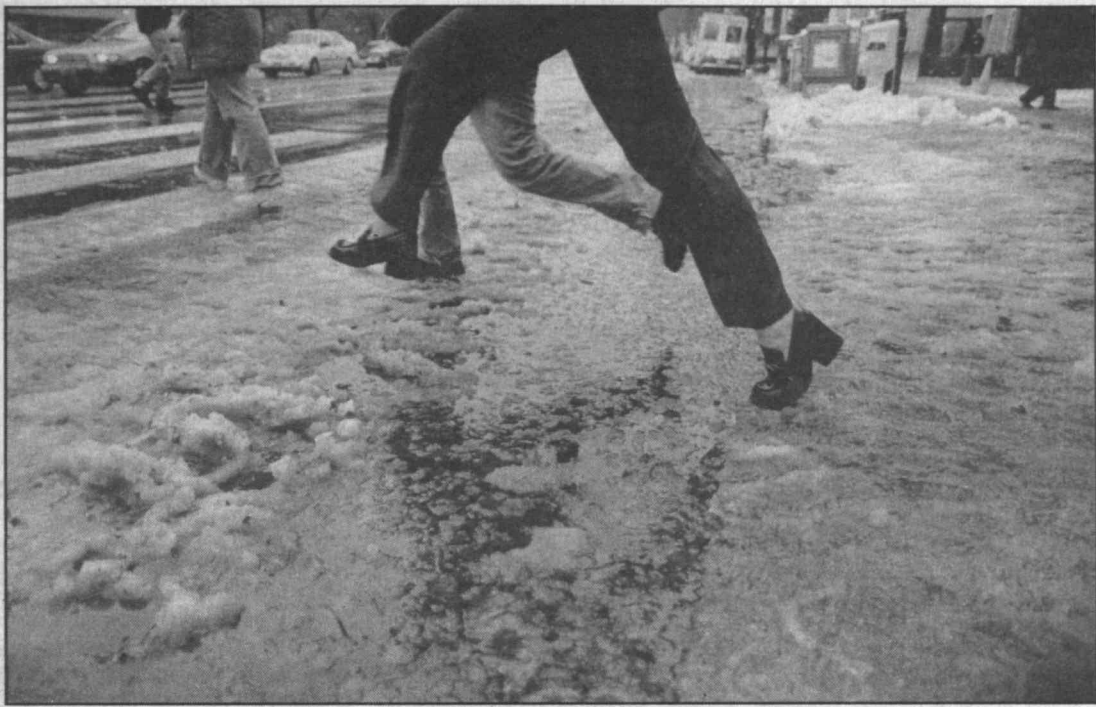


## Making strides



These shoes were not exactly made for leaping... although they did manage to hurdle a deep puddle of slush at the 77 Massachusetts Ave. crosswalk during last week's early winter storm.

Photo by Donna Coveney

## IFC council sets alcohol restrictions

■ By Robert J. Sales  
News Office

The President's Council of the Interfraternity Council has voted to restrict the service of alcohol to guests at fraternity, sorority, and independent living group (FSILG) social functions, starting next semester. Until then, the ban on alcohol at all FSILG events remains in effect.

In addition, the presidents approved a strict enforcement policy last Wednesday that bars alcohol from social events for 120 days for the first violation, requires a house to be substance-free for 120 days for a second violation, and costs house members their rush if a third violation should occur while that house is still on probation from a second infraction.

"The consequences are very stern, very black-and-white," said IFC President Iddo Gilon. "We didn't have that before."

The policy requires alumni/ae supervision at parties with small guest-to-member ratios and at least two monitors, probably graduate students, at larger parties with a higher guest-to-member ratio.

The severe sanctions and clear-cut monitoring requirements represent "an attempt to preserve the system," said Mr. Gilon. "If we can't be responsible, we'll be shooting ourselves in the foot."

While some students think these measures are extreme, Mr. Gilon noted the strong sentiment expressed for substance-free environments. "We can't have prohibition," he said. "It won't work." Mr. Gilon, a member of Phi Kappa Sigma, said he hoped these measures could become a standard for university-wide policy.

The President's Council—the legislative body for fraternities, sororities and independent living groups—is composed of the presidents of the 39 FSILGs at MIT.

Earlier Wednesday, President Charles Vest named four students and five faculty members to join co-chairs Professor Phillip Sharp and Dr. Mark

Goldstein on the Working Group on the Prevention of Binge Drinking.

President Vest charged the group with surveying existing literature, programs and materials; consulting with experts; learning the physiology and psychology of campus binge drinkers; and recommending steps to prevent it. He said he expected their work to be completed by May.

"The Working Group will serve an important role as we begin to learn  
(continued on page 6)

## Faculty votes today on revised motion

The Orientation/Residence Fall '98 Committee delivered an initial report to senior administrators on Friday as its chair, Professor Kim Vandiver of ocean engineering, prepared to discuss the recommendations at today's faculty meeting.

"It was our charge to advise the senior administration on potential decisions regarding orientation, residence selection, and associated matters affecting the admission, introduction to the campus, and housing of the Class of 2002," said Professor Vandiver, who is also a member of the Task Force on Student Life and Learning. "We hope to begin a period of experimentation in which the faculty and students work together towards improved orientation and residence selection programs for 1998 and future years."

The faculty meeting will also vote on a revised motion on the issue of freshman housing. The original "sense of the faculty" motion, sponsored by Professor Stephan Chorover of Brain and Cognitive Science at the October meeting, would have required freshmen to live on campus. The substitute motion says:

"1. MIT should move immediately to begin a comprehensive, deliberate examination of its residential system, including the suitability of undergraduate residences as freshman housing, with the goal of bringing the system into fuller alignment with MIT's education.  
(continued on page 5)

## Views sought on grading system

As part of an ongoing experiment on altering the MIT grading system, the Committee on the Undergraduate Program's Subcommittee on Intermediate Grades is asking all students and faculty to fill out a short anonymous survey.

When the current experimental grading system began in the fall of 1995, the Institute changed from a straight letter system (A, B, C, D, F) to one which uses plus/minus grade modifiers (A+, A, A-, etc.). These plus/minus modifiers are used only for internal grades—those reported on end-of-term summaries and grade reports. The modifiers are not recorded on official grade transcripts, nor are they reflected in student cumulative grade point averages (CUMs).

The student survey on various grading options is available on the web-based Feedback Forum at <<http://feedback.mit.edu>>.

A hard-copy version has been mailed to all faculty members. The faculty must vote on grading policy after the current experiment ends after the summer 1998 term.

The survey seeks opinions about three grading system options:

- The current experimental system, where letter grades with plus/minus  
(continued on page 8)

## 'Infinite Buffet' planned

Could this be the world's longest buffet line?

All MIT community members (with MIT ID) and their families are invited to the Infinite Buffet, a free food-and-entertainment event in the Infinite Corridor—all 762 feet of it—on Saturday, Nov.

22 from noon-2pm.

More than 20 tables spanning five buildings will hold an array of international food provided by MIT Catering. There will also be several types of entertainment including jazz music, a caricaturist and jugglers.

*Infinite Buffet*

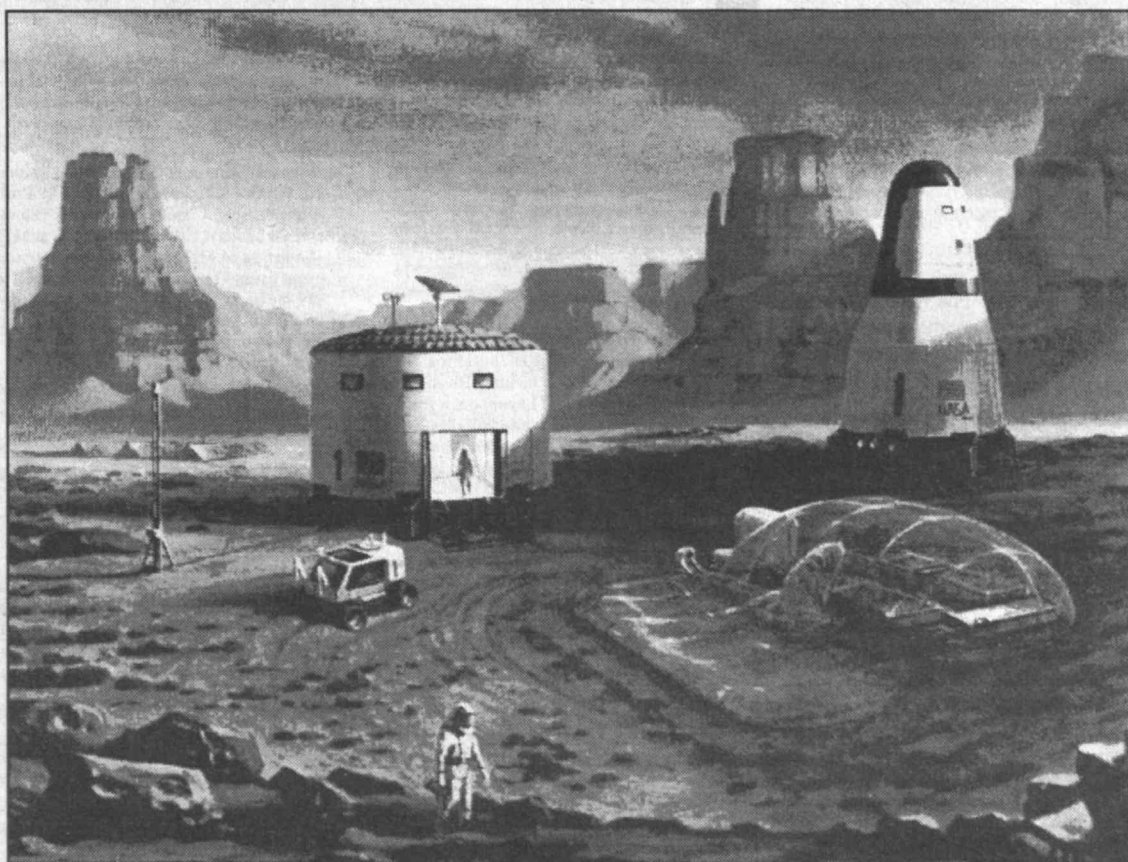
## Author calls for manned Mars mission

■ By Denise Brehm  
News Office

Speaking like a man with a mission, Dr. Robert Zubrin advocated his ideas for cheap, lightweight trekking to Mars in a presentation to the Massachusetts Space Grant Consortium at its annual forum on November 12.

Dr. Zubrin is co-author of *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* as well as executive chairman of the National Space Society and president of Pioneer Astronautics. He maintains that NASA's former \$450 billion concept of Mars travel, which included a 30-year timeline and a spaceship dependent on as-yet-undeveloped technology, was the antithesis of a successful expedition.

Instead, he models his plan for a Mars mission after the first successful European expedition of the Northwest Passage. "Travel light,  
(continued on page 8)



An artist's rendering of Robert Zubrin's vision of life on Mars. The nascent colony would contain the spherical living quarters, a truck, a beetle-shaped greenhouse, diverse scientific instrumentation and the Earth Return Vehicle.  
Art by Robert Murray/Courtesy of Pioneer Astronautics

## IN BRIEF

## FACULTY MEETING

A regular faculty meeting will be held this afternoon at 3:15pm in Rm 10-250. The agenda can be found on the Web at <<http://nimrod.mit.edu/depts/archives/facmin/971119/971119.html>>.

## NO TECH TALK

There will be no Tech Talk on December 3 because of the Thanksgiving holiday. The deadline for submitting classified ads and announcements for the November 26 issue, which will cover the period from November 26-December 14, is Friday, Nov. 21 at noon.



# Researcher wins presidential award for work on rain forests and rainfall

■ By Denise Brehm  
News Office

An MIT scientist whose work provided evidence that deforestation of specific sections of rain forest increases the prospect of widespread regional drought was recently selected by President Clinton to receive a Presidential Early Career Award for Science and Engineering.

Dr. Elfatih Eltahir, the Gilbert Winslow Career Development Assistant Professor of Civil and Environmental Engineering, was nominated by NASA for the honor based on his work in hydroclimatology. The award cites Professor Eltahir's "outstanding accomplishment in hydrology and hydroclimatology by combining theory and remote sensing observations to better understand the links between the biosphere and the atmosphere and their implications for regional water resources in the tropics."

"These gifted young professionals exemplify the best of our science and technology community and will help set the scientific pace for the United States and the world in the years ahead," said President Clinton in announcing the 60 recipients. The award includes up to \$500,000 over a five-year period and is "the highest honor



Eltahir

bestowed by the US government on outstanding scientists and engineers at the outset of their independent research careers."

Professor Eltahir studies how vegetative cover and soil moisture content affect land-atmosphere-ocean interactions at the regional level. Some of his recent work suggested that deforestation along the southern coast of West Africa could cause a collapse of the monsoon system and lead to notable decrease in rainfall for the entire Sahel region.

"West Africa is a region that has seen both significant deforestation activity and a decline in rainfall. We're asking if the 30-year drought is part of the natural variation in the system or is caused by human activity," said Professor Eltahir.

He and postdoctoral assistant Xinyu Zheng published a paper in Geophys-

*"We're asking if the... drought is part of the natural variation in the system or is caused by human activity."*

—Professor Elfatih Eltahir

cal Research Letters earlier this year that described their model of the West African monsoon and its response to deforestation and desertification. Other researchers have suggested that deforestation has an effect on climate, but this was the first published study to suggest that the potential impact of the deforestation depends on the precise location of the loss of vegetative cover.

"Desertification along the border with the Sahara leaves a relatively minor impact on monsoon circulation and regional rainfall; deforestation along the southern coast of West Africa may result in complete collapse of monsoon circulation, and a significant reduction of regional rainfall," said the authors.

To create their model, Professor Eltahir and Dr. Zheng used data obtained by NASA satellites and other sources. Among the variables used by the model are surface temperature, rainfall, wind and humidity, as well as atmospheric temperature and water vapor.

The research team is also modeling the hydrological cycle of the American Midwest by studying atmospheric variables, soil moisture and ground water levels in Illinois. Professor Eltahir hopes that a clearer understanding of that cycle will help to determine if an increase in greenhouse gases will cause drier summers in that major agricultural region.

"Understanding these process in the current climate should eventually help us to project the impact of future climate change on water resources in the region," said Professor Eltahir, who plans to present this work in December at a meeting of the American Geophysical Union.

His assessment of the consequences of human activity on regional climate will likely contribute to a broader understanding of global climate change and its impact on water resources. "If we can understand how the natural system works with regard to soil moisture and rainfall, it will help us later to identify how any global change scenario may impact the regional hydrology and water resources. Such impacts represent a serious threat to the sustainability of water resources," he said.

## Retired CEO to give talk on leadership

William Weisz (SB '48), retired chairman and CEO of Motorola, Inc., will share his perspectives on leadership in management on Thursday, Dec. 4 at 4pm in Wong Auditorium (Building E51).

The 90-minute presentation, entitled "Leadership in a Dynamic Environment," is part of the Industry Leaders in Technology and Management lecture series, co-sponsored by the School of Engineering and the Sloan School of Management and hosted by the Center for Technology, Policy and Industrial Development.

Mr. Weisz began his career with Motorola as a junior development engineer in 1948. He later became chief engineer and then manager for all mobile communications products, and general manager of the communications division. In 1970, Mr. Weisz was named president; he was later named chief operating officer and became CEO in 1986.

After his retirement in 1989, he served on the board as chairman and vice chairman until last May. He left behind a \$28 billion company that is the world's largest supplier of equipment for cellular telephones, paging and two-way radios, as well as a leading semiconductor maker and developer of high-speed Internet access products.

Mr. Weisz, who earned his MIT degree in electrical engineering, has served as chairman of the Sloan School Visiting Committee and is a life member of the Corporation. He received the MIT Corporate Leadership Award in 1976.

The lecture is open to the MIT community; seating is limited to a first-come, first-served basis. For more information, call x3-0404 or refer to the CTPID homepage at <<http://web.mit.edu/ctpid/www>>.



Weisz

## Libraries acquire collected papers of Fischer Black

The MIT Libraries now house the collected papers of the late Fischer Black, a former MIT professor of economics whose work was closely linked with that of this year's Nobel Prize winners in that field.

The two 1997 economics Nobelists also had MIT connections. Robert Merton (MIT PhD '70) was a Sloan School of Management faculty member from 1970-88, and Myron Scholes was at Sloan from 1968-73. When they were awarded the Nobel Prize on October 14, Dr. Merton said, "It's all been a blast. My only regret is that Fischer Black isn't here to share the prize."

In the late 1960s, Drs. Merton, Scholes and Black developed a formula, known as the Black-Scholes model, on which the prize-winning work was based. Published in 1973 in the *Journal of Political Economy*, their work, according to the October 15 *New York Times*, "enables investors to price accurately their bets on the future, a breakthrough that has helped power the explosive growth in financial markets since the 1970s and played a profound role in the economics of everyday life."

At the time of their collaboration, Dr. Black was a mathematician at Arthur D. Little. In 1975, he came to MIT, where he taught at the Sloan School as professor of finance until 1984, when he went to work for Goldman, Sachs and Co., a New York investment bank. He was a partner at Goldman, Sachs when he died at age 57 in 1995.

After his death, Dr. Black's widow, Cathy Tawes Black, contacted Sloan Professor John C. Cox and indicated an interest in seeing her husband's papers go to the MIT Archives. Professor Cox then

facilitated the archives' contact with Goldman, Sachs. Terri Mullan, Dr. Black's assistant at the bank, and Beverly Bell, his editor and vice president in Goldman, Sachs's Fixed Income Division, worked with MIT archivists



Black

to transfer the collection to the Institute earlier this year.

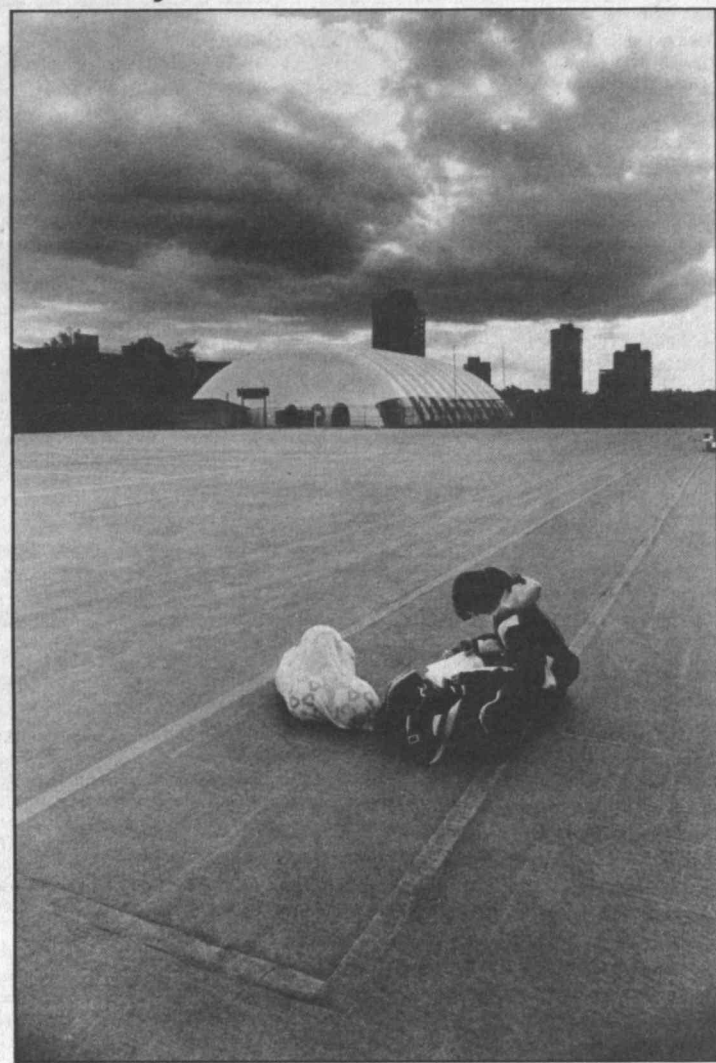
The Fischer Black collection, now housed in Institute Archives and Special Collections, demonstrates Dr. Black's remarkable and influential career. At 57 cubic feet, the rich and extensive collection illustrates how he went about his research, the wide range of topics that intrigued him, and the great pleasure he took in his work. The collection spans his career and includes his writings, talks, notes and drafts.

Dr. Black's work with Professors Merton and Scholes is documented, and includes a file titled "Holes in Black-Scholes" which refers to the Black-Scholes formula. Also of interest are his files of extensively annotated and summarized articles by others, mingled with correspondence between Fischer Black and the authors.

Institute Archives and Special Collections are located in Rm 14N-118 and are open Monday through Friday from 9am-5pm. For more information, call x3-5690 or e-mail <[archives-net-lib@mit.edu](mailto:archives-net-lib@mit.edu)>.

Elisabeth Kaplan  
Institute Archives and Special Collections

## "Stormy Weather"



Karen Murray, a sophomore in civil engineering, sits alone under a darkening sky waiting for her soccer teammates.

Photo by Donna Coveney

## EAPS establishes new program in atmospheres, oceans and climate

■ By Sarah H. Wright  
News Office

The Department of Earth, Atmospheric and Planetary Sciences has created a new program, the Program in Atmospheres, Oceans, and Climate (PAOC), Professor Thomas Jordan, head of EAPS, has announced.

The program represents the latest development of a major aspect of the earth sciences at MIT. "The study of the Earth's climate—past, present, and future—is one of the most active research areas in the geosciences and also one of the most challenging, because the understanding of climate, and related issues like human-induced climate change, requires an integration across the full spectrum of disciplines that concern the Earth system," said Professor Jordan.

"The EAPS department has been deeply involved in climate research for some time through its activities in atmospheric science, oceanography, paleoclimatology and other fields. These activities continue to broaden, and our faculty and students are now interacting with a number of other MIT units, ranging from the Department of Civil and Environmental Engineering to the economics department and Sloan School," he said.

"The PAOC initiative will set up a much-needed framework for integrating the department's program in climate education across all of these disciplines, providing both graduate and undergraduate students from EAPS and other departments with enhanced opportunities for studying the fascinating problems of climate and climate change."

PAOC is the successor organization to the Center for Meteorology and Physical Oceanography (CMPO) within EAPS.

Professor Jordan has appointed Professor Carl Wunsch, the Cecil and Ida Green Professor of Physical Oceanog-

raphy, as director of the new program.

PAOC includes all of the faculty and students constituting CMPO, but with the addition of faculty and students in hydrology, chemical oceanography, paleoclimatology and geophysics. These additions have been made in recognition of the importance of these fields in understanding Earth's climate. The disciplines involved in understanding climate also include fluid dynamics, statistical inference, computer science and applied mathematics.

PAOC faculty will continue to supervise existing degree programs in atmospheric sciences (including atmospheric chemistry and dynamics), and MIT's end of the physical oceanography part of the Joint Program in Oceanography with the Woods Hole Oceanographic Institution.

MIT has a long and distinguished history in the earth sciences. The Institute's founder, William Barton Rogers, was a well-known geologist, and the first meteorology department in the United States was established at MIT by the eminent Swedish meteorologist Carl-Gustav Rossby in the 1930s. The field has continued to evolve at the Institute, with the merger of the Department of Meteorology and Physical Oceanography and the Department of Earth and Planetary Sciences in 1983.

A Center for Global Change Science was established within the department in 1990, and the research carried on there will help support the educational programs within PAOC.

Professor Jordan thanked Professor Kerry Emanuel, outgoing director of CMPO, for his distinguished service as the director.

"For the last nine years, he has provided excellent leadership, both administratively and scientifically, to a superb organization. I am sure that, in the years ahead, PAOC will maintain CMPO's excellence and traditions," Professor Jordan said.



## ABC lauds crew for community service

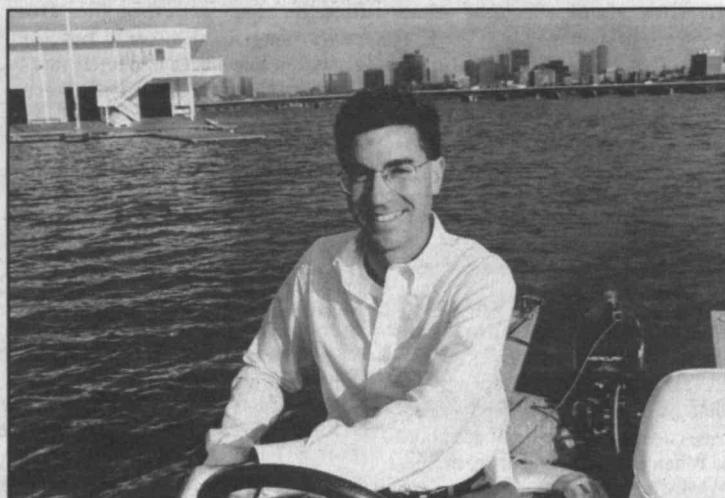
■ By Donna Coveney  
News Office

MIT's service to the community through its athletic program was featured recently on ABC World News Tonight when an inner-city crew coached by MIT, the Mandela Crew of Roxbury, was named as "Person of the Week." The Mandela Crew has been coached by MIT director of rowing Stuart Schmill and some of his varsity crew for the past six springs.

Mr. Schmill says that working with students is the best part of his job, be they from MIT or elsewhere. "The Mandela kids are really great kids," he said. "Rowing is not really the main thing here. I think the chance for them to see that other worlds aren't closed off to them is the important thing. They're eager—this activity, rowing, is unique in their world. Their eagerness is refreshing."

The varsity athletes that volunteer to coach the Mandela crew and other youth groups also enjoy working with the kids. The community involvement makes them feel good, he said.

"MIT is one of the most community-minded boathouses on the river," said Kate Sullivan, public affairs coordinator for the Metropolitan District Commission, which pa-



Director of Crew Stu Schmill heads off in the launch with the MIT boathouse and Boston skyline behind him.

Photo by Donna Coveney

trols the river and riverside parkland.

"Hands down, MIT does more for everybody than anybody else on the river. For example, a while back there was a sewage leak that kept folks from Community Rowing from using their boathouse," she said. "Stu let them use MIT's until the problem was cleared up. When gold medalist Holly Metcalf started a 'To the River' program out of Community Boating, Stu donated an eight-oared rowing shell. The stories go on and on. Every time you turn around, MIT's doing something else

for someone. I'm on the river myself, so I hear about it that way."

MIT has opened its doors to various other rowing clubs over the years, loaning equipment and access to indoor tanks. The US national team has trained out of Pierce Boathouse, most recently in 1994. MIT offers service to various community and youth programs each year, and allows both the Walk for Hunger and the AIDS Walk to set up in front of the boathouse and use its electric supply.

## Medical staff answers questions on drinking

■ By Sarah H. Wright  
News Office

Students and other members of the MIT community have asked some interesting and helpful questions about alcohol use during the past month. Below are their questions along with answers provided by the MIT Medical Department and Health Education staff.

**Q: Isn't drinking a personal, private matter?**

A: It is a personal choice, but it is not an isolated one. Alcohol use has effects not only for the drinker but also for many other people. Ripple effects of alcohol use include messiness, noise, vandalism, drunk driving, unsafe or unwanted sex, fights and unwanted changes in personal relationships.

**Q: Isn't asking about how much someone else drinks an invasion of privacy?**

A: Our goal in building a healthy community is to make sure everyone has a voice and a place it can be safely and respectfully heard.

Again, if you are concerned about behaviors resulting from someone else's drinking, rather than ask directly how much they drink, you might communicate your feelings of concern either to the drinker or to someone other

than the drinker.

One tip: Talking to someone about drinking while they are drinking alcohol is known as "talking to the bottle." Your time is better spent focusing on the safety of the drinker and those around him or her.

**Q: Is it true that beer is safer than shots or hard liquor?**

A: It is safer to drink beer slowly than it is to drink shots rapidly. But per drink, both contain the same amount of alcohol (a 12-ounce beer, a 5-ounce glass of wine or a 1-ounce shot of hard liquor).

**Q: What foods can I eat before or during drinking alcohol so I won't get too drunk?**

A: Your liver can metabolize about one drink per hour. If you are drinking alcohol, sip the drink and alternate drinks of alcohol with uncarbonated beverages (carbonation speeds absorption of alcohol into the bloodstream). Eating non-salty, high-protein foods such as cheese can slow the rate of absorption of alcohol into the bloodstream.

**Q: My friend's drinking has gone up and up since she broke up with her boyfriend. She also is asking me to cover for her a lot. What is really helpful? I don't want to get her in trouble. And I want to stay friends.**

A: Among the ripple effects of alcohol use are changes in personal relationships. You are describing a typical kind of change that can occur. Your question about what's helpful shows you are concerned for her and for your relationship with her. Talking with a counselor can help you clarify your own standards and values and suggest how to aid most effectively your friend and your friendship.

**Q: Isn't talking to someone else about my concern for a friend's drinking also known as gossip and backstabbing?**

A: An honest expression of concern, shared with an appropriate person, is not gossip. MIT has many resources for those who would like to clarify their own feelings and ideas about drinking and about what kinds of action to take if anyone's alcohol use is troubling.

**Q: Why should anyone who drinks listen to me, a non-drinker?**

A: In this community, each person has a valuable voice. Also remember that not everyone wants to drink, even if they do so. Your offers of other activities and your example of living without alcohol can be very helpful.

**Q: I am not American, but after**  
(continued on page 6)

## Faculty to vote on freshman housing motion

(continued from page 1)

cational mission.

"2. The introduction of freshmen to MIT should be characterized by: a proper orientation to the Institute's academic environment, a sense of belonging to the larger MIT community, greater opportunity for interaction with faculty and each other, and the ability to make a calm, informed choice of living group, including a delay of rush for those students who want it.

"3. The Institute should commit significant funds to the design and implementation of new initiatives that strengthen the ties between faculty and students, and enhance the living and learning experience for all students.

"4. The newly promised undergraduate dormitory should be seized upon as an opportunity to experiment with the design—programmatically and physical—of a residence that consciously integrates student life and learning.

"5. These initiatives should have significant input from students, staff, faculty and alumni/ae.

"6. Timely reports should be given to the faculty about the design, implementation and evaluation of these initiatives, beginning in April 1998."

The O/R Committee's report was given to President Charles M. Vest, Provost Joel Moses, Dean of Students Rosalind Williams and Vice President William Dickson, who will make the final decision on O/R changes. The policies should be established by December 15, the deadline for early-decision applicants.

The committee, named by Dean Williams on October 30, consists of four students and six faculty and staff members. The report was delivered by Professors Vandiver and John Essigmann of toxicology and chemistry, Associate Professor Charles Stewart of political science, and William Shen, one of the students on the committee.

Mr. Shen, president of Phi Delta Theta and a senior in economics, also chaired the Interfraternity Council's committee on O/R proposals, which delivered its report to the IFC Presidents Council meeting Wednesday night.

The IFC presidents voted to submit the committee's recommendations to the faculty and administration.

The IFC report suggested that a variety of topics be covered during O/R under five general headings—interpersonal skills, health, emergency options, risk behaviors and legal responsibilities.

The report calls for at least three and preferably six hours to be devoted to these programs, in addition to a seven-hour first aid course. "The program should be given in groups of no more than 25," the report says. "This

should allow the freshmen ample opportunity to get to know the people in their group as well as allow for further questions and discussion."

Draft suggestions on alcohol and housing problems by members of the Dormitory Council and the Interfraternity Council are posted on the Alcohol and Campus Environment web page at <<http://web.mit.edu/president/ace/>>. Developments also can be followed on the News Office home page at <<http://web.mit.edu/newsoffice/www/>> and a special page on alcohol-related news at <http://web.mit.edu/newsoffice/nr/1997/krueger.html>.

Other matters before the faculty meeting include a report on the Ad Hoc Committee to Review Alcohol Policies, by Associate Provost Philip Clay, and a vote on a motion to approve changes in the Rules and Regulations of the Faculty.

Robert J. Sales

## United Way clothing drive, bake planned

To benefit the MIT United Way campaign now going on, there will be a clothing drive and bake sale next month.

MIT's fourth annual United Way clothing drive will be held December 8-19. Clothing and other items donated will be given to CASPAR, the Salvation Army and Shelter, Inc. There will be collection bins in Building E52 (the Sloan School), Walker Memorial, the Stratton Student Center, the Building E23 atrium (Medical Department), Lobby 7, Building NW16 (the Plasma Fusion and Science Center) and Rm 20A-023 (United Way campaign headquarters in the Office of Special Community Services).

Agencies are requesting clean, warm winter clothing—coats, hats, socks, long underwear, etc.—as well as towels, sheets, and clothing and furniture for babies and children. Do not leave furniture by the collection bins; call x3-4605 for pickup.

The bake sale will be held on Friday, Dec. 12; the time and location will be announced. Food contributions from chief solicitors and other members of the MIT community are welcome; call x3-7914 for more information.

As of November 18, the campaign had received pledges totaling \$93,174 from 398 donors, including 19 Leadership Givers pledging at least \$1,000 apiece. The amount represents 32 percent of the \$315,000 goal for the campaign, which runs until December 31.

## Samsung to license MIT's digital TV technology

Samsung Electronics Co. Ltd. of Seoul, Korea, has signed a non-exclusive licensing agreement with the Technology Licensing Office (TLO) for 17 patents that cover various aspects of advanced television products, including digital television sets, cable and satellite video receivers, video recorders and video cameras.

The TLO has offered the same license arrangement to more than 60 other firms. Many of these firms have expressed interest and are expected to execute agreements before they begin shipping digital TV products in 1998. Many broadcasters are expected to begin transmitting digital TV signals in selected major markets next summer. The broadcast industry is scheduled to discontinue transmission of current analog TV signals by 2006.

"We're prepared to license these patents, on a non-exclusive basis, to any and all manufacturers," said Jack Turner, assistant director of the TLO.

The MIT standard license agreement sets forth terms and conditions related to standard-definition digital television consumer products, high-definition digital television consumer products, and commercial products. These terms include an initial license issue fee, an annual fee creditable to product royalties, and a per-product royalty ranging from \$1 to \$1.50 for many consumer products, to more than \$100 for some professional broadcast studio equipment. MIT's standard license agreement can be found in its entirety on the TLO web page at <<http://web.mit.edu/tlo/www/>>.

The MIT patents were developed at the Advanced Television and Signal Processing group in the Research Laboratory of Electronics, directed by Professor Jae Lim of the Department of Electrical Engineering and Computer Science. These patents cover many inventions related to

digital TV. Of particular significance are those patented inventions that cover aspects of some key elements of the digital television standard adopted by the Federal Communications Commission (FCC).

The Advanced Television Systems Committee (ATSC), chartered by the FCC Advisory Committee to document the digital TV standard, has not undertaken the task of determining which firms have the intellectual properties required to implement the digital TV standard. Nonetheless, the ATSC has included Mr. Turner among the persons whom manufacturers may wish to contact regarding patent issues for digital TV products.

MIT is a member of the Grand Alliance, a consortium of seven institutions formed in 1993 to recommend a digital television standard to the FCC. MIT was the only university involved in this process. A system developed by MIT in conjunc-

tion with General Instrument Corp. was chosen as one of four finalists by the FCC. The Grand Alliance digital TV system that served as the basis for the US standard was designed by combining the best features of the four finalist systems.

Digital television offers greatly improved image quality by overcoming the degradation that analog signals suffer as a result of transmission-path anomalies and interference. Moreover, high-definition digital images have greater clarity than conventional television images because they can provide five times as many picture elements. As a result, a viewer can sit as close as six feet from a two-foot-high screen and not see the horizontal lines so evident in today's television images. Through this improved resolution, in combination with CD-quality multichannel audio, large-screen high-definition TV sets offer dramatically improved realism.





# Group issues recommendations on aiding academic services

■ By Janet Snover  
Community Involvement Team

The Academic Administrators Network (AANet) team celebrated the release of its final report by gathering to crack open geodes that Melinda Cerny, team captain, had given to each team member last year as a symbol of their project.

Rough-textured and unremarkable on the outside, a geode often contains a surprisingly beautiful crystal within. "Our project was a difficult one, and the geodes were a reminder that our work could result in something remarkable and positive for MIT students," Ms. Cerny said.

## Reengineering

The AANet's final report focuses on ways to ensure consistent, high-quality service to all students and faculty within each academic department at MIT while also reducing the cost of these services.

The report makes recommendations in five broad areas: advising, the role of the academic administrator, MIT's culture of overwork, collaboration and partnership, and improving technology. In order to identify the issues and concerns of academic departments, the team conducted interviews and surveys with faculty, academic administrators, students, and staff from the Registrar's, Bursar's, Admissions and Dean's Offices. In addition, team members did research on the best practices at institutions that are comparable to MIT.

The team found that MIT faculty and staff are deeply committed to serving students well, but the following concerns surfaced repeatedly: the advising system needs to be revised, faculty and staff feel isolated and overloaded with responsibilities, and better use of technology is crucial to providing better service to students.

In response, the AANet team developed recommendations intended to address these themes while also creating a more productive, satisfying and cost-effective environment. In particular, the team believes that a spirit of collaboration and partnership between faculty and staff is critical to improving services to students. Below are the AANet's recommendations for each of the five areas.

### ADVISING

The advising system at MIT needs to be examined, redefined and revised. Faculty have full responsibility for this service to students but cannot successfully address all aspects of advising without support from and involvement by staff, alumni/ae and students.

#### Recommendations:

- Develop an Institute mission statement on advising that defines the term so there is a shared understanding of what it means across the Institute
- Define the role and responsibilities of the advisor and advisee so that all students can expect consistent, quality service from each academic department
- Involve faculty, staff, alumni/ae and students in the advising process so all

students receive sound advice in the areas of academics, administration, careers and personal support

- Develop incentives and awards for advising so it's universally perceived as worthwhile and important

- Create an ongoing process to review, revise, update and improve the advising system.

### THE ROLE OF THE ACADEMIC ADMINISTRATOR

The academic administrator role is pivotal because this individual represents and responds to the interests and concerns of faculty, students and Institute staff. Academic administrators are perceived by faculty and students as an important source of wisdom and knowledge in the areas of advising, department policies and procedures, and Institute rules and regulations.

"Academic administrators are often the first person students will go to when they are in crisis or in academic trouble. These administrators are on the front line, playing a vital role in the lives of our students," Ms. Cerny said. Recommendations:

- Provide training and mentoring for academic administrators so they can function at an increased skill level and provide consistent service to all faculty and students
- Review and revise academic administrator job descriptions, titles and compensation
- Encourage the career development of academic administrators and their involvement in professional organizations so they remain fresh and innovative in their roles
- Appoint a special assistant to the Provost to initiate, coordinate and oversee the training and development of academic administrators to ensure consistent student service, parity of workload and compensation across departments.

### CULTURE OF OVERWORK

Throughout the Institute, a culture of "busyness" is apparent. A feeling permeates the Institute that if faculty staff and students are not working long hours all the time, we are not working hard enough.

#### Recommendations:

- Review and revise work processes within each academic department, taking into account seasonality of work and the skills of individuals so that work can be divided equitably among staff
- Reorganize staff into teams, where appropriate, so seasonal work and special projects can be shared among staff.

### COLLABORATION AND PARTNERSHIP

Academic administrators, students and faculty all report feelings of isolation and disassociation with other colleagues within the Institute.

#### Recommendations:

- Improve communications among students, faculty and staff at the depart-

# Students asked for opinions on Institute grading system

(continued from page 1)

modifiers appear on internal grade reports but not on official transcripts.

- A system which would expand the above to include plus/minus modifiers on official transcripts.

- The pre-1995 system which used A, B, C, D and F without modifiers on both internal reports and official transcripts.

Surveying all three groups (faculty, undergraduates and graduate students) about a single issue is rare. It's also the first time that Feedback Forum has been used to survey the student population about an important Institute issue.

Feedback Forum is a web-based tool designed by two graduate students in electrical engineering and computer science, Jacob Seid and Andy Tian, to let users give and receive anonymous feedback. If the effort is successful,

this mechanism could be used for other important Institute issues, saving money now spent on paper-based surveys. The system is now being used successfully in subjects such as 8.01, 3.091 and 8.02, and also by the Student Committee on Educational Policy.

Responding to the survey is voluntary, but faculty and students are strongly encouraged to fill it out. This will help ensure that the subcommittee will have enough information to make recommendations for a grading system that meets the needs of faculty and students.

The response period will close on Friday, Dec. 12. Questions or comments can be e-mailed to <survey@mit.edu>. A discussion site, where further and more detailed views can be voiced, is being planned.



AANet team members gather in Killian Court as team captain Melinda Cerny of Educational Services mimics the group's geode-smashing ceremony. Left to right: Holly Sweet, Experimental Study Group; Debra Luchanin, toxicology; David Weber, Educational Services, Dean's Office; Debbie Shoap, Sloan School; Joanne Jonsson, mathematics; Anne Hunter, EECS; Ms. Cerny; and Tobie Weiner, political science. (Team member Henry Chong, a student in EECS, graduated in June and was not present.) Photo by Donna Coveney

ment and Institute level so that all are aware of other people's roles and responsibilities and the interconnections

- Provide spaces (offices, study areas, etc.) conducive to interactions between faculty, students and staff so that natural relationships can form and evolve
- Include academic administrators on department and Institute committees so they may share their knowledge and perspectives on policies and procedures they will ultimately support and enforce.

### IMPROVING TECHNOLOGY

Faculty and staff need more continually updated, easily accessible information to support their commitment to quality education and advising of students.

#### Recommendation:

- Enhance our current technology to allow departments to download and modify information from the Registrar's database so that departments will no longer have to hand-enter the same information into their own databases.

The AANet team was formed in June 1996 as part of the Financial and Academic Services Transition effort of Student Services Reengineering. Team members included several academic administrators, representatives from the central services offices, and an MIT student.

The team presented its findings and recommendations to the Reengineering Steering Committee, Academic Council,

Provost Joel Moses, and Deans Rosalind Williams, Ike Colbert and Kip Hodges. The Provost and these deans have encouraged the team to proceed with implementing the recommendations.

The team also has shared its complete report with department heads, undergraduate and graduate academic administrators, staff in the central service offices, faculty undergraduate and graduate officers, administrative officers in academic departments, and faculty on Institute committees whose work relates to students. Others in the community who would like to read the entire report may contact Ms. Cerny at x8-7232 or <cerny@mit.edu>.

# Zubrin urges manned Mars mission

(continued from page 1)

live off the land and go on a shoestring budget," he said. "It is only by looking at how humans have successfully explored the Earth that we can tell how they can successfully explore Mars." The reason for such a mission, he said, is to determine if Mars did, does or could support life.

Dr. Zubrin was a senior engineer at Martin Marietta Astronautics Co. (now Lockheed Martin) in 1989 when the firm was asked to put together an alternative to NASA's Mars plan. The Mars Direct plan that he and his colleagues came up with was the "the most radical" alternative to the NASA approach, he said. It calls for launching a ship from Earth directly to Mars, rather than from the moon, as some plans require.

It also advocates going to Mars in the next few years, using available technology and methods previously employed only in unmanned missions. "The crew and their habitat can be sent directly to Mars by the upper stage of the same booster rocket that lifts them out of Earth's orbit," he said.

By reducing the total mass being sent to Mars, we can get there in 10 years or less using off-the-shelf propulsion systems, Dr. Zubrin said. For example, the proposed Mars Direct booster rocket, called Ares, could be "built out of things found in junkyards today," he said.

A reduction in mass can be achieved by sending the mission in segments and by producing fuel for the return flight on Mars, instead of carrying it from Earth. Dr. Zubrin said a working In-Situ Propellant Production chemical plant has been built, and proves that making the fuel on Mars is a viable concept.

The first launch, an unmanned payload from Earth to Mars containing an Earth Return Vehicle and a small truck with a nuclear reactor mounted on it,

could be ready by 2005, he said.

It would also carry with it the chemical plant and 6 tons of liquid hydrogen to use in manufacturing fuel for the return trip. The nuclear reactor would be used to energize the chemical plant after landing so it could begin its work—combining the hydrogen with the carbon dioxide in the Mars atmosphere to produce methane fuel for the return trip, and water and oxygen for the crew's use when they arrive.

This payload would be joined by two separate launches in 2007: another package of supplies, and four crew members in the "Beagle" ship. The crew would live on Mars, exploring and conducting scientific experiments. After 180 days, the crew could come back to Earth, leaving behind living quarters (the "hab"), a greenhouse for experiments, a land rover, chemical and power plants, a stockpile of fuel and most of their scientific instruments. Everything could remain in readiness for the next group of scientist/astronauts.

Dr. Zubrin does not see Mars as a short-term venture. He believes it could easily become an enduring project if we send a launch up every two years. The experiment could be transformed into a colony, staffed with people who could learn "the craft of living on Mars," he said. Using supplies from Earth, they could build small factories and rely upon Mars's natural resources to manufacture other necessities such as additional building materials, he added.

Dr. Zubrin estimates the cost of the mission at \$20 billion initially and \$2 billion for each additional launch, which he calls "a very small price to pay for a new world." He encourages people who believe strongly in the need for Mars travel to contact elected officials in Washington and/or join the new Mars Society, established to promote and raise money for a mission to Mars.

Not going to Mars by 2005, he said, is "an abdication of human responsibility. We shouldn't leave it until the year 3005."

# CIS announces grant program for study of refugee issues

The Center for International Studies has announced a new grants program for graduate students and faculty, supporting applied research and training on refugee issues in collaboration with nongovernmental organizations (NGOs) working in the field.

Awards will range from \$4,000-\$6,000 for graduate student research projects. Faculty and senior researchers may receive awards up to \$10,000. Grants may be used alone or in conjunction with other funding sources for purposes such as travel, materials, re-

search expenses, student "research internships" in NGO or UNHCR settings, or the organization of workshops on topics related to the overall objectives of the program.

The program was established by the Inter-University Committee on International Migration and is supported by the Andrew W. Mellon Foundation. For more information, contact William Keller, x3-9861 <wkeller@mit.edu> or Laurie Scheffler, x3-3121, <lauries@mit.edu>. The application deadline is Jan. 1, 1998.