



*A flurry of computer activity is what University System students, faculty and administrators would like to see in the near future. Although every campus is now providing some resources for academic computing, the need is growing. The UM System needs more hardware and innovative instructional programs to facilitate learning by computer. In addition, researchers have needs for workstations and other equipment to enhance research technology. Read about the need for improvement in academic computing and its potential impact inside on page 4. Photo by Pat Nichols.*

## *In This Issue:*

Changes in medical benefits plan. Page 3.

UM's first safety officer retires. Page 3.

The strengths of academic computing. Page 4.

Salaries for faculty and staff have become a pressing issue for the University of Missouri as state revenues continue to dwindle. Concern for the future of the UM System faculty and staff has prompted meetings with UM President C. Peter Magrath and the passage of resolutions addressing the salary issue. In this issue of *Spectrum*, we report on Magrath's meeting with UM-Columbia faculty and staff. All University System faculty and staff should watch *Spectrum* for news about the salary dilemma as the UM System, in Magrath's words, meets the future "with hope, rather than fear."

# Magrath meets with employees to discuss salaries

Faculty and staff at all four University of Missouri System campuses are responding to what some have called a crisis concerning salary and wages.

Funds available for UM salary increases allowed for increases in the 2.5 percent range. However, based on merit some employees received increases of up to 8 percent.

The salary dilemma has led to the development and passage of a four-campus resolution (see insert) and a series of specific campus reactions and resolutions asking for an explanation for salary disparities and expressing concern about future salary funding for the University System.

In addition, faculties from the four campuses are asking for discussion with UM System President C. Peter Magrath on the salary issue. The first of those meetings took place last week on the UM-Columbia campus.

The UMC Faculty Council adopted the four-campus resolution Sept. 29.

Magrath asked to address the UMC faculty in response to a resolution passed by that body on Sept. 13. The resolution called for at least 75 percent of total new state and other monies added to the existing base to be used for salaries in the next fiscal year. In addition, the resolution stated that no new reallocation be imposed on any campus for the purpose of funding increases, that no new programs or items from the Agenda for Action be funded until salaries are brought in line with those of the Big Eight and Big Ten institutions and that the president report to the faculty within 30 days concerning the plans for the implementation of the resolution.

According to Harris Mirkin, chairman of the UM-Kansas City Faculty Senate, the UMKC senate passed the four-campus resolution at its last meeting and another resolution concerning inadequate salary increases. At its next regularly scheduled meeting Oct. 25, the senate will "discuss disparity in salary raises between the administration and the faculty," Mirkin says.

At UM-Rolla, the four-campus resolution has been circulated by mail ballot to the faculty. In addition, Orrin Crosser, president of the UMR Academic Council, says the council adopted another resolution stating that

- recent salary increases for the University System administration give misleading impressions to the legislature and the general public concerning University System resources;

- this action, coupled with others, suggests to faculty an insensitivity and lack of concern for faculty and staff efforts to achieve the real purpose of the University — education;

- such action appears to jeopardize future efforts to achieve sufficient funding for the University; and

- the Academic Council requests an accounting by the University System administration of the rationale behind the announced salaries for administrators.

Crosser says Magrath has been invited to speak with the council at an upcoming meeting.

"We eagerly anticipate his visit and his description of the basis for those salary decisions," Crosser says. "We are pretty concerned about the situation."

At UM-St. Louis, University Senate Chairman Mark Burkholder says the four-campus resolution has been passed.

"We recognize salary is a major problem limiting our ability to provide the kind of education we want to provide for Missourians," Burkholder says. "There is growing unhappiness for the erosion of the base support for the University. It affects those faculty who have been here for a long time, 10 or 15 years or more. With their low salaries, they are paying a loyalty tax."

Burkholder has invited Magrath to meet with UMSL faculty and staff later in the semester. He has also invited the curators to meet with the executive committee of the senate when the board meeting is held in St. Louis in January.

In addressing the faculty and staff at UMC, Magrath was joined by Board of Curators President Jeanne Epple, UMC Chancellor Haskell Monroe and UMC Faculty Council chairman Gordon Kimber.

Magrath told the gathering he hoped it was the beginning of a much improved communication process. The issue, Magrath said, is not simply the critical one concerning faculty and staff salaries, but the challenge of securing adequate resources to provide quality education to Missourians.

"You, because you care so deeply and for so long have worked tirelessly with inadequate salaries and support, are frustrated and angry and perhaps even despairing and hurt," Magrath said. "I understand the frustration and the pain and anger; it has been communicated vividly and intensely by your Faculty Council. Words are often halting and inadequate, but both as a human being and as a person charged with responsibilities for trying to manage and lead a large and complex University System, I truly care."

Magrath stated some individuals have asked whether a trend had emerged in reducing the proportion of resources allocated to the Columbia campus.

"There is no such trend," he said. "Neither is there a prescribed formula for allocation to the campuses. The recent history or allocations to this campus confirms that the share of total UM expenditures at UMC is .2 percent higher today than four years ago."

Magrath agreed that administrative and support expenditures needed to be scaled back and pointed out that executive management expenditures at the UM System level have declined from \$1.95 million in 1974-75 to \$1.68 million in 1987-88. As a percent of total expenditures, UM System administrative costs have declined in 13 years from 2.09 percent to 1.14 percent.

"These administrative and support reductions are evidence of the trend to redirect funds to primary educational purposes," Magrath said.

Magrath then addressed the issue of salary increases to himself and the general officers: "My salary was set by the board, I assume, for reasons related to the curators judgment about my work. My recommendations on the other general officers, which the board carefully reviewed and approved, were based on merit and market factors for those individuals directly responsible to me and the board.

"Neither they nor I are more

important as human beings or as professionals than faculty and staff, many of whom have worked loyally and tirelessly for many years at very low salaries. Those individuals immediately responsible to me, including Chancellor Monroe, are valuable precisely because they are dedicated, and essential, to the effort to increase University resources and faculty and staff compensation. This difficult responsibility is what they, and I, are charged with doing."

Magrath then outlined steps the University System has taken or is

## Resolution

*In contemporary society a strong university is essential for the economic, political and social well being of the state. Academic programs and services provided by the University of Missouri affect present and future generations of Missourians and will have a long-term impact on the state's economy and culture.*

*Our University has been seriously underfunded for at least a decade. To restore the strength and competitive position of the University of Missouri requires an immediate and substantial increase in state financial support and a permanent state commitment to greater investment in the University.*

*We, the faculty of the Columbia, Kansas City, Rolla, and Saint Louis campuses of the University of Missouri urge the Coordinating Board of Higher Education to recommend, and the Legislature, and Governor to fund fully, the University of Missouri's budget request for 1989-90.*

*We think it is essential that the Board of Curators and the entire administration exert the greatest possible effort for the restoration of the University of Missouri's fiscal base, including appropriate compensation of its faculty and staff.*

taking to improve public support:

- The Board of Curators is committed to a five-year budget plan of \$102 million to repair the University's base budget. It calls for \$50 million plus inflationary adjustments to obtain competitive compensation.

- For fiscal year 1990, the board has approved a request for a 12.5 percent increase in faculty and staff salaries. The Coordinating Board for Higher Education is reexamining a draft recommendation for 1990 that was originally proposed at the 6 percent to 7 percent level. Magrath stated he was optimistic about what the CBHE's recommendation would be.

- Missourians for Higher Education is working to promote public understanding of the funding plight and is looking for ways to enlist the support of key civic, corporation and opinion leaders to increase resources available for higher education.

- Magrath is personally visiting the state's top corporation and civic leaders to elicit their understanding and support.

- The Alumni Alliance, a four-campus organization, is working to gain support from all alumni.

- Magrath has encouraged Gov. John Ashcroft to release the 3 percent of withheld funds.

- The University System continues to seek private support.

Concerning the UMC faculty resolution, Magrath said allocation of 75 percent of new money in fiscal year

1990 for salaries is an "appropriate target." He pledged to try to obtain an appropriation that would enable that target to become a reality.

"One of my earliest conclusions after arriving at the University of Missouri was that the institution could not reallocate its way to competitive compensation," Magrath said. "We do not have the resources at our disposal to solve all of our own problems through cutbacks, reallocation or the elimination of low priority programs. There are, however, good reasons for the current policy that at a modest level we make some effort to reallocate within each campus every year."

Magrath noted that the Agenda for Action items were a subset of the larger five-year plan to improve the base budget and that it had the lowest priority for funding in the plan.

"However, neither the curators nor I could agree, in advance, to freezing all new or changed activities for an indeterminate period," Magrath said.

Finally Magrath noted the need for improved communication.

**'I need and ask for your help in implementing the curators' five-year budget plan to acquire the resources we need so as to repair the base budget.'**

**—Magrath**

"Our communication channels have been inadequate," Magrath said. "I accept the responsibility for that and apologize to you. I will work with all of the chancellors to improve communications so that we can all pull together as a unified university toward our essential objectives.

"I will also ask the chancellors to put in place arrangements for faculty participation in reviewing campus budget requests and decisions. This must, of course, include a four-campus mechanism. We are a university system — a fact that is ultimately a source of statewide strength.

"Without your active and renewed involvement, we will not become what we all want — a first-class place for learning and teaching. Our frustrations, our disappointments, even our disagreements surely grow out of our common commitment to serving the highest quality educational needs of the state. We can, I am convinced, harness that commitment and that love of learning and teaching toward communicating our message that a much greater investment in the University of Missouri will yield rich intellectual, social, cultural and

## Barton plans retirement

Jay Barton has decided to finish his distinguished academic career where it began more than 48 years ago as a freshman zoology major. The University of Missouri System vice president for academic affairs has announced he will retire Dec. 31.

Barton, who received his Ph.D. in zoology from UM-Columbia in 1951, returned to the UM System as a vice president in 1985 after serving in several teaching and administrative positions throughout the United States. Prior to his appointment at the University of Missouri System, Barton served for five years as president of the University of Alaska System.



Barton

"I've enjoyed my tenure with the University of Missouri," Barton says.

"I feel we have made strides, especially toward long-range goals, since I've been here. I've spent much of my career as an administrator, but in my heart I've always thought of myself as an intellectual. In my retirement I shall return to the pursuit of books and the ideas and life of the mind."

Besides spending more time in intellectual retreat, Barton says, he and his wife have yet to make any definite retirement plans. Barton's wife, Ann, is also a UM System graduate. The couple's ties to the UM System extend to their fathers, also alumni.

"The University and the state have been strengthened by the efforts of Jay Barton. He will be missed professionally, and I will personally miss his counsel and friendship," UM System President C. Peter Magrath says of Barton's retirement. "Jay has been a top adviser to me on academic affairs. He's shown great leadership in the area of long-range planning for the University and was a vital member of the (Missouri Opportunity 2000) panel planning the state's economic future."

During Missouri Opportunity 2000 discussions, Barton constantly reminded panel members of the need for a quality education system to ensure a strong state economy. He said states with quality education traditionally have demonstrated strong economies.

Magrath says he soon will announce plans to initiate a search for a successor to Barton.

## Stucky to move to Michigan Tech

Executive Director of Economic Development Duane Stucky will leave the University of Missouri System in mid-October for a top administrative position in Michigan.

Stucky has accepted the position of vice president of operations and



Stucky

finance at Michigan Technological University in Houghton, Mich., at an annual salary of \$99,500. The 46-year-old Stucky has been associated with the University of Missouri System since 1979.

"I have mixed feelings about leaving. The past nine years have been very rewarding, but this is a tremendous opportunity," Stucky said. "Michigan Tech has an outstanding faculty, student body and an excellent administration. And Michigan as a state is a leader in supporting its educational institutions and a leader in economic development."

Stucky served as vice chancellor for administrative services and interim chancellor at UM-Columbia before accepting the position of executive director of economic development and associate vice president under Magrath. Stucky has been very active in developing research parks in Kansas City and St. Charles County near St. Louis. Before coming to UMC Stucky was an administrator at the University of Oklahoma and The Ohio State University.

"Replacing Duane Stucky will not be easy," Magrath said. "His counsel and leadership in economic development issues have been very helpful to me and the state."

Michigan Tech has an enrollment of 6,300 students, including 75 percent engineering majors.

## Board confirms meeting dates

The UM Board of Curators approved the following dates and locations for its meetings in 1989:

- Jan. 26-27 — St. Louis
- March 9-10 — Kansas City
- May 4-5 — Rolla
- June 22-23 — St. Joseph
- July 27-28 — St. Louis
- Sept. 7-8 — Columbia
- Oct. 12-13 — Columbia
- Dec. 7-8 — Columbia

## For your benefit . . . questions and answers

**Do I need to provide evidence of insurability for enrollment in the dental plan?**

No. If you previously elected not to enroll in the plan or decide to enroll after the initial open enrollment period for new employees, you are not required to provide evidence of insurability before becoming enrolled. In such a case, coverage for only preventive care (Type A) expenses during the first year of enrollment will be permitted.

**Are minor children of a single parent considered to be**

## Divestment plan ahead of schedule

University of Missouri System investments in companies that do business in South Africa declined almost 20 percent during the first six months of a five-year divestment program, according to Treasurer Don Holm, who reported to the Board of Curators at its September meeting.

The report compares Dec. 31, 1987, and June 30, 1988, retirement and endowment trust fund figures. This was the first report since curators approved a total divestment plan in December 1987 as a protest to the South African government's practice of apartheid.

"This portfolio examination is simply a snapshot of investments on these given days. The constantly changing status of companies means that these figures are already outdated," Holm said. "But it does give an indication that we are moving in the right direction."

The report showed that in December 1987 the UM System had \$65 million invested in companies doing business in South Africa, which was about 11.2 percent of the UM System's \$579 million in investments. The amount invested in South Africa-related companies dropped to less than \$58 million by June, the report showed, while total investments had risen above \$643 million. Thus, UM System investments in companies

doing business in South Africa had fallen to 9 percent of total investments by June.

Holm also told the curators that four companies in which the University System is still invested have recently announced plans to discontinue operations in South Africa.

UM President C. Peter Magrath said he is pleased with the divestment process. "This may not change the unacceptable policy of apartheid that exists in South Africa," he said, "but it does send a message that the University of Missouri System believes racial inequality is morally wrong."

The divestment plan was adopted by curators last December at the request of Magrath, student groups and faculty who oppose investment in firms doing business in South Africa. The policy states: "Five years from Jan. 1, 1988, the University of Missouri will no longer have investments in corporations holding substantial investments in South Africa."

Before the policy change last December, the University System had been divesting itself of shares in firms that did not follow the Sullivan Principles, a code of corporate conduct leading to equal and fair employment practices and the elimination of all vestiges of discrimination.

## Turner to return to California

Rich Turner left the University of Missouri System Sept. 30 to become director of development and university



Turner

relations at California State University at Dominguez Hills. Turner was responsible for coordinating fund-raising efforts throughout the University System.

Turner became director of

systemwide fund raising in the spring of 1987. His duties included arranging President C. Peter Magrath's participation in fund-raising events at the four UM System campuses.

"Coming to the University of Missouri as the director of development was a real challenge," Turner said. "What I accomplished here will serve as a foundation for future fund-raising efforts. Some mechanisms and policies now exist to help my successor. This will be an exciting job for someone and, frankly, I wouldn't be leaving if it weren't for this great career opportunity in California."

As director of development and university relations, Turner will report directly to the president of California State concerning fund raising, public relations, government relations and alumni relations. No such position exists at the University of Missouri System.

At the September meeting of the Board of Curators, Turner reported that the University of Missouri System topped the Big Eight in private money raised during fiscal 1988. He said the UM System raised almost \$35 million last year.

No immediate plans have been made to name a replacement for Turner.

**can the remainder of those funds remain in the retirement plan?**

Any employee who terminates with a present value of deferred vested benefits of less than \$3,500 has an opportunity to elect to take the present value in the form of a lump sum cash payment or defer benefits until after age 55. An employee whose present value of future benefits is in excess of \$3,500 does not have the option to receive the lump sum cash payment. Accordingly, no beneficiary designation is appropriate.

**beneficiaries of the life insurance plan if the parent dies?**

If the child is a minor and a legal guardian has not been appointed, the insurer would hold the funds until a legal guardian is appointed or the child reaches the age of 21.

**Can I assign a beneficiary for any retirement benefits left over after the cash out value is removed in the event of my death before final retirement? And, if the value of my retirement benefits is greater than the allowable cash out value,**

# Curators approve medical benefit plan changes

Effective Jan. 1, employees will see two major changes in the University System's medical benefit plan.

The changes have been approved by the Board of Curators.

Medical benefit premiums will increase 28 percent at the first of the year as a result of inflation in medical costs, increased use of the plan by employees and lack of reserve funds to cover the increase.

The University System contributes twice the share of premiums employees contribute to the plan, and its costs will also increase by 28 percent.

In addition, utilization review of all inpatient hospitalizations will be mandatory. If employees and their providers fail to comply, a penalty will be assessed.

The University System's medical benefit plan has been self-insured since 1970. According to Ken Hutchinson,

**Premium increases are the result of inflationary costs, greater usage of the plan and a draw down on reserve funds to fund the plan.**

UM System associate vice president for human resource services, the plan has allowed the University System to manage it internally, saving both employees and the institution program costs.

"Recently, there has been a rapid escalation in health care costs throughout the country," Hutchinson says, "and the University of Missouri is

not immune to this trend. We are concerned about the growth and the impact it has on providing adequate benefits for University employees."

Although the University System's medical plan provider, Provident Life and Accident Insurance Co., estimated a 1988 increase of utilization and inflation to be from 18 percent to 21 percent, the UM System's year-to-date costs indicate only a 12 percent increase. That positive result is, in part, due to the initiation of the preferred provider network in November 1987.

The second factor causing premium increases is attributable to the draw down of excess reserves built up in 1985 and 1986. The excess reserves resulted from implementation of certain cost containment features to the plan, such as first-day room and board deductible and disallowing weekend admissions except when medically necessary.

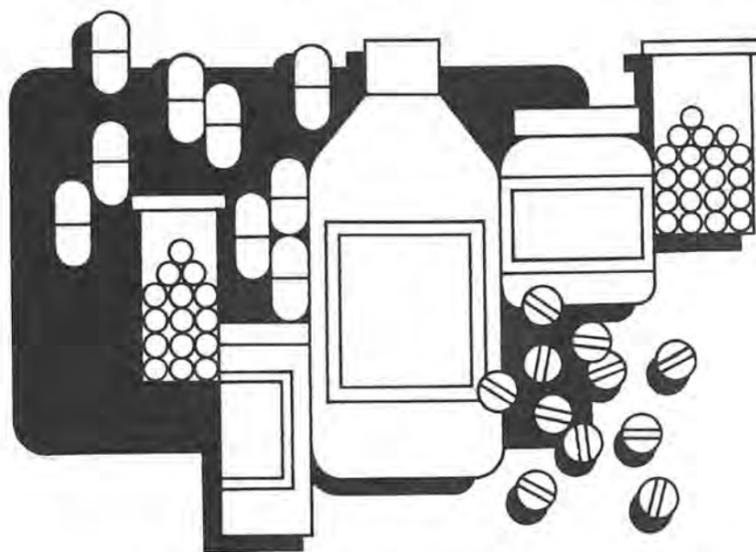
In addition, the introduction of four health maintenance organizations in St. Louis and Kansas City had an impact on the reserve level.

"Approximately 30 percent of UM System employees on the St. Louis and Kansas City campuses moved their medical membership to these HMOs," Hutchinson says. "This caused the reserve level for the University's plan to be higher than necessary in relation to claims."

"So for calendar years 1986 and 1987, the University did not increase premiums even though there was an accumulative claim increase of 33 percent. The University was able to accommodate the increase in costs by utilizing the excess reserves instead of increasing premiums. The reserves were subsidizing the annual costs of the program."

The University System's consultants recommend that the UM System maintain a reserve level that is 30 percent of claims.

"We had planned to draw the reserves down gradually and at the same time increase premiums gradually in order to utilize the excess reserves and bring premium revenue in line with actual plan costs," Hutchinson says. "But 1987 plan costs were greater than we expected due to higher



medical inflation that caused greater demands on the reserves.

"The University will continue to partially fund annual costs from the reserves until the reserve is at 30 percent of claims, as recommended by our consultants. However, at the same time we will increase premiums to replace reliance on the reserves."

At this time, premiums alone do not fund 100 percent of the plan's costs. In 1986 premiums funded 100 percent; in 1987 premiums funded 91.8 percent of plan costs; and in 1988, 87.7 percent of plan costs. In 1989, with the premium increase of 28 percent, premiums will fund 95.3 percent of plan costs. It is estimated that in 1990 the reserve funds will be at the 30 percent level, and the plan will be funded 100 percent from annual premiums.

"Our advisers continue to project increases in costs for 1989," Hutchinson says. "Current projections are in the 18 percent to 21 percent range."

The second change, the initiation of mandatory utilization review, is an effort to manage the medical benefits program more efficiently.

"The objective of utilization review is to monitor costs without jeopardizing the quality of care to the employee," Hutchinson says.

Utilization review involves an external review of inpatient procedures to determine their appropriateness. It includes a preadmission interview,

getting a second opinion, review during the hospitalization, discharge planning and catastrophic case management.

The treatment of employees using a provider in the preferred provider network is automatically subject to utilization review. Employees using other providers have been asked to undergo utilization review.

"Although voluntary compliance has been fairly good, it has not been what we had hoped," says Mike Paden, director of UM employee benefits. "Therefore it is necessary to make the process mandatory for every employee and institute a penalty for failing to comply with utilization review."

Making utilization review mandatory will not result in a loss of benefits to employees and should provide for more efficient plan management, Hutchinson says.

During the first three months of mandatory utilization review, no penalty will be assessed. However, following that period, any employee failing to comply with utilization review will see only a 70 percent co-payment in their medical expenses under the plan rather than the 80 percent normally provided.

In situations where an employee has reached the out-of-pocket expenses for the plan in a year and the plan is to pay 100 percent of the reasonable and customary charges, the plan will pay only 90 percent if the employee does not initiate utilization review.

## Tolan leaves legacy as first safety officer

In the Research Safety Office in Clark Hall, its director has quietly packed up a lifetime of memories ranging from work at the Nevada nuclear test site to the University of



Tolan

Missouri System's current research with radioactive materials. John Tolan, the UM System's first full-time radiation safety officer, retired Sept. 1 after 25 years.

Tolan's career spans the nuclear age and encompasses UM System history from the time when its research reactor was simply an excavated site and its radiation safety program was only beginning. The University System consisted of the Columbia and Rolla campuses. Tolan recalls it as a time of great growth — the University of Kansas City was acquired, and the campus in St. Louis was started. It was also a period of great change.

At the time, he remembers, the director of student health services was in charge of environmental health and safety that included radiation safety. "As a physician he was thinking in terms of public health matters," Tolan says. "It was a very small operation, and my predecessor was half-time radiation safety officer and half-time assistant professor of civil engineering

specializing in sanitary engineering. He supervised a sanitarian and a student who provided help as a technician." Today, research safety has grown to 15 full-time professional staff trained in health physics and several part-time staff working on four campuses.

The University of Missouri did little work with radiation in the early days. Medical uses were at a minimum at the time, but the promise of a new reactor drew researchers to Columbia. Tolan says there were many faculty already on campus interested in nuclear research. "When I came to the University, about 15 or so new faculty members were arriving every year to take advantage of the reactor when it was finished," Tolan says. "Completion of the reactor greatly expanded utilization of radioactive material for scientific research."

After he arrived in 1963, Tolan saw his duties multiply considerably. Then, only the Columbia campus was involved in radioactive research. Today,

each UM System campus has researchers working in the area. The research safety office implements and enforces policy established by a central radiation committee composed of the chairs of each campus radiation safety committee and committee chairs from the hospitals and the UM System Research Reactor.

Tolan's office maintains the Nuclear Regulatory Commission license for the University of Missouri System, serves as liaison to the NRC and the state of Missouri and is responsible for coordinating and overseeing radiation safety programs throughout the system.

It also audits and evaluates each campus program, including separate programs for the University's medical centers in Columbia and Kansas City and the UM Research Reactor in Columbia, to ensure they continue to meet safety compliance standards set by governmental agencies and the University. During Tolan's tenure,

(Continued on page 8.)

# Computing holds potential for students, faculty

"Sufficient academic computing equipment and support is critical to the University of Missouri in order to maintain the quality of our faculty, both in research and instruction, and to our students as they become full participants in the 'information age,'" Chuck Shomper, director, UM System computing and information technology, told the Board of Curators in a special presentation on academic computing.

Currently, the University System spends \$10 million a year on academic computing, a figure that Shomper says needs to at least double to bring the University of Missouri in line with its peer institutions.

"In addition to increasing the annual operating budget, comparative data from among Big Eight, Big Ten and selected engineering schools indicates capital expenditures of \$25 million to \$30 million would be required in the next three years," he says.

Shomper says each campus is developing computing goals and objectives in support of specific needs. Still common goals remain:

- Access to computer hardware and software for instructional purposes for all students, appropriate to their field of study
- The development of faculty computer skills and curricular innovation
- Research computing resources for faculty and students that are state of the art in terms of type and capability
- An academic computing network environment that maximizes the usefulness of computer investments by sharing the resources on the campuses and permitting access to national and international networks

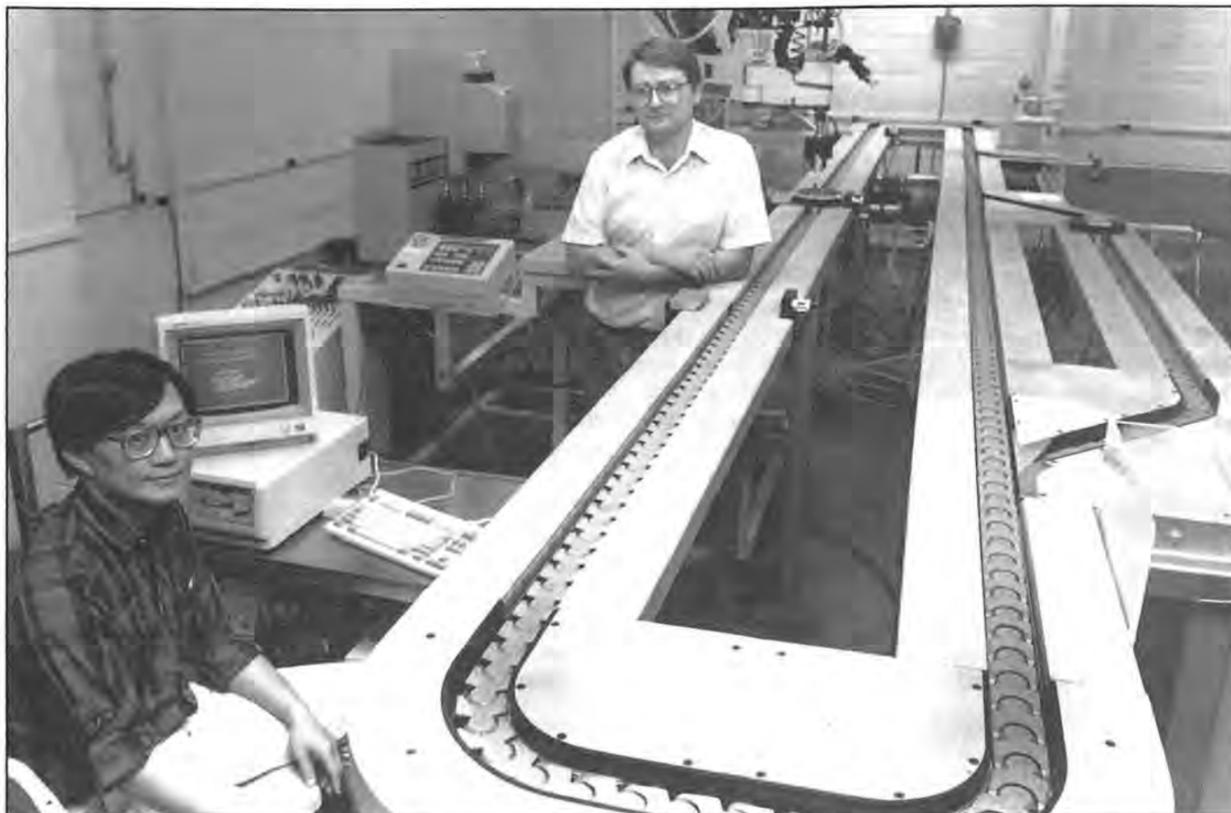
In addition, Shomper says, all campuses need more personal computers and workstations for student laboratories and faculty and departmental offices as well as more funds to support faculty activities aimed at integrating computing into the curriculum and enhancing basic computing skills.

Other common requirements are the development and implementation of campus networks with connections to external networks; increased use of national and international networks for electronic communications and access to advanced scientific computation (supercomputer facilities); slight to moderate growth in mainframe academic computing; increased needs in advanced scientific computation; additional personnel to provide a support structure for a larger computing environment; and increased emphasis on planning for the University System's future computing needs.

Shomper says each campus has specific needs and strategies regarding academic computing in the next three years.

**UM-Columbia** — The Columbia campus has named improvements in academic computing to be one of its highest priorities. Immediate initiatives include the creation of a new 100-station computer lab scheduled to open this fall in the Arts and Science Building and the interconnection of buildings through the campus optical fiber network. UMC hopes to provide 1,350 more personal computers and workstations and greater provision for data networking.

**UM-Kansas City** — The Kansas City campus will try to provide



Charles Walden (right), manager of the UM-Columbia engineering laboratory, and Yusan Ho, research assistant, use a personal computer to control a programmable automation robot.

workstations for faculty research and, in the long term, provide a personal computer on the desk of every faculty member. Plans include networking minicomputers with personal computers easily accessible to faculty and students. Central to the network will be the ability for users to utilize interactive video and computing to support retrieval from internal and external sources. UMKC anticipates the need for 550 more personal computers to implement the plans.

**'The computer is no longer a toy for the scientist and engineer. Computers are an essential tool of the academic.'**

—Park

**UM-Rolla** — UMR has consistently placed a high priority on the use of computing in instruction and research. The campus is in the process of expanding its use of workstations. UMR's interest in incorporating workstation technology into the St. Louis Graduate Engineering Center has started a study throughout the University System for an intercampus academic network. In addition, the campus expects its need for supercomputing to grow and anticipates the need to acquire a small supercomputer soon. UMR estimates 510 more personal computers and workstations are needed for the campus.

**UM-St. Louis** — UMSL's goal is to place a workstation or personal computer on every faculty member's desk. The campus anticipates the need to acquire 1,140 more personal computers and workstations and plans to establish 20 teaching labs.

Campus faculty and administrators illustrated for the curators the importance of computing.

Russ Meyer, associate professor of English at UMC, says it's not only scientists and mathematicians who are interested in computer technology for instruction and research, but those in the humanities as well.

Meyer has developed a program called Handbook, a computerized guide to the rules of composition and grammar.

"It's electronic, on-line and instantly available to any student writing in one of the UMC word processing centers," Meyer says. "It takes only two keys to activate it."

Handbook contains, as Meyer says, all those rules you learned to hate when taking freshman English. But it's an enormous help to a student who is writing a paper and needs help, for instance, in the use of a semicolon. By calling up Handbook and working through a series of "windows" containing instructions in the use of punctuation, the student can find an answer to the question and continue writing.

Meyer compares the explosion of the printed word in the 16th century to the information explosion provided through computers today.

"Computers are no longer cumbersome, awkward or expensive," Meyer says. "Those who have become involved with computing in recent years are filled with the excitement of change. Those who have not become involved are missing a great deal of fun and knowledge."

Jerrold Siegel, UMSL professor of mathematics and computer science, says the diversity of systems available and necessary for instruction is wide.

"We need to supply several specific computing environments for our students to prepare them for employment," Siegel says. "Many students need very specific workstations, not just personal computers."

"But the opportunities are everywhere at every stage of the students' education to enhance the ability of the teacher to provide instruction. Students can basically learn on their own, and their employment opportunities are greatly enhanced. If we provide these facilities to our students, we'll attract better students as well as industrial and governmental interest."

UMKC Curators' Professor of physics Marvin Query says one of the first priorities should be better computer networking equipment to provide access to national super-computing facilities.

"Within the University of Missouri, we have some excellent scientists and engineers who need that capability," Query says. "If we're going to support the efforts toward future economic development, we must also do so with our computer facilities."

John Park, UMR vice chancellor for academic affairs, says the University of Missouri cannot be a bystander in the integration of computer technology. It needs, rather, to be a participant in the development of that changing technology.

"We can't underestimate the power of these computers and the role they play," Park says. "The computer is obviously a tool for expanding the intellectual activity of both faculty and students."

"We need to do more work in the integration of computers into the classroom," Park says. "They have been a tool for our researchers for many years, but we need to assist the faculty in the development of what I would call 'courseware.' We need more programs like Handbook. But it takes a tremendous amount of effort to develop that kind of software. We will have to provide the faculty with assistance in developing these kinds of programs."

"The computer is no longer a toy for the scientist and engineer. Computers are an essential tool of the academic. They are far more than just a device to increase faculty and staff efficiency. They are a necessary part of the academic and scholarly process itself."

# LUMIN includes new circulation system

by Sharon Reid

*University Relations*

You soon will be able to tell if a book is checked out from any University of Missouri System library just by calling up the LUMIN on-line catalog at a computer terminal.

The University of Missouri System libraries are adding a new circulation system to LUMIN that will be able to perform this function and many others.

LUMIN, which stands for Libraries of the University of Missouri Information Network, is an automated library information system for the UM System. It consists of a data base users can search using terminals in the libraries or offices to find out which books the UM System owns and at which library they are located.

benefit is more detailed statistics about how books are used," Rickerson says.

The circulation system will not be completed until the end of the calendar year. Enough of it is done, however, to begin to check books in and out with it. "The major things we have left to do are the functions related to reserve materials," Rickerson says.

The first library to use the system was the UMC J. Otto Lottes Health Sciences Library. "We've been very eager to have automated services, and this was our first opportunity. We were very willing to be the test library," says Dean Schmidt, the library's director.

The Curtis Laws Wilson Library at UM-Rolla implemented the system in mid-July. By the end of August, the Thomas Jefferson Library at UM-St. Louis, the General Library at UM-Kansas City and the UMC branch libraries were using the system.

"It is extremely well-designed software, particularly in the way the data base is designed so that it can support a large amount of data and a large number of users," Rickerson says.

Two universities that bought systems from Biblio-Techniques, Brown University and the University of Cincinnati, are converting their systems so they will be more like LUMIN. Both institutions are going to license the circulation software from the UM System.

The cost to the UM System of developing the circulation system included the salaries and benefits of the staff and the computer time for development. The rights to the design were acquired at no cost.

This fall the Bibliographic Control Task Force, the committee that determines priorities for LUMIN, will decide the next step in automating the library functions. That

# Professors benefit from IBM super-computer time

by Sharon Reid

*University Relations*

Four University of Missouri System professors have taken advantage of a nationwide program in which International Business Machines Corp. donates supercomputer time at its scientific centers.

The program allows researchers to use the off-shift supercomputer time at three IBM scientific centers located in Los Angeles, Palo Alto, Calif., and Cambridge, Mass. Researchers travel to one of the centers for about a week to start up the program. They leave with software that enables them to run the program from their universities.

"The sites have excess capacity and are idle off-shift," explains Ray Harder, advisory academic specialist at IBM in Columbia. "It's a way to support research and support the University population. It generates research knowledge and good will."

The program gives researchers who have not been funded from other sources the opportunity to carry out their projects. "There are projects out there that are not being pursued because they do not have machine time. So this program allows them to carry on their research," Harder says.

"Personnel at the center provided not only the time but also assistance in using the machine," says John Adams, assistant professor of chemistry at UM-Columbia. "If you wanted help with their facility, or in learning how to get the most of your program, they were willing to help."

Besides the computer time, IBM provides money to cover the costs incurred by the researcher.

"An allocation for expense money is involved in the program," Adams says. "There was \$5,000 I could draw upon for expenses involved in the project. That expense money allowed me to go out to the Palo Alto Scientific Center."

Also at UMC, Sudarshan Kumar Loyalka, professor of nuclear engineering, is currently involved in the program. Two professors at UM-Rolla, Al Crosbie, professor of mechanical engineering, and Romesh Batra, professor of engineering mechanics, are using the supercomputer time. UM-St. Louis and UM-Kansas City do not have anyone participating.

Even though IBM does not consider the time a grant, the University System sets a value based on equivalent time on the University Network Machine. For Adams, the estimate was around \$110,000 for 250 hours. For Loyalka and Batra, who each have 500 hours, the time is valued at about \$400,000.

Although IBM is not actively soliciting, interested professors can contact their local IBM office. "We could take more nominations," Harder says. "I don't necessarily want to open phone lines. But we would take some more."

A field representative from IBM, such as Harder, nominates a candidate. An approval process and a low-key peer review of the nomination follow. Criteria include the need for computer time and an absence of funding from other sources.



Photo by Pat Nichols

Card catalogs in Ellis Library at UMC will soon be even more obsolete. LUMIN users will soon be able to tell if a book is checked out without checking the shelves — an added benefit of the new automated circulation system for the UM System libraries.

The new circulation system automates functions, such as checking books in and out, which has been performed manually in all the libraries except Ellis Library at UM-Columbia. The system also is able to keep track of books while they are out of circulation. It can record when a book is moved temporarily from one location to another. If a book should be on the shelf but isn't, the system can create a record stating the book is lost. It can also inform users and librarians a book is being shelved.

One example of how the new circulation subsystem might benefit the faculty members involves the hold function. If faculty members use a terminal in their office to search LUMIN and learn that a book is checked out, they may be able to call the library to have a hold placed on it.

"That will depend on the services the individual libraries decide to provide, but I wouldn't be surprised if they would be willing to take hold requests by phone," says George Rickerson, director of the UM Library Systems Office.

Besides inventory control, the libraries also gain from increased management statistics. "The other

Ellis Library at UMC and the branch libraries at UMSL and UMKC will start using the new system by the winter semester.

Thomas Shaughnessy, the director of libraries at UMC, explains why Ellis Library decided to wait. "We don't have our collection bar coded yet. We have the largest collection, and it just takes time." The coding will be finished in October or November, but they decided to wait until the winter semester to implement the system in order to make the transition smoother.

LUMIN was begun in 1980 with plans for full integration. "The intention was that it would support all of the activities in the library," Rickerson says. These activities include circulation, acquisitions, serials control and the on-line catalog. The on-line catalog is the only function that has existed until now.

The circulation system was partially designed by Biblio-Techniques, a company that marketed a system similar to LUMIN. Before Biblio-Techniques folded, Rickerson acquired the rights to the design of the circulation system for the UM System. The UM Library Systems Office staff finished the development.

step probably will be acquisitions, the process of buying books. Serials control, managing all the library subscriptions, would probably follow.

## System archives now on LUMIN

University archives will soon be available through LUMIN.

All University System offices will have access to the archives through the data base beginning in 1989.

Interest in the archives is growing because of the upcoming sesquicentennial celebration, and the new retrieval ability will open the UM System's historical and administrative records to more people more easily.

Cataloger Mireya del Castillo, archives assistant Doris Linneman and graduate research assistant Shelly Croteau began converting the archive material into computer format and entering it in the LUMIN data base early this year.

For further information, call University Archives at (314) 882-7567 or write the office at 726 Lewis Hall, Columbia.

## Magrath discusses salaries *(Continued from page 1.)*

economic dividends for all Missourians. This, however, will come about only if we work together, if we continue to work hard and if we are motivated by hope rather than by fear."

Curator Epple echoed Magrath's concern for the frustration the salary issue had caused. "When the University is troubled, I am troubled," she said. "Each member of the Board of Curators understands the critical importance of faculty and staff of the University. The board is deeply committed to the progress and quality of the University. The curators' long-range plan established reasonable salary goals, and we share your frustration that these goals have not been met. Salary improvement, increased funding and long-term

initiatives for increasing revenue are at the very heart of the curators' long-range plan."

Epple cited efforts by the board to improve compensation:

- In June the board approved a five-year plan for rebuilding the base of the University. "The keystone of this plan — the top priority — is increased compensation," Epple said.

- In July the curators approved the appropriations request for fiscal year 1990, which includes a 12.5 percent increase for compensation.

- Magrath has asked CBHE to review its original recommendation, and the board is hopeful that the alternative recommendation may be in the 10 percent range for salary increases.

- The board is actively pursuing the release of the 3 percent of the fiscal year 1989 appropriation that is being withheld by the governor.

- While realizing reallocation will not guide the University to prosperity, the board realizes the University System can make some adjustments and improvements through reallocation.

"At one of the meetings of the Board of Curators in laying out the budget plight for the University, I used the words 'sounding the alarm.'" It may not have attracted very much attention, but it is an alarming situation, and the losers are not only those of us in this room, but the people of the state of Missouri," Magrath said.

## Tolan *(Continued from page 3.)*

more than 700 authorizations for research involving radiation were issued to University of Missouri System researchers with half of the projects still active.

Tolan is the historian of the UM System's radiation programs, even about events that occurred before he arrived. He tells the little-known story of the cleanup of Schweitzer Hall in 1960. "There was a large-scale radium separation facility in Schweitzer operated by researchers in the 1920s," Tolan says. "At that time it was the major source of the U.S., if not the world, supply of processed radium.

"In the late 1970s geneticists were put in the building, and they raised a howl of protest when they found out about the radium research. This caused another full-scale cleanup."

Tolan was part of a team that took radiation fallout readings on four separate occasions after atomic tests at

the Nevada nuclear test site during the 1950s. "We all wore our radiation protective suits," Tolans says matter-of-factly. "As long as we had them on, we were very safe taking readings as the fallout dropped."

In the 1960s and 1970s Tolan taught physics and radiation safety courses to radiation technology students at UMC. He also was a member of a credentials team that inspected nuclear medicine programs throughout the nation.

Tolan is reluctant to become a spokesman on nuclear issues and lets others respond to the debate. He says it is too much work trying to anticipate the opposition's arguments and feels others can respond better. However, he is outspoken in pointing out that Three Mile Island was not a hazardous incident since no radiation escaped. "You can get more radiation from an X-ray," he says.

"Even though there appears to be a moratorium on nuclear reactors to produce power, there are many that have been approved and are in various phases of construction," Tolan says. "People will always need power and there are few alternatives — oil from the Middle East or coal which has its own pollution problems."

In retirement Tolan plans to spend considerable time working on his house and several acres of grounds. He admits to neglecting them recently but promises to reform. However, it seems certain he won't lose his self-deprecating sense of humor. In announcing his retirement in the Health Physics Newsletter he called himself "the old, old editor" who was retiring "to join the leisure class."

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