

Lt. Gov. Challenges MTU: Be MIT of the Midwest

Lieutenant Governor **Dick Posthumus** outlined a vision of Michigan Tech as one of the nation's top science and engineering schools.

With a nod to the morning's blizzard conditions, he noted March 9 that MTU faces a recruitment challenge due to its climate.

"You are not going to blossom by being just another regional university," he said. "You are on the verge of having the ability to be the MIT of the Midwest, to provide graduate and undergraduate education in engineering and the sciences that no other institution in the Midwest can equal.

"I honestly believe that's the goal you need to set," Posthumus told a crowd of faculty and administrators. "If you can do that, you can reach students nationwide who are looking for that kind of specialized education."

"In our body of education, Michigan Tech has a unique role to play," he said. "There is a special niche for you that no institution in Michigan, no institution in the Midwest, can fill."

Posthumus also discussed Michigan's shortage of educated workers, particularly those with technical skills. "We have to do a better job of preparing students for technological jobs that don't necessarily require a four-year degree," he said. "Among everyone graduating from high school, 75 to 80 percent will need skills beyond high school." To make it easier for students to get that training, Engler's Committee on Postsecondary Education, chaired by Posthumus, has developed a series of recommendations. Chief among them is the Postsecondary Access Student Scholarship, which would give free tuition and fees for the first two years of postsecondary study, the equivalent of an associate degree, to students whose families earn less than \$40,000 a year.

Posthumus's Thursday visit to Michigan Tech is part of a three-day tour of the Upper Peninsula. The focus of the trip was the U.P.'s educational system, and included a stop at Houghton Elementary School.

Keep in mind that the true measure of an individual is how he treats a person who can do him absolutely no good.

—ANN LANDERS

Senate Hears New Proposal on Tenure, Promotion Procedures

The University Senate began discussing a proposal March 8 that would clarify procedures involving academic tenure, promotion, and re-appointment.

On behalf of the Committee on Academic Tenure, Associate Professor **David Nelson** (ME-EM) said the proposal deals only with the processes, and not the standards, for tenure and promotion. "It establishes uniformity of review between the colleges and schools, and it has a meaningful appeals process," Nelson said. Standards are broadly defined in the charters of departments and schools.

Another major change would be the transfer of the committee's role to the senate. Currently, the Committee on Academic Tenure drafts policies and procedures on tenure and related issues. Under this proposal, the University Senate would assume that role. In both cases, any changes are subject to a vote by all tenured and tenure-track faculty, to administration approval, and to final approval by the Board of Control.

The proposal also specified the process for granting early tenure, clarifies the term "promotion at time of tenure," and defines the "clock-start time" for probationary appointments of tenure-track faculty. A tenure-track faculty member joining the University before November 1 is deemed to have begun service at the beginning of that academic year. Anyone whose appointment begins on or after November 1 is considered to have begun service at the start of the next academic year.

The proposal also states that granting of

tenure at the assistant professor level carries with it promotion to the rank of associate professor, except for cases in the School of Technology, where assistant professors may be tenured.

Senator **Carol MacLennan** (Social Sciences), who helped draft the proposal, stressed its importance. "I encourage everyone to read it on the senate's Web page," she said.

The proposal is located at www.sas.it.mtu.edu/usenate/propose/00/7-00.htm

Senate President **Bruce Seely** agreed. "This is the basic contract under which we all work," he said. "People need to spend some energy on it."

The senate heard a resolution on recruitment and enrollment that would establish an advisory committee to deal with enrollment activities and policies. It also recognizes the need to "engage in targeted marketing" and states that admissions standards "must not emphasize quantity over quality." According to the proposal, enrollment targets should be set for each college, not simply the University as a whole, and recruitment efforts should focus on "undersubscribed" programs.

The senate approved a change to a proposal to institute double majors. Rather than specifying what wording should appear on diplomas of double majors, the proposal states that diplomas will "record the fact of a double major . . . in keeping with the registrar's regular procedures governing diploma language."

Seely reported to the senate on a plan developed by the Executive Council, chaired

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Epilogue

By Marcia Goodrich, Tech Topics editor

If you read the paper *Tech Topics*, you may have noticed that sometimes it's prettier than other times. When it has looked good, **Gail Sweeting** deserved the credit. When it hasn't looked so good, Gail was on vacation.

Since she began laying out *Tech Topics* about five years ago, Gail has taken countless lines of straight text and drawn life into them. Her sense of design and her straight-out pizzazz have given wings to what could be a very pedestrian publication. Her graphics are so good that a (well-paid) outside expert once critiqued that her art more than made up for the absence of photography in *Tech Topics*.

You may also have noticed that *Tech Topics* hasn't been very pretty for the past few weeks. That's because Gail hasn't been laying it out. With the increased demand for Web page development at Michigan Tech, her skills are needed elsewhere. I pout and I whine, but I understand.

Of course I miss her contributions to the look of *Tech Topics*. But what I really miss is working in partnership with such a talented designer and such a good friend. We were a great team, Gail. Thanks for everything.

Library Offers New Networked Printing

The J. R. Van Pelt Library is now providing the public with a networked laser printer attached to a print vending station.

The laser printer is networked to three computers on the table behind the Reference Desk and can be used to print material from the library's indexes and other Internet resources. During the trial period, until March 24, printing will be free. Then the print vending station will deduct 5 cents per page from the user's Tech Express Card. Price adjustments may be made during the summer.

In addition, until April 15, free printing will be available at the old ink jet printers attached to the computers near the main entrance. After April 15, these printers will be phased out. As always, users who don't want to print documents can still e-mail most information to themselves and/or download it to a diskette.

AAUP Announces Poll Results

The MTU chapter of the AAUP has announced the results of its straw poll, which asked full-time faculty whether or not they support having an official referendum on collective bargaining.

A total of 282 of the 390 faculty polled returned their ballots, a response rate of 72.3 percent. Of them, 208, or 73.8 percent, supported a referendum on unionization, and 73 voted no. There was one abstention.

"We will be seeking further input from you as to how and when to proceed, based on these results," the local AAUP chapter said in a March 3 memo detailing the poll results.

AAUP chapter Secretary **Bruce Barna** (Chemical Engineering) told the University Senate March 8 that a similar straw poll of professional staff was being organized.

Union elections are conducted by the Michigan Employment Relations Commission. Before an election can be held, unions must collect authorization cards signed by 30 percent of the eligible employees.

MichiganTech

Bill Curnow, executive director, University Relations
Marcia Goodrich, *Tech Topics* editor

To get *Tech Topics* via e-mail, send a message to
MAJORDOMO@MTU.EDU saying SUBSCRIBE TECH-TOPICS-L

Information to be included in *Tech Topics* should be submitted to the *Tech Topics* editor in one of the following ways:

- By e-mail to ttopics@mtu.edu
- By campus mail, send typed copies to *Tech Topics*, University Relations.

Each week, the deadline for submitting information is **Friday at 5:00 p.m.** for publication the following Friday.

Teaching Large Classes

Center for Teaching, Learning, and Faculty Development *By William Kennedy, director*



Teaching at
Tech

temptation of colleges and universities to migrate up the Carnegie ladder is the tendency to increase the number of very large classes at the front end of the undergraduate programs. Although class size is not always correlated with quality or quantity of student learning or student satisfaction, a review of course failure rates and student evaluation scores when compared against class size casts a sobering shadow on the risks associated with large classes.

In order to staff the sixty or seventy Perspectives on Inquiry sections at twenty students per section, we will be increasing the size of the sections in which the students gain their first exposure to social science, literature, and fine arts to 250 students. I suppose if I were a physics or chemistry professor routinely assigned sections with 300 students, I might be thinking something like "Well, welcome to the club." A review of current thinking on teaching large classes points out some of the pitfalls that these courageous instructors must avoid.

Most instructors of mass classes report that they tend to breed anonymity, passivity, and lack of engagement in students. Many successful teachers of large sections develop very detailed, carefully designed instructional strategies and grade-related inducements to get students to come to class and to participate in some way. Some use occasional unannounced pop quizzes to encourage attendance. Others use problem-solving exercises, games, simulations, or case studies to encourage students to interact in an

One of the unintended consequences of coupling innovative curricular reforms with the nearly irresistible

temptation to overcome the feeling that they are members of an audience rather than participants in a class. Planning these activities and weaving them into the class hour requires careful planning and practice. Just getting 250 students to settle down after a class discussion can be a daunting and time-consuming affair.

Like it or not, most practitioners admit that personality and presence play a much more critical role in making or breaking the mass class. There is a dimension of this kind of teaching that can only be called "performance." Building a rapport and establishing some sort of personal connection with 250 students is something that doesn't come naturally or by chance. Class time must be carefully considered and intentionally scripted to generate student interest and enthusiasm. Most teachers report that they leave these classes drained and exhausted and that "getting up" and prepared for one them consumes considerable time and energy.

In addition, very large class sizes amplify any shortcomings in the instruction material itself. Teachers of mass classes suggest that, once again, very careful preparation and a high level of organization are critical to student success.

Active learning is possible in mass classes. In fact, most successful mass class profs suggest "switching instructional gears" about every twenty minutes. A class might start with a brief lecture/discussion, then go to a small group exercise, then on to a media presentation, and end up with a summary discussion. Making the whole add up to more than the pieces is the key.

Given that student engagement is a challenge even in small sections and major areas of study, we must be very attentive to the challenges posed by this new endeavor.

Jaztec, Jazz Lab Band, Echoes to Perform Saturday

Submitted by the Department of Fine Arts

Jazz polished to perfection in a just-completed Spring Break tour will highlight Michigan Tech's annual "Road Show" concert, featuring MTU's finest student musicians, on Saturday, March 11, at 8:00 p.m. in the University Theatre. **Mike Irish** directs two award-winning groups, Jazz Lab Band, and the combo Jaztec, joined by vocalist **Matt Wright**. In addition, the Echoes From Heaven Gospel Choir will preview some of the pieces prepared for its upcoming two-week concert tour of Spain and North Africa.

The jazz program showcases a variety of styles, from standards such as "Come Rain or Come Shine," John Coltrane's "Impressions," and a tribute to Duke Ellington, to Latin jazz and Charles Mingus' unforgettable "Haitian Fight Song."

Jazz Lab Band and Jaztec toured lower Michigan during MTU's spring break, playing nine concerts in school districts including Au Gres, Saginaw, Flint, and Monroe. Next stop for the band after the Road Show: the University of Wisconsin-Eau Claire Jazz Fest, where the groups compete annually with approximately thirty Midwestern collegiate jazz groups.

Tickets are available by calling 487-3200 or visiting the Memorial Union or SDC box offices, or on the Web at <http://www.tickets.mtu.edu>, for \$8 general, \$4 students (\$1 more at the door).

No Such Thing as a Free Space Tech Tea on Parking

Submitted by University Cultural Enrichment

MTU has parking for everyone, and it's cheap if you're a commuting student or free if you're a resident or faculty or staff. When we expand Fisher Hall, the library, the Memorial Union, and the ME-EM, and add 1,200–1,500 students, parking will be anything but free and, for many, anything but convenient. **Bill Blumhardt**, director of facilities management, is the guest at Tech Tea Time on Wednesday, March 15, at 4:00 p.m. in the Memorial Union Alumni Lounge.

"Our convenient parking lots on the main campus are full," says Blumhardt. "The demand for parking on the main campus continues to increase, and we've used up all the low-cost options for convenient parking."

Blumhardt will discuss a recently completed campus plan update by Smith Group JJR and an analysis by university parking consultants Carl Walker Inc., which included a survey of the current situation, a forecast of future problems, and several solutions—all controversial. Building a parking deck on the main campus, annual charges of \$200 for parking at the SDC and \$800 for main campus parking, and running a shuttle bus service between the lots and campus are among the solutions to present and future problems.

"We have added 800 spaces since 1990," says Blumhardt, who feels that this is about the limit in the current available space. Faculty and staff enjoy very convenient free parking, and commuters in non-metered lots pay only 13 cents per day. This may soon change. Plans for campus expansion, resulting in the loss of 400 parking spaces on the main campus, as well as increased enrollment, mean that we have to take a hard look at the options.

The consultants' recommendations include implementing user fees immediately to create revenue for future parking expenses, building a parking deck to accommodate at least 600 spaces (preferably 800), greater use of the SDC lot, and provision of a shuttle bus service. The implementation of these recommendations would involve not only a considerable outlay in capital expenditures, but a major change in user habits and an adjustment to paid parking and use of a shuttle bus. Weighing the decision as to whether or not to build a parking deck against other less expensive and less convenient options is difficult. What is clear is that the Michigan Tech campus is changing and that in the future parking on and around campus will resemble that of an urban rather than a rural campus.

This program is partially sponsored by the Department of Facilities Management. Tech Tea Time is coordinated by the University Cultural Enrichment Department. For further information, call 487-2844.

AQUA³: A Watershed Program for MTU Students

When Assistant Professor **Alex Mayer** (Geological Engineering and Sciences) wrote the proposal for the newly funded \$213,800 AQUA³ project, he focused on its technological benefits. Starting this fall, AQUA³ will give dozens of students broad-based training in sustainable water management. Students from six universities—two each in Canada, the US, and Mexico—will gain new skills and insights through international exchange programs and internships.

Now, says Mayer, that may not be the most important result of AQUA³: The North American Alliance for Sustainable Water Resources. After returning home with MTU students from a spring-break field trip to the state of Sonora, in Mexico, he thinks that what AQUA³ students learn outside the classroom may be even more important than the technical skills they acquire.

"The students were blown away by the fact that they were in a city that hasn't had rain in five years, where crops are growing in the desert," he said. "I learned how important cultural education is. I've come back convinced that it's a really good idea to take students to places like Mexico that have a completely different culture. You have the added bonus of opening their eyes."

On the field trip, the Michigan Tech group shared a bus with students from the University of Sonora, and despite broken Spanish and English, there was a lot of communication going on. "Their level of awareness was shifted by orders of magnitude," Mayer said. "That's probably what I am proudest about."

This cultural awareness should make AQUA³ especially effective as participants graduate and enter a world where water issues transcend national borders.

"The management of water resources is a critical issue for the world in general, and will be more critical internationally as supplies become tighter," Mayer said. "If there is

another war in the Middle East, it could very well be over water."

Many different disciplines are involved in water resources, from environmental engineering and geology to social sciences and education, and students representing this diversity will be participating in AQUA³.

"We want to give them an international context, specifically regarding Canada, the US, and Mexico," Mayer said. "There are border issues the students need to be aware of. And if they are going to be decision-makers, they need to know the problems their neighbors to the north and south have to tackle."

The main component of AQUA³ will be one- to two-semester visits to host universities outside the participants' home country. The grant allows up to forty-six students to take water-resources-management courses and intensive foreign language instruction. In addition, they'll have internships with local industries and the host universities. The grant also supports up to sixty students in short-term, intensive courses.

"The hope is that they will not only learn more about water resources, but also learn about the social and economic aspects of the other countries," Mayer said.

The AQUA³ universities were chosen for their geographical and cultural diversity. They include the University of Sonora, located in the desert; the University of Veracruz, on the humid Gulf Coast; Quebec's Laval University, on the St. Lawrence Waterway; and the University of British Columbia, near the Pacific Ocean. Michigan Tech is the lead AQUA³ university in the US; its partner is New Mexico State University.

AQUA³ is supported through the US Department of Education's Fund for the Improvement of Postsecondary Education. **James P. Cross**, director of the Center for International Education, is the AQUA³ contact in the US. The Center provided funds for Mayer's recent field trip to Sonora.

The Troupe Presents Annual Comedy Show

Submitted by the Department of Fine Arts

The Troupe, Michigan Tech's popular improvisational group, will fill University Theatre with laughter once again when the ninth annual Campus Comedy Show opens a three-night run on Thursday-Saturday, March 16–18, at 8:00 pm.

The Troupe, a fourteen-member student ensemble directed by **Sue Stephens** of the fine arts department, writes its own comedy skits, improvising some of them on the spot using suggestions from the audience. Their skits also include spoofs of familiar stories and current events, and popular improvisation games. Audience members of all ages enjoy the annual Comedy Show, a highlight of the year for anyone who appreciates what an inspired "improv" group can do.

The Troupe just returned from a spring break tour in which they performed at schools in southwest lower Michigan. The group performs throughout the year for local schools and service organizations, where their skits include educational programs on preventing alcohol and tobacco use, preserving the environment, and similar issues. The group frequently collaborates with Michigan Tech bands to present lively evenings of music and comedy.

Tickets are available by calling 487-3200, visiting the Memorial Union or SDC box offices, or on the Web at <http://www.tickets.mtu.edu>, for \$8 general admission, \$4 students (\$1 more at the door).

Ali Akbar Khan Disciple Here March 12

Submitted by University Cultural Enrichment

Ken Zuckerman started out on his musical career as many American teenagers do, playing the guitar. He experimented with pop, rock 'n' roll, and later Western classical music, giving up the guitar for the lute, and rock'n'roll for Renaissance music. Today he is universally acknowledged to be the finest sarod player outside India and has given concerts all over Europe, India, and the US. With Pandit Anindo ji Chatterjee, also acclaimed as a virtuoso musician on his instrument, the tabla (drums), the two will present *Ragas and Rhythms*, a concert of Indian classical music, on Sunday, March 12, at 8:00 p.m. in the University Theatre. For tickets, call the Performing Arts Ticket Center (487-3200, Tuesday-Saturday, 11:00 a.m.-7:00 p.m.), stop by the Memorial Union Box Office (Monday-Friday, 11:00 a.m.-3:00 p.m.), or purchase tickets online at <http://www.tickets.mtu.edu>.

Zuckerman first became interested in Indian classical music when he attended a concert by the great Ali Akbar Khan, India's leading sarod (a lute-like stringed instrument) player. At the time, Zuckerman was a music student in Iowa and was so completely captivated by Khan's performance that he decided to abandon his studies of Western music. "I was very soon aware that Indian music represented a richer world of melody and rhythm than I had ever come across before," he says. At age 20, he travelled to California to Ali Akbar Khan's school to become a disciple of the great master.

After decades of study, Zuckerman, who now heads the Ali Akbar Khan College of Music in Basel, Switzerland, is one of an elite few who have achieved acclaim from critics both in and outside India, in the world of Indian music. "Ken has assimilated within himself the very soul of Ali Akbar's artistry," wrote one reviewer in the *Indian Express* in Bombay.

One of the very finest musical traditions in the world, Indian classical music is not often heard in America outside the larger cities. The sounds of the melodic patterns, called "ragas," and rhythmic patterns, called "talas," are complex and unfamiliar to many western audiences, but not difficult to follow and enjoy, and the music appeals to both the enthusiast and the newcomer. Although played in a traditional framework, the emphasis is on improvisation. "The musical fabric is created at the moment of performance," says Zuckerman. "Certain ragas are considered to be appropriate to specific times of the day, seasons of the year, and even states of mind."

Pandit Anindo ji Chatterjee began his training on the tabla at age four. At age six

Czech Orchestra to Perform in Houghton

Submitted by University Cultural Enrichment

From the heart of Central Europe comes a classical ensemble of the first rank. Veterans of more than 300 concert tours throughout Europe and Asia, members of the Bohemian Chamber Philharmonic Orchestra, direct from the Czech Republic, come to Houghton on their first American tour. Part of Michigan Tech's Great Events Series, the orchestra will present a concert at St. Ignatius Loyola Church on Saturday, March 18, at 8:00 p.m. For tickets, call the Performing Arts Ticket Center (487-3200, Tuesday-Saturday, 11:00 a.m.-7:00 p.m.), stop by the Memorial Union Box Office (Monday-Friday, 11:00 a.m.-3:00 p.m.), or purchase tickets online at <http://www.tickets.mtu.edu>.

Conducted by Tomas Koutnik with pianist Michiko Otaki, the program will include works by Beethoven and the Czech composer Vorisek, as well as the Schumann Piano Concerto in A minor, performed by Ms. Otaki.

The first of Beethoven's nine symphonies, the Symphony No. 1 in C major is considered one of the composer's brightest works and is described by one of his biographers, Romain Rolland, as "the poem of a youth who is smiling at his dreams."

Schumann's Piano Concerto in A minor was originally written as a "Fantasy for Piano and Orchestra," a "love offering" written in 1841 for his new young wife, Clara, during the year when he wrote most of his symphonies and at a time when he was free of the terrible depressions that finally killed him. Four years later, Schumann revised the piece, added the second and third movements, and made it into the masterpiece that we enjoy today.

Otaki is a Japanese-born pianist, now living in the US, who studied at the San Francisco Conservatory and the Manhattan School of Music. A veteran of numerous concert tours, she has performed at major venues throughout the US and abroad. A *Washington Post* critic remarked that her performance was ". . . a tribute to chamber

he became a disciple of the great tabla master Pandit Gyan Prakash Ghosh. Winning the All India Radio music competition at seventeen, he received the title of best young tabla player of the year from the president of India. He has toured throughout India, Europe, and the US with the sitarists Ravi Shankar and Nikhil Bannerje, and the sarod master Ali Akbar Khan.

This event is made possible by the Committee for Campus Enrichment and is coordinated by University Cultural Enrichment. Call 487-2844 for information about the concert. Call 487-3200 for ticket information.

playing of the highest order." Others praise her virtuosic technique, her sensitivity, and her fluent interpretation of demanding works.

The final work on the program, the Symphony in D major by Jan Vaclav (Hugo) Vorisek (1791-1825), was completed when the composer was 31, but was not published until ten years ago. Vorisek wrote many works for piano, but only one symphony. He died young of tuberculosis and was unable to find work as a professional musician until one year before his death. Had it not been for these sad facts, Vorisek would certainly have occupied a more prominent place in the history of music.

Koutnik has achieved great international success as a guest conductor in ten European countries, and in Cuba, Mexico, and Russia. He has made over sixty radio recordings with many different international orchestras, and has also made a number of CDs on the Panton and Harmonia Mundi labels.

"Over the past few years we have been fortunate enough to present some excellent chamber orchestras in the Great Events Series," says **Valerie Pegg**, director of university cultural enrichment. "But we feel particularly privileged to host distinguished conductor Tomas Koutnik and the Bohemian Chamber Philharmonic Orchestra. . . . Most of the orchestras we have seen in the past have been composed of string players only. This 'Haydn/Mozart' mid-sized orchestra is considerably larger and includes winds, brass and timpani."

This concert has been made possible by funding from the Michigan Tech Committee for Campus Enrichment and the Michigan Tech Fund. This is a Heartland Arts Fund program. The Heartland Arts Fund is a collaborative venture of Arts Midwest, Mid-America Arts Alliance, and their member state arts agencies with primary funding from the National Endowment for the Arts, and support from private contributors.

For more information, call the University Cultural Enrichment Department (487-2844).

New Staff

Ed Sauvola has joined the College of Engineering staff as a training specialist. He previously worked for Mini Broach Machine Company in Ashby, Massachusetts. He is married to Eva Sauvola, has a son, Nathan, and lives in Hancock.

Mark Manninen has joined the SFWP staff as an assistant research scientist. He was previously a graduate research assistant at MTU. Manninen has an MS in Forest Science from MTU and a BA in Dietetics from Concordia College, in Moorhead, Minnesota. He lives in Houghton and enjoys snowshoeing, cross-country skiing, snowboarding, mountain biking, and fishing.

Researchers Designing Home HIV Test Kit

Submitted by the News Bureau

Researchers are hoping to make life a little easier for persons infected with the HIV virus. They're designing a home test kit to enable HIV-infected individuals to monitor their own condition and avoid unnecessary trips to the doctor.

"The kit we're designing is similar to the glucose meter diabetics use to monitor their glucose levels," says Assistant Professor **Sheila Grant** (Biomedical Engineering). "If the home test kit indicates high levels of HIV particles, patients can then go to their physician and either redesign their drug therapy or try something different."

With more than a million persons in the United States who are HIV-positive, many need to be on a rigorous anti-retroviral drug therapy to control the number of virus particles in their blood, according to Grant. If infected individuals could test for viral particles at home and get instant results, it would save time, lab work, and medical costs.

"The typical latent period between actually being infected and showing symptoms is about ten years," Grant says, "and doctors are debating when you should give anti-retroviral drugs to the HIV-positive patient, how often, and in what combination. The test kit will provide a fast feedback to physicians on how to conduct the drug therapy."

The test procedure involves attaching dyes to two different synthetic proteins, called cell receptors, little doorways to each individual cell.

"In order for the HIV virus to infect a cell, it has to open up the cell receptor doors," explains Grant. When receptors altered with dyes combine with the HIV virus, it causes the dyes to elicit a fluorescence that can be monitored.

To date, the biggest challenge to researchers developing the method in the laboratory has been the actual labeling or "tagging" the cell receptors with fluorescent dyes. "At this point, it's more of an art than a science," says Grant. Still, she is happy with the progress made.

"We've identified a couple of protein pairs that work well together, and on which we've been able to see the desired change in the fluorophores used," she said. "So we're starting our next step in which we're looking at conjugating actual HIV cell receptor particles."

Once the test kit is perfected, a person using it will prick a finger to test his or her blood, and the sensor in the kit will determine the amount of HIV particles in the blood and transmit that information to the tester.

A disclosure has been filed on the testing device, and Grant expects to apply for a patent in the next year or two.

Isle Royale Wolves Doing Well

Submitted by the News Bureau

The wolves of Isle Royale National Park are doing well and should continue to hold their own in the foreseeable future, according to a just-completed survey of the island's wolf and moose populations.

Park Superintendent Douglas Barnard said the island's wolf packs added five pups to the population last year, but one adult wolf was killed this winter, leaving the park with twenty-nine wolves. Just two years ago, the population had plummeted to fourteen, and biologists and park officials were concerned about the species' survival. Those concerns seem to have been allayed by the wolves' remarkable ability to withstand nature's challenges.

"In general, the island's wolves appear to be in good health, and the packs are experiencing normal reproductive success," said Barnard. "We see no reason why this trend shouldn't continue over the next few years."

Professor **Rolf Peterson** (SFWP), who has conducted the annual wolf/moose survey for the National Park Service for the better part of three decades, reports that there has been a realignment of pack territories on the island.

"Whereas we used to have three packs dividing the island, now there are essentially only two," said Peterson. "The Middle Pack, which had three surviving pups from last year and now numbers twelve animals, has virtually taken over the former West Pack territory. The West Pack's numbers have steadily declined, and they are simply no longer able to defend their territory. There may be a couple of them still alive, but we haven't been able to determine that for certain." Two other adult pairs roam the island, as well as a single adult wolf. The East Pack successfully raised two pups from last year and now has ten members, which continue to control the east end of the island.

Biologists picked up the carcass of one wolf which succumbed to interpack warfare and witnessed the near demise of another.

"An independent adult pair of wolves had been roaming the border area between the East and Middle Pack territories for some time," said Peterson. "One day we were flying over that part of the island tracking the signal from a radio collar of a male wolf that indicated the animal had died. When we located the site from which the signal was coming, we saw the Middle Pack standing there. Later we returned to the area and found the carcass of a wolf where the pack had been earlier. It turned out to be the male of the pair that had been using the border area. It had been killed by the Middle Pack."

"Two days later we were flying along the shoreline of the island and we saw a female standing on a rock out in Lake Superior facing ten wolves from the Middle Pack, who were pacing the shore opposite her. Some of

them crossed on rocks to where she was and attacked her several times. We watched this go on for about forty-five minutes before she jumped into the water and swam away. She swam about 100 yards up the lake, then came ashore. As soon as she was on land, the wolves from the Middle Pack attacked her in force and appeared to have killed her. After a while they left her body and moved off into the woods, and we returned to camp to refuel our plane and get a pack to haul out her carcass.

"When we returned to the site nearly three hours after the attack, we noticed a lone male from the Middle Pack casually walking along the shoreline trail. He had not been with the pack earlier and apparently was trying to catch up with them. When he came to the site of the battle, he became very uneasy and then noticed the body of the female. To our surprise, when he approached her, she raised her head and looked at him. After a while, she was able to pull her forelegs up under her, but she was still unable to stand. The male wolf then went over to a nearby rock, where he lay down and watched the female, who was in heat.

"We had planned on landing at a nearby inland lake and then hiking to the shore to pick up the female's body. When we saw she was alive, we left the area and went to check on other wolves. When we returned two hours later to check on the situation, both animals were gone.

"We saw them again five days later about a half-mile from the battle scene. They were standing atop a little knob and we were able to see clearly that the male was licking some wounds on the female's neck. We never saw them again, so we don't know for sure whether or not she made it."

Peterson said the Middle Pack now controls about three-fourths of the park's area, and by taking over the west end of the island, they have increased the number of moose available to them for food. The East Pack, however, while having a smaller territory, still maintains control over that part of the island with the greatest number of moose.

Isle Royale's moose population has increased from 750 last year to 850 this year. The population seems stable, but calves are scarce, so the growth potential of the herd appears minimal.

"I was surprised to see so few calves," he said. "It's one of the lowest levels we've ever recorded and we don't know why, but it could be weather-related." Hot, dry summers such as the one Isle Royale experienced in 1998, create stress for moose. "Moose don't perspire," he explained, "so hot weather causes them to overheat, and they don't eat as well as they should, and as a result, aren't as healthy."

Sports Shorts

By Dave Fischer

Student-athletes continue stellar performance

Following winter quarter 1999–2000, Michigan Tech student-athletes have a combined cumulative grade point average of 3.23. In comparison, the average GPA of the entire student body at MTU is 3.02.

All thirteen of MTU's athletic programs have better than a 3.00 cumulative grade point average, led by men's nordic skiing with a 3.68.

Doghouse Classic April 15

The 13th annual Doghouse Classic 3-on-3 Basketball Tournament has been set for Saturday, April 15, at the SDC.

Elementary (fifth and sixth grade), junior high (seventh and eighth grade), junior varsity (ninth and tenth), and varsity (eleventh and twelfth) divisions will be offered for boys and girls. In addition, open divisions for men and women will also be played.

The entry fee for the double-elimination event is \$50 per team with a limit of four players per team. Applications for the Doghouse Classic can be picked up at the Athletic Office. Those out of the area can call the Doghouse Classic Hotline at 487-2992 for entry information. Applications will be accepted through April 7.

Volleyball league for girls grades 6–11

The Michigan Tech Volleyball League debuts Sunday, March 19, at the SDC Gym.

The program, which is held 1:00–3:00 p.m. for five Sundays in March and April, is open to girls in grades 6–11 and will focus on skill development, while providing a competitive environment.

POSITIONS AVAILABLE AT MTU

Job descriptions will be available at 1:00 p.m. on Friday, or by e-mail at <JOBS@MTU.EDU>.

The following positions will be posted Friday, March 10, 2000, at 1:00 p.m. through noon, Friday, March 17, 2000, in the Human Resources Office.

Secretary II N4—Computer Science (UAW internal and external posting)
Senior Clerk N2—Auxiliary Services-Campus Store (UAW internal and external posting; regular, part-time, nine-month position; twenty-four hours per week)
Audiovisual Specialist—Information Technology-Educational Technology Services
Clinical Counselor—Counseling Services (Regular, nine-month position)
Youth Programs Assistant—Educational Opportunity
Departmental Coordinator—Physics
Multimedia Technology Specialist—University Relations
Assistant Professor of Psychology—Department of Education

University employees are reminded to apply in writing prior to noon, Friday, March 17, 2000, to be considered as internal candidates for bargaining unit positions only. Applicants from the recall pool will be given first consideration for non-bargaining-unit positions only. 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.

Senate *Continued from page 1*

by President **Curt Tompkins**, to have deans and directors develop hypothetical budget scenarios for their areas based on 5-percent cuts in expenditures in each of the next three years.

Tompkins said later that he in no way was anticipating a blanket 5-percent cut in overall budgets. "We're asking people to consider what they would cut if they had to," he said. "It's an analytical question. If you had to reduce your budget by 5 percent, how would you do it?"

The primary reason for the exercise is to reallocate funds to support new programs or expand existing ones, based on priorities developed in the strategic planning process, he said. "This is reallocation on a surgical basis," Tompkins said. It replaces the former methods: most recently, position control and, previously, 1 percent annual cuts in department budgets.

"The Executive Council presented a budget scenario to the Board of Control Finance Committee on March 3 that included a 4.5 percent average salary increase for next year to be implemented in two steps: 3 percent in July and 3 percent in January," Tompkins added. The Board is expected to consider the final budget proposal at its May 19 meeting.

The Michigan Tech volleyball team, along with Head Coach **Krista Mikesch**, will provide instruction for league players. Cost is \$30 per child. Families with more than one child in the league pay \$15 for each additional child. Each child will receive a league T-shirt and free admission to all home Michigan Tech volleyball matches this coming fall. To register or for more information, call 487-2427.

March National Women's Month

9 Thursday

7:45 p.m.—Women's basketball NCAA II Regionals, MTU v. Gannon—WZRK 93.5 FM

10 Friday

1:30 p.m.—Board of Control meets—Memorial Union Ballroom

2:00 p.m.—Men's basketball NCAA II Regionals, MTU v. Gannon—WZRK 93.5 FM

7:45 p.m.—Women's basketball NCAA II Regional semifinals—WMPL 920 AM

8:00 p.m.—Peking Acrobats—Calumet Theatre

8:05 p.m.—Ice hockey at Wisconsin, WCHA playoffs—WZRK 93.5 FM

11 Saturday

1:00 p.m.—Men's basketball NCAA II Regional semifinals—WZRK 93.5 FM

7:45 p.m.—Women's basketball NCAA II Regional finals—WMPL 920 AM

8:00 p.m.—Jazz "Road Show" concert—University Theatre

12 Sunday

3:00 p.m.—Men's basketball NCAA II Regional finals—WZRK 93.5 FM

8:05 p.m.—Hockey at Wisconsin, WCHA playoffs—WZRK 93.5 FM

8:00 p.m.—Ken Zukerman sarod concert, "Ragas and Rhythms"—University Theatre

13 Monday

3:00 p.m.—Roger Kieckhafer, "Hybrid Fault Models for Approximate Agreement in Fault-Tolerant Distributed Systems"—Fisher 101

15 Wednesday

4:00 p.m.—Tech Tea Time: Bill Blumhardt on campus parking—Memorial Union Alumni Lounge

16 Thursday

8:00 p.m.—The Troupe's Campus Comedy Show—University Theatre

17 Friday

8:00 p.m.—The Troupe's Campus Comedy Show—University Theatre

18 Saturday

8:00 p.m.—Bohemian Chamber Philharmonic Orchestra concert—St. Ignatius Loyola Church, Houghton

8:00 p.m.—The Troupe's Campus Comedy Show—University Theatre

ECE Seminar March 13

The Department of Electrical and Computer Engineering is sponsoring a seminar, "Hybrid Fault Models for Approximate Agreement in Fault-Tolerant Distributed Systems," by Roger Kieckhafer on Monday, March 13, at 3:00 p.m., in Fisher 101. All interested persons are invited.

In Print

Board of Control Member **Bob Thompson** made the "Heroes for Today" feature in the March edition of *Reader's Digest*. Thompson was recognized for giving his current and former employees \$128 million after he sold his asphalt paving firm, Thompson McCully.