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MINES MAGAZINE • October 1990

EDITOR’S CORNER

Of computers, microwaves and automation

For a long time my home has reflected a certain low-tech attitude in contrast to the fast-paced world around us. Computers and Nintendo have not invaded the family room, and for years I have cut the grass with a simple gas mower adding the clippings to the compost pile. Our old stereo speakers are made of real wood, and we haven't gotten around to buying a compact disc player yet.

Our kitchen also reflects this attitude. We managed to survive without a microwave for several years until the baby started screaming for food: time to use them. I prefer a sharp knife and homemade cutting board when preparing most meals—fewer dishes to wash later.

The rush to adopt time-saving devices always amuses me. It's sort of like one professor at Colorado School of Mines saying, 'If you're going to buy a compact disc player yet.'

The Mines Magazine • October 1990

CAMPUS COMPUTING IN THE 1990S

...BUILDING AN ENVIRONMENT FOR PEOPLE

by Derek Wilson, Director

CSM Academic Computing Center

change, expectations, integration, workloads, net- works, diversity, infrastructure, distribution, access, investment, evolution, interaction, support, innovation, ethics, flexibility, multimedia, choice. All words that help to characterize the campus computing environment that is evolving in the 1990s. Notice that they are technical descriptions in the noble tradition of the computer acronym. We could describe the environment with acronyms and technical jargon and we might even be right, but it might read like a science fiction novel and certainly wouldn't cause new users to flock to our doors to learn more.

In 1985, CSM needed to replace its aging mainframe and terminal communications systems. We had already started to acquire personal computer systems and had upgraded some administrative computing systems. But things weren't fitting quite right. A growing collection of diverse systems was still inadequate. We need to replace the campus mainframe caused us to realize that a set of solutions was needed that would provide a framework to develop strategies as well as a foundation for growth and investment.

Fortunately, technology and opportunity combined, and it allowed us to start developing a campus-wide computing environment. This approach was considerably more complex than just replacing an aging mainframe computer system. It demanded more active involvement by computer users in addition to the consideration of issues beyond the purely technical.

Certainly, the technical issues were, and remain, important. Speed, performance, storage, throughput, and power are still evaluated and accounted for when selecting systems. But they no longer reign supreme. Words like access, expectations, integration, networking, and reality are creeping into the equation. We're finally admitting that people are the key to making it all work, and we're no longer afraid of seeing people, access, and interface as a key to success. Flexibility in the computer selection process.

The computing environment at CSM remains varied and changes significantly during the past few years. This development has generally been well-received and supported by the campus community, we have fewer resources than most people think we need and more resources than a few think we have. We have discovered along the way that two essential elements in our computing equation are the people the environment in which they want to operate. Defining a future computing environment in terms of today's technology creates the risk of narrowly specifying computing and networking resources. It is better to characterize the environment, identify issues, and suggest directions so that we can be prepared when opportunities present themselves. I have heard this environment described as one that provide "computing by opportunity."

The computing environment should be "people-centered." We must fit the environment to the needs of people rather than just training people to work in the environment. While "distributed computing" is a common term used to describe our development environment, "people-centered" more accurately places the emphasis on the important aspect—the people who use and interact with the computer systems. Creating such an environment involves a variety of issues such as the need for staff to do outreach and provide distributed support, the physical space surroundings, and the need to place greater emphasis on the effectiveness of the computing environment in terms of the specific resources. The technical aspects of the computing environment should, as much as possible, adapt to the changing needs of the people who use it. It is viewed as being an enabling technology.

Mines has a unique opportunity to have technology actually do what the people at the school need it to do, rather than forcing them to adapt what is being taught simply because it is in place. How resources are spent, and how people take it, will prove interesting to watch.

Ellen Glover

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through the active involvement of faculty, students, and staff. Active involvement is not limited to formal structures like steering committees. The most valuable input often comes from casual conversations in the hallway with students and faculty. The coordinating group must listen, pay attention, sense what the needs of the community are and act upon appropriate input.

- The primary computing tool employed by most academic users in the 1990s will become an advanced-level workstation attached to the campus network. It will provide significant computing capabilities with a powerful graphical interface and will probably participate in a cooperative computing environment with other departmental and campus resources. Centrally managed computers will primarily perform special tasks required by other computer systems on campus, groups of students and faculty, or the community at large. Specific systems may support broadly required tasks such as campus-wide electronic mail services, specialized applications, disk management, conferencing, and others. Combinations of technologies will allow students and faculty to create innovative approaches to address educational needs and research problems.

- The use of "mainstream" resources can reduce the effects of obsolescence. Rapidly changing technology creates technical obsolescence quickly. Functional obsolescence can even be more damaging by limiting or preventing our ability to upgrade or enhance computing resources. Furthermore, computer systems that become functionally obsolete lose value quickly, and can be an economic burden. Functional and economic obsolescence can be delayed, and the effects of technological obsolescence can be mitigated, by investing in mainstream resources—those that adhere to well-accepted software and networking directions in higher education and related industries. This allows us to use equipment longer, and effectively "recycle" it for other uses on the campus.

- The campus computing network will become the primary infrastructure related to computing activity on campus.
need to access and share resources located both on and off campus will continue to grow, demanding that the campus network be reliable, fast, and well-supported. Computer systems attached to it will have access to a broad range of resources and services and will be able to tap unused capacity in other systems on the network. They will become less useful, like telephones, when parts of the communication network are down. High speed, full function access to the campus network from faculty and student homes will become an issue for many. A whole host of services, including education, training, and operations need to be rethought from the perspective of this people-centered, networked environment. All is not rosy, however, as it raises questions about teaching "responsible" computing behavior, security, ethics, and how major decisions are made. Even with its problems, such an environment is within an academic institution, reflecting the way that most people like to work—on resources close to them that they control.

- The campus network will enhance interaction between departments and strengthen interdisciplinary activity. This is already occurring with the recently established Center for Exploration Geoscience Computing (CEGC). Access to distant resources, and the ability of computer systems and other technology resources to work together will become increasingly important. To strengthen this effort, the computing center and the library have formed an alliance to provide better information about the university systems and, access to these systems, both within and outside of the campus. Computer systems bases throughout the campus, and to provide improved access to information technology tools from the library, faculty are already able to communicate with friends and associates throughout the world and market many have the knowledge via electronic mail when traveling or on leave in such places as England, Australia, the Netherlands, and Japan.

- "Computing by Opportunity" will become a reality. Rapidly changing technology, the nature of the computing environment and type of computing demanded by the use of mainstream resources, all combine to create an environment that permits us to better respond to opportunities that may arise. It allows us to rethink the way we acquire computing and networking resources and form an overall strategy. A simple investment strategy might be to update or replace 20 percent of the resource base annually, providing for a five-year life cycle. In any case, the environment can be built and changed in incremental ways instead of wholesale, and that can help us to manage new technology, staff resources, and funding. It will also help to create a strong infrastructure that can change in evolutionary, rather than revolutionary, ways.

- The type of resources acquired by the school for student use will change—certainly due to changing technology, but more importantly because of high levels of personal ownership and other computing among new students. About 35 percent of our students own some type of computer today and many entering students have well-developed computing skills. As personal ownership levels grow, the school can turn attention on providing more advanced resources that complement those owned by students. Home computers may be used for utility tasks such as word processing, spreadsheet, and basic graphics applications, while school resources may support advanced programming, modeling, publishing, visualization, and high speed computation requirements.

I am often wondering why the required computer purchase programs at some colleges have never interested me, given the success stories and excitement they seem to breed. I thought maybe I was just envious of their resource base or the prices they could negotiate. Or even that computing to a technology for four years would limit curriculum potential and the prices they could negotiate. But in discussing the issue with a faculty member, I realized that my real concern has to do with focus. It is easy to focus on technology and forget that the real resources are people—the students and faculty. Technology should enable us, not control us, and when we consider curriculum and technology questions, for example, we should rethink the curriculum from the perspective of how computers and other technologies can improve or change it. By just including computing in the computer curriculum, we run the risk of building the curriculum around the computer resources, and doing that doesn't make much more sense than building it around calculators or slide rules. Remember when everyone had a slide rule and owning a calculator was a big deal? And they aren't "required". Perhaps we'll be saying the same thing about computers in ten years. At least I hope we will.

I suspect in ten years I'll be able to read this article and see where some of the cracks in the crystal ball were. Technology will march on and we will continue to be intrigued by it. Hopefully, we'll plan technology environments around the needs of people, and be driven by what others have found in the first paragraph. If our planning process incorporates vision before viewpoints, and leadership before management, then I think we'll have a chance at being successful. In any case, I hope it doesn't read like an old science fiction novel.
Thousands of computer systems can be accessed from the backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers.

As it grows, so will the opportunities for joint research, education, and technology transfer between higher education institutions and with industry. The National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers. Thousands of computer systems can be accessed from the National Science Foundation Network (NSFNET) is a backbone network that connects the many regional networks together as well as six national supercomputer centers.

Many faculty and students depend on these networks, even though they don’t think they are active users. All electronic mail that leaves or arrives at the campus travels across the network, as do the hundreds of news articles that people read everyday. Even though it requires substantial support and cooperation to keep the network running, most people use it without our active involvement or knowledge. The CSM Academic Computing Center staff bears about fascinating uses of the network only when people “can’t get there from here.”

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Stay tuned for future articles on center activities and profiles of research and educational initiatives.

Exciting things continue to happen with the development of the Center for Exploration Geoscience Computing (CEGC). The Center, formally unveiled in a joint announcement with IBM in April (Mines Magazine, June 1990), received a three-year $3 million commitment from the W.M. Keck Foundation to endow a permanent visiting chair in the exploration sciences, support facility renovation, and fund program development. Representatives from the foundation, including Chairman and President Howard B. Keck, Directors Marsh A. Cooper and Bob Jaws, Director of Computer Science, Sandra A. Glass, visited the campus on June 27. They toured the planned facilities and met with faculty and students to see research activities associated with the center. The first check for $849,867 was presented to Dr. Ansell during the visit.

Dr. Samuel S. Adams, Head of the Department of Geology and Geological Engineering, has been named director of the center on September 1, succeeding Dr. Philip R. Romig. Dr. Robert Cameron, a faculty member in the department, has achieved his initial objectives—active faculty research programs in several departments, developing curricular changes, initial funding and growing industry interest, collaboration, and credibility. He and alumnus hoax, Director of the Computing Center, have made the Center a force to be reckoned with and the faculty will take it to new heights in education and research.

Computer equipment recently received includes ten of IBM's most advanced workstation systems, the RS/6000. A prototype facility and network have been installed in Berthoud Hall and is now being used by approximately 50 graduate students and faculty. These systems are the most powerful computers ever to come to campus and have superb graphics capabilities. They are connected in a local network that is attached to the campus network so they can share information with other computer systems and be used by students and faculty from other locations. Approximately 20 more systems are planned over the next two years. These computer systems complement the 16 high-end VAX-2 systems that were installed last spring in an education cluster. The cluster is being used during the fall semester for courses in seismic data processing, parallel computing, and engineering geophysics.

A group of faculty, together with representatives from the Academic Computing Center, and the Plan Facilities Department are working on plans to develop the facility. The CEGC facility is to be located on the second floor of the Green Center in an area currently occupied by the Mineral Economics and Geophysics departments. A list of logistical issues have to be worked out, including where the Mineral Economics Department will be able to occupy renovated space in Engineering Hall, and where to house other faculty and staff during renovation.

Stay tuned for future articles on center activities and profiles of research and educational initiatives.
Computers are a new technology that has fast become an indispensable tool for most scientists and engineers. Computers can perform calculations for computations, more useful than typewriters for word processing, more versatile than drafting for graphics, and they have dozens of other uses as well. Computer modeling allows the user to ask "what if . . ." questions that could never before be asked, since the manual computational time to answer the questions was unthinkable.

So what are we doing at CSM to educate young engineers and scientists in how to use the computer? This article outlines our basic program, as it exists today. Change, however, is inevitable—both in response to changing expectations about students' preparation in high school, and in response to changing technology. Indeed, the EPICS (Engineering Practices Introductory Course Sequence) computing course described in this article is being taught for the very first time in its current format during the Fall 1990 semester. Tune in to changing technology. Indeed, the EPICS (Engineering Practices Introductory Course Sequence) compudng course and scientists in how to solve real problems.

As first semester freshmen, EPICS students concentrate mostly on non-computer skills such as oral and written communication, and threedimensional visualization. They learn word processing to facilitate professional quality reports, even for their first projects.

In their second semester, freshmen learn problem-solving using computer packages, with an emphasis on computer graphics. The types of packages we currently teach include spreadsheets, presentation graphics, scientific graphics, and computer-aided design (cad). As with most subjects, the students could learn how to use these packages on their own, but the complexity of the packages justifies including them in a college-level course. Furthermore, the emphasis is on how to apply the concepts, not on the mechanics of the computer package. Use of packages contribute heavily in the solutions to the students' EPICS projects. For example, a recent EPICS project called for the design of a new ramp for handicapped bus riders, and students used computer skills for design and description of the ramp.

In their third semester of EPICS, sophomores learn computer programming skills. Students learn how to develop a computer solution to a problem by giving a very general solution and then decomposing it into very small steps—good training for general problem-solving skills. They then learn how to implement their solutions in a procedural computer language. Currently, we teach the FORTRAN language because it is still the most widely used language among scientists and engineers. Students learn how to run FORTRAN programs on both microcomputers and on larger, centralized computers.

Computing throughout the curriculum

Learning computing skills in EPICS is not enough for the students to become truly proficient in computing. Their computing skills need to be reinforced by using computing throughout the curriculum. They use computing to analyze lab data in physics, to design a distillation lab in chemical engineering, or to design a dam in a capstone engineering course. More and more, students use the computing skills learned in EPICS to do ordinary course assignments in their upper division courses. The computer is a tool, a very useful tool for studying science and engineering.

An innovative experiment taking place on the Mines campus is the use of computers to teach calculus. The students run a graphics package, for example, so that they can actually "see" integration as the area under a curve. Or, as another example, they can plot the function they are trying to take the derivative of. These and other experiments will eventually lead to a better curriculum, which takes advantage of the computer as a teaching tool and as a tool for analysis in all sorts of science and engineering activities.

Computer Science — majors and minors

Beyond the introductory computing skills taught in EPICS courses, CSM is now offering a strong program of undergraduate computer science. Students may take these courses as a "minor," consisting of about six courses, or as a math/computer science
Their strong background in math, science, engineering and major. Math/computer science majors talk about eight computer systems.

Computer science background also prepares them for scientific computer science makes them uniquely qualified for scientific mathematics courses and about 12 computer science courses.

Computer languages are taught, including BASIC, FORTRAN, Pascal, Modula, C, assembly language, and Lisp. However, there are no courses that just teach a language. Instead, a language is selected for each course that is appropriate for teaching the concepts related to the topic of the course. For example, Lisp is a language used frequently in artificial intelligence, so Lisp is taught in the artificial intelligence course. In contrast, C is taught in a course for scientific application programming.

What kinds of courses does an applied computer science program offer? Here is a sampling of our courses, with a valiant attempt to avoid computer "jargon" in their thumbnail descriptions:

- "Data structures" teaches students how to arrange, or "structure", large quantities of data for easy use during computations.
- "Software engineering" teaches students how to construct large programming systems or packages.
- "Machine architecture and assembly language programming" teaches the basic physical components of computer hardware, and how to program them at the lowest level of detail.
- "Numerical analysis" teaches how to use computers to solve mathematical problems that must be approximated because an exact solution is either too costly or impossible.
- "Database management" teaches how to arrange data for efficient long-term storage and retrieval. Students do a database project, which is often then used around CSM by real clients.
- "Artificial intelligence" teaches how to use computers to solve problems requiring human like decision-making. Machines are "taught" such decision-making by programming them appropriately with rules that describe the decision-making process.
- "Computer science theory" gives a good theoretical background in the logic and mathematical foundations of computer science.
- "Operating systems" describes the systems that run the computer hardware itself. Students build a small operating system of the kind that might be used for a computer embodied in a robot.
- "Graphics" teaches the foundations of computer graphics, for example, techniques for projection of a shape onto a two-dimensional surface.

Into the future

As computer systems become more sophisticated, engineers and scientists will find themselves increasingly dependent on these intriguing tools. At CSM, we try to give all students enough background to be effective users of computers for creating solutions to real problems. All students are taught the capabilities and the limitations of computers, which will be useful to the students even if they never write a single computer program after they graduate. For those students who are particularly interested in computers, we prepare them to be able to create the computer systems of the future, especially the computer packages needed by scientists or engineers.

Dr. Jean Lifshitz is an associate professor in Mines Math and Computer Science Department. Her contribution to Mines Magazine was February 1989.

Mike Stark CALGARY HERALD

To the average American the crisis between Iraq and Kuwait over oil and borders is confusing and distant, but it is very real to a Calgary oilman who once served as senior advisor to the Kuwait government.

Dr. Ian Mackay, DSc, Geol ’55, attributes the Iraqi invasion to greed for Kuwait's oil and cash savings, not claims by Iraq that Kuwait has been producing oil from fields which extend across the two countries. Mackay, who served Kuwait from 1952 to 1958, was responsible for definitive reservoir interpretation and served on the technical committee for border settlements between Kuwait and its neighbors.

Mackay was called back to work on the settlement of the border definition between Kuwait and Saudi Arabia in 1982 and 1983. When he left Kuwait, he took out a copy of what amounts to its title or deed to its territory. Citing historical agreements between Kuwait and its neighbors, Mackay says Kuwait can prove its claims before the United Nations or any court of law.

Kuwait's border with what is now Iraq was defined in the original Anglo-Turkish agreement of 1913, by specific geographical reference points, although the agreement was never formally ratified and the line was not surveyed. The convention between the United Kingdom and Turkey.

CALLS RESERVES DISPUTE FEEBLE EXCUSE FOR IRAQI INVASION

By Ellen Glover

respecting the Persian Gulf and Adjoining Territories was signed in London on July 29, 1913, with two articles making specific references to Kuwait territory.

The 1913 boundaries were reaffirmed again in the Kuwait-Najd Border Convention which was signed at Uqair on December 2, 1922.

In 1923, Iraq was the first defined border in the entire Arabian Peninsula and existed long before Iraq was carved out of the Ottoman Empire after the first world war, as Britain and France implemented the Sykes-Picot agreement. Britain signed the Baghdad Protocol to set the stage for controlling the oil of Iraq in order to comply with the Iraqi's demand for a Hashemite kingdom. Even Saudi Arabia did not form its present sovereign state until 1932. Plus, Kuwait was explicitly excluded from the Intervent Agreement of 1922, as it was not considered part of the Ottoman Empire.

The final formal agreements on the Kuwait-Iraq border came through an exchange of letters between the Prime Minister of Iraq and the Ruler of Kuwait, dated July 21 and August 10, 1932, in which the border was reaffirmed in complete agreement with the 1913 convention. In these letters the disputed islands of Warba and Rubiyat were specified as Kuwait. This particular negotiation was handled by British representatives on behalf of Kuwait because Kuwait was still under administration by Britain.

In his letter of August 10, 1932 to the Political Agent, Kuwait, the Ruler noted the July 21 letter from His Excellency Num Pasha-as-Said, the Iraq Prime Minister, regarding the Iraq-Koweit frontier. He continued by saying: "We also have noted from the Hon. Political Resident's letter dated July 30, 1932, that the frontier proposed by the Iraq Prime Minister is approved of by His Majesty's Government. And, therefore, we beg to inform you that we agree to reaffirm the existing frontier between Iraq and Kuwait as described in the Iraq Prime Minister's letter."

"It is self-evident that today's events are not the first rape of Kuwait in order to satisfy her greedy neighbors. It is also
If there were electoral involvements all long-term residents of Kuwait, it would start an absolute revolution between all the nationalities as to whom should control the money. It would give Saddam Hussein every opportunity to walk in again. Kuwait belongs to the Kuwaitis. They have been honest custodians of a great wealth which they have managed with great skill, and which has been a benefit to all others who have lived in Kuwait," Mackay reflected.

Mackay wonders if the events in the Middle East are moving in parallel to Hitler's sequential conquests of Austria, Czechoslovakia and the other eastern European nations in the 1930s. He says Saddam Hussein's huge armed forces must be dismantled so that the flag of tiny Kuwait still flies free in Mackay's downtown Calgary office—a symbol of his deep feelings of duty and love for a country which once hosted him.

No Place Like Home...

Editor's Note: The following letter was sent to Ginny Mast, curator of the Mines Geology Museum, from Lausli Mathews, SSC. Geop. '87, who is now stationed in Saudi Arabia with the U.S. Air Force.

Dear Ginny: 

Surprised? I'm in the Middle East trying to save oil. I never thought my Mines education would wind up in use on this particular aspect of the oil industry. I'm not exactly bearing my self on the drill bit, but I keep selling myself as a lot of warm. I just hope it doesn't get worse. It's hot and humid and we're all a little bit here and getting pretty homesick (after nearly three weeks). My priorities have really changed—I've lost all social things like dinner under­neath, toilet paper and any bottled water—the rest tastes like it's been drained out of a swishing pool.

We're really packed here. The base I'm on is designed to hold 700 people and there are over 7,000 (way over) living here. I can't give exact numbers due to security, but I'm not exaggerating the size. Needless to say, I have very little personal space and no privacy at all. Eight women share a bathroom and shower with about 80 guys. At least I got practice at this living in the B-52 housing last summer. There are absolutely no women's restrooms here, so we just ignore the guys at the urinals and use the men's rooms. I think that's marred more than it—just don't expect any reports to read in.

Between the work and the diarrhea I keep pretty busy so I don't have to spend hours thinking about how bad it is.

And—l've certainly got to be losing weight! There's plenty of food available, but working 12-14 hours, I can't get to the chow hall too often and the alternative is MRE (field pack­aged) meals and I just can't eat them anymore, so it's kind of turning into a combination of a prison and a fat farm.

There are only two choices, sit in your bunk or get out on the work-release program and work for 12 hours or so and don't eat. Actually I might work quite well for fat prisoners. There is a test that shows movies on a TV with a VCR so actually we have all the comforts of home. Only trouble is the number of people here compared to the number of suits (or standing room) on the main tent. Oh, well, really, it's not that bad. (I tell myself to keep repeating this). When I first got here I kept clicking my heels and saying "There's no place like home," but some­body must have taken my ruby slippers and it doesn't seem to work with combat boots. Anyway, this doesn't exactly look like the merry old land of Oz. Actually it's given up its past and have given in to more conventional means of getting home. I don't think that's going to happen anytime soon.

Anyway—I just thought some people at Mines might be interested to know. I'm back in the oil industry and doing fine so far. If you get a chance to write, my address is: JLT Laslila Mahinoro 330-50-6053 Operation Desk South Post 272U Deployed APO NY 09004. I could really use the mail—talk someone into writing...

Love, Laslila

Dear Dr. Ron Miller—

I just though some people at Mines might be interested to know. I'm back in the oil industry and doing fine so far. If you get a chance to write, my address is: JLT Laslila Mahinoro 330-50-6053 Operation Desk South Post 272U Deployed APO NY 09004. I could really use the mail—talk someone into writing...

Love, Laslila

Oilweek, August 20, 1990

DESIGN WITH A PURPOSE

A t the start of this fall's semester about 25 seniors from CSM gathered in a classroom to begin a new capstone design class. Unlike other design classes where everyone in class is from the same discipline, these students had to introduce themselves to one another—they are from five different engineering disciplines that are participating in projects with local companies and government organizations to solve real engineering design problems.

The students represent a new multidisciplinary approach to teaching engineering design that will build on the skills they gained through the innovative freshman and sophomore course sequence entitled EPICS (Engineering Practices Introductory Course Sequence).

EPICS combines open-ended problem solving work with instruction and practice in technical oral and written communication, graphics, and computing. After they complete EPICS, students have the opportunity to take a traditionally been standard junior- and senior-level design courses taught in their degree depart­ment, but there is some concern on campus that students have not been exposed to the same type of design work in the EPICS division courses, especially in the capstone design sequence.

Dr. Ron Miller of the Chemical Engineering Department, one of the faculty involved in the design sequence, says the course is an option, but is not for everyone. "About 50 students were turned away from the class; our group includes about 25 students from chemical engineering, civil, electrical and mechanical engineering, metallurgical and materials engineering, and physics. We have solicited four very interesting projects which have a cross-disciplinary focus. It's artificial to have a project selected by the chairman only in one discipline; in industry you're more likely to have several types of engineers, perhaps an economist and a chemist working on a problem so we felt the senior design sequence should reflect this. Not everyone is best served by a very narrow education, especially when industry is seeking multi-talented people," he said.

Miller and Dr. Barbara Olds of the Biology Department recently sought and received funding from the Department of Education's FIPSE (Fund for Improving Post-Secondary Education) program to fund the cap­stone program.

In the new course, students from the different engineering departments will work together as a design team on one of four projects:

• designing and installing computerized test equipment on an engine at the Colorado Institute for Fuels and High Altitude Engine Research (CIFER) located on campus

• working with Coors Ceramics Company to develop a very hard, erosion resistant, and chemically stable optical material used in advanced weapons and aerospace optical systems

• developing an automated microrosystoiler with the National Institute of Science and Technology (National Bureau of Standards) in Boulder

• designing and building a solar electric car with the Solar En­ergy Research Institute located in Golden which will eventually compete in national and international races.

Students will be guided by a design management team consist­ing of the program directors, Miller and Olds and one faculty member from each department, Drs. John Trefny of Physics, Nigel Middleton of Engineering, Robert Knecht of Chemical Engineering, and Bill Copeland and Terry Martin of Materials and Metallurgical Engineering join Miller and Olds in teaching the course.

Client benefits are numerous.

The Mines is involved in the capstone course—SECI, CIFER, Coors Ceramics and the National Institute of Science and Technology stand to gain from this program. On the practical side, they will receive a great deal of produc­tive work from some very bright students. Though Drs.
Odds and Miller will not guarantee workable solutions, they can, based on their EPICS experience, promise whole-hearted effort and refreshingly creative strategies.

The clients will also benefit from their interactions with both faculty and students. The faculty contacts may lead to collaborative research and certainly should increase mutual understanding and promote discussion among industry and academia. Students view the course as an opportunity to experiment with what they have learned, and to meet prospective employers.

**Training versus educating**

"Throughout our design experience at CSIM, we are striving not just to train but to educate our students by having them practice the kinds of integrative, creative thinking they will need to solve the increasingly complex problems they will face as practicing engineers in the 21st century," Dr. Odds said.

With the established EPICS program and the new senior design sequence, Mines will have a curricular structure that includes some aspects of design-based engineering design throughout the undergraduate curriculum.

"We feel our students will graduate with a quality engineering design experience that will help them to understand and appreciate the issues involved in solving complex problems and provide them with the ability to approach such problems with confidence and creativity," concluded Dr. Odds.

If at the end of the year the design sequence proves successful it may be expanded to include geotechnical and exploration projects, involving students from the Geology, Geophysics, Mining and Petroleum Engineering Departments.

---

**Future of library lies in higher technology**

by Ellen Glover

Jeanne Lemd, director of the CSM library, has spent her first year on campus evaluating programs, collections, and services inside and outside the library. It's been a challenge, and she says she's convinced that the future of the library lies with strengthening the traditional holdings and with higher technology, a library that encourages and supports preliminary research from home computers and makes the campus easier to use.

Mines maintains a fine technical collection of books, journals, maps and government publications, yet the cost of keeping up with all subjects has been a financial strain on past budgets. The library's visiting committee and a few accreditation boards have said Mines needs to invest more heavily in the library to keep current, a task which calculates rather than declines.

Lemd says a decision was made in the early 1980s to maintain the journal collection at the expense of the book collection. 2,500 current journals and serial titles are available at any time. The average cost of a book in the Mines library is about $90, and the library director says 20 years from now a visitor to the Mines library will be able to see which years suffered from budget constraints by reviewing the collections, but she says there is some good news in the coming year for the library.

"Mines administrators have increased our funds from last year, and we have been able to hire a few people to keep up with certain areas like the government maps. Alumni have been supportive of the library, including some reunion classes which have designated their gifts for books or equipment. That's a positive change for us, yet we seriously have to re-examine how well we are serving the walk-in library users as well as those more experienced with our electronic services," she said.

Lemd explained her goals for the library are first, to meet the needs of the students and faculty, and second, to assist the public with like backgrounds—the alumni, government officials, and general public who use the highly technical material found in the library. "Our reference staff must be prepared to handle high-powered questions, more technical than what you would encounter in a neighborhood library. How many city or county libraries handle questions about chemistry or geophysics?" she asked.

Over the next few years, Lemd intends to enhance the library by purchasing books, proceedings and new journals. If funds become available the director would like to hire an archivist to deal with special historical collections housed in the Colorado Room as well as future donations, and upgrade equipment so inquiries are answered quicker.

---

**Pursuing electronic services**

If you have visited your local public library recently you've probably noticed the catalog by computer. CD-ROM anyone with a computer at home can use the following electronic services at the Mines library:

- **CRL** (Colorado Alliance of Research Libraries)—you can tap into the Mines library catalog to check a reference, or the catalogs of other major research libraries throughout Colorado.
- **Uncover**—a current contents database of journal articles.
- **U.S. Government Publications database**
- **Magazine Index and Trade and Industry Index**
- **Ethernet computer access network to the school's mainframe computer**

Terminals are available in the library as well. Online searching—the ability to search several hundred subject databases—for students, faculty and all library patrons for a small fee.

---

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**Photo** by Ellen Glover
Eventually the library will obtain equipment for full document delivery, a boon for the home researcher faced with late night questions or deadlines. You will be able to search electronic links to campus. She would also like to see the library obtain compact disk computer equipment which store several times the information on a single disk.

"The library is not static, we do more than check out books," Lerud smiled. "We are trying to keep pace with the specialized curriculum at Mines to best serve students and faculty."

Alumni to become preferred patrons of library
Following a decision by the Colorado School of Mines Alumni Association Board of Directors, active members of the association living in Colorado will be eligible for preferred patron status at the Arthur Lakes Library on the Mines' campus beginning in January 1991. CSMAA active members will be issued a special borrower's card when they show their association membership card to a library staff member.

Patrons at the library who wish to check out privileges may request a special borrower's card. Proper identification with a permanent address in Colorado is necessary for individual membership. Proper corporate identification is necessary for corporate cards.

Annual fees for check-out privileges are:

- Individual patron: $25
- Smaller corporation patron: $100 (4-10 employees)
- Larger corporation patron: $500 (11-15 employees)
- Preferred patron: $1000 (16 or more employees who may check out materials)

Money collected from patrons is used to maintain the library's resources. All persons may use the library resources without holding a special borrower's card, but must have a special borrower's card to check items out of the library. For information call the association at [303] 273-3295.

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The Mines Magazine • October 1990

DIRECTOR'S DESK
Action Needed To Stop ROTC Unit Closure
by Norman Zehr, Executive Director

In the August issue of Mines Magazine you might have read about the possible closure of the Mines ROTC (Reserve Officer Training Corps) unit in 1991.

Once official notice was received by President Ansell from the Department of the Army on July 13 there has been a flurry of activity on campus to attempt to reverse this decision.

Needless to say, events commencing on August 2 with the Iraqi invasion and annexation of Kuwait have changed the world military picture overnight.

In any case, many of us feel that the closure of the Mines ROTC unit would be unfortunate, not only for the school but for the US Army and our nation as well.

The school's military history includes the fact that many Mines students served during World War I, specifically in the 115th Engineer Regiment. For that reason the colors of this regiment were entrusted to Mines when that unit was deactivated following the war.

The Mines ROTC unit began in 1919, following World War I, and has been in continuous operation since that time.

Mines has commissioned approximately 2,000 officers into the United States military services. The vast majority went into the US Army Corps of Engineers.

Mines ROTC is one of only eight ROTC programs in the nation which are primarily dedicated to the Army Corps of Engineers. Regardless of what the future holds the Army will have a great need for engineer officers. The Corps of Engineers engages in many activities, including civil works, other than purely military operations.

The program at Mines is relatively small, and that seems to be what the Army is keying on. In the early 1980's the program fell below the minimum enrollment required but was allowed to continue due to the quality of the commissionees. In recent years it has grown substantially and soon should reach the minimum size requirements, if allowed to continue.

The current enrollment in Mines ROTC is approximately 75 cadets. Many of these are ROTC scholars—a tribute to the quality of the program. It is interesting to note that the Army ROTC program at the University of Colorado in Boulder has about 100 cadets (it is currently scheduled for closure).

Mines ROTC is one of only eight ROTC programs in the nation which are primarily dedicated to the Army Corps of Engineers. Regardless of what the future holds the Army will have a great need for engineer officers. The Corps of Engineers engages in many activities, including civil works, other than purely military operations.

President Ansell has come out strongly in support of retention of the Army ROTC program at Mines.

We ask that any of you who agree that this activity at Mines should not be closed write to:

The Honorable Michael P.W. Stone
Secretary of Defense
Department of Defense
The Pentagon
Washington, DC 20302-1155

Please send a copy of your letter to me and I will pass it along to the office of Congressman Joe Hefley in Colorado's 7th District.

Congressman Hefley has met with President Ansell and other interested parties here on the campus. He has agreed to meet with the Secretaries of Defense and of the Army. He will also work to bring the Colorado Congressional delegation together in a joint effort to support our cause.

Those of you working for major corporations are asked to consider writing your company stationary for maximum effect.

If you need more information please call me at (303) 273-3066, or Joanne Craig, director of external affairs, at (303) 273-3894. You may also use the toll free numbers: 1-800-245-1060 or 1-800-446-9488 (outside Colorado).

It is important that you write immediately. All of us at the school will appreciate your support.
ALASKA
Thompson '69 and Prof. Ramona Valencia '89, Steve Lambert '75, Russ Mines alumni/student get-together. Field session, Steve agreed to arrange a students to Alaska in June for a summer volunteering to be our "Alaska Con...

Douglass '73 and Tom Walker '89 in good fellowship with Mines alumni and great success! We had perfect weather picnic held here in Anchorage (at Otter students.

pieciative of all of the Anchorage students.)

working with Mike Kyrias 74, Randy Valencia '89, Steve Lambert '75, Russ Douglas '73 and Tom Walker '89 in Anchorage and Bob Thompson and Norm Zehr in Golden, Steve and his committee coordinated a truly special alumni section event.

Steve writes, "The CSM Alaska alumni picnic held here in Anchorage (at Otter Lake Lodge) on June 5, 1990, was a great success! We had perfect weather in a picturesque setting to enjoy BBQ (catered by 'A Taste of Texas') and good fellowship with Mines alumni and the 25 PE students in Alaska for the...

GRAND JUNCTION
Bill 77 and Elber 77 Colley were there with their three children and Bill's dad. Young James Colley came prepared with his baseball glove, but it was Steve Somermberg and Helen Coats who really needed it as they scrambled for a foul ball that landed just inches out of their reach.

OTHER BASEBALL FANS included CSMMA Treasurer Vicki Cowart '77, her husband Chris Hayes and their guests; Southeast Denver Section Coordinator Noelle Sears '86 and guest; Helen and Max Coats '85 (Helen brought home-made cookies for all of us); CSMMA Secretary Gary Hutchinson '82, '89 and guest; Robert Brooks '79 and his family and, from the alumni office, Mary Jo Giddings and her husband Dave. If you are a baseball fan, plan on joining us next year.

Molly Williams, associate director for corporate and foundation relations at Colorado School of Mines Office of Institutional Advancement, has been promoted to director of major gifts.

In her new position, she will be responsible for managing all aspects of major gifts coming to CSM from individual donors.

Williams joined CSM in 1986 and since that time has served as assistant director of development and associate director for corporate and foundation relations. "Molly is a valued member of our development team and I'm delighted she is going to be our director of major gifts," said David L. Powers, vice president for institutional advancement.

The spectacular years at the University of Denver in the development office before coming to CSM. She holds a master of science degree from State University of New York (Albany) and a bachelor's degree from State University of New York (Cortland).

Unfortunately some of the names listed on page 18 of the June/July magazine under the 50 year class (1940) were incorrect. The back row should read: Marvin Gantz, James V. Mueller, Harry Tanaka, Willard Fisher, Charles Lindberg, William David Roberts, Steve Patton, Frank Lincoln Elkins, Howard Schmuck, Albers. This year, we'll have more alumni involved in recruiting around the nation—about 500 people, compared to around 225 last year. They'll be going to high schools, telling the young people what Mines has to offer—simplifying our high graduation placement rate—and sharing their firsthand work experiences, their role in recruiting around the nation, telling them about the CSM population, the programs they'd find at CSM," said Albers.

The Mines Magazine • October 1990
Dr. Art Kidnay

Dr. Art Kidnay has been selected as the school's new dean of graduate studies and research. A faculty member at CSIM for 21 years, Kidnay has served as head of the Department of Chemical Engineering and Petroleum Refining for the last eight years. His post there has been assumed by Dr. Bob Baldwin, a faculty member since 1975. During his years as department head, Kidnay led the department to a position of prominence in both graduate and undergraduate education, and his research programs have become renowned for superior software that produces accurate, timely results. Geostat offers Geostatistical Short Courses in English and Spanish. We can offer courses and seminars tailored to meet your company's needs.

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The Mines Magazine • October 1990
Amoco helps minority students get one step ahead

A $16,000 donation from the Amoco Production Company gave 11 Colorado School of Mines minority freshman the chance to get their college careers off to a successful start this summer.

The students were taking part in the pilot Summer Bridge Program, a joint effort between Amoco and the school's Minority Engineering Program (MEP), where they took introductory chemistry and math classes to prepare them for the rigors of their Mines' studies.

The students selected for the program were among those with relatively low scores in algebra, trigonometry or chemistry on the school's Quick Start placement tests.

"They're all good students, but they realized that their scores in these areas indicated a need for additional instruction," said MEP coordinator Dr. V. Velasquez. "They would have to take these introductory courses in their first year here, anyway. By taking them in the summer before their freshman year, they're one step ahead." The pilot program has proved to be a success, according to Velasquez, and plans are already being made for next summer's effort, and beyond.

"Amoco is happy to assist CSM's Minority Engineering Program," said E.D. Newman, vice president of the company's Denver region. "The school has traditionally been an excellent training ground for current Amoco employees, as well as for the participants in our summer intern program. We want to help continue CSM's efforts to provide a quality educational experience for all of its students."

CSM Prof Honored by GSA

Two Colorado School of Mines faculty will have papers presented at the 1990 Geological Society of America's annual meeting in Dallas, Texas, in October.

Kenneth K. Kohn of the school's geological engineering department, will have "Developing Regional Ground-Water Models for the High Level Nuclear Waste Repository, Yucca Mountain" presented at the meeting. Kohn has been a faculty member at CSM since 1983, and served as director of the school's Institute for Ground Water Research and Education from 1986-88. He was the recipient of the Amoco Outstanding Teaching Award in 1985.

"Drainage from Oil Field: Chemistry and Environmental Problems" by Thomas R. Wildeman, of CSM's chemistry department, will also be presented at the event. Wildeman has been a faculty member at CSM since 1967. He recently earned recognition from the American Consulting Engineers Council for his environmental solutions' work in using a man-made swamp, or wetlands, to keep acid and heavy metal mining waste from flowing into nearby Clear Creek near Idaho Springs, Colorado.

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LIABILITIES AND FUND BALANCES

Payables $1,055 $29 $0 $0 $1,084 $1,353
Due to Other Funds 0 0 0 0 0 4,228
Leases Payable 0 0 0 0 0 0
Other Liabilities (Note 5) 1,588 0 0 0 1,588 1,588
Total Liabilities $2,585 $29 $0 $0 $2,622 $6,019

FUND BALANCES

Restricted $ 0 $206,952 $179,047 $12,717 $460,716 $430,540
Unrestricted 141,308 72,891 117,415 0 331,754 298,791
Total Fund Balances $141,308 $341,843 $206,492 $12,717 $792,450 $729,331

Total Liabilities and Pnm Balances $143,791 $341,872 $206,492 $12,717 $794,872 $736,250

Combined Balance Sheet

Mines Magazine • October 1990

The Mines Magazine • October 1990

The Mines Magazine • October 1990

The Mines Magazine • October 1990
Dear Ellen,

It was good to make your acquaintance at the recent Mines graduation ceremonies. And as a family we want to thank you for the great article you wrote on the Elkins tribe. It will be added to the scrapbook for the archives you may be sure.

Thank you too for returning the scrapbook page which we sent you, as you may guess it is valued by the family, so it is good to have it safely back in its place.

The picture you sent is good, and the family will surely want you to have it as a keepsake. It will be added to the scrapbook for the archives you may be sure.

Thank you too for retiming the ceremonies. And as a family we want to thank you for the great article you wrote on the Elkins tribe. It will be added to the scrapbook page which we sent you, as you may guess it is valued by the family, so it is good to have it safely back in its place.

We wrote on the Elkins tribe. It will be added to the scrapbook page which we sent you, as you may guess it is valued by the family, so it is good to have it safely back in its place.

Hoping to see you again soon.

Sincerely,
Lloyd and Virginia Elkins

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W. Robert Rose, '83
Richard Ellwanger, '78

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<table>
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<th>ORDERED BY:</th>
<th>Name</th>
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Gift card should read to:

from:

Description: CSM hardwood captain’s chair

Total

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<td></td>
<td>$225</td>
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</table>

Sales Tax: Colorado Residents add 6.2%
Shipping, handling and insurance

TOTAL

CSMAA ANNUAL MEETING AND EXHIBIT—

DENVER/ Hyatt Regency; alumni break-
fast 7:30 a.m.; RSVP 303/273-3290 by 2/25.

CSMAA ANNUAL MEETING in con-
junction with CSM/AME ANNUAL
MEETING AND EXHIBIT—

November 9

SOUTHEAST DENVER ALUMNI
Speaker: Dr. Frank Schwengrund, CSM
vice president of academic affairs. Call
Section Coordinator Noelde Sears (Bsc.
Eng. ’86) 303/779-0579; Hilton South,
11:30 a.m.

ALUMNI NIGHT WITH THE COLO-
RADO SYMPHONY at Boettcher Concert
Hall, 6:30 p.m.; concert followed by buffet
dinner; call alumni office for details.

ANNUAL MEETING OF THE ARIZ-
ONA CONFERENCE OF AIME, will be
held at the Doubletree Hotel, Tuc-
son, Arizona. For more information
contact the Meetings Dept., Society for
Mining, Metallurgy, and Exploration,
Inc., P.O. Box 625002, Littleton, CO
80162-5002, or call 303/573-9550.

TUCSON ALUMNI, A 12:15 luncheon
in conjunction with Arizona Confer-
ce of AIME; social hour at 11:30; for
reservations/information call Gordon
Wieckowski (Geop. E. ’58) at 602/326-
8619.

December 3

CSMAA BOARD OF DIRECTORS
MEETING, Golden. 8:00 a.m.

December 10

DENVER SECTION HOLIDAY PARTY,
Denver Athletic Club. Speaker: Marv
Kaye (E.M. ’70). CSM Head Football
coach, assistant athletic director. Mayor
of Golden. Cash bar 11:15 a.m; lunch
12:00; RSVP Alumni Office.

December 27

*GEOSCIENCES CAREER FAIR*—Teacher’s Orientation. The purpose of this meeting is to inform all science teachers about the geoscience career opportunities available to young students (7-12th grade). For information contact Marsha Barber, 303/273-3903 (afternoons only).

November 15

SOUTHEAST DENVER ALUMNI
Speaker: Dr. Frank Schwengrund, CSM
vice president of academic affairs. Call
Section Coordinator Noelde Sears (Bsc.
Eng. ’86) 303/779-0579; Hilton South,
11:30 a.m.

Newspaper: The Mines Magazine • September 1990
John Blomberg, ‘56

Corp./Ventura production office in 60s oil and gas operations. He will specialize in pri-
consulting business in Parkersburg, took eady retirement from the Pennzoil
50s
eum exploration and development.

Richard Kanda, ‘67

Richard Kanda, Geol. is a relieved of the U.S. Army Corps of Engineers and assumed command of the Detroit
district on August 30, 1989. He and his wife, Marilyn, are missionaries.

70s

70 James Klein, Bsc. Geop. was
honored by his employer with the Arco Outstanding
Technical Achievement Award for developing and implement-
ning a method for estimating net pay in the
intermologically complex Kuparuk
C-Sand along with two colleagues.

71 Harry J. Briscoe, Bsc. Geol. and
MSC. Geol. ‘73 is executive vice presi-
dent of Tatham Offshore, Inc. which is a subsidiary of Deep-Tech International. He is also doing some consulting work
for Tenneco.

72 George McFall, Bsc. Met. and
his family are moving to Taiwan, Repub-
lie of China. He and his wife, Marilyn, are missionaries.

73 Richard A. Van Horn, E.M. is direc-
tor of operations and long-term plan-
ing for Unecho Minerals/Union Can-
Min. is director of engineering for K & R Coal Company in Oklahoma City, Oklahoma.

74 Dave O. Cox, Bsc. Pet. and MSC.
Pet. ‘77 has formed a new consulting
firm, Cox Engineering Corporation in Golden.

75 Henry E. Kolego, Bsc. Min. is

Richard E. Ackermann, Bsc. Min. is a project engineer for Uteca Mining Co. in Coeur d’Alene, Idaho. John C.
Borner, Bsc. Geol. is construction ma-
ters testing department manager for Aguirre Engineers, Inc. in Englewood, Colorado.

76 T. Arthur Palm, Bsc. Min. has
been promoted by The Valley Camp Coalt Company to president and CEO of Shriver Coal Company, located
outside of Charleston, West Virginia.

77 Marcus P. Randolph, Bsc. Min.
is project manager for Rentenace Cor-
poration.

78 Brian R. Frost, Bsc. Geop. is a

79 Melanie R. Biral, Bsc. Pet. and
MSC. Min. Econ. ‘89 is a uranium sales
analyst with NUKEXO in Denver.

80s

80 Javan D. Ottonlo, Bsc. CPR is
operations superintendent at Pauhoo Bay in Alaska. Kevin J. Bjornen, Bsc.
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81 Susan M. Perrell, Bsc. Geop. is
senior environmental engineer for Four Corners Pipeline in Long Beach, Cali-
ifornia. Phillip Hedges, Bsc. Geol. and
MSC. Pet. ‘88 was honored by his em-
ployer with the Arco Outstanding
Technical Achievetment Award for de-
veloping and implementing a method
for estimating net pay in the miner-
alogically complex Kuparuk C-Sand
along with two colleagues.

82 Joan M. Parker, MSc. Min.
Econ. is an MIS consultant for Dowell Schlumberger in Tulsa, Oklahoma.

83 Michael J. Nilsen, Bsc. Min. Econ. ‘89-91 and vice presi-
dent of the Dallas Geophysical Society
in Texas.

84 Michael J. Nilsen, Bsc. Min. has been promoted to assistant con-
troller of Gold Fields Mining Corpora-
tion in New York, New York. James L.
Hancock, Bsc. Min. is division mining engineer for Gold Bond Building Prod-
cuts in Memphis, Tennessee. Daniel G.
Collins, Bsc. Geol. is a computer pro-
grammer with Vaxcel Corporation in Boulder, Colorado. Philip C. Heldt, Bsc. Chem. is an advanced research
chemist for Tennessee Eastman Co. in Kingsport, Tennessee.

85 Donald R. Moore, Bsc. Min. is a
mining engineer with DMX in St.
received his MFA from the University of

Janet (Houssen) Hall, ’86

Melinda Truskowski, ’85

Territorial Company. William H. Dears, Bsc. Min. has been promoted to Calpine, Ltd. to senior sales representa-
te and is now in Plano, Texas.

86 Dougall A. Yunker, P.E. is su-
perintendent-operating for Chevron
Corps/Ventura production office in
Ventura, California.}

Richard Kanda, Bsc. Geol.


John Blomberg, ’56

Alumni Updates

40s

40 Russell L. Wood, E.M. ’49 and
Hon. Mem. ’86 is president and CEO of
Asamera Minerals, Inc. in Wenatchee,
Washington.

50s

52 William H. Ruchel, Geop. E. has
retired from Mobil Oil and is living in
Texas.

53 John C.C. Mathewson, Geol. E. has
retired after 36 years with Wester
Geophysical and is living in Paonia,
Colorado.

55 E. Dean B. Landeman, Geol. E.,
Medalist ’85 and Mines Medal ’88 has
retired from Unocal Corporation after
35 years of service. He will be
moving his family back to Denver and
opening an office to work in petrol-
unm exploration and development.

60s

62 Donald A. Yunke, P.E. is su-
perintendent-operating for Chevron
Corps/Ventura production office in
Ventura, California.

63 Mohbhar M. Hamada, Bsc. P.E. and
Dsc. P.E. ’65 is a project engineer with
Petroleum, a Saudi-based petro-
chemical operator, and has relocated
to Tokyo, Japan for the next two years.

65 John J. Scholcke, E.M. is general
manager for J. Smith Coal Co. in Hen-
derson, Kentucky.

66 Marc T. Pottorf, Geop. E. is an
exploration services manager for Daniel
Geophysical, Inc. in Dallas, Texas. Louis
R. Harmon, Geol. E. is the southeastern
district supervisor-water quality divi-
sion for the State of Wyoming/Dept.
Environmental Quality in Cheyenne.

70s

71 Harry J. Briscoe, Bsc. Geol. and
MSC. Geol. ‘73 is executive vice presi-
dent of Tatham Offshore, Inc. which is a subsidiary of Deep-Tech International. He is also doing some consulting work
for Tenneco.

72 George McFall, Bsc. Met. and
his family are moving to Taiwan, Repub-
lie of China. He and his wife, Marilyn, are missionaries.

73 Richard A. Van Horn, E.M. is direc-
tor of operations and long-term plan-
ing for Unecho Minerals/Union Can-
Min. is director of engineering for K & R Coal Company in Oklahoma City, Oklahoma.

74 Dave O. Cox, Bsc. Pet. and MSC.
Pet. ‘77 has formed a new consulting
firm, Cox Engineering Corporation in Golden.
Kelley Fetter, '88

Larry Fink, '87

Incorporated. Los is based in Albu­
querque, New Mexico. Dean J. Gip­son, BSc. Eng. is a project engineer for Engineering Ventures in Temecula, California. Alexander E. Gort, BSc. Met. is a process engineer for Asarco in Nogales, Arizona.

89 Brenda Conin, BSc. CPR is an advanced engineer in Pu recovery for EG&G Rocky Flats. Colleen Brichme­han, BSc. Geop. is an environmental geologist for Texas Reining & Mar­keting Inc. in Universal City, California. David Minke, BSc. Eng. and Mary A. Vickery, BSc. Phy. '90 were married June 9 in Golden. He is a maintenance engineer at Asarco in Ray, Arizona and she is working on her degree at the Arizona State University. Richard J. Schepsis, BSc. Met. is a graduate student at CM. Bradley G. Baker, BSc. Pet. is an engi­neer for Baker Sand Control in Houston, Texas. Scott White, BSc. Met. and Laura Godette, BSc. Met. '90 were married July 21 in Denver and honeymooned in Cancun, Mexico. They both work for Caterpillar/East Peoria plant as metallurgical engineers in Peoria, Illinois.

90s

'90 David H. Andrews, Jr., MSc. Geol. E. works in the research de­partment of Phelps Dodge in Morenci, Arizona. Charles S. Baxter, BSc. Met. is a mineral process engineer for Lina­tex Corp. in Manchester, Connecticut. Laura Godette, BSc. Met. and Scott White, BSc. Met. '90 were married on July 21, 1990 in Denver and honey­mooned in Cancun, Mexico. They both work in Peoria, Illinois for Caterpillar/East Peoria plant as metal­lurgical engineers. Reed R. Figley, BSc. Eng. is an engineer for Service & Technology, Inc. in Bartlesville, Okla­homa. Eric P. Andren, BSc. Geop. is a field engineer with Western Geophysical/Atlas Wireline Services. Bryan W. Baird, BSc. Met. is an engineer with Shell Oil Company. Daniel J. Bangert, BSc. CPR is a control systems engineer with Shell Oil Company. Mary A. Gra­ham, BSc. Eng. is a second lieutenant in the U.S. Army Corps of Engineers. David N. Usery, BSc. Met. is a Q.C. / process engineer with Chaparral Steel Co. in Midlothian, Texas. Michael P. Nimmo, BSc. CPR is a process engineer with Phillips Petroleum in Borger, Texas. Cynthia M. Wong, BSc. CPR is an engineer with Shell Oil Company. Wendle Fowls Smith, BSc. Math. is an ensign in the U.S. Navy. Robert D. Smith, BSc. Eng. is a project engineer with Comexco. Mary A. (Vickery) Minke, BSc. Phy. and David Minke, BSc. Eng. '90 were married June 9 in Golden. She is working on her PhD at Arizona State University and David is a maintenance engineer for Asarco in Ray, Arizona.

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IN MEMORIAM

Mines Magazine would like to express the condolences of the Colorado School of Mines Alumni Association staff and directors to the families and friends of the following alumni. Unfortu­nately, we do not have much infor­mation on the individuals. If you have more information please write to the editor.

Charles F. Moore, P.E. '51, MSc. P.E. '62, of Houston, Texas, died June 6, 1990. He is survived by his wife, Louise, and three children.

Louis R. Michen, Jr., Met. E. '61, has died.


Raymond D. Houser, MSc. CPR '66, has died.


Joseph Robinson, Geol. E. '41, of Massachusetts, has died.

William Elliott '33

William Elliott, 80, of Williams­burg, Virginia, died April 21, 1990. A native of Golden, Colorado, Elliott had lived in Williamsburg for many years. He was a Navy lieutenant during World War II. He graduated from Mines in 1933 with a degree in metallurgical en­gineering, and was a retired engineer. Following the war, he joined Kaiser Aluminum Company and later Phelps­Dodge until his retirement. He is survived by his wife, Ruth, three sons and four grandchildren.

Charles T. Semerd

Charles T. Semerd, Geop. E. '61, of Weiser, Idaho, died June 26, 1990. He was born in Fort Collins, Colorado on June 16, 1918. During his 22-year career as an ex­ploration geophysicist with Amoco Oil Company, Semerd and his family lived in Buenos Aires, Argentina; Chicago, Illinois; London, England; and Cairo, Egypt. He traveled and worked in 25 countries in the Caribbean, South America, Europe, the Middle East and North Africa. Semerd and his wife, Cathy, retired to a 25-acre farm in the Main Creek Valley near Weiser, Idaho in 1984.

He was a member of the CSM Alumni Association and the Society of Exploration Geophysicists.

Weiser is survived by his wife; a son, Anthony T. Semerd of Grandview, Washington; and a daughter, Kelly Alicia of Fort Collins. Memorial contribu­tions can be made to the Weiser Hospital Foundation or the Weiser EMRT. 435 E. Park St., Weiser Idaho 83672.

George G. Yeager

George G. Yeager, of Nashville, Arkansas, died May 18, 1990 following his 50th reunion at Mines. Yeager, a mining engineer, had also participated last fall in the successful reunion of the 1939 championship football team, Mines' only undefeated football team. Yeager played defensive left tackle. Yeager spent his career with Alcoa which included time in South America. He is survived by his wife, four chil­dren and seven grandchildren.

James L. Eirls

James L. Eirls, 70, of Pleasanton, Cal­ifornia, died June 27, 1990 following an illness. He received a master's degree in mining from Mines in 1958.
Eirls had a long and varied career in engineering which included work with Tracer Aerospace, and while there he received an award from NASA for improved design of photovoltaic solar panels. A native of Sedalia, Missouri, Eirls was honorably discharged from the Marine Corps after being wounded in the invasion of Okinawa. He was a registered professional engineer in California and Colorado. During his career he worked for numerous companies in the United States and abroad, where he installed factories. He is survived by his wife, Barbara; a sister, Betty Corrent of Dana Point, California; and two nephews. Memorial contributions may be made to the Rheuma- 

trifex Foundation, 205 Willow Street, San Francisco, California 94109.

C.M. Watts

C.M. "Nick" Watts, '26, died August 15, 1990 after a long battle with emphysema. Although he had to leave Mines following the death of his mother, before graduating with his class of 1926, Nick lived a life that exemplified a Mines' mining engineer. His first job was in the copper mines at Ray, Arizona. He returned to Denver in the early 1940s with Rocky Mountain Fuel Company in coal sales and later as office manager. In 1942 he began a career with the federal government that would take him overseas for nearly 30 years. He began with the Office of Price Administration regulating the price of coal during World War II, then moved to Hawaii with the War Assets Administration in 1947. In 1950 he went to Greece to develop lignite reserves for postwar power generation. During the stay in Greece he was sent on a reconnaissance mission to Vietnam to identify potential coal reserves. From Greece Watts traveled to Belgrade, Yugoslavia in 1958 and while there was sent to Nepal to reconnoiter coal outcrops in the front range of the Himalayas. This trip required packing in with Sherpa bearers and mules up streams and mountain 

trails to check out "brown stones that burn" for a potential energy source for Nepal. His report indicated that no viable reserves were found. In the early 1960s Watts spent six months in India consulting on energy development, then was named chief of the mining branch for the Agency for International Development in Seoul, Korea, where after five years he retired in 1967.

Lyle H. Henderson


For more than 30 years Henderson worked in civil service, retiring in 1969 in El Paso, Texas. He and his first wife, Kay, were the parents of two children. She died in 1954. Henderson married Lester Gordon in 1958 in El Paso.

"My husband was devoted to his work and was very involved in engineering," his wife said. "He was outgoing and friendly, and everybody liked him. He worked two more years after he completed supervising the building of Amistad Dam. After he retired, he did some traveling. We moved back to Del Rio in 1979."

Henderson was a member of First Presbyterian Church and Alpha Psi Omega fraternity, which he joined in college and continued his membership throughout his life. He was a member of the National Association of Retired Federal Employees.

Additional survivors are a son, Michael Henderson of Las Vegas, Nevada; a daughter, Brenda Reeve of New Bern, North Carolina; a sister, Loraine Killie of San Bernardino, California and four grandchildren.

Lee W. Gibson

Lee W. Gibson, of Riverside, California died August 19, 1990 at the age of 72. Gibson was graduated from Mines in 1940 with a degree in geological engineering. As owner/operator of Lee Gibson Oil Company since 1953, he developed and produced oil leases throughout California, and in north central Texas. He made extensive geological engineering studies of oil and gas prospects in California, Arizona, Texas, Nevada, Oregon and Utah. He sold his business in January 1990 to Nana Oil and Gas Company of Mill Valley, continuing as operator until shortly before his death from cancer. Previously he was a consultant in central and southern California, and a research engineer for the Humble Oil & Refining Company, Houston, Texas. He specialized in original research and engineering on problems relative to reservoir behavior and well computations. From extensive field experience and a mechanical background from a polytechnic high school in Portland, Oregon, he was inventive in improving or developing many oil field tools and procedures.

He attended and enjoyed the Class of '40 reunion at Mines in mid-May, also an early family reunion celebrating his gold wedding anniversary, which would have been September 7, 1990. He is survived by his wife, Mary, two sons, four daughters, nine grandchildren, two sisters and one brother. The family requests that remembrances go to the Colorado School of Mines.
For everyone who has expressed a desire to donate to a memorial fund for Dr. Robert F. Faddick, the family has established a scholarship in his name at the Foothills Academy, 4725 Miller Street, Wheat Ridge, CO 80033.

Foothills Academy is an independent, non-profit private school in which Bob and his wife Mary Lou, who is also the School's Headmaster, have been very active.

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May Lou, who is also the School’s Headmaster, have been very active.

For more information contact Benn Neumeyer (303-273-3550).

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