

Sea Rover swim



Ocean Systems Management/Ocean Engineering graduate stu-dents Jon Grant and Paul Lemoine carefully lower the ROV (remotely operated vehicle) Sea Rover off the back of Asterias, a Woods Hole Oceanographic Institution research vessel, in Eel Pond at Woods Hole. They are participating in a two-week field engineering lab necessary to complete their one-year master's program in conjunction with WHOI and MIT. See page 8 for more photos.

Photo by Donna Coveney

# Provost names Berger to direct new international program

The establishment of the MIT Inter-The establishment of the third national Science and Technology Initiative (MISTI) and the appointment of Professor Suzanne Berger, a leading scholar of comparative politics and

political economy, to direct it have been announced by Provost Mark S. Wrighton. Provost

Wrighton also announced that Dr. Berger, a member of the Department of Political Science, has been se-

lected as the first holder of a new professorship established by the Raphael Dorman and Helen Starbuck Memorial Fund. The professorship has been des-

Berger

ignated for a distinguished faculty member working in the area of international relations.

"In connection with her current role as leader of MIT's International Science and Technology Initiative, and based on her distinguished record of academic achievement, it is most fitting that Dr. Berger be the inaugural holder of the Raphael Dorman and Helen Starbuck Professorship," the provost said.

The establishment of MISTI reflects the broad consensus at MIT that it is important for education and research to reflect a global view, Professor Wrighton said. MISTI's programs will be coordinated administratively within MIT's Center for International Studies (CIS), which is headed by Professor Kenneth A. Oye.

"The rationale for this internation-

alization of education and research was in part laid out in two major MIT studies and in President Vest's inaugural address," Professor Wrighton said. Made in America, the report of the MIT Commission on Industrial Productivity, emphasized our country's need to learn to live in the world economy and underscored MIT's obligation to provide the kind of education in cultures, practices and languages that would enable this.

The other study, the provost continued, was that of the Committee on International Relationships of MIT in a Technologically Competitive World, which stated in 1991: "MIT's responsibility to the nation in which it was founded and nurtured is served first and foremost by maintenance of its position as a premier institution in education and research in science and technology. The commitment to maintain preeminence requires that MIT be thoroughly engaged in international activities in science and technology and that its faculty, students and research staff be able to interact fully and openly with, and stay abreast of, research wherever it is carried out."

The committee, headed by MIT Professor Eugene Skolnikoff of political science, a former director of the CIS, said that "to prepare MIT's graduates better for the realities of today's global society and marketplace, the faculty and administration should take steps to strengthen the international dimensions of the undergraduate curriculum."

#### **1991 RECOMMENDATIONS**

Under Professor Berger's leadership, MISTI is setting up programs and opportunities for research, study and work abroad. The goal is to give life to the recommendations of the 1991 committee and to the inaugural address call of President Vest to make "the matter of international context and opportunity an integral part of an MIT education."

At present, MIT provides many opportunities for foreign students, scholars and companies to learn how to operate in an American research environment, Professor Berger said. Through MISTI, we seek to secure the same opportunities for our own students abroad," she said.

The new international programs will develop over a period of years. In the first phase, Professor Berger said, a set of programs for China is being developed with four objectives:

Encourage and facilitate faculty-

MIT to aid research on shipping

MIT and FastShip Atlantic, Inc., of Alexandria, VA, have announced a long-term program to collaborate on research and development of a new high-speed freighter that holds the promise of revolutionizing ocean transportation of high-value cargo.

MIT has agreed to assist with marketing research and long-term technical research for the new ship technology on which FastShip Atlantic's proposed 1998 service is based.

FastShip's advanced hull design, propulsion technology and innovative loading system will allow it to transport cargo across the North Atlantic, door-to-door, in five to seven days, the company says. Conventional freighterstake anywhere from 14 to 35 days to do the same job. The collaboration with MIT "is a major milestone in the development of FastShip," said Terry Johnson, president of the company that will build FastShips and operate them on the North Atlantic and Pacific trade routes. "No other institution can come close to matching MIT's combination of outstanding ocean engineering with a proven track record of commercializing new technologies." Professor Chryssostomos Chryssostomidis, head of the Department of Ocean Engineering and director of the Sea Grant Program, said, "MIT is delighted to participate in the technology and economic research associated with this exciting project. The commercialization of the technology developed by MIT and FastShip could lead to a rebound in American competitiveness in ship-building and an expanded role for

the US in global transportation of highvalue cargoes.

Professor Yossi Sheffi, director of the Center for Transportation Studies, said, "The Center for Transportation Studies is glad to join forces with the Department of Ocean Engineering and other faculty across MIT to help bring the FastShip concept to commercial success. This option will change logistics patterns worldwide, allowing US goods to be delivered consistently and competitively in Europe and throughout the world. It will open new markets for ocean carriers and inland transportation modes.

development collaboration. MIT will participate in the ongoing research, application and refinement process to continuously improve the basic FastShip technology; assist in the transfer of its innovations (predominantly through license agreements) so that the public can benefit from this potentially revolutionary method to move high-value cargo across the oceans, and assist in the estimation of the market for manufactured goods and parts that can be carried by FastShip technology.

world refine the technique, which could

become a tool useful for monitoring

the ionospheric storms that can wreak

havoc on satellites, for example.

Philadelphia will be the exclusive ome port for FastShip. The company expects to begin service to Zeebrugge, Belgium, in 1998.

Recent papers have discussed both the experiment itself, which among other things tested Russian and American approaches to the technique, and a severe ionospheric storm that the scientists observed during the experiment.

That storm, the result of a "solar bullet" of charged particles from the sun, "is of very high geophysical importance," said John C. Foster, assistant director of Haystack Observatory and a principal investigator for the work. As a result, he said, the experiment "was not just a technical success, it was a scientific success as well" because of the large amount of data that the scientists collected on the storm.

Scientists involved in the experiment are from Haystack, Moscow State University, the Polar Geophysical Institute in Murmansk, and the US Air Force's Phillips Laboratory in Bedford, MA.

The ionosphere is a highly variable medium found at an altitude of 100 to 1,000 kilometers. The Russian-American Tomography Experiment, or RATE, tested a technique called ionospheric radio tomography that could become an inexpensive way to map the ionosphere continuously on a global scale

"With continuous coverage, you could call up a map of the ionosphere much like weather forecasters now call Dr. Foster said maps, Such an ability would greatly aid sci-(continued on page 7)

sky-mapping technique By Elizabeth A. Thomson **News Office** US-Russian experiment involv-Aing MIT scientists has provided important data on a new technique to map the sky-specifically the ionosphere, or upper atmosphere. The data will help scientists from around the

**US-Russian work tests** 

The MIT and FastShip Atlantic agreement calls for close research and

driven and faculty-desired research projects in China.

· Deepen on-campus educational programs in Chinese language, history and (continued on page 7)

## Seminars offer outlet for teacher creativity

#### By Alice C. Waugh **News Office**

When Vicky Diadiuk switched jobs from physicist to registrar, she was afraid that her days in the laboratory might be over. But that was before she began teaching freshman advisor seminars at the Edgerton Center.

Dr. Diadiuk, who received the SB in physics in 1972 and the ScD, also in physics, in 1978, worked as a research staff member in the electro-optics group at Lincoln Labs until 1991, when defense cutbacks made continued funding for her research look uncertain. She consequently took on a new job on campus as associate registrar for curriculum services, "but I was still eager

to stay in touch with the technical stuff," she said.

Her opportunity came when she saw an article about the Edgerton Center in the faculty newsletter, describing the availability of space for hands-on seminars. She had already co-led a freshman advisor seminar on recycling in the fall of 1992, so she knew how rewarding they could be. The experimental component was an added bonus. So after obtaining approval from Professor Kim Vandiver, the director of the Edgerton Center, she taught her first hands-on seminar, Devices for Optical Communications. "This was my chance to teach students how to actually build something," she said. "They provided an incredibly welcoming environment."

In her 1993 seminar, students built a demonstration optical voice link as a display for the Corridor Lab project. It shows how sound is converted to an optical signal and transmitted by an optical fiber. Passers-by can push a button and speak into a microphone; the signal travels through a light-emitting diode (LED) whose output goesthrough a plastic fiber-optic cable to a photodetector, which drives a speaker. The link is on display on the third floor of Building 4. This IAP, some of the students returned on their own initiative to upgrade the electronics in the display. Dr. Diadiuk has repeated the seminar for other groups (continued on page 7)



#### **INSURANCE REMINDER**

The special life insurance plan open enrollment period will end Tuesday, Jan. 31. Coverage for eligible employees who enroll during January will begin February 1. Employees may make life insurance changes at any time after the special enrollment period, but must first provide evidence of insurability. Enrollment forms are available by calling BenTalk, x3-5000. Call the Benefits Office, x3-0500, or x7060 at Lincoln Laboratory, with questions.

Student Notices

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

#### ANNOUNCEMENTS

- Libraries IAP Hours-Jan 9 Feb 5\*: Admin **Offices, Computerized Literature Search** Svc, Document Services, Institute Archives and Special Collections, RetroSpective Collection, Rotch Visual Collections, Shering-Plough Library: M-F9-5, Sat-Sun closed. Aero & Astro, Reserve Book Room: M-F9-5, Sat 11-6, Sun 1-5. Barker, Dewey: M-Th 8:30-9, Fri 8:30-6, Sat 11-6, Sun 1-9 Humanities, Science\*\*: M-Th 8-12, Fri-Sat 8-8, Sun noon-12. Lindgren: M-Fri 9-5, Sat 11-5, Sun 1-5. Music: M-Fr 9-6, Sat-Sun 1-5. Rotch: M-Th 8:30-9, F 8:30-6, Sat 11-6, Sun 2-9. \*\*Open 24 hrs/day for members of the MIT community only (MIT ID required). Closed Friday mid-night to Saturday 8am, and Saturday midnight to Sunday noon.
- **Career Services and Preprofessional Advising** Recruitment Presentations\*\*-Jan 26: Morgan Stanley, 7-9pm, Rm 4-149. Jan 27: McKinsey & Company Inc., 6-8pm, Rm 4-149. Jan 30: Lehman Brothers, 7-8pm, Rm 4-149. Feb 2: Prudential Insurance Company of America, 5:30-7:30pm, Rm 4-149.
- Lowell Institute School\*-Evening instruction in technical subjects for the practicing technician. Deadline for Spring 1995 registration:
- **Engineering Internship Program Orientation** Lecture\*\*-Feb 6: School of Engineering sophomores: learn to relate academic program to off-campus work experience in industry/government while earning joint SB/ SM in Engineering. 4-5pm, Rm 9-150. More info: x3-8051.

#### RELIGIOUS ACTIVITIES

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

- Tech Catholic Community\*\*-Weekday Mass Tues & Thurs 5:05pm, Friday 12:05pm, Satur day 5pm, Sunday 9:30am & 5pm. Call x3-2981.
- Christian Science Organization\*\*—Tuesdays at 7pm. Call x3-8797 or <loorford@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\*-Wednesday worship, 5:10pm, followed by supper in the Bldg W11 dining room. Bible Studies, Sundays at 5pm, Bldg W11. Rev. Susan P. Thomas x3-2325.
- MIT Orthodox Christian Fellowship\*\*-Wednesdays at 5:30pm in Student Ctr DR 1 for dinner followed by Chapel Vespers. Mike Decerbo, Dorm x5-7569.
- MIT Vedanta Society\*\*-Fridays, 5:15pm. Meditation and discourse on the Bhagavad Gita, with Swami Sarvagatananda. More info: Dr. Cyrus Mehta, 661-2011.

Friends Worship Group\*-Wednesdays in Rm 3-137C at 5pm for unprogrammed ("silent") worship, 5:15-5:45pm.

- Hillel\*-Jan 25, Feb 1: Israeli Dancing, La Sala, 7:30pm. Jan 26, Feb 2: A Taste of Torah, 12pm. Jan 27: Potluck Shabbat Dinner, 6pm Spiritual Svcs, 7pm dinner, 9pm activity, \$2, pay by 1/25. Jan 28: Ice Skating Party, 10:30pm, ice rink. Feb 3: Shabbat Dinner, 6:45pm, reserve by Wed. Location for all events: Bldg W11 unless otherwise noted. More info: x3-2982.
- MIT Korean Baptist Student Koinonia (KBSK)\*\*-Friday Night Bible Study and Fellowship 7-8:30pm, Student Ctr DR 3. Chris Pak x3-9342 or 876-8594.

Lincoln Laboratory Noon Bible Studies\*-Tues & Thurs, Kiln Brook III, Rm 239. 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

- **BFGoodrich Collegiate Inventors Program.** Recognizes undergraduate and graduate students across the country whose innovations, discoveries and research are deemed the year's most outstanding. Up to three winning students or teams in the All-Collegiate Category will each receive a \$5,000 cash award. Advisors individually will receive a \$2,500 cash prize. In the Undergraduate Category, up to three winning students or teams will receive a prize of \$1,000 each, with \$500 being awarded to each advisor. Information packets are available through Nancy Schondorf at the Technology Licensing Office. Stop by Rm E32-300 or call x3-6966. Deadline: Feb 14, 1995, 5pm.
- I. Austin Kelly III Prize Competition 1994-95. Two prizes of \$500 each for scholarly or critical essays in the following fields: Anthropology, Archaeology, Art History, Economic History, Film and Media Studies, History, History of Science and Technology, Literary Studies, Musicology, Philosophy, Politics, Women's Studies. Rules and guidelines available at His-tory Office, Rm E51-210, x3-9846. Open to MIT undergraduates. Deadline: Apr 13.

#### VOLUNTEERS

The MIT Public Service Center has compiled the following volunteer opportunies.

- The Samuel Huntington Public Service Award. This award provides an annual stipend of \$10,000 for a graduating senior to pursu public service anywhere in the world for up to one year before proceeding on to gradua school or a career. Students are encouraged to shape their own proposals for public service in this country or abroad. Applications can be picked up in the Public Service Center (3-123) and are due by February 15th.
- Coalition for Basic Human Needs (CBHN). CBHN is a statewide welfare rights organization that provides a vehicle for women on welfare to join together, learn from each other, and work collectively to effect positive change within society. CBHN is willing to work with volunteers to set up individual projects related to specific interests. Get some experience in fundraising, volunteer management, accounting, newsletter production, etc. Contact: Tracy Miller at 497-0126.
- Boston Community Centers. The Girls' Center Program is looking for college graduates or students to work as Program Assistants in the Charlestown or South Boston Girls' Center after school and early evenings. The Centers serve girls 10 to 14 years old. Call Anne Schiraga at 635-4920.
- Asian American Civic Association (AACA). Volunteers are needed to tutor adults who are studying English as a second language. AACA, a multi-service organization in Chinatown, offers a wide range of classes Tutors working one-on-one or in small groups provide an invaluable service to those facing individual challenges in learning English and ding American culture, Call 426-9492



#### FOOTBALL

Football offensive guard Corey Foster has won a National Collegiate Athletic Association (NCAA) postgraduate scholarship, one of only 29 scholar-athletes from all NCAA Divisons to win the \$5,000 award. In the six years MIT athletes have been eligible for the football scholarships, the Institute has had a winner four times. Foster, of Bloomfield Hills, MI, is a materials science major who will continue his graduate studies at MIT.

#### SOCCER

Senior soccer midfielder Dave Roberts has been named to the 1994 New England Region Adidas Scholar Athlete Soccer All-America second team. Roberts, of Charlottesville, VA, is a mechanical engineering major.

#### CROSS COUNTRY

Jesse Darley, a senior from St. Paul, MN, has been named the Constitution Athletic Conference (CAC) Scholar-Athlete of the Year. Darley, who has placed ninth, third, first and second in his four cross country appearances in the CAC Championships, is a mechanical engineering major. He is a two time NCAA Division III All-American and Academic All-American. Darley is the second consecutive MIT runner to be named the CAC Scholar-Athlete for cross country.

#### BASKETBALL

Basketball players Keith Whalen of the men's squad and C.J. Doane of the women's team have been named to the Eastern College Athletic Conference (ECAC) New England Division III Weekly Honor Rolls for the week ending January 14. Whalen scored 64 points and grabbed 32 rebounds in a week where the Engineers won three games. Whalen, a junior from Londonderry, NH, had a career-high 34 points in a 75-72 victory over Clark University. Doane led the women to a 1-1 record for the week by tallying 42 points and 15 rebounds. The senior from Lyndonville, VT, had 27 points on 12-for-18 shooting in a loss to Brandeis. Doane has led the Engineers to a 9-3 start this season. Only the 1986-87 team, which began the year 10-3, has had a better opening record.

#### **GYMNASTICS**

and 20B-140.

ticipate. For detailed information on procedures,

please read the participation section of the 1994-

1995 UROP Directory, available now at 7-104

Pertinent information is posted regularly on the UROP bulletin boards in the infinite corridor near

Rm 3-103, and in the UROP Office, Rm 20B-140,

Faculty supervisors wishing to have projects listed

may send brief descriptions to 20B-140, call x3-

Study of Fingertip Deformations. Looking for a

UROP student, pay or credit, to start immedi-

ately to help in analyzing data from experi-

ments on the human fingertips. The experi-

ments are aimed at understanding the human

sense of touch. No specific background or

coursework required. Requirements are: en-thusiasm, experience w/IBM PCs, familiarity w/MATLAB and C programming. Contact:

Kiran Dandekar, x3-2759, or e-mail resume

World Wide Web. Programmer needed to work

with faculty, staff, and graduate students in

the development and implementation of

WWW-based client-server shape/geometry query system for collective (simulation-based)

model synthesis and validation. Job require

ments: proficiency w/C programming, UNIX/ perl, network protocols, and Mosaic; interest

in engineering and scientific computation.

Familiarity with SGI or HP workstations de-sirable. Contact Prof. Tony Patera x3-8122,

MGH Cancer Center. A position is available for

a student to help with a research project con-

cerning cellular proliferation. The project in-

Rm 3-266, <patera@mit.edu>.

7306, or email to <urop@mit.edu>.

to <kiran@mit.edu>.

The MIT women's gymnastics team has broken the school scoring record three times in the first four meets of the season. The team broke the 170-point barrier for the first time in a 172.875-170.200 loss to Springfield College, and surpassed that score in a triangular meet against Yale and Cornell Universities.

**Roger Crosley** 

wanting to build the newest and buggiest software. Interested students should send e-mail to Kirk Noda, <avntgrd@media.mit.edu> describing their experience in the above topics

- Laboratory for Electromagnetic & Electronic Systems. The design of a scale-model hightemperature superconducting magnet test fa-cility for MAGLEV is underway at LEES. The prototype superconducting magnet will be cooled in a liquid nitrogen vessel at 77K. The specific task for the UROP student is to design and construct a liquid nitrogen level detector and control system, to maintain a constant level of liquid nitrogen in the vessel as the liquid boils off. Junior or Senior in EE w/special interests in: cryogenics, control system design, low level, low-noise electronics, precision electronic measurement techniques. Position is available for credit or pay. Contact: Prof. Marc Thompson, Rm 10-013, x3-2083, <marctt@mit.edu>.
- Ronald E. McNair Post baccalaureate Achievement Program. US Department of Education oversees funding for an undergraduate research internship. This program encourages low-income, first-generation undergraduates, especially those majoring in the sciences, to pursue a doctoral degree. Summer research internships/stipends of \$2,400 are provided to eligible students se-lected to participate. Proposals are due Feb. 3, 1995. Contact <shoap@mit.edu> for further information.
- MacMoose: a MUD Client for Kids. Pay-Spring/Summer UROP position in the Epis-temology and Learning Group at the Media Lab working on using MUDs as a learning environment for kids. These text-based vir-tual worlds were first developed as games,

## United Way nears goal

A s of Monday, Jan. 23, MIT's United Way campaign had raised \$288,960 in donations and pledges from 1,551 donors. The total receipts, including donations from 58 Leadership Givers (those pledging at least \$1,000) puts the campaign at 90 percent of its goal of \$322,000. The drive runs until February 3.

Anyone who would like to make a United Way donation but does not have a pledge card can get one by calling the Office of Special Community Services (OSCS) at x3-7914, or they can stop by and donate in person.

Agencies that received clothing and other articles from the clothing drive in December (including Cambridge Family and Children's Services, Shelter Inc., and Bridge Over Troubled Waters) have expressed their appreciation. Anyone who would like to donate items at any time during the year may use the OCSC (Rm 20A-023) as a drop-off location.

There will be a prize drawing on February 14 from the names from all those who have made donations to the United Way. Prizes include a pair of round-trip US tickets on Northwest Airlines, a night at the Inn at Harvard, and gift certificates at the Boston Sail Loft restaurant and the Harvard Coop. Winners will be notified by telephone.

### **Snow Parking**

Physical Plant has issued the following parking tips to aid in snow removal:

-Avoid parking in open lots or on garage roofs until the area has been cleared.

garage roofs during snowstorms.

-Park only in designated slots in garages so that plows will have access to turn on the various levels, permitting ramps and roofs to be cleared and sanded.

-Do not park in or near fire lanes, handicap ramps, building entrances or dumpsters.

Illegally parked vehicles will be towed at the owners' expense.

#### MIT TECH TALK (USPS 002157)

January 25, 1995 Volume 39 Number 17

Publishe KENNETH D. CAMPBELL

> Edito JOANNE MILLER

Photojournalist DONNA COVENEY

Production GENEVIEVE PARENT LOATI

OF MIT GRAPHIC ARTS

#### News Office

Director: Kenneth D. Campbell; Associate Director: Robert C. Di Iorio; Senior Assistant Director: Charles H. Ball; Assistant Directors: Donna Coveney, Joanne Miller,

Other religious meetings:

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>.

#### UROP

The UROP Office invites MIT students to join with faculty members to pursue research projects of mutual appeal. Wellesley students may also par-

### Crimewatch

The following incidents were reported to the MIT Campus Police Department between Jan 13-20:

Jan 13: Rockwell Cage, assault and battery between persons known to each other.

Jan 16: Bldg 35, wallet stolen, \$20.

Jan 17: Tang Hall, suspicious activity; Bldg E52, damage to MIT vehicle; Bldg 3, harassing phone calls; Walker, stereo speakers stolen, \$430; Bldg E25, suspicious package left in elevator, same discovered to be trash bags.

Jan 18: Bldg 36, headphones stolen, \$10; Bldg 1, damage to a bulletin board.

Jan 19: Bldg 7, malicious damage to a door; New House, unlocked bike stolen, \$300; Green Hall, domestic incident.

Jan 20: Infinite corridor, male annoying females and given trespass warning.

volves the analysis of organ growth data, and the development of a mathematical model of cellular proliferation and growth. There is the opportunity for considerable intellectual involvement on the part of the student, with the possibility of authoring a research publication. Facility with Excel and Deltaplot would be useful. If interested, please contact: Dr. James Michaelson, PhD., Mass General Hospital Cancer Center (Charlestown Navy Yard site), 726-5621.

Women & Minority Engineers. Spring UROP position available for sophomores and juniors interested in helping put materials for women and minority engineers on the Web. Preference given to those interested in these issues. Knowledge of HTML helpful, but can be learned on the job. Continued work into the summer is possible. Faculty supervisor: Prof. Caroline Whitbeck, x3-1631. Contact Heidi Shih, x8-9772, <hidee@mit.edu>.

Systems Programming Group. MIT Media Lab has an immediate opening for a UROP student to assist with building and porting of Unix applications. UROP is for pay and does not involve any physical grunge work. Requirements/desirables include: experience in large program development in C and writing portable code, interest in building a longterm relationship with group at the Media Lab,

but have potential to help kie ds learn to read. write and program. Work has been underway to develop a Mac client program, MacMOOSE, UROP student will be in charge of adding new features, getting feedback from users and incorporating their comments. The job also involves being a "janitor" or "wizard" on two MUDs and helping w/their administration. Experience in C programming required and experience w/Think Class Library a plus. Interest in interface design, education, and working w/children are pluses. Please send resume to <asb@media.mit.edu>. Faculty supervisor: Prof. Mitchell Resnick. Contact person: Amy Bruckman.

Measurement of Frictional Properties of the Human Fingerpad. UROP position avail-able immediately in the Touch Laboratory. Mechanically inclined engineering student needed to help w/background research on the human fingerpad and machining of simple components for experimental devices. Work will progress to design and precision machining of probes/indentors/fixtures, sensor and circuit design, software development and finally, running human experiments and analysis of data in MATLAB. Familiarity with machining aluminum and plastics, C programming, PCs basic circuits are a plus. This is for pay or credit. If interested, please contact: Rogeve Gulati, x3-2759, <rogeve@mit.edu>.

Kathleen M. Rowe, Elizabeth A. Thomson; Assistant Editor of Tech Talk: Alice C. Waugh; Administrative Assistant: Myles Crowley; Design/Editorial Assistant: Lisa Damtof

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

Postmaster: Send address changes to Tech Talk, Room 5-111, Massachusetts Institute of Technology, Cambridge, Massa-chusetts 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 \$20 per year, non-refundable. Checks should be made payable to MIT and mailed to Business Manager, Room 5-111, MIT, Cambridge, MA 02139-4307. Second class post-

age paid at Boston, MA.

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Recycled Pape

## Osgood named director of minority education

ssociate Professor Leo Osgood Jr., a member of the Office of Undergraduate Educa-



tion and Student Affairs and the Department of Athletics for 18 years, has been appointed director of MIT's Office of Minority Education, effective February 1. The appointment, reported in

The Tech earlier

Osgood

this month, was announced formally this week by Professor Arthur C. Smith, dean of undergraduate education and student affairs, to whom the director of the OME reports.

Professor Osgood is MIT's head basketball coach and the Institute's "oncall" dean, handling student emergencies after normal business hours on weekdays and during weekends. He came to MIT in 1977 as assistant coach and in 1983 became associate coach and assistant dean for student affairs in the counseling section. He has been dean on call and head coach for nine years. He plans to end his coaching career at the conclusion of this season.

The appointment of Professor Osgood was enthusiastically recommended by a search committee headed by Professor Rafael Bras, head of the Department of Civil and Environmental Engineering. There were about 140 applicants for the post. It became open in September when Dean Judy Jackson resigned to pursue a doctoral program in education at Harvard. Professor Emeritus David Gordon Wilson of the Department of Mechanical Engineering has been serving as interim OME director.

"Professor Bras's committee, in recommending Professor Osgood for the position, said he had all the qualities that a dean of the OME should have," Professor Smith said. "I agree completely with the committee's assessment. Leo Osgood has a wealth of experience at MIT. He understands the Institute and he understands MIT students. He has served as assistant counseling dean in the Office of Student Affairs and has

been both a board member and a liaison to the OME over the years."

The new OME dean has also been involved with Project Interphase, an OME program for minority students held the summer before they matriculate at MIT

Professor Osgood also has served for several years on MIT's Martin Luther King Jr. Committee and is currently its co-chairman with Professor Michael S. Feld of the Department of Physics. The MLK Committee conceived and developed the concept for a new program to increase the presence of minority scholars on campus-the Martin Luther King Jr. Visiting Scholars Program. That program was formally announced earlier this month by Provost Mark S. Wrighton.

Professor Osgood has been active as well in efforts to foster the development of the minority members of the MIT staff. He co-chaired a presidential task force for career development of minority administrators at the Institute which filed its report three years ago.

Professor Osgood holds the BS degree in business administration and the MS in education, both from Northeastern University. He was a highly successful basketball player at Northeastern and was inducted into the school's Athletic Hall of Fame in 1989

A native of Charleston, SC, Professor Osgood came to Boston as a young boy. He has been active for years in programs for city youth. In 1990 he represented MIT in the YMCA's Black Achievers Program. In nominating him for the program, the late MIT vice president Constantine B. Simonides, to whom the Department of Athletics reported, said: "Leo Osgood is a leader. He is someone that young people can look up to for his accomplishments... He is a disciplined coach who is both kind and tough, a combination that may be a requirement for success at MIT, but represents a balance very difficult to chieve."

Professor Osgood was the first president of the Northeastern University Black Alumni Association (1985) and serves on the boards of the Boston Branch of the NAACP and the Lena Park Community Development Corporation.



Side view of the proposed fishing method.

Graphic by Lisa Damtoft

## Sea Grant experiment shows promise for pair-trawling for tuna

By Andrea Cohen MIT Sea Grant

rawn to the sea, they travel in pairs, are partial to moonless nights and considered all but illicit. But don't get the wrong idea-these couples are fishing boats trawling for tuna on the southern side of Georges Bank, at the edge of the continental shelf.

In an experiment sponsored by the MIT Sea Grant Program and approved by the National Marine Fishery Services (NMFS), a small group of New England fishermen are hauling in bigeye, yellow fin and albacore tuna by a method not yet approved for this fishery. The fishermen hope that the data from this experiment will convince the NMFS to revise its regulations to authorize commercial pair trawling for tuna.

On the East Coast, traditional commercial tuna fishing methods include long-lining and gill netting, both of which involve bycatch levels that concern fishermen and environmentalists alike. [Bycatch is the capture of unwanted species or undersize members of the species sought.]

The problem with long-lining, in which miles of line with hooks and bait are set out at sea, is that sharks and other game fish are also caught. And gill nets, which are long panels of webbing that

## Mail Tip #3

(Tech Talk is presenting a series of suggestions devised by the reengineering Mail Team to help our large community make better use of the mails.)

Check the destination the next time you get ready to send express mail; you could save your

department

money. If the des-

tination is within

eastern Massa-

chusetts, sending

first-class mail by

the US Postal Ser-

vice will usually

catch fish by entanglement, can also capture marine mammals, turtles and diving seabirds. Fishermen participating in the MIT experiment hope to show that bycatch is less of a problem with pair trawling than with these other techniques

According to MIT Sea Grant fisheries engineer Clifford Goudey, who is coordinating the experiment, pair trawling is effective with tuna because these fast-swimming fish must be caught with large nets. And because of their speed, tuna would tend to scatter with a boat operating directly above them. With pair trawling, each vessel pulls on one side of a net. By carefully coordinating the speed of their boats, the distance between boats and the length of tow wires, fishermen can precisely control the net's position.

Captain John Riemer, whose boat is part of the experiment, believes that the catch from this experiment could convince the NMFS to reconsider its position on appropriate gear for tuna fishing.

"In my opinion, pair trawling is much cleaner than other methods," he said. "We think it's efficient and conservation-minded, and you land a good product." Capt. Riemer formerly pair-trawled for codfish, a practice that was outlawed earlier this year.

Pair-trawling for tuna provides boats with an alternative to goundfishing for cod, haddock and yellowtail flounder. Once staples for the New England fishing community, those stocks are now severely depleted.

In order to monitor the experiment, NMFS observers are accompanying fishermen on most of their trips. Fishermen from the 10 boats also provide Mr. Goudey with details of their activities. In addition to data about the kinds and numbers of fish caught, participants keep careful records of the towing geometry, the net's depth, environmental conditions and other factors that influence the performance of the gear. All this information should aid in optimizing the method for catching tuna, while reducing or eliminating the take of undersized or prohibited species.

Mr. Goudey points out that no method of fishing can be 100 percent free of bycatch. However, he says that through the use of specific setting and hauling techniques, and an emphasis on individual vessel accountability, "we have seen remarkably low levels of incidental takes." The experiment concluded at the end of December, after which the vessels returned to other, more traditional fisheries.

## Hammel wins research award

and

Dr. Heidi B. Hammel, a principal research scientist in the Department of Earth, Atmo-



by his late wife, Rosalie M. (Cobb) Karapetoff, who received the SM degree from MIT in 1923.

The award honors individuals at MIT who have-by research, theorizing or teaching-made valuable discoveries for, or contribution to, the benefit of science and/or mankind.

As team leader for interpreting Hubble Space Telescope images

## Alvin Drake appointed to Ford professorship

ean Joel Moses of the School of Engineering has announced the appointment of Dr.



Drake

puter Science. Dean Moses

(1962). He was appointed an assistant professor in 1962, then went on military leave for two years serving in the US Army Signal Corps (he received the Army Research and Development Award for work on tropospheric scatter communication) and returned to MIT in 1964. He was named associate director of the Operations Research Center in 1966, associate professor in 1967, and professor in 1973. He was the housemaster of the MIT Alumni Houses for seven years.

Most of his professional activi-

awarded to outstanding faculty in recognition of special accomplishments. "Al Drake is widely known in the School of Engineering for his innovative teaching of applied probability and his mentoring of graduate teaching assistants. Institute-wide, he is a key figure in efforts to help TAs improve their teaching skills," Dean Moses said.

In 1992, he was the recipient of the School of Engineering's Bose Award for excellence in teaching.

In a letter to the Electrical Engineering and Computer Science faculty, Professor Paul Penfield, head of the department, noted that "Dr. Drake is known for his insightful, caring, compassionate approach to education."

Dr. Drake's principal fields of interest are applied probability, public systems applications of operations research, risk assessment and probabilistic issues in manufacturing. He holds four degrees from MIT: the SB and SM (both 1958), the EE (1961) and the ScD

ties outside of MIT have been in the public sector. With two associates, he helped found the New England States Police Advisory Compact. He served on the American Blood Commission as vice chair of the donor recruitment task force and on the board of directors for the Northeast Regional Blood Program of the American Red Cross. His longestrunning professional organization membership is in the Association of Donor Recruitment Professionals.

Professor Drake is the author of Fundamentals of Applied Probability (McGraw-Hill, 1967) and co-author of The American Blood Supply (MIT Press, 1982). He is an editor and contributor to Analysis of Public Systems (MIT Press, 1972). With Dr. Ralph Keeney, he authored a video presentation and study guide, "Decision Analysis" (MIT Center for Advanced Engineering Studies, 1977).

The appointment, effective January 1, is for a five-year renewable term.



get it there overnight, the same as express mail.

Using express mail service—either the US Postal Service or overnight delivery companies such as DHL and Federal Express-can be very expensive. Even so, many MIT offices send express letters to downtown Boston and surrounding cities, all at unnecessary extra expense. The only time you should use express mail for local destinations is when you need to verify next-day receipt.

For questions or suggestons about making better use of the mails, contact the Mail Team at x3-7247, or <mitmc@mitvma.mit.edu>.

Hammel

toring the collision of fragments from the comet Shoemaker-Levy 9

with the planet Jupiter.

Provost Mark S. Wrighton has selected her to receive a \$3,000 research allowance given at his discretion in honor of the late Vladimir Karapetoff, a distinguished scientist, electrical engineer and musician. Funds for the award were contributed

the comet-Jupiter collisions, observed at Johns Hopkins University's Space Telescopic Science Institute, Dr. Hammel gained widespread public attention for her enthusiastic descriptions of the effects of the collisions.

"I have judged your research to be a 'most valuable discovery for the benefit of science," Professor Wrighton said. "You have also been selected for your generous work to disseminate your findings and to contribute to the education of the public."

## English classes begin in February

The MIT Women's League will again offer beginning, intermediate and advanced English conversation classes for international women during the spring term. Registration will be held Tuesday, Feb. 14, 9-11am in the Bush Room (10-105). Classes will be held Tuesdays and Thursdays, 9:15-11am, beginning February 16. Thursday

classes are followed by an informal coffee hour.

Space is limited, so the League accepts applications on a first-come, firstserved basis. There is a class fee of \$40 per student. Babysitting is \$100 per child. For more information, call Jan Kirtley at 277-2628 or Sis de Bordenave in the Women's League office, x3-3656.



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**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 nied 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

Snowshoes, Sherpa, mid-sz, exc cond, \$90; ext frame pack \$25; x-c ski boots, Solomon bindg, sz 6, \$8; Merrell hiking boots, W'ssz8, nvrused, nw\$115, askg \$75. Carol x8-5139 or <cal@wi.mit.edu>.

Two tickets to BSO concert, Feb. 11, 8pm, \$75. Roger x3-0538.

Blue cozy sofa, F-sz; glass coffee table w/brass legs & 2 end tables, grt for family rm/den area, both in exc cond, \$400 or bst. Call x3-4733.

- Refrigerator/freezer: Magic Chef, 1991, almond, like nw, 18.5 c.f., retail \$700, askg \$450. Donna 322-6427 aftr 6pm wkdys.
- Sharp portable CD/double cassette stereo w/ graphic equalizer & random access program ming, 1 yr old, rarely used, like nw, cost \$200 nw, askg \$120. Colin 648-6516.
- Early American dining room set: hutch w/glass front, table w/2 leaves, 6 chairs, \$1000 or bst. Sheila 769-4426.
- M's 10-sp bike, \$55; Pre Cor rowing mach, \$50; F-sz mattress & boxsprg, \$85; 2 white Winson chrs, \$35/ea; x-c ski equipment. Call x3-3175 or 332-8251.
- Female apparel, almost new, unusual, funky, some professional clothes, petite to medium sz, very cheap. Larisa 547-6557 lv mssg.

#### ANIMALS

Free to good home: Beaut black cat, Alice, 17 yrs erience, healthy & affectionate, de-clawed; child owner newly allergic. Marcia x3-2916.

#### VEHICLES

# William H. Ramsey of MITES is dead at 67

William H. Ramsey, a mentor and role model to hundreds of students as executive director of engineering special programs in the School



neering said a memorial service

will be held during the spring term.

Ramsey

"Bill was an alumnus, a colleague and a friend of whom we were all proud," Dean Moses said. "In his work. he was professional, straightforward and thorough. He brought to our students the benefit of many years of professional engineering and managerial experience. But we in the dean's office will remember him best for his sense of humor, his devotion to his family and his church, and his wonderful smile when the topic of St. Kitts came up." St. Kitts, where Mr. and Mrs. Ramsey had built a home, was where they planned to retire.

Mr. Ramsey was responsible for the administration of the MITES program-Minority Introduction to Engineering and Science-and the Engineering Internship Program (EIP) in which students combine academic programs and on-the-job experience.

MITES, now in its 21st year, annually brings to MIT each year 35 to 50 high school students between their junior and senior year who have an interest in studying science and engineering. The program received national news coverage last spring in the Wall Street Journal and, as a result, on ABC-TV's Nightline. The focus of the news coverage was a Washington, DC, student who realized his goal of being selected for the MITES program. As the MITES program drew to a close, the student was advised to further strengthen his academic tools before applying to MIT, and this was reported in a second Wall Street Journal article. The articles brought the program considerable public attention, both favorable and criti-

1992 Ford Aerostar van, fully loaded, electrical locks/windows, stereo, alarm sys, lumbar sup port bags, tilted steering wheel, cc, \$13,900. Diane x3-5024 days, 825-0538 eves.

#### HOUSING

- Belmont: Cushing Sq, fully furn BR/study in priv home, share bath, light ktchn privileges, on transp, non-smkg pref, intl guests welcome, \$495/mo incl utils. Mrs. Wolf 484-6455.
- Cambridge: lrg 1BR apt in 1010 Mass. Ave (betw/ Hvd & Central Sq), avail Mar 1, must by MIT affiliate, \$690/mo incl ht. Furniture also for sale. Call 354-815 or <sara@math.mit.edu>
- Cambridge: house for rent, 5 rms, 2BR, charmingly furn, all appliances, off-st pkg, nr public transp, \$1800+, Call x3-3221 or 508-487-8223.
- Chestnut Hill: 2BR apt, hdwd fl, patio, 2 pkg spaces,

cal, and many letters and phone calls. Mr. Ramsey dealt with many of these, responding in his characteristically courteous, clear and calm manner.

MIT President Charles M. Vest said Mr. Ramsey was "a dedicated and effective leader of educational efforts" and a "very warm and caring mentor.

"Some 800 young men and women have benefited from the MITES program over the years. Many had the good fortune to be here during the Ramsey years," President Vest said. "Their success and contributions to society are Bill's legacy. It is very painful to realize that he will not have the pleasure of the retirement years that he was about to enter. His death is a tragic loss to our community.'

In 1988, when his appointment in the School of Engineering was announced, Mr. Ramsey was quoted in Tech Talk as offering this advice to MITES students: "There are disciplines that you will learn in the sciences and engineering which will be valuable to you for the rest of your life no matter what you finally do in your professional work. This is a benefit which is not evident until you look back on what you have accomplished. Work hard, be diligent and this investment in your future will bring a positive return."

fairness were traits his colleagues associated with Mr. Ramsey.

graduate of Brooklyn Technical High School. He received the SB in electrical engineering in 1951.

panies in the United States and Europe.

Between graduation from MIT and his return to the Institute, Mr. Ramsey spent 20 years in military electronics as a circuit designer and systems engineer and manager and 15 years in management consulting and the vice presidency of Ault, Inc., an electronics firm in Minneapolis.

At the time of his death he was a board member of the Massachusetts Society for the Prevention of Cruelty to Children. He was a former president of the board of the City Mission Society in

Red Line, fully furn, incl linens, own TV/fridge, ktchn priv, off-st prkg. Hansi Durlach 648-7425.

#### **WANTED**

- Wanted: fish tank, 30-gal w/accessories. Call x3-3278 or e-mail <msenat@mit.edu>.
- Singer "Featherweight" 221 sewing machine wanted (model was manufactured between 1934-1956). Shirley x3-4090.
- Used file cabinets wanted, pref 4-5 drawers, vertical. Jonathan Fox x3-5327.

#### **ROOMMATES**

E. Arlington: Fhousemate wanted, 2-fam, nr Red Line Alewife, 2 flrs, 3BR, htd back porch, 2 full baths, avail betw 2/1 & 3/1, rent \$333 + 1/3 util. Annie x3-7691 or 643-0439 or <anniek@mit.edu>.

Boston. He was a resident of Newton.

Mr. Ramsey is survived by his wife, Charlotte M. (Finley) Ramsey, a teacher in the Brookline schools; a son, Marc S. of Palo Alto, CA; a daughter, Lynne Clark of Pittsburgh; a brother, Roland of Barbados; and a granddaughter.

A memorial service attended by about 300 people, many of them from MIT, was held January 19 at the Second Church in Newton/United Church of Christ, West Newton.

#### **ROBERT E. DURLAND**

Robert E. Durland, 66, retired manager of furnishings and furniture in the Office of Purchasing and Stores, died January 12, at his home in Sandwich. Mr. Durland worked at MIT from 1957 until his retirement at the end of 1987.

Mr. Durland was a past president of the National Association of Educational Buyers and also of its regional group.

He enjoyed target shooting and was the first civilian coach of MIT's pistol team as its jurisdiction was transferred from ROTC to the Athletic Department. A life member of the National Rifle Association, he was also a past member of the US Olympic Shooting Committee and a referee at the National Rifle and Pistol Championships.

Mr. Durland is survived by his wife Barbara A. (Bowes) Durland, retired

#### assistant to the vice president and treasurer for information systems; two daughters, Lisa A. Durland of Rocky Hill, CT, and Lynne E. Sousa of Winchester, and three grandchildren. Remembrances may be sent to the Hospice of Cape Cod, 923 Route 6A, Yarmouthport, 02675, or to the charity of one's choice.

#### **ELIZABETH S. MASSEY**

Elizabeth Simms Massey, 82, of Natick, died on November 16. Mrs. Massey was an elevator operator in Physical Plant from 1956 until her retirement in 1974. She is survived by three grandchildren and five greatgrandchildren. Remembrances may be sent to the American Cancer Society.

#### WILLIAM PASQUANTONIO

A funeral Mass was held January 24 for William G. Pasquantonio, 81, of East Boston, who died on January 19. Mr. Pasquantonio was a member of the service staff in Physical Plant from 1968 until his retirement in 1977.

He is survived by his wife, Phyllis Saurino Pasquantonio; a daughter Jennie Papadopoulos of Greece; two grandchildren and a great-grandson. Remembrances may be sent to the charity of one's choice.

## Clinton vs. Quayle in '96, IAP forum predicts

#### By Alice C. Waugh **News Office**

President Clinton will emerge from his present difficulties with Whitewater and other issues to make another political comeback, and he will face GOP nominee Dan Quayle in 1996, speakers predicted at "An Open Forum on the Clinton Presidency."

The January 17 IAP session included discussion of Clinton's performance thus far, reflections about his past in Arkansas and speculations about his political future. Speakers from the Department of Political Science were Assistant Professor Daniel Kryder and Visiting Scholar Timothy Groseclose.

Despite the president's recent lack of popularity, Clinton, dubbed "The Comeback Kid" during the 1992 campaign, may once again live up to his nickname, said Dr. Groseclose, an Arkansas native. Some believe he is politically dead, "but I don't think that's true... I've seen him come back from far worse things than these mid-term troubles.'

Clinton will have his work cut out for him in the next two years in enacting his legislative agenda, Dr. Groseclose observed. Although all but one president between 1968 and 1992 was Republican, the bills that succeeded in winning Congressional approval and a presidential signature mostly favored the Democrats who controlled the legislative branch until this year. "I actually think that Congress has a lot more bargaining power than the president," he said. "If I'm right, the Republicans are going to be much better off these next two years than they were for the first two years of Reagan's presidency." Although possibly lengthy hearings on the Whitewater affair may very well take place, "I have a feeling Clinton will not himself get in trouble. If anyone will, it might be Hillary," Dr. Groseclose said. "The word is that Clinton just has no ambition for money at all-it's all politics." At the root of Clinton's problems, Dr. Kryder said, are two mistakes he made early in his term: tackling the controversial issue of gays in the military, and assigning Hillary Clinton and Ira Magaziner to produce what was eventually viewed as a massive, "big government" health care reform package that ultimately failed. These issues contributed to the public view of Clinton as being akin to a running back that "fakes right and runs left,"

Dr. Kryder said.

At this point in his first term, President Harry Truman was also faced with a Republican majority in both houses of Congress and little public support. The similarities to Truman are really very striking," Dr. Kryder said. Truman had run out of prestige and leadership probably more thoroughly than any other president since Andrew Johnson, and Clinton seems to be in a comparable position here." Clinton himself realizes this and is already planning a re-election campaign modeled on Truman's, he added. "[He was] an incumbent president running as a challenger, an underdog, and I think this is the setting Clinton faces as well."

There are areas in which the two presidents are dissimilar, and these may prove Clinton's undoing, Dr. Kryder said. Truman was "unassailable" in foreign affairs; he led a victorious country united against the new Soviet threat, and his secretary of state was George C. Marshall, the much-respected general of the army in World War II and crafter of the Marshall Plan. Also, "the problem for Clinton is that people liked Truman," he said. He was perceived as personally honest and trustworthy, whereas Clinton has been characterized as a waffler and a womanizer.

Former vice president Dan Quayle will emerge as his party's presidential nominee in 1996 because he is "an extremely aggressive and confident campaigner," said Dr. Kryder, adding that every vice president in the last 40 years (except for Spiro Agnew and Nelson Rockefeller) has been nominated by his party or has actually become president. What Clinton needs to do, he said, is emphasize his own accomplishments such as deficit reduction, push his Middle Class Bill of Rights as an alternative to the GOP's Contract with America, and imitate Truman by vigorously challenging Congress and getting out the vote, he added.

Diligence, hard work, honesty and

A native of Brooklyn, NY, he was a

He returned to the Institute in 1987 as an officer in the Industrial Liaison Office where he was responsible for research interactions between MIT and 18 computer and electric power com-

1985 Mercury Grand Marquis, V8, auto, a/c, all ps, pb, 110K, new parts (muffler, exh tailpipe, alt, brakes, all guar by MIDAS), \$2100. E-mail <jjsong@mit.edu> or 494-1503.

1985 Buick Electra, light brown 4-dr sedan, 108K, gd shape, 1 ownr w/repair records, only 2 winters in New England, \$2,500 or best. Amy <aeblack@mit.edu> or x8-6152.

1986 Hyundai htchbk, nds mech work, \$300 or bst. Call x3-0219.

1986 Plymouth Horizon, 4-dr, 109K, gd cond, \$750. Call 577-0046

1986 Chevy Nova, 4-dr htchbk, 5-sp manual transm, single owner, well-maint, \$2500 or bst. Mike x3-7959.

1987 Mercury Sable, 4-dr sedan, auto, fully loaded, 109K, gd cond, \$2500 or bst. Call x8-7691 or 576-6186 or <jaykang@athena.mit.edu>.

1988 Ford Escort GL, 94K, power steering/mirrors, stickshift, grt body, must see, \$1650 or bst. John x3-2165 or <johnr@mit.edu>.

1988 Honda Accord LXI, 4DR, auto, Lo-Jack, alarm, maroon/tan int, loaded, pw/pl, a/c, sunrf, AM/FM stereo cass, well-maint, \$5,900. Call x3-4035.

to Green Line, pool & tennis, avail immed, \$950/ mo incl ht/hw. Call 491-3585 or 241-5182 eves.

Concord: adi Conantum, 4BR contemp, solar greenhse, 1 acre, access to tennis cts, boat landing, walking trails, nice town, gd schools, \$319,000. Call x3-5872 or 508-369-3014 or <dtsteven@mit.edu>.

Florida: Disney area, 3BR, 2b condo, htd pool, slps 8, 5 minutes to Disney, \$525/wk. Gary x3-0156 or 666-5805 or <dekow@merlot. pfc.mit.edu>

Melrose: sunny 1BR, hdwd flrs, balcony, close to trains & bus stop, 15 min. from MIT by car, \$525 incl ht/hw. E-mail < Imckie@mit.edu>.

Saugus: single-fam hse for rent, 3BR, ktchn, KR, LR, 2 full baths w/jacuzzi, fplc, 4-car drivevay, 30-40 min. to MIT, hse is 6 yrs old, \$1500/mo unfurn, unhtd. Ken 231-2272.

Somerville: ant for rent, 1st fl, 4 rms, suitable for single or couple, gd nbrhd, \$575/mo. Call 628-1193 lv mssg.

Somerville: Winter Hill, 2BR for rent, \$600/mo. Call 662-5390.

Room for rent, short/long-term, in lrg priv home nr lake, golf, nr Rts 2, 3, 93, 128, Mass Ave., bus to

Beacon Hill: room avail Feb 1, share apt w2 M MIT grads, \$360/mo + elec & water. Jim x2-1797 or e-mail <nemesis@athena.mit.edu>.

#### LOST AND FOUND

Found: man's watch on Vasser Street. Call 625-4073 eves. to describe and claim.

#### CHILDCARE

Child Care Providers: If you wish to advertise your availability to care for children in your home, we are required by law to publish your family day care license number in your ad. This applies to all child care ads unless you specify that you will take care of the child in his or her home.

Afterschool childcare for two boys, ages 7 and 4 1/2, pick up from school and bring to our home in Cambridge, Mon-Fri, 3:30- 6pm, car/references required. Call x3-7344 or 492-2053.

Part-time live-out caregiver needed 2 days/wk for 3-mo-old boy in Arlington; start early-mid Feb; non-smkr, experience, references req. John x3-3619 or Elizabeth 641-3316 lv mssg.

### Attention retirees

When you move, please send the change of address notice directly to the Benefits Office, Rm E19-411, MIT, Cambridge, 02139-4307. The Benefits Office maintains the Tech Talk mailing list for retired members of the community.



In an IAP course on Balinese Masked Theater, participants created stories with movement and masks. In photo at left, Kermit Dunkelberg, lecturer in music and theater arts, takes on a whole new persona with his mask. At right, dancers Dunkelberg, Rosa Ren '94 and Siu-Li Khoe, a junior in electrical science and engineering, follow the synchronous lead of I. Nyoman Catra, a Balinese practitioner of Topeng, a type of traditional masked theater.

# Awards & Honors

■ MIT technology is the basis for a refrigerator for superconducting devices that won a 1994 R&D 100 award from R&D Magazine. The award recognizes the refrigerator as one of the 100 most technologically significant new products of 1994.

Superconductivity offers the promise of products that are capable of tremendous power and speed when certain materials are cooled below a critical temperature. At this temperature, superconductive materials lose all electrical resistance and are capable of carrying very large currents with no heat generation.

**f**IS

-la

The B100 cryocooler, developed by Boreas, Inc., offers significant advantages over other technologies for cooling superconducting materials. It is based on a technology in which helium gas is compressed and expanded in a unique thermodynamic cycle.

That technology, known as the Boreas cycle, was invented in the MIT Cryogenic Engineering Laboratory in 1984 by Joseph L. Smith Jr., Samuel C. Collins Senior Professor of Mechanical Engineering and director of the laboratory, and Dr. Alan Crunkleton, then an MIT graduate student.

Professor Smith and Dr. Crunkleton went on to found Boreas, Inc., in 1988. Dr. Crunkleton is president of the company. tial civilian casualties from nuclear counterforce attacks.

The award, which will be presented to Professor Postol in February at the AAAS annual meeting in Atlanta, consists of a medal and \$5,000. The award was established by the Hilliard Roderick Foundation for the Prevention of Inadvertent Nuclear War.

■ A device developed by Professor Lee Grodzins of physics that can measure the amount of lead in paint was one of four finalists in the environment category of the 1994 Discover Awards. The awards, conferred by Discover magazine, celebrate "those individuals and organizations who have made a significant impact on the world in which we live."

The XL Spectrum Analyzer is "the first hand-held device that uses lowenergy X-rays to measure the amount of lead in paint," according to Discover. "Grodzin's \$12,000 instrument has enormous appeal for lead inspectors because it's the first pocket-size machine that can quickly and accurately measure the lead present in paint on exposed surfaces, where it is most likely to be inhaled or ingested. The XL can analyze a painted wall and determine the amount of lead in the paint within 20 seconds."

The magazine went on to note that "with results from the XL, home-owners can zero in on the offending lead rather than undertaking a more expensive and intrusive abatement procedure over a wider area." The XL is produced by Professor Grodzins' environmental products company, Niton, in Bedford. Charles Parsons, MIT PhD '92 and head of research and development at the company, helped turn Professor Grodzins' ideas into the award-winning device. nizes those who have distinguished themselves in the field of aerospace and who show strong potential for leadership in the future. Only one Fellow is chosen for every 1,000 voting members of the AIAA, the world's leading professional society in its field.

The Air Traffic Control Association (ATCA) has awarded its 1994 William A. Patenteau Memorial Award for outstanding contribution to the field of air traffic control research to **Paul R. Drouilhet** of Lincoln Laboratory.

The presentation, made by ATCA Chairman Garland Castleberry at the Sullivan, a panelist in a session on "Child, Family and School, a Triangle," spoke in Portugese on Parents Forum, a program which she founded. She learned Portugese when she taught English at the University of Coimbra in 1977-78.

■ Citing his contributions to tribology, materials processing and manufacturing, the Korea Broadcasting System has selected Professor Nam P. Suh as a recipient of a 1995 Distinguished Overseas Korean Prize. Dr. Suh, the Ralph and Eloise Cross Professor of Manufacturing and head of the Depart-

1701



developed by the group to process and graphically display immediately usable weather data for air traffic personnel.

The data is obtained from FAA and National Weather Service sensors, as well as from aircraft in flight, and processed to provide air traffic control personnel with current information on weather in the terminal area and short-term (up to 30 minutes) predictions of significant weather phenomena.

■ Stefan Thomke, who is completing a doctoral program in electrical engineering (his home department) and management, has been awarded first prize in the Product Development and Management Association's 1994 Dissertation Proposal competition.

The title of his doctoral thesis is "The Economics of Experimentation in the Design of New Products and Processes." It examines the relative economics of performing various experiments involving simulation, mass screening and rapid prototyping during the new-product development process.

The winning dissertation was one of 21 selected for evaluation by five reviewers in the international contest. Mr. Thomke presented his proposal at the organization's international conference, held in Novem-

Professor Theodore Postol of the Program in Science, Technology and Society has been awarded the 1995 Hilliard Roderick Prize in Science, Arms Control and International Security by the American Association for the Advancement of Science. The award honors individuals who make outstanding contributions that advance our understanding of issues related to arms control and international security, and that have an important scientific or technical dimension.

Professor Postol, who is also affiliated with the Defense and Arms Control Studies Program, is being honored for his expertise in and presentation of technical analyses related to a number of controversial issues. These include strategic and tactical missile defenses, the potential effects of superfires from nuclear attacks near urban areas and poten■ Joseph F. Shea, former senior lecturer, and Professor Alan H. Epstein, both of the Department of Aeronautics and Astronautics, have been honored by the American Institute of Aeronautics and Astronautics.

Dr. Shea has been elected an Honorary Fellow "for a lifetime of technical leadership in the nation's ballistic missile and Apollo programs, as well as outstanding contributions to industry and education." The award is the organization's highest.

Professor Epstein has been elected an AIAA Fellow, an action that recog-



Paul R. Drouilhet of Lincoln Laboratory, left, receives award from Air Traffic Control Association Chairman Garland Castleberry. Chairmanelect Frank Frisbie is in the center.

ATC Convention in Washington, cited Mr. Drouilhet's contribution to the quality, safety and efficiency of the air traffic control system. Mr. Drouilhet is currently assigned to the Federal Aviation Administration headquarters from the Lincoln Laboratory Director's Office.

■ Eve Sullivan, senior editorial assistant in the Center for Theoretical Physics, gave a presentation at the fifth annual meeting of the Portugese Association of Child and Adolescent Psychiatry held in December in Coimbra, Portugal on the topic, "New Paths in Child and Adolescent Psychiatry." Ms. ment of Mechanical Engineering, was also cited for his accomplishments in establishing university-industry research programs and for his commitment to public service.

Lincoln Laboratory's Weather Sensing Group (Group 43), led by **Dr. James E. Evans**, has received an "outstanding performance" award from the Federal Aviation Administration.

The award recognizes Group 43's work in developing the prototype Integrated Terminal Weather System (ITWS), which the FAA has tested in Memphis, TN, and Orlando, FL. The prototype ITWS system uses algorithms ber in Boston.

Mr. Thomke's thesis committee includes Professor Eric A. Von Hippel of the Sloan School, thesis supervisor; Don P. Clausing, the Bernard M. Gordon Adjunct Professor of Engineering Innovation and Practice in the Department of Electrical Engineering and Computer Science, and Associate Professor Steven D. Eppinger of the Sloan School.

■ Dr. Thomas F. Quatieri of the Lincoln Laboratory staff has received the IEEE Signal Processing Society's Senior Award for his paper, "Energy Separation in Signal Modulations With Application to Speech Analysis," which he wrote with Professors Petros Maragos of the Georgia Institute of Technology and James F. Kaiser of Duke University. The award was the third he has received in recent years from the IEEE.

# Lostitute Calendar

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

January 25 - February 5

#### SEMINARS & LECTURES

#### FRIDAY, JANUARY 27

Weathering, Plants, and the Geochemical Carbon Cycle\*—Ford Cochran, Yale. Chemical Oceanography Seminar, 3pm, Bldg E34-3rd floor classroom. Contact: Youngsook Huh x3-8732.

#### **TUESDAY, JANUARY 31**

- Popularization and the Public Face of Science in 19th Century France\*—Robert Fox, Oxford Univ., UK. Sponsored by the Dibner Institute for the History of Science and Technology, 12pm, Rm E56-100. Please call or email if you plan to attend: x3-6989 or <kontoff@mit.edu>.
- Telomerase Biochemistry and Regulation\*-Carol Greider. Sponsored by the Biology Department, 4:15pm, Rm 10-250. Coffee and tea served before lecture.

#### THURSDAY, FEBRUARY 2

Fact, Folklore and Rhetoric: The Problems of Science-based Industry in France, 1870-1914\*—Robert Fox, Oxford Univ., UK. Sponsored by the Dibner Institute for the History of Science and Technology, 4pm, Rm E56-100. Please call or e-mail if you plan to attend: x3-6989 or <kontoff@mit.edu>.

#### COMMUNITY CALENDAR

- Physical Education Registration\*\*—Feb 6: 11am-1pm, Rockwell Cage. For anyone in the MIT community wishing to take PE classes 3rd quarter (2/7-3/23). Registration is on a first come basis. All participants are required to purchase an athletic card, with the exception of undergraduates taking classes for PE credit. Schedules availabe in duPont lobby. More info: x3-4291.
- User Groups & Quick Start Classes\*\*—Jan 25: Web Quick Start Class, 12-1pm, Rm E40-302. Jan 26: CWIS User Group, 12-1:30pm, Rm E40-302. Jan 27: Mac Quick Start Class, 12:15-1pm, Rm 11-206. Events are free, sponsored by MIT Information Services.

#### MITAC

Location: Room 20A-023, 18 Vassar St, Cambridge - 9:30am to 3:30pm, Monday, Wednesday, Thursday, & Friday. Room LLA-218, Lincoln Labs, Lexington - 1:15pm to 4pm; Thursday & Friday. MITAC is closed Tuesday and all Institute Holidays. Call x3-7990 or e-mail < byg @mit.edu> for futher information. Please note that MITAC accepts only cash or a personal check (with a valid MIT ID) made payable to MIT.

Discount Movie Tickets\*\*—Loews Cinemas \$5.00 (\$4.50 plus 50¢ service charge), Showcase Cinemas \$4.75 (\$4.25 plus 50¢ service charge), General Cinemas \$5.00 (\$4.50 plus 50¢ service charge).

# Benefits thanks community

The staff of the Benefits Office thanks the members of the community for their patience in waiting for individual responses to benefits questions.

The months of November and December are traditionally the busiest of the year in the Benefits Office, mainly because they include the annual open enrollment period as well as the processing of end-of-year changes, according to Marianne Howard, manager of benefits.

This year, there was unusually heavy activity with approximately 3,800 telephone calls received in November, along with 1,900 benefit change notifications. As a result, staff members sometimes found it difficult to respond to each inquiry quickly and personally.

January continues to be busy because of the change in life insurance coverage and its special open-enrollment period that ends next week, Ms. Howard said.

"We will continue to work toward improving the communication process between our office and the community," she said. "We welcome your input in our ongoing effort to improve our services." For those who find it more convenient to use email, inquiries should be sent to <mlhoward@mit.edu>.

Student Center, tickets \$9, \$8 MIT community, \$6 MIT/Wellesley students. More info: x3-6294.

#### EXHIBITS

- List Visual Arts Center (E15): The Masculine Masquerade: Masculinity and Representation. JHours: T/Th/F 12-6; Weds 12-8pm; Weekends 1-5; closed holidays. Show runs Jan 21 through March 26. Curatorial Office Hours—Meet the curatorial staff for informal discussions and questions about art, Wednesdays, 12:30-1:30pm. More info: x3-4680.
- MIT Museum (N52): From Louis Sullivan to SOM: Boston Grads Go to Chicago. Drawings and artifacts that explore the explosive growth of Chicago in the last quarter of the 19th century and the contributions to this building boom by MIT and Boston architects. Show runs through Jan 29.
- Ongoing: 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 9-5, Weekends 1-5. Call x3-4444.
- Compton Gallery-mechanical e. motions@mit.edu. Arthur Ganson's ingenious kinetic sculptures address emotional and philosophical issues between the animate and inanimate, human and machine. Show runs through Feb 15. M-F 9-5pm. Ganson's residency is supported by the Knight Foundation, the MIT Museum, and the MIT Office of the Arts. More info: x3-4444.
- Hart Nautical Gallery—Course 13, 1893-1993: From Naval Architecture to Ocean Engineering. The history of the Dept of Ocean Engineering. Includes a prototype autonomous underwater vehicle, designed and built in the 1970s, and current work including research performed by the department for Bill Koch's successful America's Cup campaign with America<sup>3</sup> Permanent Exhibition of MIT Museum's Ship Models. Ongoing. Weekdays 9-8. Call x3-5942.

# Here & There

■ Dr. Alice Amsden, Ellen Richards Professor of Political Economy in the Department of Urban Studies and Planning, is co-author of a book receiving widespread attention in academic and economic circles.

Essentially, *The Market Meets Its Match* (Harvard University Press) asks whether the shock therapy route is the only true path to capitalism?

Peter Passell, writing in The New York Times, says that the book co-authored by Dr. Amsden, Jacek Kochanowicz of the University of Warsaw and Lance Taylor of the New School for Social Research— "offers a critique of 'shock therapy' as practiced in Eastern Europe, envisioning instead a gradual transition to free markets bast on East Asia's experience."

■ One of the most difficult tasks facing science writers at universities such as MIT is learning about faculty research. When this became the subject of an article in SPECTRA, the newsletter of the Speech Communication Association, the News Office's own intrepid science writer, Elizabeth Thomson, was one of those surveyed about their own methods

 of finding out about interesting projects. While Ms. Thomson has many tricks up her sleeve, two of the methods she specifically mentions in the article are reading departmental newsletters and attending public lectures by faculty members.

This item also serves as a useful reminder to faculty members and other researchers (including students) that the News Office is always interested in work you are doing that may have news value. Our appetite ranges from gene research to robotics to dimpled baseball bats (one of last year's biggest "hits"), so please keep us in mind.

#### QUOTES:

■ "We've learned from both Northridge (CA) and this quake, that in the world's best earthquake-engineered areas, we still have inadequacies in the design standards." —Dr. M. Nafi Toksöz, professor of geophysics, in a Boston Herald article on the Japan earthquake.

■ If this same earthquake had occurred under a city in one of the least developed countries of the world, we would have been hearing about tens of thousands of deaths, maybe hundreds of thousands." — Dr. Robert Whitman, professor emeritus of civil and environmental engineering, in The Boston Globe.

#### CLIPS:

The Washington Post on January 23 carried this item about former MIT provost and professor **John M. Deutch:** 

"Friday was just another working day for Deputy Defense Secretary John M. Deutch, morning meetings and such till lunch time. He then met longtime sweetheart Patricia Lyon Martin in his anteroom, took her to lunch and then to the Arlington [Virginia] courthouse where they got married in a civil ceremony. He left Patricia Lyon Deutch at the courthouse and went back to work.

"President Clinton called to congratulate and didn't complain about the long lunch hour.

"The happy couple, high school classmates at Sidwell Friends a few years back, had been married to other spouses for 20 years and each was divorced 10 years ago. Her two children, two of his children, a grandson and assorted relatives attended the event. Why now? It was her birthday.

"Ah, romance Pentagon style."

The item was carried under the headline: "I Do... Have to Return to Work."

8

## **Ongoing Community Meetings**

#### HEALTH

- Alcoholics Anonymous (AA)\*--Meetings every Tues, 12-1pm; Thurs, 12-1pm, Rm E23-364. Alise, x3-4911.
- Alexander Technique\*\*—Group class sponsored by the MIT Women's League, Tuesdays 5:30-6:30pm, Bldg 10. More info: Lisa First x3-5619.
- Women's 12-Step AA\*—Meetings every Monday evening, 5:30-7pm, Rm E23-364. Alise, x3-4911.
- Al-Anon\*-Meeting every Fri, noon-1pm, Rm E23-297; every Tues, 12:30-1:30pm, Rm E53-212, Dewey Library (2nd Fl. Study Lounge); and every Mon, 12-1pm, Lincoln Lab Bldg 1218, Family Support Ctr. The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Alise, x3-4911.
- Alcohol Support Group\*\*-Meetings every Wednesday, 7:30-9am, sponsored by MIT Social Work Service. Alise, x3-4911.
- Cancer Support Group\*\*-Thursdays, 12-2pm. For those with acute and chronic forms of cancer. Sponsored by the MIT Medical Dept. Dawn Metcalf, Social Work Service, x3-4911.
- Childbirth Preparation\*\*—Early Pregnancy, Lamaze Childbirth Preparation, and Lamaze Review classes are offered to patients of the MIT Medical Department's Obstetrics Service. Call x3-1316.
- Co-Dependents Anonymous (CoDA)\*-Thursdays, 6:30-8pm, Rm 66-168. Alise, x3-4911.
- Health Resource Center\*\*-Books, free video loan program and brochures on diet, exercise, wellness, childbirth, parenting, aging and much

MIT Language Conversation Exchange\*\*-Practice a language with a native speaker and get to know someone

2pm, Rm E23-364. Call x3-4911.

4617

Weight Watchers at Work\*\*-New session

starting Feb 14. More info: Rose Bella x3-

- from another country. Call x3-1614 for more information.
- Guide for Foreign National Spouses Seeking Work\*\*—Information on topics such as American resumes, job interviews, volunteer work, employment agencies, salary negotiation, visa issues, much more. Pree information booklets, Rm 5-106 and Rm 4-105. Reference binders may be used in Rm 12-170; ask for Beth Anderson.
- Job Search Support Group\*\*-Self-help group for spouses of foreign nationals who are looking for paid or volunteer work. Sponsored by the MIT Wives' Group. More info: Miriam Richmond, 225-2698.
- Chinese Lunch Table. Mondays, 12-2pm, Student Center, Rm 439. Bring your own lunch and come practice speaking Chinese. All levels welcome. Extensive collection of books also available in our library. Sponsored by the Chinese Students Chib.
- Esperanto Conversation Group. Mondays 7:30-9pm in the SCC Coffeeshop in the Student Center. Sponsored by the MIT Societo por Esperanto. More info: <speak@athena.mit.edu>.

#### furniture needed in good condition, to be sold to MIT/Harvard students. Donations are tax-deductible and receipted; our profits go to MIT scholarships. Call x3-4293 or x3-3656. GABLES (Gay, Bisexual, and Lesbian Employees and Supporters) at MIT\*\*-

**COMMUNITY** 

GABLES (Gay, Biserual, and Lesbian Employees and Supporters) at MIT\*\*---Meetings held twice a month, one for general business and one for a program or social gathering. Info line x2-1014. Staff lesbigay e-mail list sign-up, send e-mail to <gables-request @ athena.mit.edu>.

The Furniture Exchange at MIT\*\*---Used

MIT Toastmasters\*\*—Upcoming meetings: Feb 10, 24, Mar 10, 24, Apr 7, 21, May 5, 19, June 9, 23, July 14, 28, Aug 11, 25, Sept 8, 22, Oct 6, 20, Nov 3, 17, Dec 1, 15. An organization that helps people improve and practice their public speaking and presentationskills. 12:05-1:25 pm, Rm E19-220. Sponsored by MIT Personnel Office.

#### FAMILY

- Adoptive Parents Group\*\*-Dates & time to be scheduled. No fee. Preregistration required, Sponsored by the Family Resource Center. Call x3-1592.
- African American Parenting\*\*—Dates and time to be scheduled. Continuing discussion series, begun in Spring 1993, on the special challenges faced by African American families. New members welcome. Cosponsored by the Family Resource Center and the MIT Medical Dept. No fee. More info/preregistration: x3-4911.

Family Resource Center\*\*—In addition to parenting workshops and programs, the Family Resource Center also offers support and training programs for child care providers, workshops at your request, a lending library, and individual consultations concerning parenting, child care options, and work/family issues. Call x3-1592. Lincoln Lab families can call 981-7028.

Ski Cards International Discount Book\*\*-\$27.50 (reg. \$60).

Entertainment Books\*\*—Boston Area North, Boston Area West, or Boston Area South, \$30 (reg \$35). Valid now through Dec 1, 1995.

New England Aquarium\*\*—\$5.50 (reg \$8.50) for ages 11 and over. Valid through May 1995.

#### MUSIC

MIT Women's Chorale\*\*—Rehearsals begin Jan 26.8-10pm, Emma Rogers Rm (10-340). Open to all women in the MIT/Harvard community. Information: Marilyn Dorsey, 484-8187.

Boston College Wind Quintet\*—Feb2: Chapel Concert Series, 12pm, MIT Chapel. More info: x3-2906.

#### THEATER

Company\*\*-Feb 3-4, Feb 5, Feb 9-11: MIT Musical Theatre Guild production of the landmark Stephen Sondheim musical. 8pm (Feb 3-4, Feb 9-11), 2pm (Feb 5). Sala de Puerto Rico, Sloan School Dean's Gallery: Mirage. Oil and acrylic paintings by Sal Puleo on view through Jan 27, Rm E52-466, M-F 8-5pm. Images from 1's and 0's. Digital imagery by Phil McAlary. Opening reception: Feb 1, 4-5pm. More info: Michelle Fiorenza, x3-9455.

#### MOVIES

Admission to below Lecture Series Committe 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. All movies are at 7 & 10pm in Rm 26-100 unless otherwise noted.

Jan 25: Ghostbusters. Jan 26: Free sneak preview: Before Sunrise. Jan 27: Full Metal Jacket. Jan 28: Science Fiction Marathon XVII (6pm - 9am). Feb 1: Hellbound Hellraiser II.

Next deadline for listings: 12 noon Friday, January 27. Covers events from Wednesday, February 1 through Sunday, February 12. Listings for the Institute Calendar and Student Notices may be e-mailed to -ttcalendar@mit.edu> or mailed to Calendar Editor, Rm 5-111. Early submissions encouraged. Parenting Children with Attention Deficit Hyperactivity Disorder\*\*—Dates and time to be scheduled. No fee. Preregistration required. Sponsored by the Family Resource Center. Call x3-1592.

Playgroups\*\*—The MIT Wives Group and the MIT Family Resource Center cosponsors and provides ongoing support for establishing and maintaining informal parent-child playgroups. Contact Wives Group, Rm E23-376, x3-1614.

Working Parents Group\*\*—Ongoing meetings weekly on Tuesdays, 12:30-1:30pm. Cosponsored by the Family Resource Center and the MIT Medical Dept. New members welcome, no fee, preregistration required, call x3-4911. more. Rm E23-205; open weekdays 9-3pm. Call x3-1316.

Mothers Support Group\*—Small intimate group of women led by a LSW meets Wednesdays 12-1pm at the MIT Medical Center. Carol x3-7864 or JoAnne 227-6992.

Wothers Group\*\*—For mothers of newborns to 4 mos old, Tuesdays 12:30-1:30pm. Sponsored by the MIT Family Resource Center and the MIT Medical Dept. No fee. Preregistration required. Call x3-2916.

Nursing Mothers Room\*\*—A comfortable, private place to nurse babies or express milk. Equipped with a hospital-type breast pump. Cosponsored by the Family Resource Center and the Medical Dept. Located within the Women's Lounge in Rm 10-384, accessible 24 hrs/day. Make arrangements with Margery Wilson, Rm E23-407, x3-2466.

Nursing Mothers' Support Group\*\*--Third Wednesday of each month, 11am-12pm, Rm E23-297. No fee. No registration. Call x3-2466. Sponsored by the Medical Dept. and the Pamily Resource Center.

Overeaters Anonymous (OA)\*-Thursdays, 1-

La Table Francophone. Thursdays 1-2pm in Walker. Open to anyone who wants to speak French over lunch in a friendly atmosphere. Call x3-9777.

Japanese Lunch Table. Thursdays through Dec 8 (except Nov 24) at 12:30-2pm in Rms 400 and 491 in the MIT Student Center, co-hosted by the MIT Japan Program and the MIT Japanese Wives' Group. Bring a lunch and talk with native Japanese speakers. Pree baby-sitting provided. More info, call Yu Hasegawa-Johnson, 252-4314 or Cornelia Robart, x3-2839.

MIT-Japan Program. Opportunity for MIT science, technology and management students to spend a year in Japan working at a major Japanese company or laboratory. Training, placement, travel and living expenses are covered by the Program. Patricia Gercik x3-3142, Rm E38-754.

Hosts to International Students Program\*-Offer assistance, encouragement and occasional hospitality to our students from around the world. Not a home-stay program. Faculty, staff and alumni/ac (singles, couples or families) are encouraged to participate. Kate Baty, x3-4862.



Vicky Diadiuk (ScD '78) works with Patrick Pelletier (left) and Mark Adoorian, both sophomores in computer science and engineering, in the Edgerton Center lab where she teaches a freshman advisor seminar on Devices for Optical Communication. Photo by Donna Coveney

## Seminars let teachers share skills

(continued from page 1) of students who have built other devices.

For the students, such seminars provide a means of learning electronics, assembly and machining skills to complement textbook engineering know-how. "They now appreciate that building something is a lot more than just putting it down on paper. They know, for example, what technicians do, and the skills of the machinists who make these fancy parts," Dr. Diadiuk said. Because of limited budgets, they also learn how to locate and adapt used parts they need to make things, she added.

Teaching a seminar can also be a rewarding experience for the advisor/ instructors. "It's like a mini UROP; it becomes very dynamic very quickly," Dr. Diadiuk said. "I got to know them [the students] really well." Advisors quite a few of whom are administrators like herself rather than faculty or research staff—are assisted by upperclassmen who are associate advisors, she added. "One gets lots of guidance. It's really fun and it's not that hard."

Professor Vandiver hopes that other MIT staff with technical skills will volunteer to teach an advisor seminar at the Center. "These kinds of people are really valuable," he said. Anyone with hands-on knowledge in areas such as electronics, machining, photography or physics and who is interested in teaching a seminar is invited to call him at x3-4366 or email <kimv@mit.edu>.

# US-Russian work tests sky-mapping technique

#### (continued from page 1)

entists' understanding of the ionosphere and could ultimately help them predict the storms there that affect radio signals, satellites and more. Dr. Foster noted that in recent months two Canadian satellites "were effectively destroyed" by ionospheric storms.

Ionospheric radio tomography involves a satellite that sends radio signals through the ionosphere to receivers located at intervals on the ground. By analyzing the radio signals once they reach Earth, scientists can determine variations in the density of the electrically charged gas that makes up the ionosphere. From there, they can map these variations to get the general structure of the ionosphere, including small-scale phenomena.

The technique could lead to global maps of the ionosphere because the receivers involved are small and portable, and could be distributed around the world. In contrast, the large radar facilities currently used to produce images of the ionosphere—there are six such facilities in the world, including the Millstone Hill Research Radar at Haystack—are "much more expensive to build and operate, precluding a large world-wide network," Dr. Foster said.

For RATE, which was conducted for 10 days in the fall of 1993, the scientists placed four receivers provided by the Russians in a north-south line along the northeastern US and eastern Canada. Russian navigation satellites flew over these sites every hour, sending down radio signals to all four receivers simultaneously. The resulting data were then analyzed to produce an image of the ionosphere using mathematical algorithms developed by the Russians.

Concurrently, the Air Force scien-

tists placed US receivers at the same four sites and recorded signals from US satellites. They analyzed the data with their own set of algorithms.

The scientists then compared the American and Russian images produced via the experimental tomographic techniques to actual images of the ionosphere made over the same period from the Millstone Hill radar facility.

The result? Both the Russian and American tomographic images "compared very well to the Millstone Hill results," Dr. Foster said, though the Air Force results "were not quite as refined as the Russians." This is largely because the mathematical algorithms the Russian group used are more highly developed, Dr. Foster said. (The two groups have approached ionospheric radio tomography using mathematical techniques that are completely different.) However, Dr. Foster said, the Air Force receivers are more sophisticated than those of the Russians.

A paper on the work by 11 members of the RATE team was published last month in the International Journal of Imaging Systems and Technology. Haystack authors are Dr. Foster and principal research scientists Michael J. Buonsanto and John M. Holt. (Other RATE papers were presented at a conference in Wales last summer.)

The scientists are continuing to use the data to improve the satellite hardware and refine the mathematics. In addition, they are sharing the data with other scientists around the world who hope to refine their own tomographic algorithms (there are more than half a dozen different approaches toward analyzing the data, Dr. Foster said). After applying their algorithms to the data collected by the Russian and American receivers, these scientists can then cross-calibrate their own results by comparing them to the actual images produced at Millstone Hill.

"People are working with each other," he said. "Everyone is interested in making this technique work."

Because RATE coincided with a major magnetic storm in the atmosphere, the data it generated have great scientific interest. Several other scientific instruments that were operating simultaneously augment documentation on the storm. With that wealth of data, "we may be able to understand some new phenomena we observed related to magnetic storms," Dr. Foster said.

This month Dr. Foster presented a paper on the storm at a meeting of the Union of International Radio Scientists, where his overview of the storm included data collected "from the solar wind [the charged particles emitted by the sun that ultimately caused the storm] through the magnetosphere [the region around the Earth dominated by the planet's magnetic field] to the ionosphere."

The large amount of data on the storm will lead to "many more papers on the geophysics of what took place,"

# Berger to head new international program

(continued from page 1) politics.

Seek collaborations with research and educational institutions in China.
Develop the MISTI/China link as a collaboration in which other institutions elsewhere in the world might participate.

Dr. Berger is best known for her contributions to the study of Western Europe. Much of her research has analyzed the persistence of differences among advanced industrial societies. In 1986 she founded Seminar XXI, an MIT program on international politics that is taught in Washington, DC, for members of government and business. She was a co-author of *Made in America: Regaining the Productive Edge* (MIT Press, 1989). She is a member of the operating committee of the Industrial Performance Center at MIT and of the Center for International Studies. Dr. Berger received the BA degree from the University of Chicago in 1960 and the PhD from Harvard University in 1967. She joined MIT in 1968. She continues as a senior research associate at Harvard's Center for European Studies.

Her honors include the French-American Foundation Chair in American Civilization at the Ecole des Hautes Etudes in Paris, Guggenheim and Woodrow Wilson fellowships, and grants from the Ford Foundation and the American Philosophical Society. She is a fellow of the American Academy of Arts and Sciences, a member of the Council on Foreign Relations, and a member of the German American Academic Council.

Dr. Berger headed the Department of Political Science from 1989 to 1992. She has been Ford International Professor of Political Science since 1985. Notes from the Lab

#### FUEL BEHAVIOR INSIDE AN AUTO ENGINE

Using a high-speed video camera, MIT researchers have for the first time directly observed how liquid fuel enters the cylinder of an automobile engine when the engine is starting up—a condition conducive to the creation of hydrocarbons, key ingredients in the formation of smog.

The researchers found that instead of coming in as small droplets that can vaporize and burn, a surprisingly large fraction of the fuel enters as large droplets that form liquid films that coat the inside of the cylinder and may

subsequently be swept out as hydrocarbons in the exhaust.

How to prevent that behavior is not yet clear, but tests show that little is gained by using an air-assisted fuel injector now being developed by automobile manufacturers. The work, which is led by Professor Wai Cheng of the Department of Mechanical Engineering and the Energy Laboratory, is funded by the Energy Laboratory's Consortium on Energy Research. The diagram at left is courtesy of the Energy Laboratory. In parallel work Dr. Cheng and colleagues have developed a computer model that can predict the vaporization behavior of a complex fuel. The model's predictions match up well with experimental measurements. Once fully developed and tested, the model should provide valuable in-

## Student's mother slain

C usan Ginsburg Hadden, the Uni- ers, a news report said. The New York

Versity of Texas professor who was murdered January 15 in Cambodia, is the mother of an MIT student, William J. Hadden IV, a junior in architecture and a member of Theta Delta Chi fraternity.

His father, James Hadden Jr., was wounded seriously in the attack and was taken first to a hospital in Phnom Penh and then to Singapore, according to news accounts. One news report attributed the attack to Khmer Rouge guerrillas. Another blamed it on bandits. Also killed in the attack was a Cambodian, described in one news account as the driver of the tourist van and in another account as the interpreter.

Ms. Hadden, a professor at the Lyndon Baines Johnson School of Public Affairs at the University of Texas, was on her way to the ancient Khmer capital of Ankor when the van—one in a convoy of four—was attacked with a grenade launcher. Four police traveling with the caravan fired at the attackTimes, quoting friends of Professor Hadden, said the visit was her lifelong dream and her husband had arranged the trip as a 50th birthday present.

## Free aid booklet

A free handbook is available for prospective and present college students explaining how to find out if they are eligible to receive federal, state and college-supported financial aid, where to get the application forms they will need, when to apply and where to get more information.

The Handbook on Admissions and Financial Aid at Independent Colleges in Massachusetts is available by calling voice mail (617) 497-3049.

Published annually by the Association of Independent Colleges and Universities in Massachusetts (AICUM), the booklet also includes statistical information on 56 independent institutions in Massachusetts.

Apparatus for Photographing Liquid Fuel Behavior Inside an Engine

Fuel spray

Glass

sights into how proposed and mandated changes in fuels will affect the vaporization process, hence engine start-up behavior and emissions. The computer-modeling work is supported by the Energy Laboratory's Consortium on Engine/Fuel Interactions. (Source: e-lab, a publication of the MIT Energy Laboratory.)

### THE MYSTERY OF MEMORY CELLS

Cylinder

Piston

We're all familiar with the fact that successful immunization leads to long-term protection against the infectious agent (e.g., a virus). This is because some of the cells that produce antibodies for a given infection develop into long-lived "memory cells" that remain in the body. These cells respond rapidly and vigorously to a later challenge by the same infectious agent, producing large amounts of specific antibodies. However, the molecular basis for the establishment of these memory cells is unknown. Jianzhu Chen, a professor in the Department of Biology and the Center for Cancer Research, is working to solve this mystery via genetic manipulations of the immune system in mice. His work is supported by the Arthritis Foundation and the NIH. (Source: Center for Cancer Research Newsletter)

This column features summaries of MIT research drawn from several sources. If you have an item to suggest, send it to Elizabeth Thomson, Rm 5-111, or <thomson@mit.edu>.

Dr. Foster said.

A total of four Russian, 12 MIT, and four Phillips Laboratory researchers were involved in RATE. The MIT scientists most directly involved in the work were Drs. Foster and Holt at Haystack. Other Haystack researchers were Dr. Buonsanto, Dwight Sipler, Tab Gallardo, Aaron D. Pailes, Steve Sawicki, Chris E. Farrell, Alex P. Carson, Glenn Campbell, David Kotchman and Steve J. Cariglia.

The Russian principal investigators for the experiment were Professor Vyatcheslav E. Kunitsyn of Moscow State University and Professor Evgeny D. Tereshchenko of the Polar Geophysical Institute. The Phillips Laboratory principal investigator was John A. Klobuchar.

Participation of the Russian and MIT research teams involved in RATE was supported by the NSF; the Phillips Laboratory work was funded by the US Air Force. The Russian team acknowledges the Russian Ministry of Science for partial support of the research.



Nicole Suoja, a graduate student in Ocean Engineering, lowers an instrument to measure waves (wave gauge) into the water off a dock at Woods Hole. The instrumentation measures directional distribution and size of short sea waves.



Graduate students Jon Grant, left, and Paul Lemoine, far right, place thruster on a test jig calibrated to take data on thruster performance into water at Woods Hole Oceanographic Institute, where they are doing a two-week field engineering lab which is a requirement for the master's degree.

## **Marine Adventures**

The Department of Ocean Engineering has a new program in Marine Environmental Systems which offers a Master of Engineering degree program for professional development. Recognizing the rapidly growing need in the marine field for environmental training to understand and manage complex systems, the department created a program that focuses on the multi-disciplinary nature of ocean-related environmental problems and that offers hands-on experience and training. Ocean Engineering faculty interests spans ocean science, engineering and management and the department has formal ties to the Woods Hole Oceanographic Institution (WHOI).

The program's goal is to produce professionals who are intellectually and practically conversant in the engineering of ocean-based systems and who can: —Understand and monitor the ocean environment.

-Plan, design, build and use technologies to maintain the integrity of the oceans and their resources.

-Manage the large marine systems and activities they support.

Photos by Donna Coveney





Woods Hole Oceanographic Research Engineer Ned Forrester explains propulsion system to MIT students during the disassembly of an ROV (remotely operated vehicle). Left to right: Claudia Rodriguez, Nicole Suoja (bending over), Joseph Curcio, Jon Grant and Paul Lemoine.

Christopher von Alt of WHOI, Khary Bridgewater, '95, and Claudia Rodriguez pitch Remus, a lightweight AUV (automated underwater vehicle), off the WHOI research vessel Asterias into Eel Pond in Woods Hole as part of a two-week field engineering lab required for their master's degree in the Ocean Engineering department. Among thosse looking on are Ocean Engineering Professor Judith Kildow and graduate students Jon Grant, Nicole Suoja, Erik Burian and Joseph Curcio.