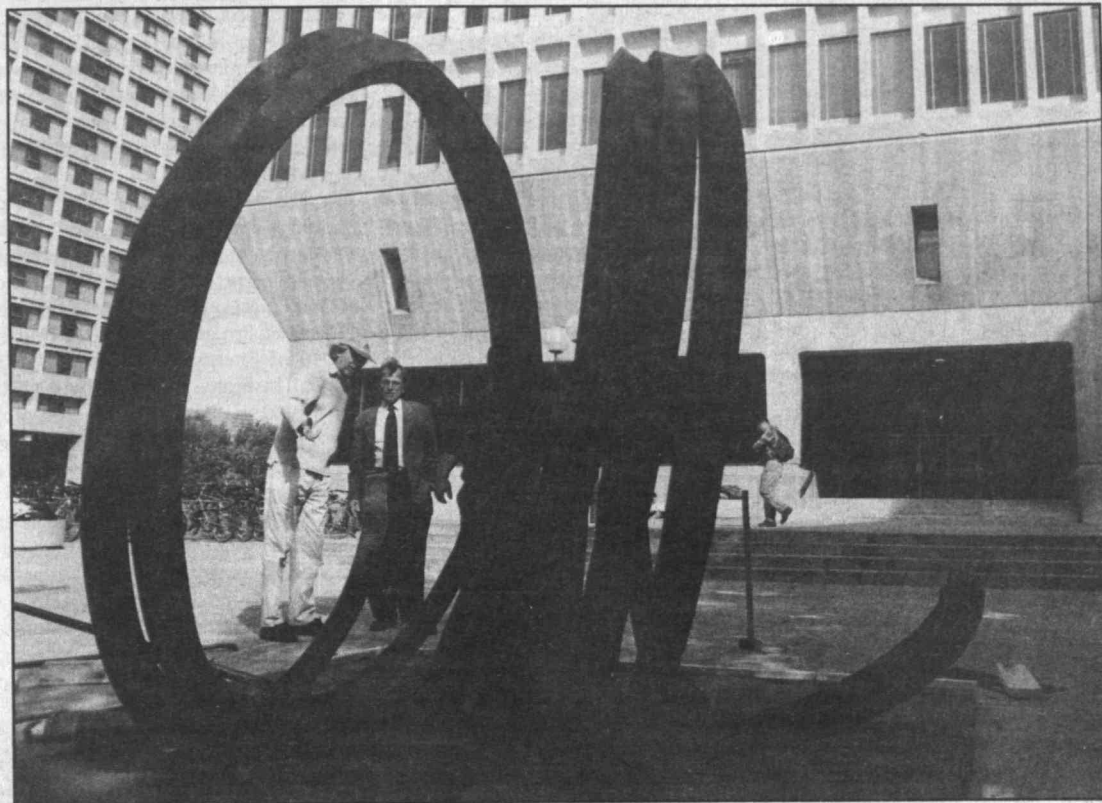


Art with a twist



Workers installed *Two Indeterminate Lines*, a sculpture in rolled steel by Bernar Venet, on Hermann Plaza on the west side of Building E53 next to the Sloan School. The work, which measures 2.2 by 2.2 by 2.5 meters and was created in 1993, is at MIT on long-term loan from Elliot K. Wolk '57, a member of the Council for the Arts at MIT and the MIT Corporation. Mr. Venet, left, surveys the installation with Glen L. Urban, dean of the Sloan School.

Photo by Donna Coveney

Faculty discusses new EAPS degree, mulls writing requirement

■ By Kenneth D. Campbell
News Office

The need for greater writing and speaking skills for undergraduates, and for a professional master's degree in geoscience, were the main topics discussed at the year's first faculty meeting last week.

The writing requirement needs to be integrated into the curriculum over the entire four-year undergraduate program in order to give MIT students the writing and speaking skills they will need in the work place, according to the Committee on the Writing Requirement.

"Communication is like a muscle—you either exercise it or it atrophies," said Kip V. Hodges, professor of earth, atmospheric and planetary sciences and chair of the committee. He gave the faculty an update on the group's initial findings and a timetable for discussion and a vote on a final proposal in the spring.

The present MIT writing requirement is, "for all practical purposes, a minimum proficiency test that does

little to improve the quality of student writing," Professor Hodges said. "To stay competitive in an evolving job market, our students need better skills in both writing and speaking. It is our job as educators to encourage them to develop these skills."

Based on the writing skills of a sample group of MIT juniors, 15-20 percent entered MIT with a marked deficiency in writing skills, the committee's study showed. However, the committee also found that 25-30 percent of juniors have inadequate writing skills, despite having passed Phase I of the writing requirement, he said. Writing skills had zero correlation with grades, the survey found.

An alumni/ae survey showed that only 25 percent felt MIT contributed substantially to their capacity to write clearly and effectively, and only 15 percent felt MIT contributed substantially to their public speaking ability.

Professor Hodges said the difficulties in implementing these changes are substantial. "We can't just require new courses. We can't compromise quanti-

(continued on page 8)

Three from MIT named to IOM

Professors Gerald R. Fink, Mario J. Molina and Steven R. Tannenbaum are among the 55 new members elected to the Institute of Medicine, chosen for their "major contributions" to health and medicine or to related fields such as social and behavioral sciences, law, administration and economics.

Dr. Fink, a pioneer in the field of genetics, is professor of medical genetics in the Department of Biology and a founding member of the Whitehead Institute for Biomedical Research; he was named director of Whitehead in 1990. He is a graduate of Amherst College and received the PhD in genetics from Yale. By combining tradi-

(continued on page 3)

Dresselhaus speaks of goals during her AAAS term

Getting young people interested in science will be a major focus for Institute Professor Mildred S. Dresselhaus when she becomes president of the American Associa-

tion for the Advancement of Science (AAAS) in 1997.

"The public doesn't fully appreciate that nowadays, Americans are winning Nobel Prizes because of work

done 20 years ago," Professor Dresselhaus, who also is professor of electrical engineering and physics, told a meeting of the New England Science Writers last Wednesday. "To keep new

applications going, we have to have a continuity of people."

Professor Dresselhaus listed four areas of focus for the AAAS when

(continued on page 8)

Tissue-engineering experiment aboard Mir blazes trail

■ By Elizabeth A. Thomson
News Office

An MIT/NASA tissue-engineering experiment currently orbiting the Earth aboard the Russian space station Mir is the first of its kind and has now run longer than any other study of cells in space.

Previous space experiments involving cells focused on the cells themselves and lasted only about 10 days. The current experiment, which is aimed at growing full tissues, was launched to Mir on September 16 and will remain there for 150 days, when a shuttle will bring it down. The study features bovine cartilage cells growing on polymer scaffolds in a bioreactor the size of a coffee cup.

The goal of the experiment is to explore the effects of microgravity on tissue growth. Experiments on Earth under simulated microgravity have indicated that cells grow well in this environment, but "actual microgravity is an unknown. We don't know how it will affect tissue growth," said Lisa E. Freed, a research scientist at the Harvard-MIT Division of Health Sciences and Technology.

Dr. Freed and Gordana Vunjak-Novakovic, a research scientist at the Whitaker College of Health Sciences and Technology, led the 13-member MIT team involved in the work. Dr. Neal Pellis is head of the NASA team for the project, which includes some 15 scientists and engineers.

"The idea is to use this as a model system to study tissue growth in space," Dr. Freed said. Cartilage was the tissue selected because it is hardy and has been studied extensively in the laboratory. "If it works, the general system could be used to grow tissues that might be more relevant to the effects of microgravity on humans," she said.

For example, NASA is very interested in bone, since bones can become brittle in microgravity. If scientists could grow human bone tissue in space, they could conduct controlled experiments on the engineered tissue. This would substantially add to the data on this subject, complementing measurements obtained from astronauts themselves.

Drs. Freed and Vunjak-Novakovic have been

working on cartilage tissue engineering for six and a half years in the laboratory of Robert S. Langer, Germeshausen Professor of Chemical and Biomedical Engineering. As a result, NASA approached them about two years ago about developing a tissue-engi-

neering experiment for Mir.

"We had the model system that was of interest to them," said Dr. Vunjak-Novakovic, who is also an adjunct professor at Tufts University. The MIT sys-

(continued on page 8)

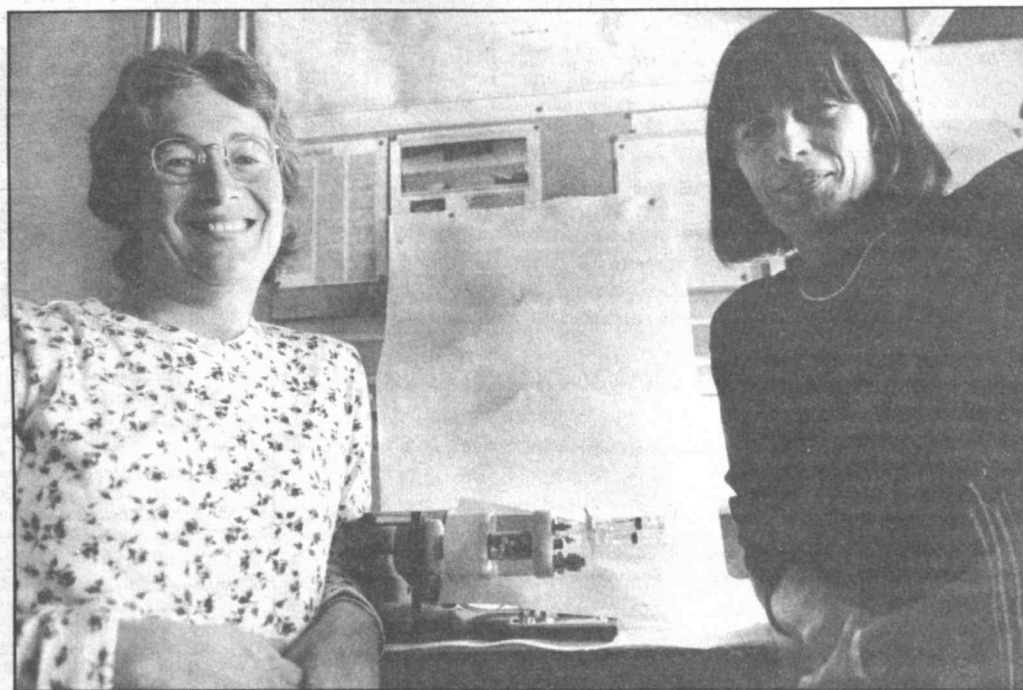
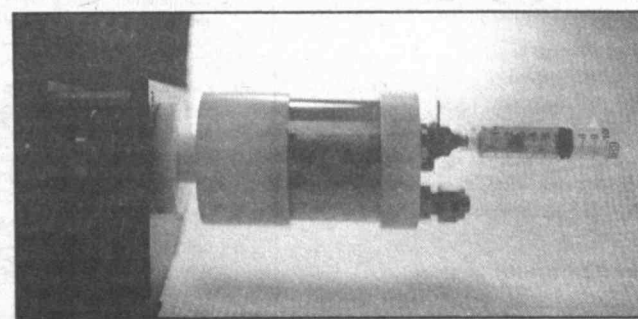


Photo by Donna Coveney



Research scientists Lisa Freed and Gordana Vunjak-Novakovic (above) with a bioreactor for growing tissues similar to the one that is now orbiting on the Mir space station. At left is a closer look at the bioreactor (photo by Dr. Freed).

IN BRIEF

OPEN ENROLLMENT

The annual benefits open enrollment for changes effective January 1, 1997 will be held from Tuesday, Oct. 29 through Sunday, Nov. 17. Personal Enrollment Guides will be mailed to eligible individuals the week of October 28 explaining how to make changes.

UNITED WAY KICKOFF

MIT's annual United Way campaign kicks off today in Lobby 10 with an event featuring free snacks and beverages donated by ARA, as well as balloons and entertainment. There will also be staff on hand to distribute information and answer questions about the United Way and the campaign, which runs until December 31 and aims to raise \$300,000.

Student Notices

- *-Open to public
- **-Open to MIT community only
- ***-Open to members only

ANNOUNCEMENTS

Medical and Law School Meetings**—Oct 24: Dr. James Phillips, Senior Associate Dean, Baylor Medical School, 12-3pm, Rm 10-105 (Bush Room). Oct 25: Dr. Brad Bierbrauer, Philadelphia College of Podiatric Medicine, 12-1pm, Rm 12-185 (Pre-Med Office). Oct 30: Janice Austin, Dean of Admissions, University of Pennsylvania School of Law, 11am-12pm, Rm 12-185 (Pre-Professional Office). For interested students to meet with representatives of these schools. Sponsored by the Office of Career Services and Preprofessional Advising. More info: x3-4737.

Career Services and Preprofessional Advising Recruitment Presentations**—Oct 23: Schlumberger, 5:30pm, Rm 4-153. Health Advances, 6pm, Rm 4-145. Monitor Company, 6pm, Rm 4-163. Oct 24: Qualcomm, Inc., 5pm, Rm 4-145. Octant, 6pm, Rm 4-159. Rogers Casey, 6pm, Rm 4-153. Gordian Company, 6pm, Rm 4-145. Raytheon E-Systems, 7pm, Rm 4-149. Goldman, Sachs, and Company - Investment Banking, 7pm, Rm 34-101. Octant, 6pm, Rm 4-159. Oct 28: Intel Corporation, 11am, Student Center, Mezzanine Lounge. CS First Boston, 5pm, Rm 4-231. Lincoln Laboratory, 5:30pm, Rm 4-153. Capital One, 6:30pm, Rm 4-149. Applied Materials, 7pm, Rm 4-159. Xilinx, 7pm, Rm 4-145. Oct 29: Cadence Design Systems, 6pm, Rm 8-105. Citi-Bank, 6pm, Rm 4-149. Philips Research, 6:30pm, Rm 4-153. TRW, 7pm, Rm 4-145. American Management Systems, Inc., 7pm, Rm 4-159. Boston Consulting Group, 7pm, Rm 4-231.

RELIGIOUS ACTIVITIES

The Chapel is open for private meditation 7am-11pm daily. Regular Chapel services are:

Baptist Campus Ministry**—Weekly events: Tuesday night dinner at 5:15pm; Tuesday night bible study, 6pm; Monday graduate discussion, noon. Meets in Bldg W11.

Campus Crusade for Christ**—Weekly meeting on Wednesdays, 8pm, PDR 1 & 2, 3rd fl Student Center. Daily prayer, Rm W11-080 (CFL), 8am. More info: x2-1781 or <absfree@mit.edu>.

Tech Catholic Community**—Weekday Mass Tues & Thurs 5:05pm, Friday 12:05pm, Saturday 5pm, Sunday 9:30am & 5pm. Call x3-2981.

Christian Science Organization**—Thursdays at 7pm. Call x3-8797 or <cnorford@eagle.mit.edu> for further information.

Communitas-Life Together**—Protestant Worship Sunday at 11am. Sponsored by: American Baptist Church, United Church of Christ, United Methodist Church, Presbyterian Church (USA), Chaplain John Wuestneck, x2-1780 or <chaplain@mit.edu>.

Lutheran-Episcopal Ministry at MIT**—Regular Wednesday worship, 5:10pm, followed by supper in the Bldg W11 dining room. Bible Studies, Sundays at 5pm, Bldg W11. More info: x3-0108.

Meditation and Discourse on the Bhagavad Gita*—With Swami Sarvagatana, MIT Chaplain and Head, Ramakrishna Vedanta Society of Boston. Every Friday, 5:15-6:30pm, MIT Chapel. Sponsored by the MIT Vedanta Society. More info: 661-2011 or <mehta@jimmy.harvard.edu>.

MIT Orthodox Christian Fellowship**—Wednesdays at 5:30pm in Student Ctr DR 1 for dinner followed by Chapel Vespers. Mike Decerbo, Dorm x5-7569.

Other religious meetings:

Baptist Student Fellowship*—Weekly meetings on Tuesdays, include dinner followed by Bible Study. 5:30-7pm, Bldg W11, small dining room. Sponsored by Baptist Campus Ministry. More info: x3-2328.

Graduate Christian Fellowship**—Weekly meetings in Student Ctr, DR 1&2, Thursdays at 5:30pm. Also weekly Bible studies and Responsible Technology discussion group. Andrew Parris x3-2319 or <andrewp@mit.edu>.

Hillel*—More info: x3-2982.

Lincoln Laboratory Noon Bible Studies*—Wednesdays at noon, South Lab S2-410. Annie Lescard, Linc x2899.

MIT Muslim Students Association*—5 daily prayers, Bldg W11; also Friday congregation 1:10-1:45pm, Rm W11-110. Info: x8-9285.

OPPORTUNITIES

MIT Public Service Center Fellowships. This IAP, make a difference in a child's life and get paid for it. Fellowships of \$1200 will be awarded to MIT students interested in working in Cambridge Public Schools over IAP. These grants, sponsored by the Lord Foundation and the Germeshausen Foundation, are intended to enable MIT undergraduates to work intensively with elementary, middle, and high school students in Science Curriculum Development or Educational Technology Support. Applicants must submit an application form and two letters of recommendation. Application forms and additional information are available from Tracy Purinton, Rm W20-311, x3-0742. Deadline: Nov 1.

List Foundation Fellowship Program in the Arts. Awards up to \$5000 will be given to support the work of students of color in the visual, performing, or literary arts. Applicants must be currently enrolled, full-time undergraduate or graduate students (freshmen are not eligible), US citizens or permanent residents, and African American, Asian American, Hispanic American, Native American, or Aleutian Islanders. To make an appointment and for guidelines and applications, contact Holly Kosisky, Office of

the Arts, Rm E15-205, x3-8089, <holly@media.mit.edu>. Program is administered by Maruen Costello, Director of Special Programs, and cooperating faculty from the MIT community. Application deadline: Oct 30.

STUDENT JOBS

There are more job listings available at the Student Employment Office, Rm 5-119, or on the Web at <http://tute.mit.edu/seo/wwwcl/seo.html> (student access only).

On-Campus, Office. Responsible individual needed for general office work in arts administration, including reception duties, answering phones, xeroxing, preparing mailings, filing, posting, errands, etc. Experience with Macintosh and MSWord helpful. 12 hrs/wk; prefer 4 hour clocks 3 times a week. Upperclassmen preferred. Minority students encouraged to apply. Call Lynn Heinmann at x3-4003.

Off-Campus, Programming. Vectis Corporation in Waltham seeks students with a computer science background for part-time work developing web-based software for medical information systems. This is a unique opportunity to contribute to the advance development of a new generation of products. Applicants should have programming experience, and should be able to commit to working at least 10 hours per week. Familiarity with database systems and with web tools such as HTML, Java, and Perl, is desirable. Pay is competitive and commensurate with experience. Call Anatoly Altshuler at 890-7700, x257.

On-Campus, Technical (Lab Work). We are looking for a System Administrator in the Biomedical Engineering Lab. Ethernet and computer network knowledge is required. Call Anna Browne at 252-1655.

For students with a Federal Work Study component in their aid package.

Mentor. Work directly with teens on teen editorial board as a mentor and a resource. Help teens to compile all of the art and photography for magazine. All mentors must participate in training workshop before working with teens. Qualifications: art and/or photo experience preferred but not necessary, experience working with at-risk teens helpful. Must show initiative, be self-motivated, and able to work independently. Some office work required. All applicants must have at least a working knowledge of MS Word for Windows. Call Kristin Chase at 262-2434.

Minicourse Teacher. The Montessori Community School of Scituate is seeking graduate/undergraduate students to teach a 5 week minicourse. Creativity is essential. Course taught one morning per week to 6-8th graders. Call Kathy Denham at 545-5544.

Environmental Work. Students who are active within their university environmental groups can help us with on-campus educational and advocacy activities to raise awareness and support for biodiversity conservation and community economic development in the threatened rainforests of Central America. Call Paige Sorvillo at 441-6300.

UROF

The UROF Office invites MIT students to join with faculty members to pursue research projects of mutual appeal. Wellesley students may also participate. For detailed information on procedures, please read the participation section of the 1995-1996 UROF Directory, available now at 7-104 and 20B-140.

Pertinent information is posted regularly on the UROF bulletin boards in the infinite corridor near Rm 3-108, and in the UROF Office, Rm 20B-140. Students may now access UROF information, including current listings, at <http://web.mit.edu/urof/www/>.

Faculty supervisors wishing to have projects listed may send brief descriptions to 20B-140, call x3-7306, or email to <urof@mit.edu>.

Edgerton Center. UROPer needed to help incorporate virtual reality into the exhibits of the New England Aquarium. Prof. Charles Mazel, <chm@mit.edu>, x3-6178.

AI Lab. A UROPer is needed with extensive software development skills and some EE background in signal processing to help build a GUI front-end for a sound perception system of a humanoid robot, develop sound signal processing and perceptual algorithms, and integrate sound perception to the rest of the robot. Contact: Mr. Brian Scassellati at <scasz@ai.mit.edu> or x3-0997.

AI Lab. A UROPer is needed to implement a variety of machine learning algorithms for visuo-motor coordination on a humanoid robot. Contact: Mr. Brian Scassellati at <scasz@ai.mit.edu> or x3-0997.

AI Lab. A Course 2 or Course 6 UROPer is needed to develop and build a pressure-sensitive "skin" for our humanoid robot. Contact: Mr. Brian Scassellati at <scasz@ai.mit.edu> or x3-0997.

MIT to help create new computer network

MIT is one of 37 universities to join with government and private research organizations to develop a new and improved network for education and research.

The need for this new network, dubbed Internet II, became apparent to the research and education community this year, as broader use of Internet communication, particularly via the World Wide Web, has caused research data bottlenecks. Although the nation as a whole may not be aware of it, "national high-speed connectivity is a growing problem," said James D. Bruce, vice president for information systems and professor of electrical engineering. "More people are connecting and using the available bandwidth. New applications require additional bandwidth. We have adequate connectivity now, but clearly will require more in the near future."

Traffic on the MITnet backbone, such as e-mail, Web research and data transfer, has grown at an average of 64 percent annually since 1991 to 250 gigabytes per day. Nationally, the number of computers linked to the Internet has grown from 1.8 million in July 1993 to 12.9 million in July 1996, according to Network Wizards (see the Web page at <http://www.nw.com/>).

Internet II's goals are to develop and sustain up-to-date network capability for the national research community, enable use of new applications that fully exploit the capabilities of broadband networks, and integrate the project's work with ongoing efforts to

improve academic Internet services.

This "next-generation Internet" will offer high capacity and low data loss, as well as enhanced network services that will enable multimedia applications and multicast delivery to dispersed groups, among other things.

In the preliminary draft of Internet II's architecture, the system will be centered around basic points of interconnection called GigaPOPs. Wide-area communications service providers will provide links between the institutional members, service providers and the existing commercial Internet at the GigaPOPs.

The participating schools have made initial commitments of \$25,000 each to the project and are discussing further commitments. The National Science Foundation, the Defense Advanced Research Projects Agency, the Department of Energy, NASA and the National Institutes of Health will all be involved in the initiative. Corporate involvement will include IBM, Cisco Systems, AT&T, MCI and Sun Microsystems, among others.

In a separate announcement on October 10, President Clinton announced his support for a similar but broader Internet initiative. He has pledged \$100 million for research to develop this new network. "America must have an Internet that keeps pace with our future," he said.

The initiative proposed by President Clinton has three goals:

- To connect universities and national

(continued on page 8)

Media Lab. A creative UROP student is needed now and continuing through IAP and the Spring term to help develop and implement VISIC: Visual Instruction Set Computing, which will run on a simple virtual machine programmed in C. Contact: Mr. Tom White at <tom@media.mit.edu> or x3-0323.

Media Lab. A UROPer is needed to work on a prototype 3-D TV project for pay. Contact: Mr. Paul Christie at <mrpaul@media.mit.edu>.

Media Lab. A UROPer, preferably a sophomore or an advanced freshman, is needed to do testing of electromagnetic materials and possibly other projects on an indefinite basis (i.e. until you graduate or decide to leave). Contact: Mr. Rich Fletcher at <fletcher@media.mit.edu>.

Chemical Engineering. A sophomore or junior from either Course 5 or Course 10 is needed to perform research on olefin polymerization using mesoporous silicate materials (MCM-41) as catalyst support. Contact: Dr. Christian Mehnert at <mehner@mit.edu> or x3-9384.

Brain & Cognitive Sciences. There is one position open for credit or possibly pay in a language acquisition study examining children's use of particle verbs (e.g. to look up, to throw away). Contact: Dr. Jeannette Schaeffer at <schaeffe@mit.edu> or x3-2559.

Biomedical Engineering. A UROPer is needed to help in an interdisciplinary laboratory in the BME Center which works on the union of vascular biology, polymer chemistry for drug delivery, quantitative biochemistry, image processing, and applied engineering. Contact: Ms. Anna Browne at <abrowne@mit.edu> or x3-6273.

CABLE

Frequent schedule updates now appear on TechInfo. For more information about cable at MIT, call Randy Winchester at x3-7431, Rm 9-050, e-mail: <randy@mit.edu>. WorldWideWeb: <http://web.mit.edu/org/nmitcable/www/home.html>.

Oct 23: Channel 8: 11am-12:30pm—Live coverage of the EECS/RLE Optics and Quantum Electronics Seminar: "Wavelength Division Multiplexing in Long-Haul Transmission Systems," Neal Bergano, AT&T Laboratories. Channel 9: 5pm-2am—Repeat of above lecture (Bergano).

Oct 24: Channel 10: 4pm—Physics 8.01 Review Assignment #8 with Prof. Walter Lewin. This program will repeat every hour on the hour until 4pm, 10/31.

Oct 28: Channel 8: 4-5pm—Live coverage of the MIT-EECS Colloquium: "Approximate Signal Processing," Hamid Newab, Boston University, EECS. Channel 9: 5pm-2am—Repeat of above lecture (Newab).

Oct 29: Channel 8: 4-5:30pm—Live coverage of the MIT MTL VLSI Seminar: "DRAM Technology: 1 GBit and Beyond," Sam Shichijo,

Texas Instruments. Channel 9: 5:30-2am—Repeat of above lecture (Shichijo).

Oct 30: Channel 8: 11am-12:30pm—Live coverage of the EECS/RLE Optics and Quantum Electronics Seminar: "Trends in Ferroelectric Optical Devices," William Burns, Naval Research Laboratory. Channel 9: 5pm-2am—Repeat of above lecture (Burns).

Oct 31: Channel 10: 4pm—Physics 8.01 Review Assignment #9 with Prof. Walter Lewin. This program will repeat every hour on the hour until 4pm, 11/7.

MIT TECH TALK (USPS 002157)

October 23, 1996
Volume 41, Number 8

Publisher
KENNETH D. CAMPBELL
Editor for this issue
ALICE WAUGH
Photojournalist
DONNA COVENEY

News Office
Director: Kenneth D. Campbell; Assistant Directors: Donna Coveney, Kathleen M. Rowe, Elizabeth A. Thomson; Assistant Editor of Tech Talk: Alice C. Waugh; Administrative Assistant: Myles Crowley; Design/Editorial Assistant: Lisa Damtoft; Office Assistant, Mary Anne Hansen.

The Arts at MIT is produced by the Office of the Arts, Room E15-205, (617) 253-4003. Director of Arts Communication: Mary Haller; Administrative Staff Assistant: Lynn Heinemann.

News Office World Wide Web URL:
<http://web.mit.edu/newsoffice/www/>
Office of the Arts URL:
<http://web.mit.edu/arts/www/>

Tech Talk is published weekly except for most Monday-holiday weeks by the News Office, Room 5-111, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139-4307. Telephone: 617-253-2700.

Postmaster: Send address changes to Mail Services, Building WW15, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139-4307.

Tech Talk is distributed free to faculty and staff offices and residence halls. It is also available free in the News Office and the Information Center.

Domestic mail subscriptions are \$25 per year, non-refundable. Checks should be made payable to MIT and mailed to Business Manager, Room 5-111, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139-4307.

Periodical postage paid at Boston, MA.

Permission is granted to excerpt or reprint any material originated in Tech Talk. Selected articles that originated here are also available in TechInfo.



Printed on Recycled Paper

Crimewatch

The following incidents were reported to the MIT Campus Police between Oct 4-17:

Oct 4: duPont men's lockerroom, locker broken into and wallet stolen, \$80; Walker, radio stolen from kitchen, later recovered; E51 plaza, \$100 bike stolen; Bldg 3: hate incident; Bldg E40, suspicious activity; Burton, bike stolen, \$100.

Oct 5: Bldg 44, powerbook stolen, \$2,800; Networks, \$85 cash stolen.

Oct 7: 500 Memorial Dr., bike stolen from lounge, \$285; Student Ctr., watch stolen, \$15; Bldg 20, metal stolen, \$12,000.

Oct 8: Tang, malicious damage to a car; Student Ctr. Coop, shoplifting, \$500; Lobby 10, hate incident; 500 Memorial Dr., bike stolen from lounge, \$280; Westgate lot, car radio stolen, \$300.

Oct 9: Bldg 1, backpack stolen, \$1,150; Bldg 66, \$40 cash stolen; Student Ctr. steps, backpack stolen, \$850.

Oct 10: Tang, malicious damage to a vehicle; Bldg 4, tools stolen, \$200; Audrey St., 1) '87 Olds stolen; 2) '82 Toyota stolen.

Oct 11: Bldg 24, wallet stolen, later recovered minus \$17 cash; Bldg 14, vacuum, \$200; Bldg 8, laptop and computer components stolen, \$2,000; Pacific lot, three males arrested for receiving stolen property and other related charges; Killian Ct., past larceny of water coolers, \$300; Pierce Boat House, jackets stolen \$345; Bldg 3, persons living under stairwell.

Oct 12: Bldg 20, suspicious activity; off campus incident, 290 Mass. Ave. student assaulted by three males who fled scene.

Oct 13: Student Ctr., Athena cluster, jacket stolen, \$350; Faculty Club, 1) food stolen \$50; 2) suspicious person; Bldg 45 parking lot, hit and run property damage; East Campus, suspicious activity.

Oct 14: Bldg N52, unsecure door; Student Ctr., suspicious person.

Oct 15: Bldg E17, powerbook stolen, \$2,000; Bldg 14, 4 chairs stolen \$400; 33 Mass. Ave bike rack, \$250 bike stolen; Bldg N51, suspicious activity; Bldg 16, annoying e-mail message.

Oct 16: Bldg 66, suspicious person; Killian Hall, \$400 cash stolen; Bldg 20, metal stolen, \$3,000; N10 lot, malicious damage to a vehicle; Bldg E17, past larceny of a backpack, \$50.

Oct 17: Bldg 48, report of fight, two individuals were "wrestling" and sent on way; Bldg 8, wallet stolen, \$20 and contents; Bldg NW10, suspicious activity.

Federal research funding to climb 4% in fiscal '97

■ By Julie Raque
MIT Washington Office

Appropriations for federal research programs in fiscal 1997 were completed before the new fiscal year began on October 1, and total federal research and development increased 4.1 percent (\$2.9 billion) to \$74 billion compared to fiscal 1996, according to a preliminary analysis by the American Association for the Advancement of Science (AAAS).

However, the \$74 billion appropriation for R&D reflects a net loss due to inflation of 1.9 percent since fiscal 1994, the AAAS said. The only agencies to outpace inflation since then are the National Institutes of Health (NIH—up 10 percent beyond inflation) and the National Science Foundation (NSF—1.8 percent beyond inflation).

Congress acted on seven of the appropriations bills and wrapped the remaining six into an omnibus funding package which was signed into law by President Clinton on September 30.

Student aid wound up rising more than 20 percent, with Pell Grants increasing more than \$1 billion (\$230 each, up to a maximum of \$2,700). The much smaller Perkins loans and work-study programs were increased 57 percent and 35 percent, respectively.

Most major research agencies saw increases in their R&D funding—particularly the NIH, which received a 6.9 percent increase in overall funding, and the Department of Defense (DOD), which got a 4.9 percent boost. Only two agencies experienced R&D funding decreases: NASA (1.6 percent), and the Department of Interior (7.9 percent).

Non-defense R&D increased 2.7 percent to \$33.55 billion. The Clinton administration had requested \$34.47 billion; the 1996 base was \$32.67 billion, the AAAS said.

Federal support for basic research increased over 1996 levels. Basic research totals for 1997 are \$14.8 billion—up \$395 million or 2.7 percent. The final figure was \$125 million more than President Clinton requested. The lead agency for federal research support in the basic sciences is the NIH, followed by the NSF and the Department of Energy (DOE). It should be noted that even though the DOD experienced an increase in their overall R&D budget from 1996 levels, basic research within the department declined by 5 percent to \$1.1 billion.

DOE funding dropped \$40 million (2.6 percent), including an \$11 million (4.6 percent) decrease in funding for fusion energy research.

The AAAS reported that the Environmental Protection Agency and the Department of Commerce regained some financial support for R&D programs that were cut last year. The EPA saw an increase of \$593 million, or 12.3 percent, and the Commerce Department received an additional \$1.0 billion, including \$588 million for the National Institute for Standards and Technology budget, \$225 million for the Advanced Technology Program (planned for extinction in the budget resolution), and \$54.3 million for Sea Grant—for a total 7.7 percent increase.

Other budget highlights appear below. Details are available on the AAAS Web site at <<http://www.aaas.org/spp/dspp/rd/fy97.htm>>.

Federal Funding Comparison (dollars in millions)			
FUNDING AREA	Fiscal '96	Fiscal '97	Change
Department of Defense	35,142	37,441	+6.5%
Basic research (6.1)	1,133	1,112	-1.7%
Exploratory development (6.2)	2,862	2,989	+4.2%
University Research Initiative	220	220	+0.1%
Focused Research Initiative	8.7	0.0	-100%
DOE energy research	1,519	1,479	-2.6%
Biological and environmental	420	389	-7.3%
Fusion	244	233	-4.8%
Basic energy science*	792	650	*
Computational & tech. research*	-	154	*
University and science education	20	0	-100%
High-energy physics	667	670	+0.1%
Nuclear physics	305	316	+3.7%
NASA	13,904	13,704	-1.4%
Office of Space Science	2,033	1,857	-8.6%
NIH	11,928	12,747	+6.9%
NSF	3,220	3,270	+1.6%
Research and related activities	2,314	2,432	+5.1%
Major research equipment	70	80	+14.3%
Academic research infrastructure	100	0	-100%
Education and human resources	599	619	+3.3%
NOAA	1,859	1,919	+3.2%
NEH	110	110	0.0%
Student Aid			
Pell Grants**	4,914	5,919	+20.5%
Perkins Loans	113	178	+57.5%
Work-study	616	830	+34.7%
SEOG	583	583	0
SSIG	31	50	+61.3%
Graduate Education			
Javits Fellowships***	5.9	0	NA
GAANN	27.3	30	NA

* Funds previously provided in the Applied Mathematics and Advanced Energy Projects subprograms of the Basic Energy Sciences program were consolidated with funds from the Laboratory Technology Transfer program to create a new program called Computational and Technology Research.

** Pell maximums increased to \$2,700 (\$230 more per student than in fiscal '96)

*** Javits Fellowship program was merged into the GAANN program

Source—AAU reports

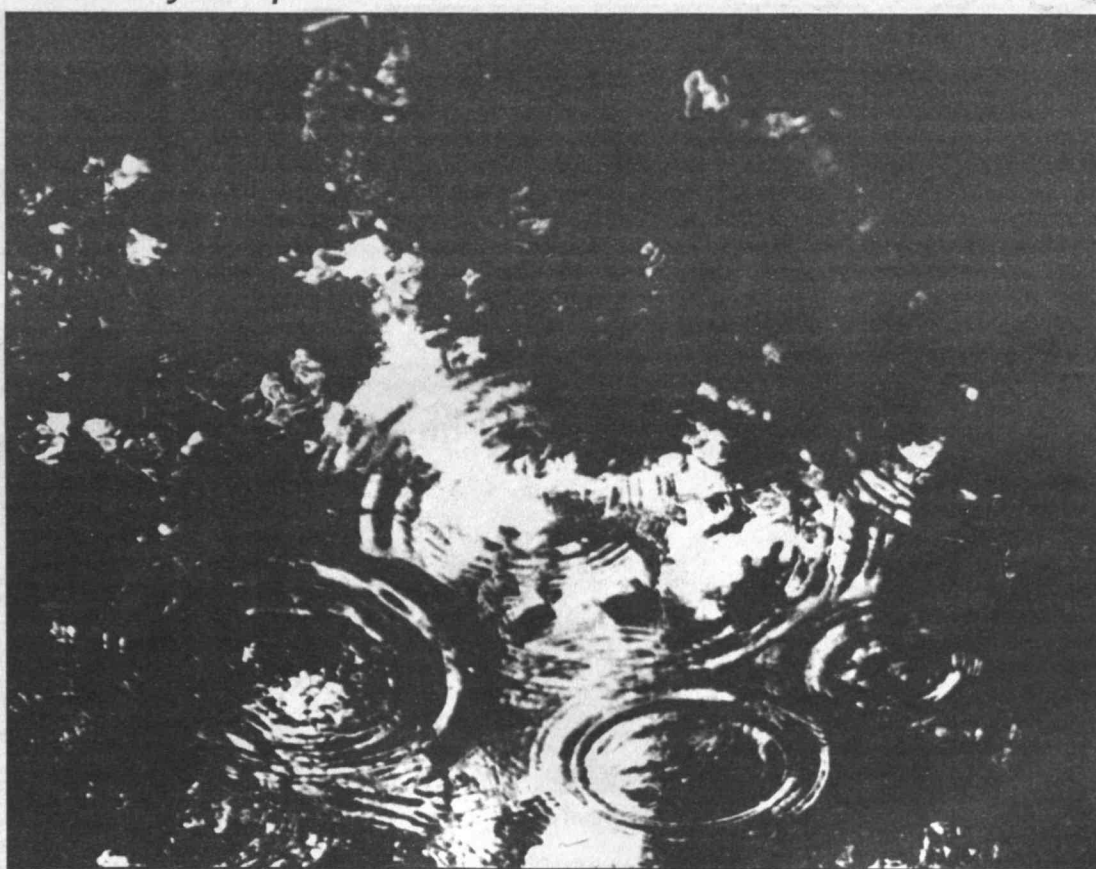
Sign-up time available for winter tennis

The J.B. Carr Tennis Facility (the "tennis bubble") opens on Monday, Oct. 28 for the indoor tennis season. Contract time is still available for most mornings, some evenings and weekends.

The cost for open time this season will be \$12 per hour in non-prime time

and \$22.50 per hour during prime time. The cost for contract time runs between \$10 and \$20 per hour. Anyone with questions or who wishes to purchase time may visit or call Merrilee Keller at the tennis bubble (x3-1451) from noon-5pm.

A steady drop



The week began with many scenes like these, the result of a drenching nor'easter that caused flooding problems at MIT and elsewhere (see story below).
Photo by Donna Coveney

Three at MIT elected to Institute of Medicine

(continued from page 1)
tional genetics and modern molecular biology, Dr. Fink has made major strides in understanding cell growth and metabolism in yeast, plants and mammalian cells.



Fink

Dr. Tannenbaum is professor of toxicology and chemistry and was recently named head of the Division of Toxicology (see story below).
The 1995 winner of the Nobel prize in chemistry for his research on damage to the ozone layer by man-made chemicals, Dr. Molina is a professor of chemistry and is also the Lee and Geraldine Martin

Professor of Environmental Studies in the Department of Earth, Atmospheric and Planetary Sciences. Work by him and others led to the banning of chlorofluorocarbons by the United Nations



Molina

in 1987. Professor Molina holds the chemical engineering degree (1965) from the Universidad Nacional Autonoma de Mexico, a post-graduate degree (1967) from the University of Freiburg in Germany, and the PhD (1972) from the University of California at Berkeley.

The 545-member IOM was chartered in 1970 as a component of the

National Academy of Sciences to enlist distinguished professionals in the examination of policy matters pertaining to the health of the public. It acts under both the Academy's 1863 congressional charter



Tannenbaum

responsibility to be an advisor to the federal government and its own initiative in identifying issues of medical care, research and education. Report topics in the past year included the physician workforce, primary health care, the scientific and public-policy feasibility of animal-to-human transplantation, Agent Orange and fetal alcohol syndrome.

Litster names Tannenbaum head of toxicology

Vice President and Dean of Research J. David Litster has named Professor Steven R. Tannenbaum to head the Toxicology Program in the Whitaker College of Health Sciences and Technology, succeeding Professor Gerald N. Wogan, who has retired.

Professor Tannenbaum, a member of the MIT faculty since 1964, also has been elected to the Institute of Medicine, it was announced last week (see story starting on page 1).

"I am delighted that Professor Tannenbaum has agreed to head this program, which is of great importance to human health and whose origins at MIT go back more than 100 years to the food spoilage and safe canning discoveries of William Lyman Underwood and Samuel C. Prescott," said Dr. Litster. "Professor Tannenbaum is a long-time scientific collaborator with Professor Wogan, and it is fitting that he should succeed Dr. Wogan, who since 1979 has led this division and its departmental predecessors."

"The Toxicology Program today focuses broadly on the influence of environmental substances, including chemicals and infectious agents, on cancer development. Some of our faculty are also interested in areas of pharmacology and drug development," Dr. Tannenbaum said.

"I see the future development of the program leading into the growing areas of interest in environmental health and bioengineering at MIT. Although the Toxicology Program does not offer an undergraduate degree, we see our-

selves contributing in the near future to an undergraduate minor in environmental health and in toxicology/pharmacology."

Dr. Tannenbaum, the author and editor of seven books and more than 300 publications, holds seven US patents in the field. He received the SB in food technology from MIT in 1958 and the PhD in food science and technology, with a minor in chemistry, from MIT in 1962. After a year as a research associate, he was appointed instructor in 1963, assistant professor in the De-

partment of Nutrition and Food Science in 1964, associate professor in 1969, and professor of food chemistry in 1974.

In 1981, he became professor of toxicology and food chemistry, and registration and admissions officer in the succeeding Department of Applied Biological Sciences. Since 1988, he has been professor of toxicology in the Division of Toxicology, where he also has served as registration and admissions officer, as well as professor of chemistry in the Department of Chemistry.

Flood hits lasers, other areas

The deluge of 1996—which flooded the Kenmore MBTA Station with 20 feet of water and disabled the Green Line—brought water into nearly every basement on the MIT campus. However, "compared to the rest of the world, we were in pretty good shape," said Director of Physical Plant Victoria Sirianni after a weekend which saw every MIT plumber, heat/vent mechanic and electrician called in to handle emergencies.

The worst problems were in Building 2, where a small flood and steam left the equipment and walls of a basement laser lab "as wet as a rain forest," and Building 48, where a flood in the steam manhole caused steam to enter the building, peel paint and melt the seals of the elevator's hydraulic system. The resulting four-inch flood of

water and hydraulic oil required cleanup by an environmental waste firm, said Joseph Gifun, manager for building maintenance.

East Campus also had extensive flooding, as did the swimming pool's mechanical room, which forced closure of the pool for a few hours.

The flooding at MIT caused no injury to people or animals. However, damage and cleanup will cost over \$1 million, some of which will be covered by insurance, Mr. Gifun said.

The damage in the Parsons Laboratory, Building 48, included a computer room, storage room, and two labs with lasers and other expensive equipment, a facilities manager said. The cleanup will take about a week, after which it will be determined how much equipment is salvageable.

Institute Calendar

* -Open to public
** -Open to MIT community only
*** -Open to members only

October 23 - November 3

■ SPECIAL INTEREST

Racism in the Arts*—Oct 23: With George Takei, actor and activist. Mr. Takei joins a multiethnic panel of MIT students and faculty in examining minority representation and racism in television, film and theater over the past 30 years. Moderator: Henry Jenkins. Sponsored by the Office of the Arts, The Dean of School of Humanities and Social Sciences, The Graduate School, The Office of Undergraduate Education and Student Affairs. 8pm, Kresge Auditorium. x3-4003

Government, the Media, and Scientific Misconduct: The David Baltimore Case in American Political Culture*—Oct 28: By Dan Kevles, California Institute of Technology. Respondents: David Baltimore, MIT; Victor McElheny, Knight Fellows Program, MIT; Malcolm Gladwell, The New Yorker. Colloquium sponsored by the Program in Science, Technology, and Society, MIT, and the History of Science Department, Harvard Univ. 4pm, Rm E51-115 (Wong Auditorium). More info: x3-3452 or cstsprogram@mit.edu.

Noble Science/Nobel Lust: Revealing Tribal Secrets*—Oct. 29: By Dr. Carl Djerassi, Professor of Chemistry, Stanford Univ. Respondents: Prof. Albert Meyer, MIT; Prof. Jonathan King, MIT. Moderator: Dr. Caroline Whitbeck, MIT. Introductory remarks: Prof. Ike Colbert, MIT. Co-sponsored by the Technology and Culture Forum at MIT, the Graduate Student Council, MIT's Women Studies and the Office of Graduate Education. 7:30pm, Rm 10-250. More info: x3-0108 or <http://web.mit.edu/tac/www/home.html>.

Research Laboratory for Electronics 50th Anniversary Celebration*—Nov 1: Poster session, tours, open house, 1-5pm, Rm 34-401, Compton Gallery exhibit and opening reception, 5:30-8pm, lobby of Bldg 13/Compton Gallery. Nov 2: Technical talks by Dennis Freeman, James G. Fujimoto, John D. Joannopoulos, Marc A. Kastner, Wolfgang Ketterle and Gregory Wornell, 10am-1:15pm. Plenary talks: President Charles Vest, 2:30pm; James Burke, 4pm. All talks Bldg E51, Tang Center. Nov 1 events and technical talks free and open to public on a space available basis. Registration for the symposium is \$100. More info: <http://rleweb.mit.edu/rle50th.htm> or call x3-4653.

■ SEMINARS & LECTURES

WEDNESDAY, OCTOBER 23

Wavelength Division Multiplexing in Long-Haul Transmission Systems*—Neal Bergano, AT&T Laboratories. EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B (Grier Room B). More info: x3-8504.

Keeping the Peace in Africa*—Kevin O'Prey, DFI. Defense and Arms Control Studies Program Seminar, 12-1:30pm, Rm E38-615. Bring a bag lunch; refreshments provided.

Problems in Electrical Recording of Single Units in the Nervous System*—Prof. Jerome Y. Lettvin, MIT. Center for Biological and Computational Learning Seminar, 12-1pm, Rm E25-401.

The Island Rule*—Joe Pedlosky, Woods Hole Oceanographic Institution. Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

Time Series Analysis of Climate Data*—Dr. David J. Thomson, Bell Laboratories. The Houghton Lectures, sponsored by the Center for Meteorology and Physical Oceanography. 5th of 8 lectures: Global Climate Example. Lectures will be held Wednesdays and Fridays, 2-3:30pm, Rm 54-325.

Development of Polybenzoxazines: A New Class of Very Versatile, High Performance, Ring-Opening Phenolic Resins that Expand Upon Polymerization*—Prof. Hatsua Ishida, Case Western Univ. Polymer Seminar sponsored by the Program in Polymer Science and Technology, 3:30pm, Rm 37-252. Refreshments. More info: <rutledge@mit.edu>.

What's Happening With the Churches in Cuba?*—Sergio Arce, former president of the Protestant seminary in Cuba. Reception, 3:30-4:45pm, Building W11; sermon to follow. More info: x3-2325.

Valuation of Surplus Weapons-Grade Plutonium Using Derivative Theory*—Kory Budlong Sylvester, PhD candidate, MIT. Doctoral Seminar in Nuclear Engineering, 3:45pm, Rm NW12-222.

What's the Matter with Frontal Analysis?*—Frederick Sanders, Professor Emeritus,

Dept. of Meteorology and Physical Oceanography, MIT. Eighteenth Annual Victor Paul Starr Memorial Lecture sponsored by the Center for Meteorology and Physical Oceanography, 4pm, Rm E25-111. Reception following, Rm 54-923.

Genetic Analysis of Two Co-existing Prochlorococci*—Gabrielle Rocap, G. Environmental/Aquatic Sciences Seminar, MIT Parsons Laboratory, 4pm, Rm 48-316. More info: Jannie x8-5554 or <janiscka@mit.edu>.

The Relation of Edge Confinement to Global Confinement in ASDEX Upgrade*—Dr. C.S. Pitcher, MIT. Joint Plasma Fusion Center/Physics Department Seminar, 4pm, Rm NW17-218.

Racism in the Arts*—George Takei, actor and activist. See listing under Special Interest, above.

THURSDAY, OCTOBER 24

Real-Time Optimization of Dynamic Resource Allocation Problems*—Warren Powell, Dept. of Civil Engineering and Operations Research, Princeton Univ. Operations Research Center Seminar, 4-5pm, Rm E40-298. Refreshments follow, Rm E40-106. More info: see <http://web.mit.edu/orc/www> or call x3-6185.

FRIDAY, OCTOBER 25

Time Series Analysis of Climate Data*—Dr. David J. Thomson, Bell Laboratories. The Houghton Lectures, sponsored by the Center for Meteorology and Physical Oceanography. 6th of 8 lectures: Estimation of Relationships between Series. Lectures will be held Wednesdays and Fridays, 2-3:30pm, Rm 54-325.

Cell Adhesion to Biomaterial Surfaces Under Well-Defined Flow Conditions*—Stuart Cooper, Univ. of DE. Dept of Chemical Engineering Seminar, 3pm, Rm 66-110. Reception, 2:45pm.

Water in the Oceanic Mantle: Implications for Rheology, Melt Extraction and the Formation of the Lithosphere*—Dr. Greg Hirth, Woods Hole Oceanographic Institution. Sponsored by the Dept. of Earth, Atmospheric and Planetary Science, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

Stellarators*—Prof. Alan Boozer, Columbia Univ. Plasma Fusion Center Seminar, 4pm, Rm NW17-218.

Surface Perception*—Fifth Hans-Lukas Teuber Symposium featuring 28 speakers from MIT's Dept. of Brain and Cognitive Sciences and other institutions from the fields of psychophysics, neurophysiology and computation. Sponsored by The Hans-Lukas Teuber Memorial Fund. Friday-Saturday: Fri 5-7pm, Sat/Sun 9am-6pm. Bldg E25-111. Registration required. More info: x8-9481, <cooper@psyche.mit.edu>, <http://www-bcs.mit.edu:8080/teuber/>.

SATURDAY, OCTOBER 26

Surface Perception*—Fifth Hans-Lukas Teuber Symposium. See listing for October 25.

SUNDAY, OCTOBER 27

Surface Perception*—Fifth Hans-Lukas Teuber Symposium. See listing for October 25.

MONDAY, OCTOBER 28

Accelerator Production and Separation of Tc-99m*—Dr. Ralph Bennett, Idaho National Engineering Laboratory. Department of Nuclear Engineering/American Nuclear Society Student Chapter Seminar, 3:30pm, Rm NW12-222. Refreshments, 3pm.

Approximate Signal Processing*—Hamid Nawab, Electrical and Computer Engineering, Boston Univ. MIT-EECS Colloquium, 4-5pm, Rm 34-101. Refreshments, 3:45pm.

Fly Higher: Fluid and Thermal Design of a Lightweight, Low-Drag Heat Exchanger for High Altitude Unmanned Aircraft*—Dr. Jerry Martin, Creare, Inc., Hanover, NH. Mechanical Engineering Fluid Mechanics Seminar Series, 4-5pm, Rm 5-234. More info x3-5365.

Government, the Media, and Scientific Misconduct: The David Baltimore Case in American Political Culture*—See listing under Special Interest, above.

A Multidisciplinary, Multiscale Investigation of Fluid Flow and Solute Transport in Fractured Crystalline Rocks: Findings from the Mirror Lake Site, NH*—Dr. Paul Hsieh, USGS, Menlo Park, CA. Dept of Civil and Environmental Engineering Water Resources & Environmental Engineering Seminar, 4pm, Rm 48-316. More info: Janni x8-5554.

Organized Islam in Europe: Changing Boundaries of Claims-Making and Participation*—Yasemin Soyas, Dept. of Sociology, Harvard Univ. Inter-University Seminar on International Migration, CIS, 4:30-

AAC announces new chair, members

The Administrative Advisory Committee, a group formed in 1988 to address issues and concerns that are common to administrative officers (AOs), has announced five new members and a new chair.

The AAC is composed of 13 members—10 administrative officers from departments, labs and centers, and three administrators from central administrative offices. Its missions are:

- To act as a liaison between the central administration and departments to discuss issues and recommend solutions.
- To serve as a resource for individuals or organizations in the development of new initiatives or policies.
- To provide training and networking opportunities to the administrative community at MIT through the AAC Forum series, which this year features discussions on topics such as reengineering, managing change, and access and disability.

The newest members are Roni Dudley-Cowans, AO, Division of Toxicology; Susan Guralnik, AO, Department of Electrical Engineering and

Computer Science; Thomas Mullins, assistant director for administration and finance, Information Systems; John Politano, AO, Center for Space Research; and Robert Slauzis, budget officer, Office of Budget and Financial Planning. Judith Stein, AO for the Program in Science, Technology, and Society and the Anthropology Program, is the current chair of the AAC, which reports to Senior Vice President William R. Dickson. She replaces Rebecca Chamberlain, AO for the Department of Architecture.

Known for the Forum Series, the AAC also meets with individuals and organizations across the Institute. The group has met with representatives from Purchasing, Campus Police, Information Systems and numerous reengineering teams. AAC members believe that proposed procedures that are reviewed by end users (such as themselves) during their development are more smoothly implemented.

In 1994 the AAC established an administrative e-mail list called AO Query as a vehicle to solicit advice and

disseminate information to the administrative officer community. AO Query has been used by Physical Plant, Campus Police, the Office of Sponsored Programs and people posting job notifications, soliciting advice or selling equipment. The list is geared for administrative officers but is open to anyone at the Institute interested in administrative issues. For more information or guidelines on posting to AO Query, contact Paulette Mosley at <pmosley@mit.edu>.

Continuing members of the AAC are: Laura Capone, project administrator, FAST Student Services; Agnes Chow, administrative officer, Center for Technology, Policy and Industrial Development; Robin Elices, administrative officer, Department of Earth, Atmospheric and Planetary Sciences; Marc Jones, administrative officer, Department of Chemistry; Ms. Mosley, AO, Operations Research Center; Elizabeth Ogar, director for Finance and Administration, Resource Develop-

(continued on page 7)

6pm, Rm E38-714. More info: x3-3121.

The Politics of Denial*—Michael Milburn and Sheree Conrad, psychologists, UMass professors and authors of *The Politics of Denial*. Part of the reading series "authors@mit.edu," sponsored by MIT Press Bookstore, MIT Humanities, & Dewey Libraries, 7:30pm, Killian Hall.

TUESDAY, OCTOBER 29

On the Homocentric Spheres of Eudoxus: Simulations and Reinterpretations*—Ido Yavetz, Tel Aviv University, Israel. Dibner Institute Tuesday Luncheon Colloquium, 12-2pm, Rm E56-100. If you plan to attend, please call x3-6989 or contact <dibner@mit.edu>.

DRAM Technology: 1 Gbit and Beyond*—Sam Shichijo, Texas Instrument, Inc., Dallas, TX. MTL VLSI Seminar Series, 4pm, Rm 34-101. Refreshments, 3:30pm. More info: x3-4799.

MAP Kinases and the Control of Cell Cycle Entry*—Jacques Pouyssegur, Whitehead Institute. Sponsored by the Dept of Biology, 4:15pm, Rm 10-250. More info: x3-4701.

Democratization in the Arab World: Is There a Future?*—Dr. Yahya Sadowski, Brookings Institution. Emile Bustani Middle East Seminar, 4:30pm, Rm E51-095. Contact: Gabi Glatkauskas, x3-8961 or <gagib@mit.edu>.

Noble Science/Nobel Lust: Revealing Tribal Secrets*—Dr. Carl Djerassi, Professor of Chemistry, Stanford Univ. See listing under Special Interest, above.

WEDNESDAY, OCTOBER 30

Trends in Ferroelectric Optical Devices*—William Burns, Naval Research Laboratory. EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B (Grier Room B). More info: x3-8504.

US Policies Toward 'Rogue States'*—Robert Litwak, Director, International Studies, Woodrow Wilson Center, Smithsonian Institution. Defense and Arms Control Studies Program Seminar, 12-1:30pm, Rm E38-615. Bring a bag lunch, refreshments provided.

Time Series Analysis of Climate Data*—Dr. David J. Thomson, Bell Laboratories. The Houghton Lectures, sponsored by the Center for Meteorology and Physical Oceanography. 7th of 8 lectures: Statistical Properties of Climate and Solar Proxy Series. Lectures will be held Wednesdays and Fridays, 2-3:30pm, Rm 54-325.

Recent Advances in the Theory of Proteins and Heteropolymeric Gels: Kinetics*—Prof. Alexander Grossberg, MIT. Polymer Seminar sponsored by the Program in Polymer Science and Technology, 3:30pm, Rm 37-252. Refreshments. More info: <rutledge@mit.edu>.

Computer Simulations of the Earth's Magnetic Field and Inner Core Rotation*—Dr. Gary Glatzmaier, Los Alamos National Laboratory. Sponsored by the Dept. of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

PAHs at a Coal Tar Site*—Allison Mackay, G. Environmental/Aquatic Sciences Seminar, Parsons Laboratory, 4pm, Rm 48-316. More info: Janni, x8-5554 or <janiscka@mit.edu>.

THURSDAY, OCTOBER 31

Production Entry Strategies in Developing Countries: The Special Case of China*—Ann Gray, Harvard Business School. Operations Research Center Seminar, 4-5pm, Rm E40-298. Refreshments follow, Rm E40-106. More info: see <http://web.mit.edu/orc/www> or call x3-6185.

FRIDAY, NOVEMBER 1

Research Laboratory for Electronics 50th Anniversary Celebration*—See listing under Special Interest, above.

Time Series Analysis of Climate Data*—Dr. David J. Thomson, Bell Laboratories. The Houghton Lectures, sponsored by the Center for Meteorology and Physical Oceanography. Last of 8 lectures: Persistence in Temperature Series. Lectures will be held Wednesdays and Fridays, 2-3:30pm, Rm 54-325.

Model for the Period and Amplitude of Sawtooth: Open Problems*—Dr. Franco Porcelli, Poytecnico of Turin. Plasma Fusion Center Seminar, 4pm, Rm NW17-218.

Yellowstone and the Western US: Plate Tectonics and non-Plate Tectonics*—Dr. Eugene Humphreys, Univ. of OR. Sponsored by the Dept. of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

Why Can't You Learn Chinese in a Day?*—Seymour Papert, MIT. Perspectives Series lecture sponsored by the MIT Media Laboratory, 5pm, Rm E15-070 (Bartos Theater).

SATURDAY, NOVEMBER 2

Building Your Team: Formulas for Success*—MIT Enterprise Forum's Fall Workshop, 7:15am-6pm, Kresge Auditorium. Registration: \$175/forum members, \$195/non-members. More info: 1-800-221-2333.

Research Laboratory for Electronics 50th Anniversary Celebration*—See listing under Special Interest, above.

■ COMMUNITY CALENDAR

CPR Course**—Oct 26: Section A, 9am-3pm. Nov 9: Section B, 9am-3pm. \$50, limited enrollment, preregistration required. Sponsored by the Medical Dept. More info: x3-1316.

Family Resource Center Seminars*—Oct 25: Raising Children in a Violent World, 12-1:30pm, Rm E19-220. Oct 29: New Insights About Fathering, 12-1:30pm, Rm 10-105. Sponsored by the MIT Family Resource Center. Preregistration requested, call x3-1592.

Health Education Free Friday Workshops**—Oct 25: Health Applications of Biofeedback, 12-1pm, Rm E23-297. Nov 1: Advanced Applications of Biofeedback in Behavioral Medicine, 12-1pm, Rm E23-297. Sponsored by the Medical Dept. More info: x3-1316.

Health Education Stress Reducers**—Oct 23-Dec 18: Yoga, 8 sessions, 5:30-6:30pm Wednesdays, \$70 (MIT Health Plans, students, and retirees \$65). Oct 24-Dec 19: Intermediate Tai Chi, 8 sessions, 5:30-6:30pm Thursdays, \$70 (MIT Health Plans, students, and retirees \$65). Oct 29—Nov 19: Stress Reduction for Women Graduate Students, 4 sessions, Bush Room, free, preregistration preferred. Oct 31-Dec 12: Manage Your Stress!, 6 sessions, 6-7:30pm Thursdays, \$50 (MIT Health Plans, students, and retirees \$45). Nov 8-Dec 20: Friday Noon Cool-Down: The Feldenkrais Method, 6 sessions, 12-1pm Fridays, \$50 (MIT Health Plans, students, and retirees \$45). Preregistration required. Sponsored by the MIT Medical Dept. More info: x3-1316.

Health Education Workshops for Parents and Parents-To-Be**—Oct 23: Healthful Eating for Infants and Toddlers. Oct 30: Babies are Smarter Than You Think. All sessions 12-1pm, Rm E23-297. Children welcome, no preregistration necessary, sessions are free. Sponsored by the MIT Medical Dept. More info: x3-1316.

Infant-Toddler Child Care Briefings**—Oct 23: Introductory discussions for expectant parents and those new to parenting or child care, covering types of care, costs, finding and evaluation care, and parental leave. Sponsored by the Family Resource Center, 12-1:30pm, Rm 4-144. Preregistration required, call x3-1592.

Informal Needlework Group**—Sponsored by the MIT Women's League, 10:30am-1:30pm, Rm 10-340 (Emma Rogers Room). Upcoming meetings: Nov 6, 20, Dec 4, 18, Jan 15.

Libraries Booksale at Rotch Library**—Oct 24: Art, architecture, urban planning and many social science books at reasonable prices, 10am-3pm, Rm 7-238. Proceeds benefit the Library Preservation Fund. Open to the MIT Community only, ID required. Sponsored by the Gifts Office, x3-5693.

MIT Pistol & Rifle Club, Basic Pistol Marksmanship Course*—Starts Nov 6, 4 nights: Nov 6, 7, 14, 15, 6-9pm. DuPont pistol range. Course covers safe handling, storage and use of firearms, as well as developing marksmanship skills to meet local police department requirements for pistol permits. Fee \$50, \$10 deposit. Info/registration: Valerie Lowe, Draper x8-4769 or <vlowe@draper.com>.

Repetitive Strain Injuries (RSI) Series**—Free, no preregistration necessary, 12-1pm, Rm E25-111. Oct 25: Session 2: Proper Adjustment of a Computer Workstation. Nov 1: Session 3: Occupational Therapy and RSI: Prevention and Treatment. Nov 8: Session 4: A Discussion of Appropriate Adaptive Equipment and Workers' Compensation. Sponsored by the MIT Medical Dept. More info: x3-1316.

User Groups and Quick Start Classes**—Oct 23: World Wide Web Quick Start, 12-1pm, Rm E40-302. Oct 24: CWIS Publishers User Group, 12-1:30pm, Rm E40-302. Oct 25: FileMaker Pro Quick Start, 12-1:15pm, Rm 11-206. All events free. Sponsored by Information Systems. Oct 28: HTML Demo, 9am-12pm, Rm E40-302. Oct 29: Windows 95 Quick Start, 12-1pm, Rm E40-302.

■ SOCIAL ACTIVITIES

MIT Ballroom Dance Club Halloween Dance*—Oct 26: 8pm - midnight, Morriss Hall, Walker Memorial. \$4/members, \$6/non-members. No partner necessary. Costumes encouraged! Mini merengue lesson at 10:30. More information: x8-6554.

■ MOVIES

Admission to below Lecture Series Committee Movies is \$2.00, and MIT or Wellesley identification is required. For the latest Lecture Series Committee movie and lecture information, call the LSC Movieline, x8-8881, or check TechInfo or the Web.

Oct 25: Shanghai Triad, 7 & 10pm, Rm 26-100; Fellini Satyricon, 7:30pm, Rm 10-250. Oct 26: The Craft, 7 & 10pm, Rm 26-100. Oct 27: The Dark Crystal, 7 & 10pm, Rm 26-100. Nov 1: The Phantom, 7 & 10pm, Rm 26-100. Mr. Smith Goes to Washington, 7:30pm, Rm 10-250. Nov 2: Muppet Treasure Island, 3, 7, 10pm, Rm 26-100.

Next deadline for listings: 12 noon Friday, October 25. Covers events from Wednesday, October 30 through Sunday, November 10. Listings for the Institute Calendar and Student Notices may be e-mailed to <tcalendar@mit.edu> or mailed to Calendar Editor, Rm 5-111. Faxes are not accepted. Early submissions encouraged.

Arts Calendar:
see page 7

New freshman program encourages unity and diversity

■ By Kathleen Rowe
News Office

Five days before this year's freshman orientation began, 85 freshmen from all over the country gathered at MIT to participate in the Freshman Leadership Program, a student-developed pilot program that aims to build leadership skills for first-year students.

The program, which was held in Rindge, NH, gave students the chance to meet each other before the hectic residence/orientation period, according to Pardis Sabeti, the program's developer and coordinator, a senior in biology and president of her class.

Focusing on diversity issues, the program took students through exercises to encourage discussion of race and gender with upperclass counselors serving as facilitators. Discussions were interspersed with singalongs, a talent show and games.

"The upperclass counselors quickly made the incoming students feel safe enough to be who they are—to be themselves," said Dean for Student Life Margaret Bates in the Office of Undergraduate Education and Student Affairs.

"Freshmen here may not get an ex-

tensive experience across a diverse group," Ms. Sabeti said. The early self-selection of housing limits a freshman's ability to affiliate with the whole freshman class, she said. A paper she wrote for 11.023 (Bridging Cultural and Racial Differences) entitled "The Effects of the Current Housing System on the Quality of MIT Student Life" was the foundation for the Freshman Leadership Program.

"This is an excellent example of students shaping the kind of community they want to live in," Ms. Bates said.

Ms. Sabeti explained that many students come to MIT looking to create a new identity for themselves. However, "within a few days [of their arrival], they're judged. That follows them through their four years here. Three years later, some of them still talk with bitterness about that." Consequently, one of the goals of the Freshman Leadership Program is to offer a more unity-oriented introduction to MIT.

Many of the activities encouraged the students to look at relationships with others in new ways. In one exercise called the "privilege line," students took either a step forward or backward depending on their back-



In a teamwork exercise during the Freshman Leadership Program, 10 students had to stand on one piece of paper and sing "Row, Row Row Your Boat." Photo by Mark Eichler '97

Notes from the Lab

STUDYING COASTAL WATERS WITH NEW TOOLS

The dynamic flow of some coastal waters makes them very hard to study. Teams of ocean researchers brought new oceanographic tools to bear on the problem last June in the Haro Strait off Vancouver Island. These tools included moored buoys and robotic submarines, all of which used sound pulses to explore and communicate.

The researchers mapped rapidly changing currents and demonstrated acoustic communications in a network and from vehicles to the network as well as controlling the vehicles with sound. The experiment also established pioneering procedures for monitoring the effect of underwater sound on the area's marine mammals, ensuring that they were undisturbed by the experiment.

The researchers are from MIT, the Woods Hole Oceanographic Institution, the Institute of Ocean Sciences, and the University of Victoria, BC. Professor Henrik Schmidt of the Department of Ocean Engineering led the MIT and WHOI program; David Farmer headed the IOS team. James Bellingham, manager of the MIT Sea Grant Autonomous Underwater Vehicles Laboratory, led underwater vehicle operations. Funding was from the Office of Naval Research, the MIT Sea Grant College Program, the National Ocean and Atmospheric Administration and the NSF. For more information, see MIT Tech Talk, September 15, 1996. (Source: Carolyn Levi, MIT Sea Grant).

LOOKING AT POLLUTANTS IN GROUNDWATER

In work that could lead to better ways of cleaning up certain pollutants from groundwater, MIT researchers are looking at the interactions between those pollutants and the soils and water through which they move.

Groundwater contaminants like carbon tetrachloride that are in the form of nonaqueous phase liquids (NAPLs) are extremely challenging to clean up, because the behavior of NAPLs in the subsurface is very complex. Researchers led by Professor Patricia Culligan-Hensley of the Department of Civil and Environmental Engineering are exploring that behavior via several different projects.

In one, they are investigating how dense NAPLs migrate in bedrock systems. When such an NAPL enters the subsurface and falls under its own weight to an impermeable barrier such as bedrock, it will have enough force to actually push itself into fractures in the rock, where it becomes difficult to detect and to predict where it might move next. Using a special centrifuge to model the problem, the researchers are looking at how the NAPL moves into the fracture system under different gravitational forces. The work is sponsored by the EPA's Northeast Hazardous Substance Research Center. (Source: Debbie Levey, Civil and Environmental Engineering at MIT).



Dr. Patricia Culligan-Hensley with a new state-of-the-art centrifuge she will use to study groundwater pollutants.

Photo by Donna Coveney

This column features summaries of MIT research drawn from several sources. If you have an item to suggest, send it to Elizabeth Thomson, News Office assistant director for science and engineering news, Rm 5-111, or <thomson@mit.edu>.

ground as they were asked questions. For example, "If your parents have received a college education, take a step forward. If English was not your first language, take a step backward. If you studied your culture in school, take a step forward. If more than 50 percent



Sabeti

of your school was a different race or culture than you, take a step backward." When students ended up in vastly different places, they then discussed how they felt about their new position on the line and whether it affected their ability to achieve the "American Dream."

While she did not feel MIT was particularly segregated, Elsie Huang, a freshman from West Lafayette, IN, said she thought the Freshman Leadership Program will have an impact on how the class of 2000 will interact. "We were able to see how things were before being separated by the river and a

little by race. We need to have class unity," she said. Ms. Huang, along with Aron Qasba, successfully ran together for freshman class social chair.

ELECTION RESULTS

Although it's too early to tell whether the program will have long-term success, participants were well represented in the recent class election, as about three-quarters of the candidates and the majority of the victors took part. A total of 120 students applied for the program, which was supported through fees paid by

the students and by the Committee on Race Relations. Applications were mailed to students over the summer, and financial aid was offered to those who needed it.

On the program's last night, the students gathered in a circle, each holding part of a long string. They described what they got out of the program and cut a piece of the string to keep as a reminder of what they had learned. Several of them still wear that string, a symbol of the connection to the classmates they met and learned with in their first few days at MIT.

Talk on fathering slated

"New Insights About Fathering" will be presented Tuesday, Oct. 29, from noon-1:30pm in the Bush Room (10-105) by William S. Pollack, co-author of the acclaimed book, *In a Time of Fallen Heroes*.

Dr. Pollack will discuss recent research findings about the challenges facing fathers and couples today, the

changes in family and work life creating those challenges, and ways to manage them.

The seminar, which is appropriate for both men and women, is open to the public and free of charge. For further information, contact the MIT Family Resource Center, Rm 4-144, x3-1592, <frcenter@mit.edu>.

Statement of Ownership, Management and Circulation

Required by 39 U.S.C. 3685

1. Title of Publication: Tech Talk

2. Publication No.: 002157

3. Date of Filing: October 1, 1996

4. Frequency of Issue: Weekly except only 4 times in October and April; 3 times in September, November, January, February, March and May; 2 times in December and June; and once in July and August

5. No. of Issues Published Annually: 32

6. Annual Subscription Price: \$25

7. Complete Mailing Address of Known Office of Publication: Room 5-111, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307

8. Complete Mailing Address of the Headquarters or General Business Offices of the Publisher: Room 5-111, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307

9. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor:

Publisher: Kenneth D. Campbell, Room 5-111, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307

Editor: Position vacant

Managing Editor: N/A

10. Owner: Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: None

12. The purpose, function and nonprofit status of this organization and the exempt status for Federal income tax purposes has not changed during the preceding 12 months.

13. Publication Name: Tech Talk

14. Issue Date for Circulation Data Below: 9/11/96

15. Extent and nature of circulation:

	Avg. No. Copies each issue during preceding 12 months	Actual No. copies of single issue nearest to filing date
a. Total number of copies printed (Net Press Run)	20,100	18,655
b. Paid Circulation		
1. Sales through dealers and carriers street vendors and counter sales	N/A	N/A
2. Mail subscriptions	670	740
c. Total paid circulation	670	740
d. Free distribution by mail, carrier or other means: samples complimentary, and other free copies	3,130	3,615
e. Free distribution outside the mail: carriers or other means	16,200	14,200
f. Total Free Distribution (sum of 15d and 15e)	19,330	17,815
g. Total Distribution (sum of 15c and 15f)	20,000	18,555
h. Copies not distributed		
1. Office use, left over, spoiled	100	100
2. Returns from news agents	0	0
i. Total (sum of 15g, 15h(1) and 15h(2))	20,100	18,655
Percent paid and/or requested circ.	3.3%	3.9%

16. This statement of ownership will be printed in the 10/9 or 10/23 issue of this publication

17. Signature and title of editor, publisher, business manager or owner

KENNETH D. CAMPBELL, Publisher

Classified Ads

Tech Talk ads are intended for personal and private transactions between members of the MIT community and are not available for commercial use. The Tech Talk staff reserves the right to edit ads and to reject those it deems inappropriate.

INSTRUCTIONS: Ads are limited to one (of about 30 words) per issue and may not be repeated in successive issues. Ads may be resubmitted after skipping a week. Ads/renewals are not accepted via telephone or fax. All must be accompanied by full name and extension (or proof of MIT affiliation).

• E-mail address (return address must be mit.edu): <ttads@mit.edu>
• Interdepartmental/Walk-in address: Calendar Editor, Rm 5-111.

Please note that all Tech Talk ads are provided to TechInfo on the date of publication, which makes them accessible world-wide via the Internet.

All extensions listed below are campus numbers unless otherwise specified, i.e., Dorm, Lincoln, Draper, etc.

MIT-owned equipment may be disposed of through the Property Office.

Deadline is noon Friday before publication.

FOR SALE

Star Wars "baseball card" sets, Star Wars comics, WWII aviators patch. Call 247-0197.

Sofa bed, \$600 or bst. and upholstered chair, \$90, both exc cond. Call 508-263-5655 or e-mail <edwards@ll.mit.edu>.

F-sz mattress & boxspring, exc cond, incl steel frame, \$200; Hunter ceiling fan, antique brass & wood, orig \$65, ask \$40. Call 647-3372.

Evenflo Ultrara I car seat, converts infant/toddler, \$45; Kolcraft umbrella stroller w/canopy, \$18; MagMag AC/DC breast pump, \$22; all exc cond. Contact <derienzo@mit.edu> or call x3-7443.

IBM OS/2 Warp ver. 4, voice type navigation & dictation, object oriented, runs Java natively, \$100. Hareendra Yalamanchili <hyalaman@mit.edu>, 225-9544.

Boys' hockey skates, sz 1, new cond, new \$55, sell for \$20; table top air hockey, \$10; Pro Form deluxe treadmill, new \$450, sell for \$200, deliv poss. Don, Haystack x5457 or pager 617-882-1348.

PowerClass Motorola 28.8 data/fax modem, V.34 desktop modem for Mac, 6 mos old, \$225 negot), software & communication tool kit included. Nick x3-5353 or <mickn@mit.edu>.

2-pedestal oak veneer desk, \$200; child's bed w/6 drawers, \$150; child's desk chair, \$25; Imagewriter (needs print head), \$125; Jacobsen 3hp snow-blower, \$200. Contact <golay@mit.edu>.

Hewlett Packard DeskJet 600C Color Inkjet printer for IBM compat, hardly used, 5 mos old, \$180 or bst; hwd kitchen cart w/drawer, cabinet, \$180; Wood desk, \$25. Don x3-1552 (w) or 625-7427 (h).

10 channel cordless phone ATT, \$50 (orig \$100); walkman, \$20; portable CD player discman, \$50; mini desk speakers, \$6. Call x5-9891.

PhoneMate answering machine, \$20. E-mail <nsrugs@mit.edu>, call 266-3208.

Skis/boots for sale: K2 skis, 170cm w/Salomon bindings; Nordica W's boots, sz 8 1/2; both ~6 yrs old and in good shape, great for beginner/intermediate skier. Call 924-7489.

Many pairs of tickets for sale to Celtics games, Oct. 23 - Apr. 20. Steve x3-8946 or <steve@psyche.mit.edu>.

Ten year old 19" color TV, \$75 or bst; Oriental rug, gd cond, \$20 or bst. Call x8-5664.

Turkey/roasting pan, exc for cooking your Thanksgiving turkey, hvy duty blue enamel w/cover, 17"x12" oval, gd cond, \$10; Sunbeam roset skillet, temp-contr, 10"x10", exc cond, \$10. Rosalie 776-3748.

GE almond refrigerator, \$150; Kenmore apt-sz dryer, white, \$125. Tony x2-1538 or 749-1326.

27" Sony Trinitron console TV, \$150; lrg Sharp microwave oven, like new, \$100; mower, self-propelled w/bag, \$90; VCR, \$45. Mario x8-4455 or 508-535-0270 after 5:30pm.

New set of dishes still in box, Aztec design; electric pasta machine, step aerobic w/video, bread machine, lots of stuff for an apartment, exc cond, best offer. Carol x8-6933.

Many pieces of furniture for sale. Call 326-0587 for inventory.

Pioneer CD player, holds 6 CD cartridges; VNC dual cassette deck; both like new, barely used, \$100/ea or both for \$150. Ross, x8-9159 or <rossm@mit.edu>.

Pair of white ladies' ice skates, size 6, and boys' ice skates, size 3. Joan x3-6577.

Twin-sz futons in good condition with frame, adjustable into couch. Call 625-8349.

ANIMALS

Maltese dogs for adoption, 1M, 1F, w/papers. Call x3-3844 or <rparry@mit.edu>.

VEHICLES

1983 Honda 650CX motorcycle, runs great, incl helmet & lock, \$600. Contact: <nbwaters@mit.edu> or 296-1157 evs & wknds.

1987 Dodge Shadow ES, black, orig mechanic/owner, burns no oil, KONIS, body exc, pl, pw, pm, Kenwood cass. deck, sunroof, ask \$3000 or bst. Ed 395-8980 (h), x8-6832 (w), <elk@mit.edu>.

1987 Chrysler Conquest tsi, 5-sp, 46K, white w/ burgundy leather int, loaded, mint cond, orig ownr, new clutch/brks/tune-up, \$5990. Call 397-6411.

1988 Toyota Camry Delx Sedan, 5-sp, pd, pw, cc, a/c, 74K, spotless, exc cond, \$4950. Call Lincoln x7838, 861-2035, <byt@ll.mit.edu>.

1988 Chrysler LeBaron GTS, 4-door + htchbk, all power, auto, a/c, gd cond, well maintained, 130K, \$2500 or bst. Call (w) 981-3613, (h) 965-0352 lv msgg.

1988 Honda Prelude, 5-sp, power moonroof, a/c, AM/FM/cass, silver, new tires/exh/timing belt, exc cond, \$4000 or bst reasonable offer. Call Draper x8-1619 or 508-870-0238.

1990 Chrysler Imperial, exc cond, fully loaded, 68K miles, \$7900 or bst. Call 508-369-9700.

1991 VW Jetta GL, gray, auto, a/c, ps, AM/FM stereo, new muffler/battery/brks/front trs, well-maint, perf cond, \$5500. Contact <jhlee@mit.edu>.

1994 Honda Civic DX hatchback, red/black, 5-sp, a/c, airbags, CD, reliable, efficient, 42K orig miles, \$8900. Nelson 864-0122.

1995 Hyundai Accent, 5-sp, 3-dr, indigo, low mileage, exc cond, priced below Blue Book value. Marc x3-5813.

HOUSING

Arlington Hts, sm furn rm w/full bath, no kitchen, separate entrance, non-smkg, \$390/mo + utils. Call 641-0585.

Cambridge/Som: nr Hvd/MIT, bus, markets, convenient to everything, mod 2BR apt, fully furn, a/c & elevator, prkg in garage, hwd flrs, laundry in bldg, \$1600/mo and up. Call 469-4218.

Cambridge: studio apt, 10 min from Hvd Sq, Trowbridge, betw Cambridge & Kirkland Sts., ktchn, bath, lrg room, phone, avail now, \$700/mo incl utils. Monse 876-1496 or Elena 283-2401.

House/apt exchange: Jan 1, 1997 - end April, 1997, upper part of 2-story house in Lincoln, 2-3BR, 2b, lrg LR, offered in exchange for similar size apt in central London. Loma 259-9591 (fax 539-5025).

Hull: house to share, beautiful, direct waterfront location, lrg rooms, priv bath, 24 miles from MIT, on public transp line, pref mature professionals. Contact <kjking@mit.edu> or 617-925-5821.

Melrose: private home, newly decorated, w/w, furn, bedrm & study/sitting rm, nr public transp, kitchen/laundry privileges, utilities incl, refs req, \$450/mo. Sandy, Linc x2240 or 665-6729.

Rome, Italy: apt for rent, 2BR, 1.5b, eat-in ktchn & formal dining room, located in historic district in central Rome, conv to everywhere, avail Jan 1, 3 mo min. Call 864-9617 or 212-362-3386.

Sublet: Elm Street, Porter Square, bedroom in 5BR house, furn, w/d, Oct 26-Jan 31, \$370+1/5 utilities. Sanjana, (w) 674-3282, (h) 666-3024.

Waitsfield, VT: condo, Eagles at Sugarbush, avail 11/30-12/7/96 or 12/7-12/14/96, 2BR, sleeps up to 8, 2b, sauna, fplc, laundry, \$800/wk. Phil Trussell x3-4304 or <truss@mitvma.mit.edu>.

White Mts, NH: fall foliage, Waterville Estates, spectacular views, sleeps 6 (3BR), 2b, on site: tennis, swimming pool, pond, non-smkg unit, sorry no pets, \$250/wknd. Chuck, Draper x8-2957.

WANTED

Macintosh Extended II keyboard wanted, F-sz for Macintosh, Apple Design ok, Extended II preferred, age/condition will determine price. Sanjay x3-3507 or <sanj@mit.edu>.

Furnished IBR or studio wanted in Cambridge/Boston area for visiting professor from UK, 2/1/97-5/31/97. Call x3-6989 or <dibner@mit.edu>.

PhD candidate needs office, will rent your extra room in commercial, industrial, non-profit, or church

New publishing service advances with appointment of Bernstein

■ By Janet Snaver
Community Involvement Team

The first step in establishing MIT's new Publishing Services Bureau has been completed with the appointment of Bruce M. Bernstein as director.

Formerly the associate director of admissions at MIT, Mr. Bernstein had responsibility for the student recruiting publications and the Admissions Office video. "Bruce is highly regarded both inside and outside MIT for his creative leadership and planning capabilities," Kathryn A. Willmore, director of public relations services, said in announcing his appointment.

The Bureau, which will report to both Ms. Willmore and to Senior Vice President William R. Dickson, has a dual charge of helping to make MIT publications more effective and more economical.

The Bureau will be an MIT service for coordinating the Institute's print and electronic publishing activities. The staff will consist of publishing professionals with expertise in printing, purchasing, graphic design and electronic publishing. They will serve as advisors and brokers between MIT customers and outside service providers.

Sloan continues climb in rankings

Business Week's 1996 "Best Business Schools" issue rates the Sloan School's MBA program ninth in the nation, up from 10th in 1994 and 13th in 1992.

"I'm pleased to see an improvement, especially in the way that corporate recruiters view our students and in the ratings recent graduates gave to Sloan's teaching," said Professor Glen Urban, dean of the Sloan School. "The total evidence based on rankings over the past few years from various sources (rated #2, #1 and #2 by US News & World Report in 1994, 1995 and 1996 and #1 'Techno-MBA' by Computer World) consistently acknowledges that Sloan is one of the world's very best business schools. As always, we learn from our rankings and continue to strive for improvement and preeminence.

"By many measures we are a much better school this year than last," Dean Urban continued. He cited highlights from the past year including the opening of the Tang Center, reduction of the size of the core classes, completion of a state-of-the-art trading room, a major educational and research initiative in China, initiation of the Entrepreneurship Center and the new SDM Program.

Sloan was rated as having one of the six best alumni/ae networks in the country. The School's program is also in

bldg, resid ok if sep access, 100 s.f., Central Sq or nearby Somerville, Boston. George 576-3791.

55-yr-old MIT secretary leaving 10/27 to write children's books, have no computer/printer; can you spare a loaner for a year? Barbara Glas, x3-7805 or <bgas@space.mit.edu>.

LOST AND FOUND

Gruen watch found in McDermott court. Owner may claim by identifying it. Call Phil, x3-7577.

Found: remote control for car stereo system in Northeast Lot. E-mail <cashaw@mit.edu>.

CHILDCARE

Childcare for 3mo and 2yo girls wanted 3 days/wk, 25 hrs min, more hrs avail, Brookline Coolidge Cmr location on Green Line; require infant & toddler experience, non-smkg, exc ref. Call 734-4701.

MISCELLANEOUS

Women 50 years or older wanted for testing of a quick and painless device that measures muscle mass in women; quick, easy, painless, no charge. Call x3-3087.

Interviews are beginning for the other Bureau positions, according to Mr. Bernstein. "Currently, I am working with members of the MIT publications community to create a dynamic staff for the Bureau," he said. "Our goal is to help the community create publications, print and electronic, both more efficiently and effectively, and

Reengineering

hopefully, have fewer hassles and more fun while doing so."

Plans are to have the Bureau in operation by January. Until then, publications production will continue in a transition mode. MIT offices that need to order printing should contact Rick Frye, x3-4765, Rm N42-205. Offices needing advice about graphic design projects should continue to contact Celia Metcalf, director of Design Services, x3-2697, Rm 5-133.

Though use of the Publishing Bureau will not be mandated, the senior administration hopes that the MIT community will take advantage of the communications expertise and competitive pricing that the MIT

partner companies will offer.

"A primary goal for the Bureau is to help MIT offices reduce the cost of the publications they produce," Mr. Dickson said. "This will be done by negotiating volume discounts with a variety of printers and design firms."

Advice and referrals will be free to anyone in the community who is involved in publishing anything from business cards and stationery to intricately designed brochures or Web pages. Actual production costs will be paid by the office or individual responsible for the publication.

The selection of preferred outside vendors will not be made until the Bureau is up and running, but service providers who want to be considered can send a letter to Mr. Frye of the print transition team to indicate their interest.

Though the offset printing, photographic and illustration areas of Graphic Arts were closed as of August 31, two operations formerly affiliated with Graphic Arts continue as MIT departments. These are the Audio Visual Service and the Copy Technology Centers, formerly called the Quick Copy Centers. Both of these areas now report directly to Mr. Dickson.

demand; while every school posted an increase in applications, the "largest swell" occurred at Sloan, where applications have gone up by 80 percent since 1994, Business Week noted.

The magazine also concluded that Sloan is #4 in "quickest payback" on an MBA, which literally measures the value of an MBA by calculating tuition and loan size against after-graduation earnings. Sloan's Web site at <http://web.mit.edu/sloan/www/> was also chosen as one of the top three business school sites.

The rankings are:

1. University of Pennsylvania (Wharton)
2. University of Michigan-Ann Arbor
3. Northwestern (Kellogg)
4. Harvard
5. University of Virginia (Darden)
6. Columbia
7. Stanford
8. University of Chicago
9. MIT (Sloan)
10. Dartmouth (Tuck)

The full rankings and related stories are available on the Business Week Web site at <http://www.businessweek.com>.

Annual \$50K competition gets underway tomorrow

The 1996-97 MIT Entrepreneurship Competition—also known as the \$50K—will hold its annual kick-off event on Thursday, Oct. 24 at 4:30pm in the Wong Auditorium in Building E51. All members of the MIT community are invited to attend and participate in the competition.

Organized and run entirely by students, the eight-year-old competition—the largest such contest in the nation—helps teams of students in technology and business produce tomorrow's leading firms, fosters entrepreneurship, encourages cross-campus team building, and provides students with the real-world experience of bringing ideas to the marketplace. Since its inception, the event has not only become a popular extracurricular activity across campus, it has also inspired even more MIT courses in new venture development, personal entrepreneurship strategy, and the "nuts and bolts" of preparing business plans—and entries have generated million-dollar businesses.

Many business success stories have resulted from entries, including the 1995 winner, SensAble Devices, featured in the July 1996 issue of Fortune Magazine as one of its Top 25 Cool Technology Companies, and the 1991 winner, Stylus Innovations, which was acquired recently in a multimillion-dollar buyout.

Teams submit business plans to a panel of experienced entrepreneurs, venture capitalists, legal professionals and technology experts. The winning teams divide a \$50,000 prize fund of cash and services for new ventures. Winners and runners-up will be announced in May.

This year's kick-off event speaker

is Bob Swanson (SM '70), founder of biotechnology giant Genentech. Competition organizers will also provide information on the deadlines and stages of the \$50K and instructions for entering the \$1K Warm-Up round in November.

WARM-UP EVENT

The \$50K competition begins with the \$1K Warm-Up, where one-page summary entries describing the product or service concept, market opportunity, target customers and potential competitors are submitted on the World Wide Web. The entry deadline is November 26.

MIT studies have shown that startups are most successful when there is a multidisciplinary founding team rather than an individual working alone, so \$1K entrants are asked to submit information on their team. For those who have an idea but no team, the \$1K is a good way to find one; the contest's organizing team will provide \$1K entrants with team-building resources and events during the semester.

For those who wish to enter the \$50K in the spring, entry in the \$1K is not mandatory, but they are encouraged to use this earlier competition as an opportunity to take a first, no-risk cut at describing their ideas in business terms.

More information is available at the kick-off and on the Web at <http://web.mit.edu/50k/www/>. People who have specific questions on how to generate business ideas should e-mail their questions to student organizer Benjamin Mok, who is working with others to develop an Idea Generation Seminar in November, at <kkmok@mit.edu>.

Whitman to be sampled in music collaboration

Reckoning Time, A Song of Walt Whitman, a dramatic oratorio for baritone, actor, chorus and orchestra, will return to the stage on Friday, Oct. 25 at 8pm in Kresge Auditorium in a special concert to honor John Oliver, who recently retired from his post as senior lecturer.

Reckoning Time is a four-way collaboration by Professor Peter Child (composer), Associate Provost for the Arts Alan Brody (libretto), Senior Lecturer John Oliver (conductor and originator of the commission) and Lecturer Michael Ouellette (actor). "Inventive and imaginative, the oratorio is a rich, multilayered tapestry of text and music," wrote the Christian Science Monitor following Reckoning Time's March 1995 premiere.

The free performance will feature The John Oliver Chorale and Orchestra under the direction of Mr. Oliver,

baritone Christophèren Nomura (as Whitman), and actors Mr. Ouellette (Peter Doyle), Paul Guttry (Whitman's father) and Laurie Otten (Whitman's mother).

In honor of Mr. Oliver, who also served as conductor of the MIT Concert Choir and Chamber Chorus, the concert will be followed by a brief performance by the MIT Chamber Chorus and tributes from students and colleagues at the Mezzanine Lounge in the Stratton Student Center.

The concert is sponsored by Music and Theater Arts with additional funding from the MIT Council for the Arts, Kepes Fund and the Eugene McDermott Fund, the Office of the Associate Provost for the Arts, the Dean of School of Humanities and Social Science, and the Humanities and Social Science Provost Fund. For more information, call x3-2906.

Arts at MIT

Arts News

The Howard Yezerki Gallery in Boston is currently showing *Harold Edgerton: Seeing the Unseen*, an exhibition of photographs from the archive that the late Professor Harold ("Doc") Edgerton and Gus Kayafas created during their 20 year collaboration. The show includes signed prints made during the last year of Professor Edgerton's life and a selection of rare vintage and near-vintage prints. It runs through November 12.

The Clarinet Trio "Suite Anne" by Professor Peter Child will be premiered at the All Newton Music School (ANMS) on Saturday, Nov. 2 at 7:30pm. The piece was commissioned by Peter and Carolyn Gombosi to celebrate the birth of their daughter Anne in 1993. Tickets for the benefit concert for the school are \$15. Performers are ANMS Director Paulette Bowes, clarinet; Daniel Steptner, violin; and Judy Gordon, piano. Info: 527-4553

Public events to examine scientific fraud, immigration

The high-profile "Baltimore case" on alleged scientific misconduct is the subject of a Science, Technology, and Society (STS) colloquium on Monday, Oct. 28 at 4pm in the Tang Center's Wong Auditorium (Rm E51-115). The event is co-sponsored by the history of science department at Harvard University.

"Government, the Media, and Scientific Misconduct: The David Baltimore Case in American Political Culture" will be led by speaker Dan Kevles, professor of humanities and director of the Program in Science, Ethics and Public Policy at the California Institute of Technology. Respondents will be David Baltimore, Ivan R. Cottrell Professor of Molecular Biology and Immunology and Institute Professor; Victor McElheny, director of the Knight Science Journalism Fellowship program, and Malcolm Gladwell, staff writer at *The New Yorker*, who covered the case primarily while at the Washington Post.

The lengthy case ended this summer when a federal appeals panel dismissed allegations of scientific misconduct against former MIT researcher Dr. Theresa Imanishi-Kari, who worked in Professor Baltimore's lab. It offers a view of "public, press and government interest in how science is conducted... and the degree to which the press does its job poorly or well, with naive or with real understanding of how science operates," said Michael Fischer, director of STS and professor of anthropology and science and technology studies.

For more information, call x3-3452 or e-mail <stsprogram@mit.edu>.

REFUGEES DISCUSSION

"Refugees, Immigrants, and Urban

Pressures: Whose Responsibilities, Whose Rights?" is the topic of a noon panel discussion on Thursday, Oct. 31 in Wong Auditorium that is free and open to the public.

Senior MIT faculty and United Nations officials will discuss the impact of migration on sustainable cities in terms of human rights and national and local responsibility. Questions to be raised include: What are the economic rights of refugees when new states are formed and when people cross national boundaries? What administrative and legal changes will be needed to manage urban growth? How is disease controlled? What about conservation, child labor and women who are left behind?

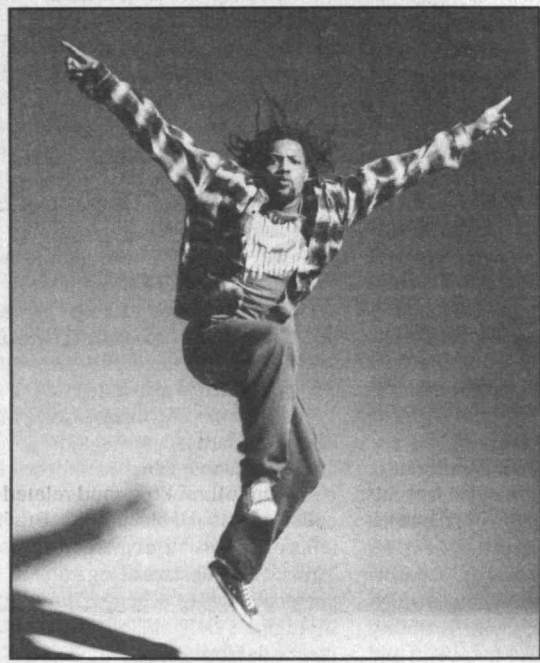
Associate Professor Bishwapriya Sanyal, head of the Department of Urban Studies and Planning and an advisor to the World Bank, the UN and the International Labor Organization, will moderate the panel that will include Professor Myron Weiner of political science, former director of the Center for International Studies and author of *The Global Migration Crisis: Challenge to State and Human Rights*, and Janice Perlman, a US delegate at the 1996 UN Habitat II Conference. Wally N'Dow, secretary general of Habitat II and director of the UN Center for Human Settlements in Kenya, will open the session.

The event is part of the Catherine N. Stratton Series, established in 1994 to honor Kay Stratton, wife of the late MIT President Julius A. Stratton. The lectures are sponsored by the MIT Women's League. For more information about the League, visit Rm 10-342 or call x3-3656.

Dancer to present hip-hop workshop

Award-winning Philadelphia hip-hop choreographer Rennie Harris, who is "able to make a political theatre that walks the line between overt and implied messages more entertainingly than nearly anyone else," according to *The Philadelphia Inquirer*, will present a workshop for members of the MIT community on Saturday, Oct. 26 at 1:30pm in the T-Club Lounge on the first floor of the DuPont Athletic Center. Mr. Harris and some of the dancers in his dance company, PureMovement, will share video materials and discuss how they create their dances, with the last part of the session devoted to actual dancing.

Mr. Harris and PureMovement are also giving four performances at Boston University's Tsai Performance Center on October 22-26 as part of Dance Umbrella's performance series. For more information on the workshop, which is sponsored by the Office of the Arts and the Music and Theater Arts Section, call x3-6957.



Rennie Harris, hip-hop dancer with PureMovement.

AAC announces new members, forum topics

(continued from page 4) ment; and Pat White, financial administrator, Sloan School.

AAC members welcome comments and questions on any aspect

of administrative life at MIT. Please contact any member of the AAC, or to reach the committee as a whole, send e-mail to <AAC-members@mit.edu>.

In addition to messages on AAC-AOQuery, updates of the committees activities can also be found on the AAC home page at <http://web.mit.edu/committees/aac>.

Institute Arts

For more arts-related information call the 24-hour hotline at 253-ARTS or consult the World Wide Web at <http://web.mit.edu/arts/www/>.

MUSIC

Chapel Concerts*—Oct 24: Boston Opera Horn Quartet. Oct 31: Boston Saxophone Quartet. 12noon, MIT Chapel. x3-2906

John Oliver Farewell Concert*—Oct 25: *Reckoning Time, A Song of Walt Whitman*, a dramatic oratorio for baritone, actor, chorus and orchestra composed by Peter Child, associate professor of music, and written by Associate Provost for the Arts Alan Brody. 8pm, Kresge Aud. x3-2906

Indian Classical Concert*—Oct 26: MITHAS (MIT Heritage of the Arts of South Asia) concert by Kartik Seshadri, sitar with Vikram Ghosh, tabla. \$15, \$10 (\$3 discount with current MIT student ID). 8pm, Wong Aud, Tang Center (E51). George Ruckert, x8-7971 or x3-4705.

MIT Concert Band Halloween Concert*—Oct 30: John Corley, director. Musicians are in costume and music is chosen for its sound-effect potential in the cavernous space of MIT's main entryway. 6pm, Lobby 7. x3-2826

Festival*—Nov 1: Latino artists from the region celebrate five years of collaboration between IBA/ETC's Cafe Teatro Series and the MIT Office of the Arts. Featuring the multicultural ensemble Quetzal, the Boston premiere of New York City's William Cepeda and The

Boricua Ensemble. \$10, \$7-8 MIT students & seniors—available through TicketMaster (931-2000) or at the door. Tickets also available at The Source on the first floor of the Stratton Student Center. M-F 8-5pm 8pm, Kresge Aud. 927-1731

MITCAN: Music of Africa Performance Class.** Directed/taught by Prof. James Makubuya. Ensemble class offers hands-on practice and performance experience on various traditional African musical instruments. This class is not for credit this semester. No previous experience required. The class meets from 7-10pm, on the following Thursdays: In Kresge Reh Rm A or B—Oct. 24; Nov. 14, 21, & 28; Dec. 5 & 12. In Rm 4-160—Nov. 7 & 14. x3-4964 or makubuya@mit.edu

MIT Guild of Bell Ringers*—Change ringing on hand bells. Beginners always welcome. Will also ring for occasions. Meets Mondays, 6:30pm, 2nd floor balcony of Lobby 7. Ken, 784-6114

DANCE

Hip-Hop Workshop*—Oct. 26: Philadelphia hip-hop choreographer Rennie Harris, who is "able to make a political theatre that walks the line between overt and implied messages more entertainingly than nearly anyone else," (*Philadelphia Inquirer*). 1:30pm, T-Club Lounge. x3-6957

MIT Folkdance Club*—Sun—International Dancing: Early teaching for beginners—7-8pm; Teaching & requests—8-11pm, Sala

de Puerto Rico or Lobby 13. **Tues**—Advanced Balkan Dancing: Regular teaching & requests, 8-11pm, Student Center 4th floor. **Weds**—Israeli Dancing: Early teaching for beginners—7-8pm; Teaching & requests—8-11pm, Sala de Puerto Rico or Lobby 13. MIT/Wellesley students free, 25¢ others. Call x3-FOLK or email <fdc-request@mit.edu> for locations on a given week.

THEATER

Letters From Sarajevo*—Oct 23: Pilgrim Theater production based on moving stories from people struggling with the ravages of war. 8pm, Kresge Little Theater. x3-4003

Anything Goes*—Oct 25-27: Musical Theatre Guild production of the Cole Porter classic. \$9; \$8 MIT faculty and staff, senior citizens, other students; \$6 MIT/Wellesley students. 8pm, Student Center Sala de Puerto Rico. x3-6294

Two Gentleman of Verona*—Oct 31-Nov 2, Nov 7-9. Performance by Shakespeare Ensemble at MIT directed by Scott T. Cummings. \$7, \$5 students/seniors, \$1 off/ticket for groups of 10 or more. 8pm, Kresge Little Theater. 253-2903

Kangaroo on BBQ*—Nov 1. Roadkill Buffet, MIT's improv comedy troupe. 7pm, Rm 6-120. Tom Louie, 816-4446 or <rk@mit.edu>, or <http://www.mit.edu:8001/afs/athena/activity/tlroadkill/www/home.html>.

EXHIBITS

List Visual Arts Center (E15)*—*Artist in Residence: Joseph Grigely: Ordinary Conversations*. Joseph Grigely will be artist-in-residence Nov dates TBA. Exhibit runs through Dec 29. *Louise Bourgeois: Drawings*: Over 100 works on paper spanning the entire career of Bourgeois. **Nov 3:** Jerry Gorovoy on Louise Bourgeois. Bourgeois' longtime assistant discusses her life and art, 3pm, Bartos Theater (E15). **Hours:** Tues-Thurs & Weekends 12-6pm; Fri 12-8pm; closed holidays. **Curatorial Office Hours**—Meet the curatorial staff for informal discussions and questions about art—Weds, 12:30-1:30pm. x3-4680

MIT Museum (NS2)*—*LightForest: The Holographic Rainforest*. An interactive installation of landscape photography inspired by the rainforests. Ongoing. *Open Strings for e: Search on the Journey*. Collage of the poetry, journal entries, photographs, architectural drawings, models, and artifacts by Professor Jan Wampler explores the myriad influences on the architectural process. Through Nov 24. *Renewal and Metamorphosis*. Organized by the Navigator Foundation, this exhibition features Russian photography from the late Soviet era to the 1990s. Through Dec 15. Ongoing: *Schooners and Whalers: The Watercolors of Benjamin Russell*; *Holography: Artists and Inventors*; *MIT Hall of Hacks*; *Light Sculptures by Bill Parker*; *Math-in-3D: Geometric Sculptures by Morton C. Bradley, Jr.*; *MathSpace*. 265 Mass Ave. Tues-Fri 10-5, Weekends 1-5. More info: x3-4444.

Compton Gallery—*Research Lab for Electronics 50th Anniversary Exhibition*. Bldg

10, 1st floor. Nov 1 through Jan 31. Weekdays: 9-5. x3-4444

Hart Nautical Gallery*—*Ships for Victory: American Shipbuilding's Finest Hour*. Shipbuilding production during World War II. *Permanent Exhibition of MIT Museum's Ship Models*. Ongoing. Weekdays 9-5pm. More info: x3-5942.

The Dean's Gallery: *Venice, San Francisco and Somerville: Pictures by Mary Kocol*. Night-time color photography. Through Nov 8. The Dean's Gallery, Rm E52-466. Weekdays 9-5pm. Info: x3-9455 or <http://web.mit.edu/deans-gallery/www>

Women's Studies. Permanent exhibition of archival photographs documenting the role of women at MIT over the decades. Rm 14E-316. More info: x3-8844.

The Rotch Visual Collections: The Aga Khan Award for Architecture. Exhibit of seven winning architectural projects from the last cycle of 1992-1995. These projects were built in three African countries: Senegal, Mauritania and Tunisia, Saudi Arabia, Turkey, Uzbekistan and Malaysia. Through Dec 20. Rm 7-304. x3-2955

OTHER

Racism in the Arts*—Oct 23: See page 4 under Seminars and Lectures in Calendar section.

Applications for Wiesner Student Art Gallery**—All students welcome to apply to put up an exhibit. Information: Ted Johnson, Campus Activities Complex, Rm W20-500.

Leaves of light



Associate Provost for the Arts Alan Brody listens as holographer Betsy Connors, a lecturer in the Program in Media Arts and Sciences, tells him about her large-scale, long-term holographic installation, "LightForest: The Holographic Rainforest," which just opened at the MIT Museum. The work combines traditional landscape art with 150 holograms of rainforest images embedded in the floor, walls and ceiling of a 15-by-9-by-10-foot gallery.

Photo by Donna Coveney

Tissue experiment flies aboard Mir

(continued from page 1)

tem allows the regeneration of tissue with clinically useful dimensions, not just the growth of individual cells.

The system involves "seeding" porous polymer scaffolds with bovine cartilage cells. Ten cell-polymer constructs, each of which is about eight millimeters in diameter by four millimeters thick, are then put into the bioreactor. The bioreactor is an integral part of an automated cell-culture system that supplies the cells with nutrients and gases and removes wastes so that they can grow into a full tissue. The entire system is the size of a microwave oven.

"The cells first attach to the polymer scaffold, and then they secrete a matrix," said Dr. Freed, who noted that the cells make up only a small fraction of cartilage tissue (which is composed primarily of matrix). Over time, the pores of the scaffold are filled in with matrix, the scaffold biodegrades, and a full tissue is regenerated. "The main purpose of the scaffold is to give the tissue its shape at first," she explained.

To date, the cartilage cells in the system aboard Mir appear to be alive and growing. This is in spite of a six-week launch delay caused by mechanical problems with the shuttle's booster rockets and a series of hurricanes. There was also a tense situation early on when a faulty cable connection threatened the experiment. Thanks to teamwork between the ground support team and the astronauts on the shuttle and Mir,

however, the cable problem was discovered and solved.

To check the status of the experiment, astronaut John Blaha takes weekly samples of the fluid surrounding the cell-polymer constructs (according to a NASA newsletter, the experiment is one of Mr. Blaha's favorites). For each sample Mr. Blaha measures parameters including pH and oxygen content. "Cell growth changes these parameters, so measuring them is a way of monitoring the experiment," Dr. Freed said.

She noted, however, that these measurements give "only broad clues as to how the experiment is going." The researchers won't be able to sample the actual cell-polymer constructs until the experiment is brought back to Earth.

The main purpose of the experiment is to see if the system has poten-

tial for studying tissue engineering in space. "Nothing even close to this has been done before with such a complex biotechnology system for such a long time," Dr. Freed said. "We would consider the experiment very successful if any of the tissue is alive at the end."

The work will also allow the researchers to compare tissue growth under actual microgravity with growth under simulated microgravity. In addition to the cartilage system on Mir, two parallel systems at the Johnson Space Center are running under simulated microgravity.

The whole experience has been quite exciting, Dr. Freed said. "It's really neat to walk outside and know that your experiment is up in the sky somewhere."

The work was funded by a NASA microgravity tissue engineering grant.

Dresselhaus outlines AAAS priorities for upcoming year

(continued from page 1)

she becomes president:

- Getting scientists to know the federal budget limitations so they can focus on what to do with the available funds.
- Getting scientists to talk with the public to help the public better understand science.
- Trying to hold joint activities on behalf of science such as budget issues or educating the public, since the AAAS has members from all sciences.
- Trying to attract young people to science.

Professor Dresselhaus pointed to several disturbing trends in science studies, including a 15 percent nationwide drop in the number of graduate students in physics over the past couple

of years. However, on a positive note, the ranks of women scientists are swelling, she added.

"When I came to MIT, 4 percent of the undergraduates were women. Now we're 40 percent," said Professor Dresselhaus, who was appointed an MIT professor in 1967. She said that she would see one woman student at most in her classes in the 1960s.

The recent increase in women scientists can be seen in the average age of scientists' ages in certain fields. In physics, for example, the average woman

physicist is 32 years old and the average man is 45. "So if you take a man aged 50, he's not used to seeing women [scientists] around," Professor Dresselhaus said. While that still is a very big difference, women and men in science now can have the same expectations for careers, she added.

What's important is that once scientists are established, they must help the people coming after them, Professor Dresselhaus said. Science writers can play an important role as well. "To the extent that a writer can capture the excitement of science and relate that to the public, that's really what it's all about," she said.

Professor Dresselhaus herself has a long history of public service, particularly in developing opportunities for women in science and engineering, in addition to her teaching duties at MIT. She also recently completed a graduate text book on fullerenes called *The Science of Fullerenes and Carbon Nanotubes*.

Her secret to her many accomplishments is "going to bed at 11:30 pm and starting work at MIT at 6 am."

Professor Dresselhaus was named Institute Professor in 1985, a title MIT reserves for only a handful of scholars of special distinction. She was awarded the National Medal of Science, the nation's highest honor in science and technology, in 1990. She also is a member of the National Academy of Sciences and the National Academy of Engineering and is a past president of the American Physical Society.



Dresselhaus

Faculty mulls writing requirement, new SM

(continued from page 1)

tative education. We must be sensitive to faculty workload. We can't break the bank."

He outlined a "beta-test version" of a scenario the committee is discussing. For the freshman year, it would have either a freshman advising seminar, a communications-intensive (CI) undergraduate seminar geared toward non-majors, a CI Humanities, Arts and Social Sciences (HASS) subject, a HASS subject with an attached communications practicum, or an expository writing course.

In the sophomore year, there would be either a CI HASS subject, a HASS subject with an attached communications practicum, or an expository writing course. In the junior year, there would be a CI subject in the student's major, or a departmental option for a core course with an attached communications practicum or a stand-alone CI course.

Senior year would feature the development of communication skills outside the formal classroom setting but in the context of each student's major. Options include senior theses, senior projects, UROP reports or participation in CI workshops and seminars.

Professor Hodges, who noted that the committee is seeking input from faculty and students, said the group must discuss budgetary issues with the administration, and it is seeking to have a formal proposal to the Faculty Policy Committee and to the faculty before the end of this academic year.

Professor Paul Penfield, head of the Department of Electrical Engineering and Computer Science, said his experience was that essay questions on final exams were very valuable and worth the extra work, but were much more difficult to grade.

"One of the boundary conditions is to try not to work the faculty any harder," Professor Hodges responded. "It would be very difficult to have no negative impact." He said the committee was trying to create a solution which would have the maximum flexibility for students in the first two years and the maximum flexibility for departments in the last two years.

"A solution to this issue is not simple because tradeoffs have to be found somewhere," President Charles M. Vest commented. "But I don't think there is any other message that is so consistent or intense through every temperature-taking that we attempt, whether it be the student self-perception, the alumni and alumnae surveys, the comments by employers who hire our students, or the several studies of undergraduate education around the country over the last few years. Every one of them has, right up at the top, the recommendation that we need to work harder at developing the communication skills of our students, and I hope we will continue to work very hard to figure out how to do that."

SM IN GEOSYSTEMS

In another major change, the De-

partment of Earth, Atmospheric and Planetary Sciences announced it is planning a one-year professional master's degree program in geosystems, in order to prepare graduates for scientific and management careers in environmental and technical consulting careers.

Professor Thomas Jordan, head of EAPS, said enrollment would be limited to 15 to 20 students per year. For most of the program's graduates, this would be the most advanced degree they will obtain.

The typical program would consist of 45 credit units in the fall, 12 during IAP and 51 in the spring. The fall course would be Geosystems I (12.550); a subject in the student's particular discipline; a Sloan Management School course, Economic Analysis for Business Decisions (15.011), and a Practicum in Scientific Writing and Oral Communication (12.445). During IAP, there would be an EAPS field subject and a lab subject. In the spring, there would be Geosystems II (12.551); a subject in the student's particular discipline; Analysis and Inference in Geoscience; and a short thesis of less than 100 pages.

The proposal was accepted without debate and, pending a faculty vote at the November meeting, will be instituted next fall. "Given the revolutionary nature of such a degree in the School of Science, the fact that there's no discussion is mildly surprising," Dr. Vest commented.

FACULTY SURVEY

Associate Provost Philip Clay presented highlights of a Higher Education Research Institute survey, to which 337 MIT faculty responded.

Faculty members expressed a high degree of satisfaction regarding their autonomy, the quality of students, the opportunity to work with distinguished colleagues, and the opportunity for intellectual growth and development. There was substantial agreement on personal goals of becoming an authority in one's field and of balancing career with family life.

Respondents said they believed that issues of high priority at MIT were promoting intellectual development and enhancing MIT's national image and prestige. Dr. Clay noted that faculty ranked developing leadership abilities in students as less of a priority than students or alumni/ae felt it should be.

President Vest noted that the student survey responses from MIT were "very, very positive compared to most of the other 10 or 12 institutions against which we were compared."

"I found the most troubling aspect—not particularly surprising but still troubling—is that there are some very large differences in the view of our women and male faculty members, and I think we yet again have to understand that, pay attention to it, and do our best to take corrective actions where they are indicated."

Chemist/novelist to give talk

Dr. Carl Djerassi, a writer and professor of chemistry at Stanford who first synthesized the chemical used in the birth-control pill, will give a talk entitled "Noble Science/Nobel Lust: Revealing Tribal Secrets" on Tuesday, Oct. 29 at 7:30pm in Rm 10-250. The event is co-sponsored by the Technology and Culture Forum, the Graduate Student Council and the Office of Graduate Education.

Professor Djerassi is the author of many publications on the chemistry of natural products (steroids, alkaloids, antibiotics, lipids, and terpenoids), and on applications of physical measurements and computer artificial intelligence techniques to organic chemical problems. He has also written several short stories and novels (*Cantor's Dilemma*, *The Bourbaki Gambit*) and

two autobiographies. His honors include the National Medal of Science, 15 honorary doctorates and other awards for the first synthesis of a steroid oral contraceptive.

Respondents will be Albert Meyer, Hitachi American Professor of Computer Science and Engineering, and Professor Jonathan King of biology. Professor Isaac Colbert, senior associate dean of the Graduate School, will deliver introductory remarks, while Senior Lecturer Caroline Whitbeck of mechanical engineering will be moderator.

The first 250 students with an ID will receive a free copy of one of Dr. Djerassi's books. A reception will follow. For more information on this and other TCF-sponsored talks, see the Web page at <<http://web.mit.edu/tac/www/home.html>>.

MIT to help build new global network

(continued from page 2)

labs with high-speed networks that are 100 to 1,000 times faster than the existing Internet

- To promote experimentation with new networking technologies
- To demonstrate new applications that meet important national goals and missions in scientific research, national security, distance education, environmental monitoring and health care.

The proposed improvements "will make the Internet a more important and remarkable part of our own lives," President Clinton said. "They will enable our Defense Department to send intelligence instantly to our troops on the ground anywhere in the world. They will let doctors in rural areas scan their patients for cancer by tapping into supercomputers at university hospitals a long way away. They will allow Americans to take any class anytime, anywhere, in any subject."