TECH TOPICS
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Ecstasy affords the occasion and expediency determines the form.

—Marianne Moore

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Board of control gives preliminary OK to new TIAA-CREF retirement plan

The Board of Control gave its support in principle March 14 to Provost **Fred Dobney's** latest TIAA-CREF retirement health-care proposal.

The proposal was designed to give TIAA-CREF retirees affordable health insurance while limiting Michigan Tech's liability for health-care expenses.

Under the plan, the University would match employee contributions to their TIAA-CREF retirement accounts up to 1 percent of their salaries in 1997–98. The University match would be raised to 2 percent in 1998–99. On the health-care side, TIAA-CREF retirees with 80 points would be allowed to purchase health insurance through MTU. Anyone retiring before July 1, 1999, would pay 20 percent of their premium. Each year, the co-pay percentage would rise 10 percent, until July 1, 2006, when new retirees would be paying 100 percent of their premium. *(For more on the proposal, see the March 14* Tech Topics*.)*

No Board members opposed the plan. Previously, they had worried that providing retiree health care would overly burden the University, but the latest plan appears to have alleviated those concerns. "This was an issue when I joined the Board two years ago, and we've crossed a lot of ground since then," Board Member **Marty Lagina** said. He asked how many TIAA-CREF participants would be retiring within the next ten years, when the University would be liable for part of their premium. Fewer than 300 of the University's 694 current TIAA-CREF employees are expected to retire by 2006, Dobney said.

Board members expressed support for improving MTU's benefits package, particularly in terms of attracting and keeping quality faculty.

Dobney said he would bring the finished wording on the proposal to the Board in May. If approved, it could be implemented July 1.

In other business, the Board

- approved the creation of a new position, vice provost for instruction, which would report to the provost. Dobney has twenty-two positions reporting directly to him, President **Curt Tompkins** said, adding, "We need to give more authority to the vice provosts." The new vice provost would serve as an advocate for instruction, particularly undergraduate education, and oversee several areas now reporting to Dobney: International Programs, the Center for Teaching, Learning, and Faculty Development, Distance Education, and Educational Opportunity. The Board also approved two title changes. The dean of student affairs will be the vice provost and dean of student affairs, and the information technology director was renamed vice provost for information technology.
- granted tenure to **David Stone,** who will be joining the faculty of the Department of Electrical Engineering as associate professor and chair. Stone is currently manager of NASA's Commercial Remote Sensing Program at Lockheed Martin Stennis Operations at the John C. Stennis Space Center in Mississippi. With a budget of $7 million and a staff of seventy, he is responsible for over 100 projects in an organization that has grown by 30 percent over the last year. He was previously chief of the Active Imaging Branch at the U.S. Air Force Phillips Lab in Albuquerque, New Mexico, and on the engineering physics faculty of the Air

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Claude Verbal brings industry perspective to Board of Control

Industry wants engineers to have experience even before they get their first job, says **Claude Verbal,** the newest member of MTU's Board of Control.

"It can take two years on the job for an engineering graduate to get up to speed and make any kind of meaningful contribution to the bottom line," said Verbal, manager of GM's Lansing Service Parts Operations Processing Center. With the right background, however, a new engineer can cut that getting-your-feet-wet period to 6–12 months.

What right background would that be?

As it turns out, employers are pretty satisfied with how universities teach engineering. But they'd also like to see graduates bring other talents to the table. "They're looking for universities to give them soft skills, especially teamwork," Verbal said. "When you come to a company, you don't work by yourself. You work with a team on a project, and your job is to get it done together."

Thus, students need to develop strengths in communication and cooperation. Projects such as FutureCar and the Society of Automotive Engineers design competitions can give undergraduates a chance to develop those skills, as well as experience in all phases of a project, from design to cost analysis to construction.

"Employers want engineers who have a lot more practical experience, who have worked on some kind of design that they then built and tried out," Verbal said. "They need to understand what it did and why, and what it didn't do and why."

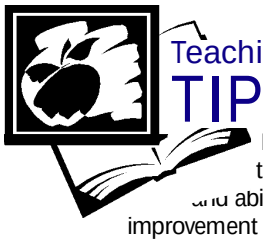
He'd also like to see more manufacturing and engineering done in the U.S. "We're becoming a nation of service," he said. "We should also be a nation of doers—the pendulum should swing back in that direction. And engineers are a key component, the people who turn ideas into things, a part of the economic network in any country that makes it great."

Verbal was the guest speaker at the Omega Psi Phi banquet in Houghton March 15 and talked later about attracting women and minorities to Michigan Tech. "I was talking to the students, and most of them are out of Detroit and are getting good assistance to go to school," Verbal said. Michigan Tech is doing the two main things it needs to do to attract minorities: "beating the bushes" for good students and then giving them good financial aid. "That's primarily the way to attract them," he said. "I think you are on the right track."

Verbal himself opted to go to a college close to home, North Carolina State University, rather than accept scholarships from Michigan State, University of Michigan, or Cornell, in large part for financial reasons. "They didn't pay me enough to go that far from home," he explained. "I had to be somewhere that, when the food ran out, was close to home."

At twenty miles, he knew the distance was walkable in a pinch, though he never had to make the journey on foot. "I hitchhiked home many times and I'd be there in less than half an hour," he said, remembering a less-dangerous decade.

Center for Teaching, Learning, and Faculty Development



Teaching improvement through faculty collaboration

By William Kennedy, director

Sustained faculty collaboration may be the key to meaningful improvement in undergraduate education, according to a comprehensive report issued by the U.S. Department of Education.* Faculty must work together "evaluating the cumulative, developmental acquisition of key knowledge, skills, and abilities that represent the aims of undergraduate education" if real improvement is to result. This message may provide a constructive framework for MTU to derive more benefit from the programmatic assessment of student academic achievement activities being encouraged by the regional and disciplinary accrediting bodies. In short, assessment practices may provide the data to inform programmatic improvement, but collegial faculty interaction is the means by which the actual improvement will occur.

If we accept the premise that meeting the ever-changing needs of our disciplines, our students, their future employers, and the citizenry we serve requires a faculty dialogue, then we must decide how to encourage that dialogue. Some have suggested that the compartmentalized structure of American universities, the individualistic nature of advanced degree programs, and faculty reward systems that value individual scholarship over collaborative instructional and curricular development efforts have all worked against the kind of ongoing collegial reflection that this report encourages. Whatever the genesis of the academy's reluctance to embrace this notion of dialogue, we must come to a place where continuous, collegial faculty reflection is the norm if our improvement efforts are to be fruitful.

Rather than seeing external calls for improvement as intrusions into the private realms of academic freedom, we should take this opportunity to engage the cumulative imagination of our faculty. There are healthy signs that just such a dialogue has long been a feature of this faculty and is on the increase at MTU. As evidence, I would cite the faculty-based development of formal and informal mentoring programs across the campus to help new faculty understand the opportunities and the expectations of this academic community.

I would mention MTU Profs. **Peck Cho, Marilyn Cooper, Pushpalatha Murthy,** and **William Predebon's** design and delivery of this year's faculty orientation program and weekly teaching seminar series. Provost **Fred Dobney's** proposal for a vice provost for instruction to provide administrative leadership, support, and guidance for instructional improvement efforts might well serve to broaden the scope of the faculty dialogue. As further evidence of ongoing concern, I would also mention the positive influence of the Upper Midwest Faculty Forum, the Faculty Development Grant Committee, Vice Provost **Sung Lee's** Scholarship Incentive Grants, the efforts of the Ad Hoc Task Force on Teaching, and the insights provided by Professor **Christa Walck's** comprehensive report on Faculty Development, as well as Professor **Stephen Bowen's** interactions with the Assessment Council, and all the departmental collaborative efforts of MTU faculty too numerous to mention, as all contributing to the building of a quality faculty dialogue.

It seems clear that we should pursue any and all opportunities to engage one another in dialogue concerning instructional improvement to constantly rediscover how we can work together to continuously improve the educational efforts of MTU. I would hope that the Center for Teaching, Learning, and Faculty Development can serve as a catalyst in furthering that dialogue. As always, please share your comments and ideas with us at 487-2046.**Realizing the Potential: Improving Postsecondary Teaching, Learning, and Assessment,* sponsored by the U.S. Department of Education Office of Educational Research and Improvement and conducted by the National Center of Postsecondary Teaching, Learning, and Assessment, 1995.

Board of Control OKs new Sun equipment purchase

Thirteen departments will be getting over $900,000 worth of computing equipment from Sun Microsystems at a cost of less than $600,000.

The Board of Control approved the $593,635 purchase March 14. With the usual educational discount, the total cost of the equipment would have been $921,389, or a list price of over $1.5 million.

This very good deal was made possible by collaboration. **Tim Collins,** dean of the School of Technology, submitted a proposal to **Bill Raduchel,** chief information officer at Sun, who attended MTU in 1967. (He later went on to get a PhD at that other good school, Harvard.) Former School of Technology faculty member **Robert Fricke** is Raduchel's uncle, and Houghton is his home town.

Raduchel encouraged Sun to offer MTU the special promotion. Barbara Gordon, vice president of Sun's World Wide Education & Research Market, also supported the project and involved MTU's direct Sun account executive, John Thayer.

The purchase involved combining orders from the following departments: Center for Experimental Computation, Civil and Environmental Engineering, Computer Science, Electrical Engineering, School of Forestry and Wood Products, Geological Engineering and Sciences, Information Technology, J. R. Van Pelt Library, Mathematical Sciences, Mechanical Engineering-Engineering Mechanics, Metallurgical and Materials Engineering, Physics, and the School of Technology.

The new equipment includes 36 UltraSparc 2 servers and workstations (15 free as part of the package), 36 UltraSparc 1 workstations, 8 SparcStation 5 workstations, 4 SparcStorage arrays, and 2 Ultra Enterprise 3000 servers.

Open house at Tennis Center

The Gates Tennis Center has a new look and is celebrating with an open house. Pizza and other refreshments will be served on Saturday, March 22, from 1:00 to 6:00 p.m. Sign up for a door prize. Bring the kids and your tennis attire and play tennis with the MTU varsity players. Don't miss this exciting day of tennis!

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- By e-mail to ttopics@mtu.edu
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Each week, the deadline for submitting information is **Friday at 5:00 p.m.** or publication the following Friday.

Our URL is http://www.sas.it.mtu.edu urel/ttopics/index.html

Beard's adjustable wheelchair featured in the Times

An adjustable wheelchair designed by a team of inventors including Associate Professor **John Beard** (ME-EM) was featured in the patent section of the February 24 edition of the *New York Times.*

With a lever on the side, the wheelchair seat can be adjusted from 10 to 40 inches off the ground, allowing the user to adapt to furniture of different heights, from kitchen counters to office desks.

In addition to Beard, the inventors are James Conwell, Randolph Puls, Jeffrey Savela, and David Rathbauer. They have received a patent for the wheelchair, along with the Office of Technology Transfer at the Agricultural and Mechanical College in Baton Rouge and Louisiana State University. The chair was developed as part of a capstone design project at LSU, where Beard was on the faculty until coming to Michigan Tech in 1992.

Women's read-in room in MUB

A Women's Issues Read-In Room will be created in MUB Ballroom B March 31–April 3, 9:00 a.m.–-4:00 p.m. A variety of seminars and reading forums will be held, as well as displays by local women artists. For more information, contact Blake Boursaw at bjboursa@mtu.edu or 487-3539.

Vitton et al develop tornado sensor

Submitted by the News Bureau

Residents of tornado-prone areas across the country may soon be able to purchase an inexpensive form of protection that will warn them when a tornado is approaching.

Just as scientists in the recent movie Twister *worked to develop a warning system to allow people adequate time to seek shelter, real-life scientists are now working on a novel approach to accomplish that goal. Researchers will soon field test a two-part seismic device designed to detect ground vibrations given off by an approaching tornado in time to allow its users to seek shelter. The sensor portion of the device would be positioned outdoors. When it received tornado vibrations, it would transmit an alarm to the second part of the unit, located in the home or other building. The apparatus would be affordable for just about everyone.*

The idea for a sensor was spawned by Frank Tatom, president of Engineering Analysis, Inc. of Huntsville, Alabama, after he heard of people feeling ground vibrations prior to the touchdown of a devastating tornado that killed 29 persons in Huntsville in 1989. But it was in conversations with **Stanley Vitton,** then on the civil engineering faculty at the University of Alabama and now an assistant professor at Michigan Tech, that the idea was crystallized.

"I called Frank to talk with him about a computer program he had designed to determine the distance at which explosions such as that at the Oklahoma City Federal Building can cause damage," recalls Vitton. "I deal in soil dynamics, and he is an expert on turbulence and fluids systems. . . . He wanted to know if it was conceivable that energy from a tornado could be transferred to the ground; that's how we began working on this problem. It turned out there had been little or no study on winds causing ground vibrations."

Tatom and Vitton began investigating the mechanisms that transfer energy. They found that when a tornado passes over the landscape, the swirling motion of the wind creates pressure fluctuation with tremendous energy. Much of that energy can be transferred to the ground. "This confirmed the statements of several witnesses in the Huntsville area who said they actually felt vibrations in the ground before the tornado of 1989 was sighted," says Vitton. "We then decided that it should be possible to create a seismograph-type instrument that could pick up the vibrations of a tornado and serve as a warning device for human populations that might be in danger."

Tatom made some calculations to determine how much energy could be transferred to the ground by different size tornadoes. His figures showed that large tornadoes were capable of transferring energy to the ground equivalent to a thousand pounds of TNT per second, with the largest tornadoes producing up to ten thousand pounds of TNT per second of energy. Vitton then started modeling the type and magnitude of the seismic signals given off by tornadoes.

"Normally signals given off by a tornado would be at a higher frequency than traditional seismographs are programmed to detect," he explains. "Seismographs are usually designed to detect earthquake tremors, so scientists generally filter out any other type of signal so nothing will interfere with the earthquake data."

Vitton also found that tornadoes cause a very slight tilt to the earth's surface as they make contact with the ground. Vitton and Tatom, along with their colleague, meteorology professor Kevin Knupp of the University of Alabama at Huntsville, believe that a tornado works like a plunger trying to lift up or press down on the earth's surface; it is this action that can cause the earth's crust to tilt slightly. While this tilt is too small for humans to detect naturally, very precise instruments would be able to detect the change.

Vitton says a seismologist from Oxford, Mississippi, recorded what was thought to be a seismic signal, but had an unusually low frequency. "When I reviewed his data, we were able tie in those signals with a tornado that had passed through near Oxford on the same date and time the recordings were made," says Vitton. "This was the first real evidence of vibration or tilt signals from a tornado being confirmed by data."

Tatom and Vitton are now working on instrument packages that will be placed in the field by "storm chasers" to monitor both seismic vibrations and tilt from tornadoes. Storm chasers currently place other instruments, called "Turtles," for a number of scientific organizations such as the Severe Storm Lab in Norman, Oklahoma.

"Our sensors are smaller and we call the package they're in 'Snails,' explains Vitton. "We'll be passing them out before the start of the tornado season in April to storm chasers in states such as Oklahoma and Texas that have high tornado frequency. The storm chasers will try to get ahead of approaching storms that could be harboring tornadoes and place the devices strategically in the path of the storm to see how well they work."

How much warning the sensor gives will depend on the strength of the signal and the sensitivity of the unit, says Vitton. "We hope the device will give as much as five minutes warning during which people could seek safety."

If the device works as well as the scientists hope, they predict the sensors could eventually be available for as little as $40–$50.

The Young and the Damned at March 21 Club Indigo

Luis Bunuel's 1950 classic *Los Olvidados (The Young and the Damned* in English), about kids in Mexico City slums, will be shown Friday, March 21, at 7:00 p.m. at the Calumet Theatre. This Club Indigo presentation is preceded by a Mexican buffet at 6:00 p.m. The buffet is $7 per person. The movie is $3 per person or $5 per couple.

Dobney named to bank board

Provost **Fred Dobney** has accepted appointment to the Board of Directors of North Coast BIDCO Inc., a subsidiary of Shorebank Corporation.

Northcoast is licensed in Michigan as a rural business and industrial development corporation. It has loaned $2.4 million to 12 new or expanding businesses in the Upper Peninsula helping create 262 new jobs and increase sales by $25 million.

In a February 20 letter, Kathryn Polansky, president of North Coast BIDCO, said she believed the Marquette-based company could be interested in financing businesses based on technology transfer from Michigan Tech, and that company officials had had productive meetings with MTU staff. "This interaction, coupled with our involvement in two spinoff companies and the university's declared growth in graduate and research programs, complements our business development strategy," she wrote.

Advanced degrees linked to higher incomes

Households headed by persons with advanced degrees tend to have much higher incomes, according to an article in the February 10 issue of *Higher Education & National Affairs.*

The graduate-degree dividend is particularly great at the doctoral level. The 1994 average family income in households headed by individuals with PhDs was $113,238, 54 percent higher than in families headed by someone with a bachelor's degree, according to the article "Education Level Affects Learning Potential," which cites the U.S. Bureau of the Census.

Family income in households headed by individuals with master's degrees was 14 percent greater than for those headed by people with bachelor's degrees ($83,887 vs. $73,365). In homes headed by a high school graduate, the average income was $41,078.

Census data also showed that the average income of Americans with college degrees increased by 28 percent during 1974–94, while high school graduates' income increased 3 percent, adjusted for inflation. Those without high school diplomas saw a loss in real earnings of 10 percent.

Miz Wizard's Science Secrets March 26

Jane Curry presents *Miz Wizard's Science Secrets* on Wednesday, March 26, at 7:00 p.m. in Fisher 135. Her fictitious cable show takes on misogyny in science (you won't be-*leeeve* what Aristotle taught) and reveals nifty discoveries made by women, often because of their unique relationship and approach to the subject.

Curry has toured for nine seasons with the Minnesota Chautauqua and performs nationally and internationally with three other solo shows she has written: *Samantha Rastles the Woman Question; Just Say Know: Educating Females for the 21st Century;* and *Nice Girls Don't Sweat.* She lives in Minneapolis with her husband, two cats, and a snowblower. Curry's visit is sponsored by Educational Opportunity, the Visiting Women Lecturer Series, and the Human Relations Series.

Films mark Women's History Month

Two films on exile are part of the "Women and Difference" series marking Women's History Month. They will be held the next two Fridays at 5:30 p.m. in Walker 134 and are free; everyone is welcome. The series is hosted by Associate Professor **Diane Shoos** (humanities).

- March 21, *Where the Spirit Lives*
  Where the Spirit Lives was directed by Bruce Pittman and released in 1989. After a Native American girl is kidnapped by a government agent and forced to attend the King George V Indian Museum School in 1937 Canada, she struggles to maintain her identity and links to her culture, language, and religion. The music is composed by Buffy St. Marie.
- March 28, *Surname Viet Given Name Nam*
  This 1989 film, by Trin T. Minh-ha, is the director's personal documentary on the role of Vietnamese women historically and in contemporary society. Using dance, printed texts, folk poetry, and the words and experiences of Vietnamese women in Vietnam and the U.S., Trinh's film challenges official culture with the voices of women. *Surname Viet Given Name Nam* explores the difficulty of translation and themes of dislocation and exile, critiquing both traditional society and life since the war.

Comedian Brad Lowrey here March 28–29

Stand-up comedy circuit veteran Brad Lowery has performed at over 150 universities and comes back to Michigan Tech Friday and Saturday, March 27–28, for two 8:00 p.m. performances in the Keweenaw Commons. This Club MUB event is sponsored by the Memorial Union Board.

Lowery performed at Michigan Tech in 1994 before the largest crowd in Club MUB history. He has appeared on HBO's *Def Comedy Jam* and *Inside the NFL,* and A&E's *Caroline's Comedy Hour.* His performances are hilarious and inspirational, funny and thought provoking.

Admission is $2 for students and $4 for everyone else. Tickets are sold only at the door, so get there early for the best seats. For more information, contact the Memorial Union Board at 487-2422 or drop by the office, Memorial Union 106.

Wolf numbers up while moose crash
Balance of nature see-saws on Isle Royale

Submitted by the News Bureau

After several years of concern about whether wolves would survive the ravages of canine parvovirus on Isle Royale National Park, park officials and researchers have now turned their attention to the island's moose herd.

Park Superintendent Douglas Barnard reports that a survey of moose and wolf populations completed this winter shows about 500 moose on the island, compared to an estimated 2,400 in 1995. "We knew that we lost a lot of moose during the especially long, harsh winter of 1995–96," says Barnard, "but no one anticipated that losses would be this large. After completing field work on the island in March 1996, biologists estimated that there were 1,000 to 1,200 moose within the park. By then, surviving moose were suffering from lack of food, deep snows, and a heavy infestation of winter ticks. The moose population was dealt yet another blow, the late arrival of spring greenup, which resulted in additional moose mortality from starvation.

Professor **Rolf Peterson** (SFWP) conducts the annual survey for the National Park Service. Peterson notes that the park's moose population had grown dramatically over the past fifteen years. This was due to a population crash in 1981–82 of their only predator, wolves. That wolf decline coincided with the arrival of canine parvovirus in the region. The dynamic relationship between moose, wolves, their environment, and available food sometimes results in extreme population fluctuations.

"The carrying capacity of the moose range on Isle Royale has been greatly exceeded, resulting in serious overbrowsing that grew worse each year as moose continued to increase," says Peterson. "The length of last winter proved especially costly for calves and older, weaker moose, but it also killed a surprising number of young adults."

Peterson says the only thing that saved most of the moose that survived was an abundance of balsam fir browse on the east end of the island.

Interestingly, he says, those trees grew up when wolves had reduced the moose herd to 700–800 animals back in the 1970s. Under the best conditions, mountain ash, aspen, and willow are the favored browse species of moose, but when those species are not available, moose will turn to balsam fir and other, less-nutritious species.

Both Barnard and Peterson believe the reduction in moose is good in that it gives the island's vegetation a chance to recover from years of overbrowsing. They expect moose numbers to increase slightly if this year's calf production is good, but wolves should play a significant role in determining the size of the moose herd in the foreseeable future.

"Everything depends on the wolves now," says Peterson. "There are so few moose that if wolves are able to continue increasing, they should be able to keep moose at a relatively low level."

While the Isle Royale moose have had their problems in the past couple of years, the park's wolves have been gradually building their numbers. Peterson says there are 24 wolves on Isle Royale now—2 more than last year and 12 more than the all time low of 12 recorded in 1988–89 and again in 1991–92.

"Seven pups survived from last year's litters, so despite five deaths during the year, the total number of wolves increased by two," he says. "The East Pack produced two young, the Middle Pack successfully raised three pups, and a lone pair of wolves had two pups; only the West Pack failed to produce any young." He says the Middle Pack now has nine members, making it the largest pack on the island.

Despite their success, wolves had to work hard for every morsel of food this winter, according to the MTU biologist. "Some even dug up carcasses of moose that had died last year and ate their dried up hides. I'd never seen that before."

The annual wolf-moose study on Isle Royale is funded by the National Park Service, the National Science Foundation, and Earthwatch.

Peterson to speak on wolves, moose

Professor **Rolf Peterson** (SFWP) will talk about his recent findings on wolf-moose ecology at the next Tech Tea Time, on Wednesday, March 26, at 4:00 p.m. in the Memorial Union Alumni Lounge. Everyone's invited, and refreshments will be served.

Get free food! Join the Sara Lee Sandwich Club!

The Memorial Union staff is inviting everyone to join the Sandwich Club at the Sara Lee Deli Shop.

No, you don't have to go to any meetings, you don't have to pay dues, and you definitely don't have to work any bake sales or car washes. Just pick up a Sandwich Club card at the deli and have it stamped each time you buy a Sara Lee sandwich. When you have all nine spaces stamped, you get your tenth sandwich free! Such a deal!

supervisor evaluation.

It's new! It's improved! All it needs is you!

The 1996-97 supervisor evaluation process is taking place March 17–28 and it's a little different this year, with new questions and a new rating scale.

The new form was developed with the help of staff from Information Technology and an advisory group of supervisors and staff to provide a more-safe and honest way to give feedback to your supervisor.

Some feel that this process never makes a difference in their supervisor's performance. This year, the results of the survey will be used by Quality Service Education to help direct the on-campus seminar offerings. Supervisors will be "strongly encouraged" to attend various sessions if their evaluations show that they need improvement in that area. So, please honestly complete the evaluation—it could make a big difference.

If you do not receive an evaluation form by March 21, please call Nancy Byers Sprague at 487-2755. Completed evaluation forms must be returned to Institutional Analysis by Friday, March 28.

Companies coming

Representatives from the following employers will be recruiting on campus next week. If you'd like to meet with any, contact the University Career Center, 487-2313.

- Monday, March 24: AIMS—Power Systems, Beloit Corporation, C.G. Bretting Manufacturing
- Tuesday, March 25: QuadTech, U.S. Steel, USS/Kobe Steel Company
- Wednesday, March 26: Calumet Electronics, Grossman Forestry Company, Miron Construction, P & H Mining Company
- Thursday, March 27: Catalyst, IFR Systems, Inc.

Traveling to a workshop?

Call QSE and save

The Quality Service Education Office can help MTU departments get discounts on many workshops and also lower your travel costs.

Many providers offer discounts for three or more participants from the same institution. If you are considering a Fred Pryor, CareerTrack, National Seminars, or some other regionally-offered workshop, contact QSE Manager **Becky Christianson.** She can bundle registrations from all departments together, arrange for discounts, and even organize the billing. By sending fewer vehicles to a workshop, departments can also lower travel costs.

For more information or to discuss workshop registration, contact Christianson at 487-2416 or rwchrist@mtu.edu

New staff

Carla Johnson has joined the Memorial Union staff as a food service helper. She was previously employed at the Houghton County Medical Care Facility as a kitchen aide/relief cook. Johnson has a BSBA from Central Michigan University. She and her husband, Kenneth Johnson, have two children, Zachary and Hailee, and live in Ripley.

Lorrie Graff has joined the Advancement staff as a specialized clerk. She was previously an item processing supervisor at D&N Bank of the Copper Country. Graff has an AAA degree from Suomi College and is married to Will Graff. She has two children, Dana, 7, and Marissa, 4, and lives in Hancock.

Joseph Palosaari has joined the Wadsworth Hall staff as a baker. He was previously employed as a baker at the Kaleva Cafe in Hancock and lives in Dollar Bay.

Workshops for everyone from Quality Service Ed

The Quality Service Education Office is offering several workshops designed to help virtually all MTU faculty and staff. They include

- Charting the Course: Establishing Goals, Setting Priorities, and Making Decisions: Thursday, April 17, 8:30–11:30 a.m., registration deadline April 10
- The Time of Your Life:Conventional Time Management Tuesday, May 13, 8:30–11:30 a.m., registration deadline May 6
- Effective Delegation: Tuesday, June 3, 8:30–11:30 a.m., registration deadline May 27

Cost of the workshops for MTU employees is $35 each. To register or for more information, call Becky Christianson at 487-2416 or e-mail rwchrist@mtu.edu

Top geo lecturer here March 24

This year's AAPG Distinguished Lecturer will be at Michigan Tech Monday, March 24, to speak on "Natural Gases and Their Use in Exploration and Production" at 4:00 p.m. in Dillman 320. Everyone is invited, and refreshments will be served.

The American Association of Petroleum Geologists (AAPG) has selected Martin Schoell, a senior research associate for Chevron Petroleum Technology Company, as a Distinguished Lecturer. His visit to MTU is part of a nationwide tour of geological societies and universities sponsored by the AAPG.

Schoell's research focuses on new techniques for exploration and production using gas isotope analysis. He will give an overview of gas geochemistry using case histories from around the world. Schoell will also discuss applications of special interest to explorationists and production engineers.

Two displays share women's history award

"Difference—Bringing Indian Feminism to the Fore" and "Anishinabe Woman: Two Worlds—Discovering Pathways to Our Future—And Linkages to Our Past" are co-winners of the Women's History Month Bulletin Board Contest.

The two were chosen from among eight entries across campus and will share the $200 prize.

"Indian Feminism," in the Walker third-floor showcase, was created by graduate student **Arvind Krishnaswamy** (humanities). The board illustrates the cultural diversity of India as the context for the complexities and dilemmas of Indian feminism. "Anishinabe Woman," in Alumni House 202A, was created by **Carole LaPointe,** Native American outreach coordinator. It celebrates the traditions of Native American womanhood.

The public is invited to view all the displays during March, Women's History Month. Honorable mention goes to "Little Girl's Dreams . . . Come True," in East Wads Hall near 126, by **Deborah Hermes**; "Prominent Women in Science," on the sixth floor of Chemical Sciences and Engineering, sponsored by the student chapter of the American Chemical Society; and "Name That Female," in East Wads Hall near 139A, sponsored by Mafia House. The other contest boards are "The Women of MTU—Past and Present," in West McNair, TV area, sponsored by the Society of Intellectual Sisters; "Inventive Women/Historical Women Figures," in the Academic Office Building outside G020; and "Mentors and Role Models in Our Life/Lives," in DHH near 267, sponsored by Midnight Express.

The contest is sponsored by the Presidential Commission for Women in honor of Women's History Month.

Full scholarships for undergrad EE summer research available

The Department of Electrical Engineering is offering undergraduates the chance to participate in a ten-week research program this summer.

The ten students chosen will each receive a $2,700 stipend, travel expenses to and from Houghton, and University housing or an equivalent allowance for off-campus housing. No tuition will be charged, and all books and supplies will be provided.

Undergraduates selected will work with electrical engineering faculty and graduate students on state-of-the-art research on GaAs-based, very high-speed integrated circuits. The project will be held June 9–August 15, and those who successfully complete the program will receive a certificate of completion of a 4-credit electrical engineering project.

The research program also includes seminars on hot topics and a social program that centers on U.P. beaches and other outdoor recreation opportunities.

Applicants must be U.S. citizens or permanent residents; have completed at least two years of study in electrical engineering, computer engineering, or a related field; and have a GPA of at least 3.0. To apply, send a cover letter and resume ASAP to Professor Ashok Goel at goel@mtu.edu or via campus mail care of the electrical engineering department. Selection begins April 1 and will continue until the available positions are filled. If you have any questions, contact Goel (goel@mtu.edu, 487-2868), Martha Sloan (masloan@mtu.edu, 487-2845), or fax 487-2949.

The summer research program is funded by grants from the National Science Foundation, the Department of Electrical Engineering, and Michigan Tech.

Archives to open some evenings

To better serve researchers, the MTU Archives and Copper Country Historical Collections will be open until 8:00 p.m. the second and fourth Tuesday of each month through August 31. Normal hours are Monday–Friday, 8:00 a.m.–4:45 p.m.

The archives hosts a wide variety of researchers and research topics, everything from genealogical investigations to book and magazine publications. Its holdings include historical documents and photographs from Michigan Tech, the Copper Country, and the western Upper Peninsula, and has a large collection of books, magazines, and newspapers, including microfilm of regional titles dating to the 1850s. Manuscript holdings include university records, mining company records, maps and engineering drawings, church and other organizational records, genealogical resources and material from the State Archives, including county tax and assessment records. The department has well over 10,000 photos documenting the cities, mining locations, industries, commerce, people, and social organizations of the region.

For further information contact the MTU Archives at 487-2505 or copper@mtu.edu

Michigan Tech Fund Merit Award nominees sought

If you know an outstanding senior student at Michigan Tech, consider nominating them for a Michigan Tech Fund Merit Award.

The awards are presented annually to a senior man and woman who have demonstrated extraordinary leadership and service to the University. Recipients are given a personal memento, and their departments each receive a $500 grant. Nominees must be full-time seniors in good standing with a minimum 2.5 GPA.

President **Curt Tompkins** will present the awards May 8.

The deadline for submitting nominations is April 18. Nomination forms are available at the Wadsworth Hall manager's office, the J. R. Van Pelt Library circulation desk, the MTU Bookstore, and the Alumni House. You can also call Barbara Radigan at 487-3324, and she will send you a form.

Board of Control *Continued from page 1*

Force Institute of Technology in Dayton, Ohio. He has over thirty publications to his credit. Stone received MS and BS degrees in Physics and a PhD in Mechanical Engineering from Michigan State; an MS in Engineering Physics with an electrical engineering specialization from the University of Oklahoma; and an MBA from the University of Phoenix.

- approved measures that would allow MTU to pursue the issuance of bonds to support construction of the Harold Meese Center, the forestry addition, and the Performing Arts Center. The action does not allow MTU to issue bonds, Chief Financial Officer **Bill McGarry** said. The action is required by the state as evidence of MTU's commitment to construct the forestry addition and the Performing Arts Center. In addition, Michigan Tech may want to issue bonds at some point to help fund the Meese Center, since not all the monies raised to build the facility may be available immediately. Michigan Tech has one of the lowest debt ratios in the state, McGarry noted: $497 per full-time equivalent student, compared to $13,748/FTE-student for the University of Michigan.
- approved a $250,000 telecommunications wiring project for McNair Hall that will bring improved computer networking capabilities to students. The project will be funded over time by hall residents who subscribe to the service.

Nomination deadline change

Donovan award nominees sought

Blue Key is asking for nominations for the Clair M. Donovan Award, which recognizes a person who has demonstrated outstanding service to Michigan Tech in nonacademic areas during the preceding year.

To find the most qualified recipient of this honor, we need your help. Please consider nominating a deserving member of the faculty, staff, or student body.

Nomination forms are available in the Blue Key office (Memorial Union 106) or in most departments. The deadline for nominations is Tuesday, March 25—a previously publicized date is incorrect.

Positions available at MTU

The following positions will be posted Friday, March 21, 1997, at 1:00 p.m. through noon, Friday, March 28, 1997, in the Human Resources Office.

Food Service Helper—Dining Services (REGULAR, PART-TIME, 28-HOUR BASE, AFSCME INTERNAL AND EXTERNAL POSTING)
Mine Safety Trainer—Mining Engineering (part-time)
Assistant Professor—School of Technology, Civil
Assistant Professor—School of Technology, Mechanical

University employees are reminded to apply in writing prior to noon, Friday, March 28, 1997, to be considered as internal candidates. Applicants from the recall pool will be given first consideration for non-bargaining-unit positions. Vacancy announcements are normally posted every Friday at 1:00 p.m. in the Human Resources Office. Complete job descriptions are available in the Human Resources Office or by calling 487-2280. More information regarding employment opportunities is available by calling the Job Line at 487-2895. Michigan Technological University is an equal opportunity educational institution/equal opportunity employer.

March

NATIONAL WOMEN'S MONTH

21 Friday
3:00 p.m.—Kirk Schulz, "Hydrodesulfurization Surface Reactions on Single Crystal Model Catalysts"—Chemical Sciences 102
6:00/7:00 p.m.—Mexican buffet/*The Young and the Damned*—Calumet Theatre
6:30 p.m.—*Where the Spirit Lives*—Walker 134

22 Saturday
1:00–6:00 p.m.—Open House—Gates Tennis Center
7:00 p.m.—CCSA Ice Show—SDC

23 Sunday
2:00 p.m.—CCSA Ice Show—SDC

24 Monday
4:00 p.m.—Martin Schoell, "Natural Gases and Their Use in Exploration and Production"—Dillman 320

26 Wednesday
noon—ADD workshop—Memorial Union 105B
4:00 p.m.—Tech Tea: Rolf Peterson on Isle Royale wolves and moose—Memorial Union Alumni Lounge
7:00 p.m.—Credit Union annual meeting—Houghton High Multipurpose Room
7:00 p.m.—*Miz Wizard's Science Secrets*—Fisher 135

28 Friday
4:00 p.m.—Anne Balsamo, "Myths of Information: The Cultural Impact of New Communication Technologies"—Walker 109
6:30 p.m.—*Surname Viet Given Name Nam*—Walker 134
8:00 p.m.—Club MUB: Brad Lowery—Keweenaw Commons

29 Saturday
8:00 p.m.—Club MUB: Brad Lowery—Keweenaw Commons

Grad School application forms on the Web

Application forms for admission to the Graduate School are now available electronically via the Research and Graduate School's Web site. From the MTU Home Page, click on "Graduate School and Research" and "Admission to Graduate School." Applicants can then read the application procedures and choose "basic application forms," located in the text. Forms are available in html, Adobe, and PostScript formats. Applicants print the forms and return them to the Graduate School.

If you have any questions, contact Jill Oliver at 487-2327 or jeoliver@mtu.edu