state and local political issues, I feel, and I'm certain that

you do also, that the pages of the *Mines Magazine* are far too valuable to dedicate to issues unrelated to the School or our fellow alumni.

Very truly yours,
Bob McMahon '52



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Test your skills and try the Mines Trivia Quiz!

How many questions can you answer correctly? How much do you know about the Colorado School of Mines—formally and informally? Test yourself before you look up the answers on page 36.



1. How many ounces of gold did it take to regild the dome on Guggenheim Hall?

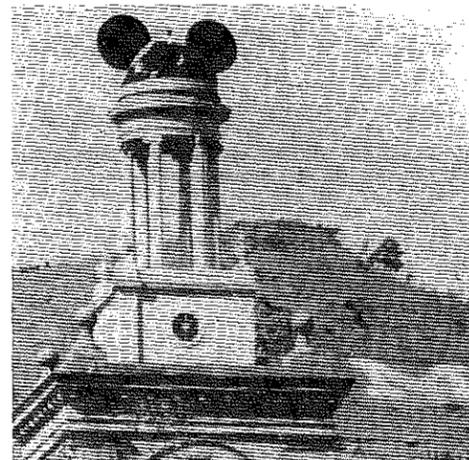


2. What is the oldest building on campus? The second oldest?

3. How old is the geology museum?

5. What field of expertise would you associate with the people for whom the following buildings are named?
Hill • Alderson • Stratton • Meyer • Guggenheim • Coolbaugh • Chauvenet • Lakes Berthoud • Randall

6. Who was the architect for Berthoud Hall? And when was it originally built? Can you also tell when the wings were added?

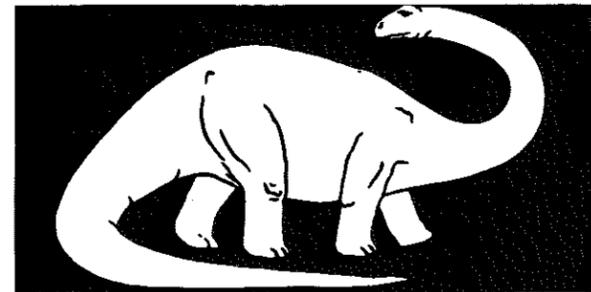


7. Who was president when the Mickey Mouse ears were "added" to the gold dome on Guggenheim?

9. A Foucault pendulum swings in the lobby of which building?



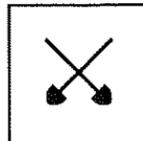
4. What Mines instructor found the first Apatosaurus (brontosaurus) fossils in the Morrison Formation?



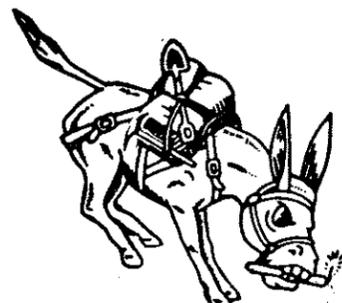
8. We have a gold bullion balance on campus that came from the Denver Mint. Where would you find it?



10. Who was the first woman to graduate from Mines in what year?



11. Mines' football team defeated the Colorado University Buffalos in a long-ago contest. When did they play and what was the score?



CALENDAR

May 10

HOUSTON ALUMNI - SEA FOOD BUFFET, Holiday Inn-I45 North 11:30-12:30; 16510 N. Freeway; \$11; no speaker; RSVP 713/726-9477.

May 10-12

COMMENCEMENT/SPRING RE-UNION WEEKEND - A special invitation to the classes of 1980, 1975, 1970, 1965, 1960, 1955, 1950, 1945, 1940, 1935 and 1930; many events scheduled including Reunion Class Dinners May 11 and All Alumni Banquet May 12.

May 21-23

NORTHWEST MINING ASSOCIATION SYMPOSIUM - Environmental Compliance—Solutions That Work. To be held at The Registry Hotel in Denver. For more information contact NWA, 509/624-1158.

May 31

CSMAA SIXTH ANNUAL GOLF TOURNAMENT, Applewood Golf Course, Golden. Reserve the date! Ed Warren (Geol.E. 1950) chairman; Art Meyer (Geol. E. 1950) co-chairman; 7:00 a.m. shotgun start; \$65.

June 4

AAPG ANNUAL MEETING, San Francisco, California. Alumni Reception 5:30-7:30 p.m.; Ansel Adam Center, 250 4th Street across from Moscone Convention Center; alumni, spouses and students welcome.

June 4-6

NINTH INTERNATIONAL CONFERENCE ON GROUND CONTROL IN MINING - Sponsored by U.S. Bureau of Mines, U.S. Mine Safety and Health Administration and West Virginia University. To be held at Lakeview Resort and Conference Center, Morgantown, West Virginia. For more information call Alice Kerns at 304/292-5695.

June 14

HOUSTON ALUMNI - BUFFET LUNCH, at Houston Engineering and Scientific Society (HESS); 2615 S. Fannin 11:30-12:30; \$11; no speaker; RSVP 713/726-9477.

June 14-16

REUNION/CONFERENCE-"THE MATERIALS INDUSTRIES IN THE TWENTY-FIRST CENTURY". Held on campus by CSM Department of Metallurgical and Materials Engineering to commemorate the 100th anniversary of granting the first Met. degree. Alumni with Met. degree, former and current faculty, and friends are invited; Call 303/273-3770 or write department for further details.

June 19

DOWNTOWN DENVER ALUMNI - BREAKFAST MEETING, Holiday Inn Downtown 7:00 a.m.; For reservations call Chris Oglesby (BSc. Geol. 1980) or Steve Sonnenberg (PhD. Geol. 1981) at (303) 292-1314; \$8.50.

June 20-22

FOURTH CONFERENCE ON THE USE OF COMPUTERS IN THE COAL INDUSTRY - Sponsored by West Virginia University and the University of Alabama. To be held at Lakeview Resort and Conference Center, Morgantown, West Virginia. For more information call Dr. R. Larry Grayson at 304/293-5695.

July 10

OKLAHOMA CITY ALUMNI - BREAKFAST MEETING, Fifth Season Inn 7:00 a.m.; for information contact Greg Staff (BSc. CPR 1973), 405/848-9750.

July 12

HOUSTON ALUMNI - SIT DOWN LUNCH, Sheraton - Town & Country 11:30-12:30; \$11; no speaker; RSVP 713/726-9477.

August 9

HOUSTON ALUMNI - SIT DOWN LUNCH, Galleria, W. Loop 11:30-12:30; \$11; no speaker; RSVP 713/726-9477.

Sept. 13

HOUSTON ALUMNI - BUFFET LUNCH at Houston Engineering and Scientific Society (HESS); 2615 S. Fannin 11:30-12:30; \$11; no speaker; RSVP 713/726-9477.

Sept. 18

DOWNTOWN DENVER ALUMNI - BREAKFAST MEETING, Holiday Inn Downtown 7:00 a.m.; For reservations call Chris Oglesby (BSc. Geol. 1980) or Steve Sonnenberg (PhD. Geol. 1981) at (303) 292-1314; \$8.50.

Sept. 23-26

AMC MINING CONVENTION '90, New Orleans, Louisiana. Details of alumni function to be announced.

Sept. 23-26

SOCIETY OF EXPLORATION GEOPHYSICISTS ANNUAL EXPOSITION, San Francisco, California. Details of alumni function to be announced. Speaker: Dr. Phil Romig, CSM Geophysics Dept. head.

Sept. 23-26

SOCIETY OF PETROLEUM ENGINEERS ANNUAL MEETING, New Orleans, Louisiana. CSMAA alumni breakfast; details to be announced. Speaker: Dr. Craig Van Kirk, CSM Petroleum Engineering Department head.

Sept. 24

CSMAA ALUMNI CRUISE IN CONJUNCTION WITH ROYAL CRUISE LINE - Seven-day cruise to Bar Harbor, Halifax, Quebec & Montreal, Sept. 24 through October 1, 1990; 25% discount on fares if booked by April 15, 1990. Personally hosted by Norm (E.M. 1952) and Jan Zehr. For reservations call Jan Zehr at 1-800-950-2102 or 303/232-2103.

CSM PROFESSOR EARNS PRESTIGIOUS GERMAN HONOR FOR METAL TECHNOLOGY



A Mines professor has become the second American ever to receive the Adolf Martens Medal for contributions to the technology of heat-hardened steel.

Professor George Krauss of the Mines Department of Metallurgical and Materials Engineering will accept the medal October 4 at the Harterei Colloquium in Wiesbaden, West Germany. He will present a lecture, in German, at the colloquium.

The medal is presented by the Arbeitsgemeinschaft Warmbehandlung und Werkstoff-Technik (AWT), a German society for heat treatment and materials technology. Named after the 19th-century German metallurgist Adolf Martens, the award honors scientists distinguished by their investigations into the heat treatment of metals.

Krauss' research involves studying the crystal structure of martensite, an important form of hardened steel named after Martens, to determine reasons for its exceptional hardness and unique fracture characteristics.

The AWT presents the medal only occasionally, once every two or three years. American scientist Walter Jominy, Soviet researcher Georgi Kurdjumov and a number of German metallurgists have previously received the honor.

Krauss is director of CSM's Center for Advanced Steel Processing and Products Research. A story on the Center appeared in the February 1990 issue of *Mines Magazine*.

Oct. 9

OKLAHOMA CITY ALUMNI - BREAKFAST MEETING, Fifth Season Inn 7:00 a.m.; for information contact Greg Staff (BSc. CPR 1973), 405/848-9750.

Oct. 20

HOMECOMING, Golden. 1:00 p.m. MINES vs. Chadron State (Nebraska).

Dec. 4

DENVER SECTION HOLIDAY PARTY, Denver Athletic Club. Cash bar 11:15 a.m.; lunch 12:00; Reservations required by Nov. 30.

Dec. 5-7

NORTHWEST MINING ASSOCIATION CONVENTION, Sheraton-Spokane, Washington. Alumni Breakfast Friday Dec. 7, 7:00 a.m.

Dec. 13

CSMAA BANQUET FOR GRADUATING SENIORS, Green Center. Social Hour, 6 p.m.; Dinner 7 p.m.

FOR RESERVATIONS AND ADDITIONAL INFORMATION, CALL 303/273-3290 OR 303/273-3295, OR, OUTSIDE COLORADO, CALL 1/800-446-9488, ext. 3290 or 3295.

CSMAA 6TH ANNUAL GOLF TOURNAMENT

Thursday, May 31, 1990

at the

Applewood Golf Club,
14001 West 32nd Ave.
Golden

IN MEMORIAM



Louis Allen

Louis B. Allen

Louis B. Allen, Met. E. '49, of Evergreen, Colorado, died January 6, 1990 in his home. He was 69.

Allen was born August 1, 1920, in Montrose, Colorado. He graduated from Mines in 1949, and also held a Master's degree in business administration from the Harvard School of Business. He married Bettie Herrin in 1947.

Allen joined CF&I Steel in Pueblo, Colorado in 1951 where he spent his career in sales and marketing, as well as manager of construction materials. He retired from CF&I.

He is survived by his wife; two sons, Chip, Texas, and Rick, Idaho; and a grandson.

Contributions may be made to the Colorado Heart Association, 1280 S. Par-

James Kohm



ker Road, Denver 80231; or the American Cancer Society, 2255 S. Oneida St., Denver, 80224.

James A. Kohm

James A. Kohm, BSc. Geol. E. '70, of Lakewood, Colorado died December 21, 1989 of cancer. He was born July 29, 1948.

Kohm worked for Chevron and Tenneco as an exploration geologist and geological engineer who developed oil and gas prospects. He also served as the exploration manager for a small independent exploration company, and later founded his own consulting firm.

He is survived by his wife, Frances, and two children. The family requests that contributions in his memory be sent to the American Cancer Society.

John H. McKeever, Jr.

John Herbert McKeever, Jr., a petroleum geologist, worked in Alaska during the early days of oil exploration. He was active in geological circles from his arrival in 1966 until his retirement in 1982.

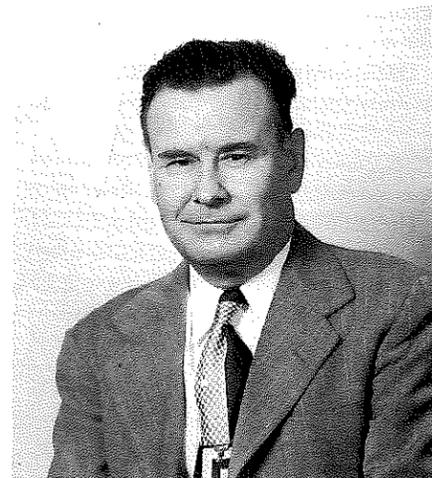
McKeever was 72 when he died November 21, 1989, at his home in Anchorage. His birthplace and childhood home was Aberdeen, South Dakota, where he was born September 8, 1917. He attended Dartmouth College and the Colorado School of Mines before enlisting in the Signal Corps in 1940. During World War I, he served a portion of his service on Adak Island in the Aleutians.

After the war, he returned to college, graduating from the Colorado School of Mines in geological engineering in 1947. He went to work as a petroleum geologist for the Stanolind Co., which later was known as the Pan American Petroleum Corporation and now is Amoco Production Company. His work took him to Canada, Montana, North Dakota, Wyoming and Colorado before Alaska. During his career he was active in professional geological organizations of the states in which he worked. These organizations included the Alaska Oil and Gas Association, the American Association of Petroleum Geologists and the Geological Society of America. He was a founder of the Alaska Geophysi-

cal Society, served multiple terms as president of the Alaska Geological Society, as president of the Petroleum Club and chairman of the Alaska Oil and Gas Association Exploration Committee. His technical papers were published several times in journals of the geological profession. In the latter part of his career he was an active spokesman for the oil industry in Alaska.

After retirement from Amoco, he found contentment in remaining well-read. He is remembered for his quiet dignity, quick wit, able leadership and the finely crafted letters he so often wrote.

Survivors are Elizabeth, his wife of 45 years; two sisters, Mrs. Eugene Soli-



Frank Johnson

day of Columbus, Ohio, and Mrs. Ranson P. Dunnell of Belleview, Washington; three sons, Peter of Madison, Wisconsin and Timothy and Stephen, both of Anchorage; a daughter, Margaret of Fairbanks; and six grandchildren.

The family asks that memorial contributions in Mr. McKeever's name be sent to either Dartmouth College, Hanover, New Hampshire, or the Colorado School of Mines, Golden, Colorado.

(Reprinted from *The Anchorage Times*, November 25, 1989.)

Frank E. Johnson

Frank E. Johnson of Denver, Colorado, a retired government employee, died December 19, 1989 at home. He was 90.

Continued on next page

He was born March 12, 1899, in Denver. He graduated from East High School and attended the Colorado School of Mines, where he received a mining engineering degree in 1922.

As head of the Reconstruction Finance Corp. in Denver, he administered government loans during the Depression for mining operations in Colorado.

He married Catherine Keltch in Denver in 1936. They moved to Washington, D.C., in 1937, where Johnson headed the procurement and stockpiling of strategic defense minerals for the Department of the Interior during World War I.

He wrote many government documents and guidelines on asbestos quality and efficient mining procedures.

From 1950 until his retirement in 1969, Johnson was the acting director of the Office of Minerals Exploration for the Department of the Interior. He moved back to Denver in 1985.

There are no surviving members of the immediate family.

Douglas E. Perkins

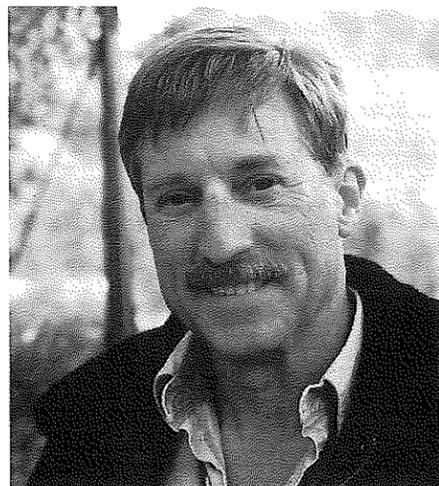
Dear Ms. Glover:

The many friends of Douglas E. Perkins will be saddened to learn that he is presumed lost while flying a light plane from California to New Guinea.

Perkins attended Mines between 1957 and 1965, the "Golden Age" of the school. He studied in the mining option and amassed some 175 credit hours, but did not receive a degree.

He owned and operated Overseas Air Transport, specializing in ferrying small aircraft to all corners of the globe. A gifted aviator, he had made many similar trips to Australia, New Zealand, and South Africa.

The circumstances of this last flight are somewhat mysterious in that normal position reports were received from the aircraft, a single engine Cessna with 20 hours of fuel on board, after it left Santa Barbara en route to Honolulu. No distress calls were sent, and neither of the two emergency locator transmitters was activated. Despite one of the most extensive searches in Coast Guard memory, lasting seven days, no trace of the plane or survival gear were found. He was active in the Arizona Wing of the Civil Air Patrol, in which organization he held the rank of major. An expert on survival, he authored a



Douglas Perkins

manual on the subject which was adopted by the CAP nationwide.

His home was in Sedona, Arizona. He was a member of the Sedona Airport Authority Board and a founder of the Sedona Historical Society.

Raised in Cleveland, Ohio, Perkins was descended from pioneer families in that area, and numbered among his antecedents the Washingtons of Virginia.

He is survived by his wife, two brothers, a sister, and both parents.

Thank you, sincerely,
C.M. Oldenburg, P.E. 1965

Sidney W. Schoelborn

To the Editor:

Sidney William Schoelhorn, Geol. E. '42, vice president and director of research and development for Seismograph Service Corporation (SSC), until his retirement, died October 25, 1989. He was 68.

"Shell" was born in Buffalo, New York and migrated with his family to Altadena, California. He graduated in 1942 from Mines with a degree in Geological Engineering, and immediately joined SSC and the Society of Exploration Geophysicists (SEG). His early geophysical career began as a seismic observer and he was sent as party chief to join SSC's South American subsidiary. He managed seismic field crews as party chief and interpreter in Venezuela, Mexico, and the United States.

Shell took a leave of absence in 1949 for a post-graduate study in geophysics at the California Institute of Technology. Following this, and continued field operations in 1953, he was transferred to the research and devel-

opment department, where he supervised the design and manufacture of geophysical recording instruments.

After several years of engineering and data processing enhancement, especially in seismic playback technology, he was promoted to director of Research and Development in 1961 and a vice president of the corporation for Research and Development in 1963. He remained research director until his retirement in 1985. Shell found his wife, believe it or not, in his boss's office in Tulsa. Lillian and Shell were soon honeymooning in New Orleans. They eventually became SSC's unofficial goodwill ambassadors and tour guides for every SSC employee or executive that visited the Tulsa headquarters from overseas. In time they could find a friendly face to visit almost any place in the world.

Shell was a strong booster of our profession and an active supporter of SEG. Beginning in 1954 he authored or co-authored many technical papers that he presented at annual and regional SEG meetings. The Geophysical Society of Tulsa elected him treasurer, first vice president, and in 1967 society president. He served for several years as associate editor of *GEOPHYSICS*, and on the distinguished lectures and continuing education committees. He also was general arrangements chairman for the SEG 28th Annual Midwestern Meeting. In 1979 and '80 he was elected and served as First Vice President of SEG.

He was a registered professional engineer in Oklahoma, a registered geophysicist in California, and a member

Sidney Schoelborn



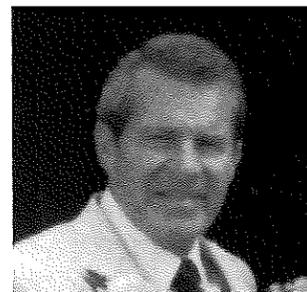
The Mines Magazine • May 1990

of the Tulsa Geological Society, EAEG, APG, IEE, and APGS.

What a pleasure to have known and been associated with a dedicated man of science with the delightful attributes of fine character and loving family man. Perhaps his expertise in the scientific world overshadowed his humanitarian qualities, and perhaps he cared for and considered others first—then maybe this enhanced his inner worth and gave added joy to those who were fortunate to know, love, and respect him. Let us be thankful he chose geophysics as his life's work. He will be missed by all who were lucky enough to have known him.

Shell is survived by his wife, Lillian, his brother, Henry, a son, William, and two grandchildren.

Fondly,
Howard Breck
J. Melvin Strabala



Thomas Allan

Thomas A. Allan, P.E. '50

Thomas A. Allan, 63, died October 15, 1989, in Houston, Texas. Born March 3, 1926, in Hays, Kansas, he was a long-time resident of Great Bend, Kansas and had lived in Wichita, Kansas for the past year. He was owner of Allan Engineering Inc. in Great Bend. He started Allan Pump Company in 1957.

Allan was a member of St. John's Episcopal Church in Great Bend. He was a past president of the Great Bend Chamber of Commerce and had served on the Great Bend Economic Development Board. He was instrumental in getting Great Bend Industries started in Great Bend. He was a U.S. Army Air Force veteran of World War I, an Army veteran of the Korean War and was graduated from Mines in 1959.

Survivors include his wife, Joetta; one son, Mark Allan of Beaver, Oklahoma; three daughters, Kathie Gregory of Sheritan, Oregon, and Janet Jammeke

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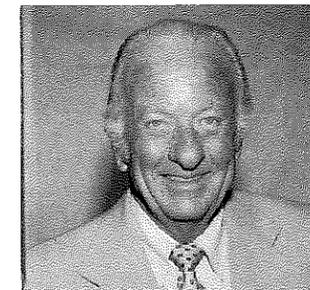
and Marty Chelf, both of Hoisington, Kansas; one stepson, Ron Adams of Wichita; one stepdaughter, Brenda Hammeke of Great Bend; one brother, George Allan of Wichita; one sister, Virginia Scrinopskie of Topeka; nine grandchildren; and six stepgrandchildren.

Eugene Jiannetti

Eugene Jiannetti, Met. E. '47, died at Lutheran Hospital, Wheat Ridge, Colorado, February 27, 1990.

Gene served in the U.S. Navy from May 1944 until February 1946. After graduation he worked for Electron Foundries and Metal Treating and Research Company in Denver. He was employed at the Rocky Flats Plant from 1952 until his retirement, May 1, 1983. At the time of his retirement he was manager of fabrication technology.

Jiannetti is survived by his wife, Mary of Wheat Ridge; two daughters, Nicolette Dumke, Louisville, Colorado and Gina Jiannetti of Arvada, Colorado. He is also survived by a sister, Louise Giardino; a brother, James Colasanti (Met. E. 1935) both of Wheat Ridge and two grandsons, John and Joel of Louisville.



H.W. Addington

Harold W. Addington

Harold W. Addington, 72, died of a heart attack March 22, 1990. He was born in Ridgeville, Indiana September 28, 1917.

Hal graduated from Mines in 1943 with a degree in petroleum engineering. He was very active on campus: he was a member of the student body, vice president of the student council; treasurer of the junior class; and belonged to Sigma Gamma Epsilon fraternity. He remained active in the affairs of Mines throughout his life serving as president of the Alumni Association in 1970, and was a member of the President's Council.

Following graduation, Hall entered the Army as a second lieutenant to fulfill his ROTC commitment; he served 3½ years in the Corps of Engineers and was discharged as a captain in September 1946.

After the Army, Hal worked six years as an engineer for the California Company, and six more years as an engineer in other firms. Using the vast experience he had gained in these assignments for drilling, production and remedial operations, Hal formed a consulting firm (H.W. Addington and Associates) in October 1957.

Hal was a registered engineer, and a member of AIME, Falcon Quarterback Club, Rocky Mountain Petroleum Pioneers, the Denver Petroleum Club, and two country clubs.

On December 23, 1967 Hal married Carol Hass. They shared many hobbies which included fishing, golf, scuba diving and music. Carol and Hal both sang in the choir of the Trinity Methodist Church in Denver.

Hal is survived by Carol; a son, Gary; a daughter, Pam Youmans, and three grandsons: Gabriel, Travis and Cody. The family suggests memorial contributions may be made to CSMAA Student Financial Aid Program, P.O. Box 1410, Golden, Colorado 80402 or to Trinity Methodist Church in Denver.



James Partridge

James M. Partridge

James M. Partridge, 52 of Las Vegas, Nevada died February 4, 1990. He was born March 27, 1937, in Great Falls, Montana. A 15-year resident of Las Vegas, he was a manager with TIMET Corporation.

Partridge graduated from Mines in 1961 with a degree in metallurgical engineering and joined TIMET in Henderson, Nevada. In June 1965 he transferred to the Toronto, Ohio facility of TIMET where he worked in the techni-

cal laboratory and became manager of the laboratory in 1969.

During this time Jim entered into the master's degree program in metallurgical engineering at Carnegie Mellon University in Pittsburgh, Pennsylvania, and earned his degree in 1972. In March 1973 Jim accepted a transfer to Salt Lake City, Utah, to serve as electrolytic superintendent for a magnesium plant being developed in the Great Salt Lake by one of the parent company owners of TIMET.

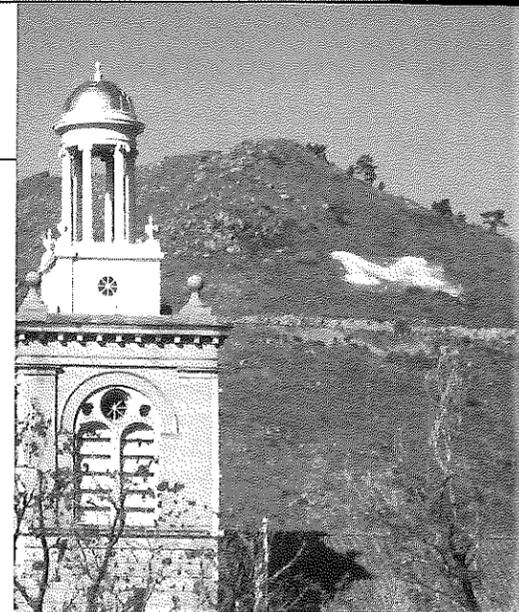
In October 1975 he transferred back to TIMET in Henderson where he served in different capacities and was the process manager at the time of his death. He is survived by his wife, Ella Mae; one daughter, Ruann M. Partridge of Las Vegas; one son, Brett M. Partridge of Escondido, California; his father, G. Verne Partridge of Billings, Montana; one brother, Gerald B. Partridge of Carlsbad, California; one sister, LaVerne Lansman of Audubon, Iowa; and three grandchildren. The family suggests donations to the American Heart Association.

Under the M continued from page 19

Buy a Bulb and Rebuild the 'M'

Mines' Blue Key Club has been busy this year stabilizing and rewiring the "M" on Mount Zion, a project which will totally renovate the electrical system and insure that the whitewashed rocks will stay in place. The cost of the project upon completion will be approximately \$15,000.

For \$32.00 you can "buy" a weather-proof box and bulb, and your name will be inscribed on the box. Club members will send you a thank you note and a chart showing which bulb you bought. Approximately 550 bulbs are available so the supply is limited—act now and reserve your bulb!



Buy your bulb now for graduation, reunion, Father's Day—a great gift idea! Buy one or more bulbs for \$32.00 each. For further information, call (303) 273-3234 or send your check to Colorado School of Mines, Blue Key "M" Fund, c/o Connie Casey, Student Activities Office, Colorado School of Mines, Golden, CO 80401.

ALUMNI UPDATES

40s

'49 **John A. Riddle, Met. E.** is president of M & M Resources, Inc. in Castro Valley, California.

50s

'50 **Francis P. Mercier, P.E.** has retired as consultant for Mission Beverage Co. in California.

'52 **James A. Montgomery, P.R.E.** is manager/international technical services for WR Grace in Maryland.

'53 **Jerry L. Harris, P.E.** is an investment agent for Re/Max Investments in Costa Mesa, California. **J. Thomas Reagan, P.E.** has joined Colorado National Bank of Denver's energy lending division as senior portfolio administrator.

'56 **Joe L. Logan, P.E.** is president of Control Equipment Co. in Salt Lake City, Utah.

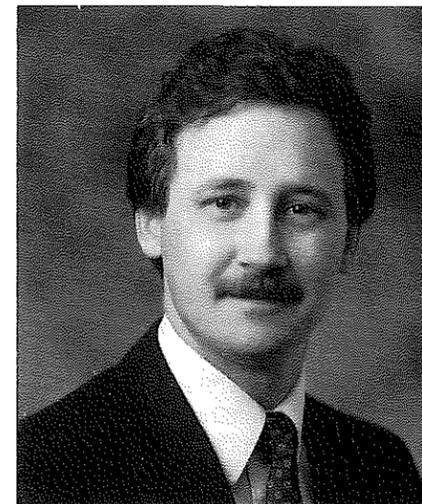
'57 **Raymond E. Grant, Geol. E.** is vice president/engineering for Fulcrum Management, Inc. in Lakewood, Colorado. **Charles Bruce, Geol. E.** is executive vice president of Mintec in La Paz, Bolivia.

'58 **A. Gregory Lickus, P.R.E.** is general manager of Eagle-Gypsum Products in Eagle, Colorado. **Peter J. Creighton, MSc. P.R.E.** is a graduate student at Robert Wood Johnson Medical School in Piscataway, New Jersey. **Paul A. Wichmann, P.E.** is vice president and chief petrophysicist for Teleco Oil-field Services in Houston, Texas.

'59 **James L. Payne, Geop. E.** is president of Santa Fe Energy Resources, Incorporated. He is also 1989-90 president of the Domestic Petroleum Council, an industry trade association for large, independent oil and gas companies. **George A. Dunham, E.M.** is vice president/commercial division of Reed-Patton & Associates in Beckley, West Virginia.

60s

'61 **Frank Mayadas, Met. E.** is vice president/technology and solutions development for IBM. **Robert E. Dugger, Met. E.** is project manager for Shieldalloy Metallurgical Corp. in Cambridge, Ohio.



John S. Eulich, '73

'63 **Mokhtar M. Hamada, MSc. P.R.E. and DSc. P.R.E.** '65 is a principal engineer with Monsanto Co. in St. Louis, Missouri. **Huai-Pu Chu, MSc. Met. and DSc. Met.** '65 is head of the composites section of NASA Goddard Space Flight Center in Greenbelt, Maryland.

'64 **Stanley E. Dobler, P.E.** is engineering and operations manager for Park Avenue Exploration Corp. in Oklahoma City, Oklahoma. **Herbert F. Gammons, Geop. E.** is vice president/gas products for Mobil Oil Indonesia in Jakarta. **Vernon D. Van Sant, P.R.E.** is a process engineer for Hawaiian Independent Refinery, Inc. in Ewa Beach, Hawaii.

'65 **R. Grey Christiansen, E.M.** is a mining engineer with the United States Bureau of Mines in Denver, Colorado. **Richard N. Dallek, Met. E.** is vice president of Dallek Professional Pads in Queensbury, New York. **Orlie A. Gallegos, E.M.** is a senior mining engineer for Pittsburg & Midway Coal in Englewood, Colorado.

'66 **Paul Brennecke, Met. E.** is director/technical services for Coors Brewing Company in Golden, Colorado.

'67 **Gary D. Snell, E.M.** is project controls engineer for Stearns-Roger Division/UE&C in Denver.

'68 **John H. Reiss, E.M.** is project manager for Echo Bay Mines in Juneau, Alaska.

'69 **John T. McDonough, Geol. E.** is general manager of Barrick Gold-strike Mines, Inc. in Elko, Nevada.

70s

'70 **Robert J. Dearing, BSc. Met.** is ceo of Wright Companies, Inc. in Henderson, Nevada. **Terry J. Laverty, E.M.** is senior staff mining advisor of Exxon Coal & Minerals Co. in Houston, Texas. **James D. Harmon, P.E.** is manager/production for Nerco Oil & Gas, Inc. in Vancouver, Washington.

'71 **Patrick L. Francks, BSc. Chem.** is vice president of American Environmental Consultants, Inc. in Norman, Oklahoma. **Stephen P. Antony, BSc. Met.** is manager/technical services for Energy Fuels Corporation in Denver. **Robert A. Ridge, BSc. CPR** has been promoted to manager/planning and budgeting by Phillips 66.

'73 **Michael J. Quigley, BSc. CPR** is senior vice president/marketing and operations for Associated Natural Gas Corp. in Denver. **John S. Eulich, BSc. CPR** is president of Mark Andy, Inc. in Webster Groves, Missouri.

'74 **Gary W. Leever, BSc. Phy.** is vice president of Leever Builders Supply, Inc. in Denver. **Russell J. Louie, BSc. Geop.** was married to Margaret Auld June 3, 1989 in Grand Lake, Colorado. **Michael C. Rupert, BSc. Chem. and MSc. Met.** '79 is a graduate student at the University of Colorado at Denver. **Richard D. Dunham, BSc. CPR** is an engineering supervisor for Phillips Petroleum in Hobbs, New Mexico.



Cathy Farmer, '79

TREFNY NAMED PHYSICS DEPARTMENT HEAD



Dr. John Trefny

Dr. John U. Trefny has been named head of the Physics Department at Colorado School of Mines. Trefny fills the vacancy left by former Physics Department Head Frank Schowengerdt, who was recently named vice president for academic affairs/dean of faculty at CSM.

Trefny joined CSM in 1977 as an assistant professor of physics. He was named an associate professor of physics in 1979, and professor of physics in 1984. He served as acting head of the Physics Department from 1987-88; and was named associate dean of research at CSM in 1988, a position he held half-time along with departmental teaching and research responsibilities. He has been director of the Amorphous Materials Center at CSM since 1986.

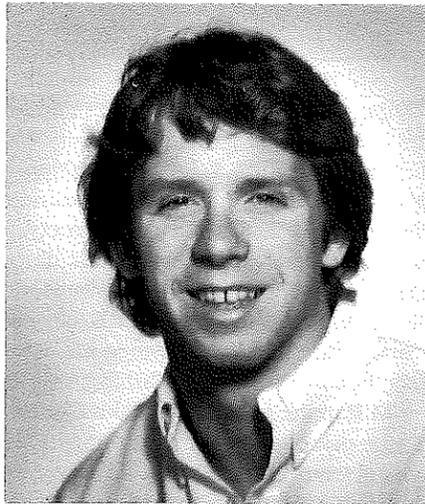
Prior to joining CSM, Trefny was an assistant professor of physics at Wesleyan University. He also has served as a postdoctoral research associate at

Cornell University, and as a graduate research assistant and graduate teaching assistant at Rutgers University.

The author or co-author of numerous publications and technical reports, Trefny is active in a number of professional organizations, including the American Association of Physics Teachers, the American Physical Society and Sigma Pi Sigma. He is secretary of the CSM chapter of Sigma Xi, and has been on the board of the Colorado Association of Science Teachers since 1986.

During the summer months, Trefny serves as a visiting professor at Wesleyan University. He has also taught an American Vacuum Society short course on the principles of superconductivity since 1987.

Trefny holds a BS degree in physics from Fordham University, and a PhD. in physics from Rutgers University.



John G. Campbell, '81

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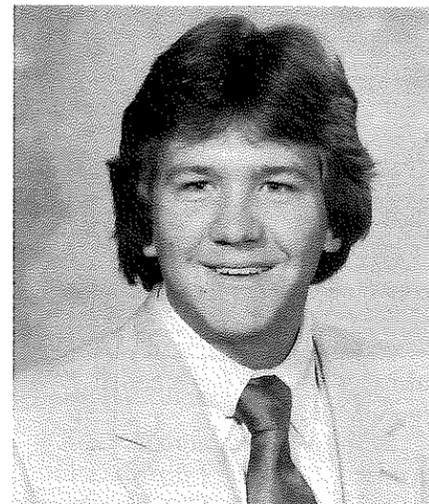
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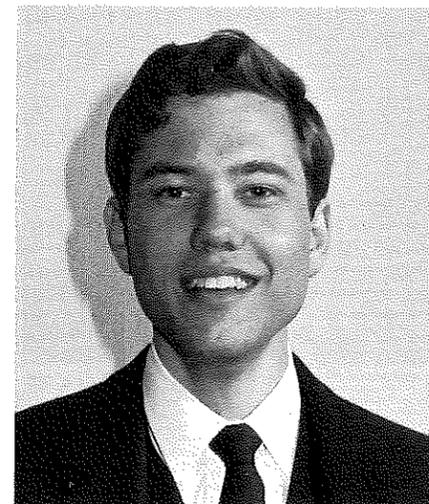
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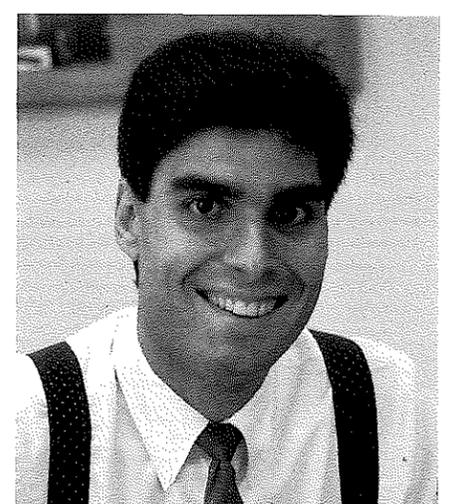
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David Treadwell, '84

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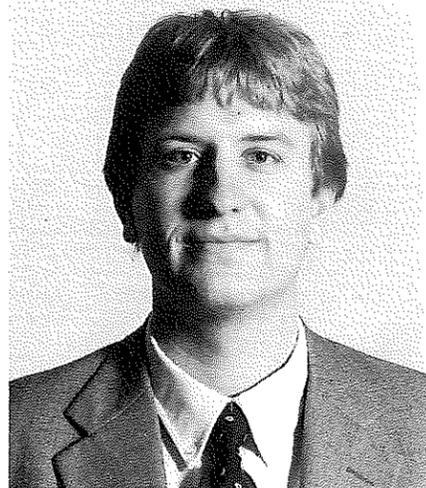
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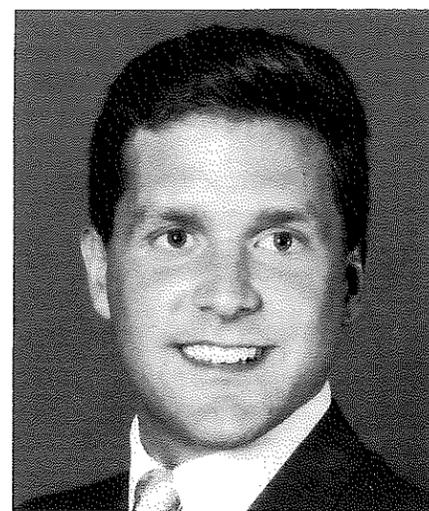


John Etgen, '85

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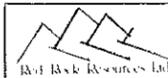
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TRIVIA QUIZ ANSWERS

1. It took only half an ounce of gold leaf to recover the dome three years ago, but construction crews found the pillars supporting the dome were weak and had to be refurbished. The total project cost was \$10,200 of which \$2,450 was for the gold leaf.

2. Engineering Hall is the oldest (1894), followed by Stratton Hall.

3. The geology museum is 110 years old; a cabinet of minerals was kept on display as early as 1880. The present building was finished in 1940.

4. Arthur Lakes, in 1877, which precipitated the famous "bone wars" between O.C. Marsh of Yale and Edward Cope of New York. Both men collected bones in Morrison and Como Bluff, Wyoming. Marsh's dinosaurs are housed at Yale University's Peabody Museum and the Natural History Museum at the Smithsonian. Cope's collection is at the American Museum of Natural History in New York City. Mines's library is named for Arthur Lakes.

- | | |
|--|------------------------------|
| 5. Hill - smelting | Stratton - mining |
| Guggenheim - mining | Berthoud - civil engineering |
| Chauvenet - chemistry | |
| Coolbaugh - chemistry | Randall - theology |
| Alderson - mathematics | Meyer - physics |
| 6. Temple Buell of Denver, who died at age 92 in 1990. The main section of Berthoud was built in 1938, with the wings added in 1940. | |
| 7. Guy McBride; during Senior Days in 1981 a group of students surveyed the gold dome from the ground, designed the "ears" to wrap around the dome, scaled the tower and installed the ears which were made of garbage bags. (Oredigger photo) | |
| 8. In the Geology Museum which will be open during the summer. Make a point to visit all the displays in the museum. | |
| 9. Meyer Hall. The pendulum is like those found in Denver's Natural History Museum or | |

the Smithsonian Institution in Washington, D.C. As the pendulum swings, its path continually shifts to the right and the plane of the motion gradually rotates. The time for a complete rotation is about 37 hours and 32 minutes. The pendulum was originally built by Bill Maas '75.

10. Florence Hazel Caldwell, who received a civil engineering degree in 1898.

11. The Orediggers played and defeated Colorado University five times between 1890 and 1893 with the following scores: 1890, 103-0; 1891, 10-6 and in another game, 6-0; 1892, 16-10; 1893, 24-10. Football coach Marv Kay says he is not anxious to take on one of the country's best football teams!

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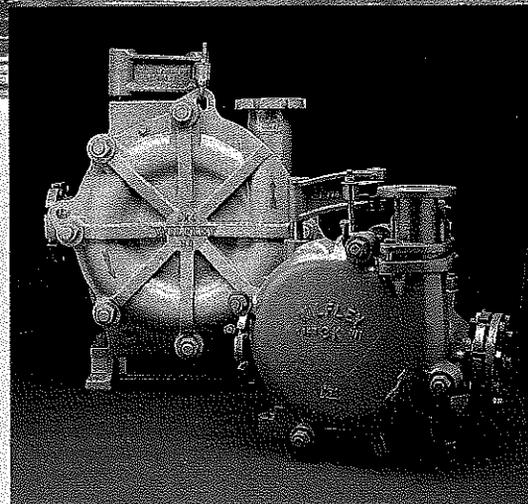


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