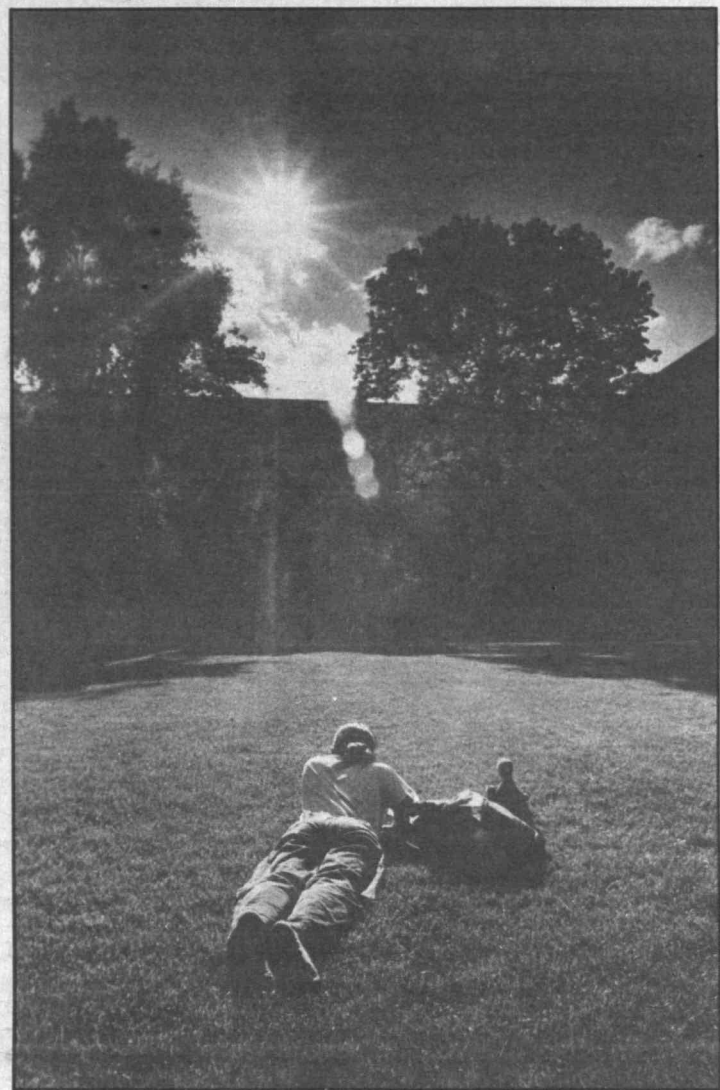


## Do ray me



Taking advantage of a quiet and sun-filled Killian Court, freshman Phil Ogston catches a little solar energy while studying.

Photo by Donna Coveney

## LIS will move to Northeastern

Northeastern University announced last week that it will be the new home of the Lowell Institute School (LIS), housed since its founding in 1903 at MIT.

Last December former Provost Mark Wrighton announced MIT's decision to discontinue the funding and provision of space effective in June 1996 for the evening school to "keep down costs" and to "focus on (MIT's) principal educational mission as a research university."

The Lowell Institute School offers non-degree based technical education to Boston-area residents. The school currently serves about 1,000 students each year by providing evening technical courses in subjects such as computer applications, programming and drafting.

"As soon as I read that MIT would no longer support the school, we became interested," said Northeastern Provost Michael A. Baer. "The Lowell Institute School has a long history of providing quality technology education to working people in the Boston area, and that's also something we feel strongly about at Northeastern."

"This is a wonderful union of two schools committed to offering quality, practical education," Northeastern President John A. Curry said. "Both Northeastern University and the Lowell Institute School look forward to making first-rate instruction available to those who will put what they learn to work."

The Lowell Institute School at Northeastern University will begin offering classes in fall 1996 as a division of the School of Engineering Technology. At that point the entire evening program at Northeastern will be joined with the Lowell Institute School under

the Lowell name, according to Dr. Charles Finn (MIT '71), director of the Northeastern school. Credits from Lowell School classes may be applied toward certificates or degrees at Northeastern. Many of the courses taught at MIT have already been and will continue to be eligible for transfer credit.

"All current Lowell students will be encouraged to join the Lowell pro-

gram at Northeastern," Dr. Finn said, adding that instructors will also be encouraged to make the transfer. Several present LIS instructors also teach in Northeastern's program.

The Lowell School was founded and is substantially supported by the Lowell Foundation, which provides funds to support administration of the school and defray tuition costs.

## R.M. White is 1995-96 Compton Lecturer

Dr. Robert M. White, the distinguished environmental scientist and engineer who headed the National Academy of Engineering (NAE) from 1983 until June of this year, will be the 1995-96 Karl T. Compton Lecturer.



White

His appointment was announced by President Charles M. Vest, who said that Dr. White has a "wealth of experience in the world of federal policy affecting engineering and science, as well as expertise and experience in matters regarding the environment. He is a deep thinker whose interactions with faculty and students are very timely as we address MIT's role in a rapidly changing world."

Dr. White, a senior fellow at the University Corporation of Atmospheric Research, will have an office in Building E40, the headquarters of the Joint Program on the Science and Policy of Global Change.

His hosts there will be the co-directors of the program, Henry D. Jacoby, the William F. Pounds Professor at the Sloan School of Management, and Ronald G. Prinn, the TEPCO Professor of Atmospheric Chemistry in the Department of Earth, Atmospheric and Planetary Sciences. Professor Jacoby heads the Center for Energy and Environmental Policy Research, Professor Prinn the Center for Global Change Science.

Dr. White will deliver lectures, meet various classes and interact informally with faculty and students in several departments and research centers.

The Compton lectureship, established in 1957, honors the late Karl Taylor Compton, president of MIT from 1930-1948 and chairman of the Corporation from 1948-1954. The purpose of the lectureship is to give the MIT community direct contact with the important ideas of our times as propounded by those who have contributed much to modern thought.

Over the years a wide variety of people, including many scientists and several government leaders, have been Compton Lecturers. The first was the

MIT 34, University of California Berkeley 27, Princeton 19, Stanford 18, Harvard 18, Yale 17, Chicago 14, Michigan 10, Cal Tech 10, UC San Francisco 7, Cornell 7, Duke 6, Columbia 5, Minnesota 4, Wisconsin 4, Johns Hopkins 3, and Illinois (Champaign-Urbana) 3.

MIT's sweep was achieved even though it has doctoral programs in only 23 of the 41 subjects examined. Among MIT's competitors in these 23 fields in the humanities, engineering and the

sciences, the "Top 3" honors were MIT 34, UC Berkeley 16, Stanford 13, Harvard 11, Caltech 10, Princeton 9, UC San Francisco 7, UC San Diego 6, Yale 5, Chicago 3, University of Washington 3, and University of Pittsburgh 3. (See table).

MIT Provost Joel Moses expressed delight with the "absolutely outstanding" results. "We did well in all the departments in which we were ranked. To be first, second or third 34 out of 46 times is just remarkable!"

He noted that some of the rankings were very close, with a first, second or third place determined occasionally by only 1/100 of a point on the 5-point scale used by the National Research Council (NRC) in its 740-page analysis of 3,634 doctoral programs in 41 fields at 274 American universities.

"The rankings, therefore, need to be taken with a grain of salt," Professor Moses said. "But they do show a pattern, and the pattern in our case is very clear: We don't do everything. But what we do, we do very well."

Sixteen MIT doctoral programs were ranked 1, 2 or 3 in both "scholarly quality of program faculty" and "program effectiveness in educating research scholars and scientists." Eight (continued on page 8)

## MIT doctoral programs lead national peer review rankings

By Kenneth D. Campbell  
News Office

In the first comprehensive peer review rankings of doctoral programs since 1982, MIT graduate programs led the nation, placing first, second or third in quality of faculty and effectiveness of teaching.

The universities with the highest totals of top three rankings in the two categories for the 41 fields studied by the National Research Council were:

## New training to assist personnel review process

"Performance appraisal," "annual review"— words that often bring on anxiety for both the reviewer and the reviewee.

Two new courses on giving and receiving appraisals, together with deployment of some 35 specially trained staff members across the Institute to acquaint everyone with how to use them, should alleviate that problem.

Training modules in the performance appraisal courses include understanding the benefits for the reviewer and for the person being reviewed, using listening skills to create a climate of openness and respect, setting and reaching individual and

organizational goals, identifying and managing conflict, maintaining honesty and establishing informal review schedules.

During the summer, 35 administrators participated in a three-and-a-half-day program to learn the dynamics of performance evaluation and practice the skills involved. Since then, they have been working with managers to implement the new procedures in their areas.

Using staff members to bring management skills into their work situations is a new design for training at MIT, according to Margaret Ann Gray, captain of the Reengineering Training and Development Planning Team. In addition to the intensive workshop, course leaders have an ongoing e-mail forum in which they discuss issues they encounter and ways to resolve them. They have also attended additional meetings to prepare themselves to roll out the courses. Topics of these meetings have included tips for training presentations, supportive confrontation and diversity.

The training materials, based on a commercial product developed for higher education, were tailored for MIT by the Reengineering Training and Development Planning Team. Addi-

(continued on page 5)

## IN BRIEF

## NO MEETING

The regular meeting of the faculty scheduled for today (Wednesday, Sept. 20) has been cancelled. The next regular meeting is scheduled for Wednesday, Oct. 18.

## VOICELESS

Tonight (Wednesday, Sept. 20) at 6pm, Telecommunications will take voice mail off line for approximately one hour to install additional hardware to increase the capacity of the system. If users experience difficulties after 7pm, they may call x3-HELP or send mail about the problem to <vmail@mit.edu>.

## LIBRARY HOURS

The Humanities and Science Libraries will be open 8am-midnight Sunday through Thursday and 8am-8pm on Friday and Saturday.

Round-the-clock hours, for members of the community only, will be restricted to the weeks before and during final exams. Hours for all libraries are located at <http://nimrod.mit.edu/common/termhours.html>.

## WOMEN'S DAY

All women new to MIT are invited to a reception hosted by Rebecca Vest and the MIT Women's League on Wednesday, Sept. 27, at the President's House from 4:30-6pm. At 5pm, a question-and-answer session will follow a brief presentation of campus offices and departments. Now in its 82nd year, the League is open to women employees, students, faculty, visiting personnel and spouses. Those with questions can call x3-3656.

(continued on page 7)

# Student Notices

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

## ANNOUNCEMENTS

**Career Services and Preprofessional Advising Recruitment Presentations\*\***—Sept 20: Bankers Trust Co., 7-9pm, Rm 4-163. Sept 26: Braxton Associates, 5-7pm, Rm 4-145. Sept 27: Crystal Semiconductor Corporation, 6-7:30pm, Rm 4-149. Lehman Brothers, 7-9pm, Rm 34-101. Sept 28: Bear, Stearns and Co., Inc., 6:30-8:30pm, Rm 4-149.

## RELIGIOUS ACTIVITIES

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

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

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

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

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

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

**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.

Other religious meetings:

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

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

**Hillel\***—Sept 20: Koshers Ko-op, 5pm. Israeli Dancing, 7:30pm. Sept 21: Orthodox Minyan, 7:45am. Taste of Torah, 12pm. Fondue Lounge, 3:30pm. Sept 22: Egal Chayurah, 6pm. Orthodox Minyan, 6pm. Dinner, 7pm. Sept 27: 7:30pm: Israeli Dancing. Sept 28: Orthodox Minyan, 7:45am; Taste of Torah, 12pm. Sept 29: Egal Chayurah: 6pm. Orthodox Minyan, 6pm. Dinner, 7pm. Prof. Leonard Hausman, 8:45pm. Sept 30: 9am: Orthodox Minyan. More info: x3-2982.

**MIT Korean Baptist Student Koinonia (KBSK)\*\***—Friday Night Bible Study and Fellowship 7-8:30pm, Student Ctr DR3. Chris Pak x3-9342 or 876-8594.

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

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

## GRADUATE NOTICES

**Bioelectrical Engineering EECS Area VII Open House for Graduate Students\*\***—Sept 27: 3-5:30pm, Rm 34-401A.

## STUDENT JOBS

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

**Off-Campus Technical.** Part-time programming position to support and maintain existing Foxpro applications and to develop new applications to support company's rapid growth. Applicants should possess or be working towards a degree in CS or related discipline. Ideal candidates should be comfortable working with windows applications and have application development experience. Interested candidates should fax resumes to DKB. Call 964-6681.

**On-Campus Non-Technical.** Need a student scheduler. Input approved basic student and department applications, mail confirmations, file second copies, print and distribute weekly reports, monitor supply of scheduling related forms, etc. Skills needed: computer knowledge, IBM and Macintosh; eager to learn, able to work independently as well as supervised; customer service oriented; ability to interact on a professional level with a diverse clientele; previous experience in the hospital industry helpful but not required. Flexible work schedule including days and evenings. Apply in W20-500.

**On-Campus Non-Technical.** Need two or three supervisors for the student telephone fundraiser for the MIT Annual Fund. If interested ask for the Supervisor Info Sheet at the Student Employment Office.

**Community Service Positions for those with Federal Work-Study Eligibility**

**Assistant Teacher.** Will assist teachers in children's programs with the running of the pre-school or after school. Helps with areas of programming including areas such as sports, drama, and cooking, and also assist in clean up and other more routine tasks necessary for a children's program to function. Hours: Preschool Program, Mon-Fri 8:30am-1:30pm, or any portion thereof (part week, part day) flexible hours; After School Program, Mon-Fri 2pm-6pm or 3pm-6pm (two/three days a week). Contact Diane at 547-1062 or Jody at 349-6287.

**Math/English Tutor.** Student needed to serve as a Math/English tutor in our after school program (ASP), directed by the Boston Children's Services. We serve low-income Asian children. \$10/hr. Contact Grace Tong at 482-6382 or 495-9021.

**Minicourse Teachers.** The Montessori Community School of Scituate is seeking graduate/undergraduate students to teach a 5 week minicourse—creativity is essential—one morning per week to 6th, 7th and 8th graders. \$400 salary. Contact Kathy Denham at 545-5544 or at 545-8233.

## VOLUNTEERS

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

**Volunteer with Tutoring Plus.** Three types of volunteers are needed for Cambridge elementary and high school students in need of academic enrichment and a mentor/friend: One-on-one tutors; Big Brother/Big Sister role models, and Homework Center supervisor tutors. Hours vary, usually a commitment of 2-3 hours a week. Agency is located between Central and Kendall Squares. Contact Shannon Clancy or Amy Dick at 547-7670.

**Legal Services Project Volunteers.** Volunteer Lawyers Project assists low-income residents of Greater Boston with a range of civil legal problems. Volunteers and interns help develop, refer, and monitor cases. This is an opportunity to gain exposure to the legal profession, learn more about the legal system and participate in a vital service. Minimum commitment of one half-day per week. Contact Martha Williams at 423-0648.

**Volunteer at Deaconess Hospital.** Help is needed in many areas including the operating room, the emergency room, nursing floors, laboratories, information desk, admitting, central processing, etc. Minimum commitment is one 4 hour time slot per week, some evenings and weekend opportunities exist. Stop by Rm 3-123 or contact the Volunteer Office at 632-8045 for an appointment.

## UROP

The UROP Office invites MIT students to join with faculty members to pursue research projects of mutual appeal. Wellesley students may also participate. For detailed information on procedures, please read the participation section of the 1994-1995 UROP Directory, available now at 7-104 and 20B-140.

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 x3-7306, or email to <urop@mit.edu>.

**Neural Networks with Parallel Computer.** This project involves programming and simulation of neural networks and algorithms on a SIMD parallel computer. Experience with C programming and some knowledge of artificial neural networks are desired. Interested students should contact Dr. Chi-Sang Poon, Rm 20A-126, x8-5405, <cpoon@cybernet.mit.edu> or Jagesh Shah, <jvshah@mit.edu>.

**The Internationalization of S. Korea Firms.** Project involves identifying the foreign investments in distribution, production, and technology by Korean firms, both large and medium-sized. This activity is part of a larger project on the internationalization of firms based in the late-industrializing countries of East Asia and Latin America. Familiarity with basic management concepts would be recommended. Knowledge of the Korean language helpful but not a requirement. This UROP could be arranged either for credit, or for pay, provided UROP funds can be secured. Contact Mauro F. Guillen, E52-554, x3-4417, <guillen@mit.edu>.

**Microsystems Technology Laboratories.** Perform automatic wafer testing and data transfer. Code new test programs, maintain program library. Develop procedures for file transfer, data analysis, and file format conversion using C. Need student who is proficient in C, skills in Fortran, Pascal, Basic are desirable as is familiarity with UNIX and DOS/Window, statistical programs such as Matlab, Mathematica, Nova (Unix), CAD and device/process simulation. Coursework in Semiconductor Device Physics and Electronics is also desirable. Contact Bernard Alamaru, <bernard@mtl.mit.edu>, x3-8811.

**Web-Page Development.** Need UROP student with experience in computer networking and WWW to form a web-page as part of the development of new course this Fall. The course, Molecular Aspects of Chemical Engineering (10.420/10.520), reviews the use of applied chemistry in chemical engineering applications. A creative student who has experience with the formation of a web-page, is familiar with relevant computer networks and services, and is able to incorporate links to other networks, graphical information, digital and video images into a web-page is desired. A student from Chemical Engineering, Chemistry or Materials Science or with relevant background in these areas, is preferred. Contact Paula Hammond, <hammond@mit.edu>, x8-7577, Rm 66-550.

**Ocean Engineering.** Looking for UROP student, credit or sponsored research pay, to participate in research in free-surface flows in the Ocean Engineering Vortical Flow Research Computational Laboratory. Need someone with interest or experience in computer graphics to help us do fluid flow visualization, display and animation. Some background in fluid mechanics and C will be helpful but not essential. Contact Prof. D.K.P. Yue, Rm 5-321, x3-6823, <yue@mit.edu>.

**Interactive French Teaching Project.** Looking for a student with a good knowledge of French to work on an interactive teaching project for Macs using feature films and to be tested in a class this fall. Qualifications should include Mac system, hypercard, Adobe. Good typing skills and plenty of good ideas are a plus. 5-10 hrs/wk. Contact Shoggy Waryn, Rm 14N-427, <Shoggy@mit.edu>.

**Sloan School of Management.** UROP needed to work on models of irreversible investment and environmental policy under uncertainty. Requires good programming experience, preferably some knowledge of GAUSS. Send resume to Prof. Robert Pindyck, Rm E52-453.

**Plasma Fusion Center.** Looking for juniors or senior to work on UROP projects in the areas

# MIT, Oregon firm link management software

MIT's Office of Facilities Management Systems (OFMS) and Universal Algorithms, Inc., a Portland, OR, firm, have agreed to have their school management software packages work as one system.

The agreement links MIT's INSITE™ facility management system with UAI's Model 25 and Schedule 25 classroom scheduling software. The arrangement is a collaboration between a private corporation and a public institution, not a business arrangement.

Kreon Cyros, director of the OFMS, said university administrators, through a consortium organized by MIT, use INSITE to help them analyze and plan space use. The software, he said, "answers the question 'what do we have and how well can we use it?'"

Over the years, however, there were "quite a lot of requests from our consortium of users to come up with a scheduler of our own, but we had no intention of producing one as the fundamentals of INSITE are completely different. We calculate operations on a day-to-day basis. We never planned on taking on the task of scheduling the minute-by-minute operation of a school." Recently, however, a consortium member had a suggestion: Why not share the MIT database with an existing scheduler? The question brought MIT and UAI together in what UAI president Jim Wolfston and Mr. Cyros agree is a natural fit, especially because many MIT consortium members were UAI customers.

The UAI classroom scheduling programs are used by more than 200

schools in the United States, Canada and Hong Kong. Integrating UAI's scheduler and MIT's facility management system will allow school administrators to match resources with need.

# Rape defense course returns

Space is still available in the next scheduled Rape Aggression Defense (RAD) course offered by the Campus Police, which will begin October 23.

The course provides basic information on personal safety, awareness, risk reduction and avoidance and teaches self-defense techniques that require no special skills. Instructors are Chief Anne P. Glavin and Sgt. Stephen Daley of the Campus Police.

Attendance is mandatory in the 14-hour course. Sessions are scheduled Monday and Tuesday, Oct. 23, 24, 30 and 31, 5:30-7:30pm; Monday, Nov. 6, 5:30-7:30pm; Monday, Nov. 20, 4:30-6:30pm, and Tuesday, Nov. 21, 6-8pm. There is a \$20 fee for materials, payable to MIT within three days of registration. Attendance is limited to the first 16 women to register. PE credit is available to students.

For more information, including equivalent self-defense classes for men, call the CP Crime Prevention Unit, x3-9755 or x3-9749. Register by telephone or e-mail sent to <crimbite@mit.edu>.

of: 1) Laboratory experiments to investigate electromagnetic wave/electron beam interactions with plasmas. 2) Radio wave injection experiments to investigate nonlinear plasma effects in the ionosphere/magnetosphere. Contact faculty supervisor, Min-Chang Lee, Rm NW 16-240, x3-5956, <mcleee@pfc.mit.edu>.

**MIT Research Program on Communications Policy (RCP). This research group at the Center for Technology, Policy, and Industrial Development is looking for a UROP student who will act as both system administrator and systems programmer. Responsibilities include: supporting 10-12 Macs ranging from Mac II's to Quadras to Powerbooks, supporting 3 DEC machines, supporting the networks: localtalk and ethernet, help carry out network expansion plans, verifying the validity of the backups of the file server and the PCs, maintaining mailing lists, maintaining a log of jobs performed. Requirements include: familiarity with Ultrix and Mac environments, basic knowledge of Appletalk and IP networking. The hours are flexible, but student would need to devote 10 hours/week, must attend group meeting 1x/week, on-call availability for network emergencies. Contact Russell Rothstein, x3-6828, <rir@rccp.mit.edu>.**

**Media Laboratory.** Tod Machover's group is looking for an experienced C programmer, preferably with C++ experience as well. Experience in one or more of the following areas would be desirable: MIDI/computer music, HTML authoring, Macintosh programming, NeXTStep programming. Contact Ben Denckla, <bdenckla@media.mit.edu>.

**Brain & Cognitive Sciences - Human Cognitive Psychology.** 2 positions available in laboratory studying short-term memory, language, reading and visual information processing. Work with a lab group on all aspects of experimentation, from designing a study to running subjects to data analysis. UROPs will also participate in weekly meetings to discuss various issues including the theoretical basis for our experimentation, the relation between brain and cognitive science, brownies, and other topics of general interest. Students who enjoy working with computers (C, UNIX, and/or Mac applications) are particularly encouraged to apply. Faculty supervisor: Prof. Mary C. Potter. Contact Brad Banks, Rm E10-218, x3-5756, <mollylab@psyche.mit.edu>.

**Film/Media Studies.** UROP for pay, not credit in Film/Media Studies. Research/technical support with preparation of materials for and ongoing construction of Web site for course 21F 830 Global Culture offered fall semester 1995. Priority given to students registered for or intending to take the course (see Rachel in UROP Office for course description). Preferred experience: Adobe Photoshop and other image-processing applications (Adobe Premiere); coding/layout of Web pages; strong interest in global media and communication; foreign languages. Contact Prof. Martin Roberts, Rm 14N-421 during office hours (Thursdays 11am-1pm).

**Biology.** UROP available during academic year 95/96 to develop methods of freezing mouse embryos. Requires 7.02 and tissue culture experience. Prefer teaching lab or previous lab experience. It will be necessary to work

with mice and dissect mice. Leave a letter in the box of Helen Rayburn, Transgenic Facility in Bio Headquarters, Rm 68-132.

## CABLE

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

Sept 22: Channel 10: 4pm—Physics 8.01 Help Session #3 with Prof. Walter Lewin. This program will repeat hourly until 4pm, 9/29.

## MIT TECH TALK

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## Crimewatch

The following incidents were reported to the MIT Campus Police between Sept. 9-14:

**Sept. 9:** Westgate lot, tires slashed; 500 Memorial Dr., wallet stolen, \$125; Bldg. 50, pocketbook and contents, \$120.

**Sept 10:** Bexley, breaking and entering; Baker, male arrested for breaking and entering and other related charges; Ashdown, bike stolen from outside of room, \$150; Burton Connor, floor lamp stolen, \$40; Bexley, portable radio stolen, \$190; Baker, larceny of credit cards and cash, \$80.

**Sept 11:** 33 Mass. Ave. bike rack, \$300 bike stolen; 77 Mass. Ave., male arrested for trespassing; Alumni pool, bike stolen from rack, \$100; Bldg. 1, harassment; MacGregor, annoying phone calls.

**Sept 12:** #6 Club, breaking and entering, \$25 stolen; Student Center, male arrested for trespassing; Bldg. E52, bike stolen, \$150; Bldg. NW12, wallet, \$100; Westgate, mattress and bed frame stolen, \$800; Bldg. E51, CD player, \$126; Johnson Athletic Ctr, \$300 bike stolen; Student Ctr., bike stolen, \$150.

**Sept 13:** Student Ctr., \$75 mouse stolen; Bldg. NE43, backpack stolen, \$150; Bldg. 2, annoying mail; Amherst Alley, suspicious persons; Rockwell Cage basketball courts, wallet stolen, \$50.

**Sept 14:** Bldg. E52/3 bike rack, 1) \$500 bike stolen; 2) bike and accessories, \$863 stolen; Bldg. 12, computer stolen, \$1,950; West annex lot, attempted larceny of a BMW.



**Knight Science Journalism Fellows for 1995-96.** Top row, left to right: Rex A. Graham, Victor K. McElheny, program director; Chang-yop Kim, Akitaka Hirata, Edward Struzik and Megan Jaegerman; Middle, Jenni Laidman; Front: John Dillon, Sumiko Oshima and John D. Cox. Photo by Graham Ramsay

## Knight Fellows begin year on campus

Science journalists from Japan and Korea have joined colleagues from Canada and across the United States in the group of Knight Science Journalism Fellows who began a nine-month stay at MIT September 1. They are Sumiko Oshima of the Kyodo News Agency, Akitaka Hirata of Yomiuri Shimbun in Tokyo and Chang-yop Kim of the Joongang Daily News in Seoul.

Mr. Kim is the first science journalist from Korea to join the visiting journalists' program, which brought its first Fellows to MIT in 1983-84. Besides Korea and Japan, the program has included non-US science journalists from China, Australia, Mexico, Brazil, Canada, Nigeria, Italy, Switzerland, Germany, the Netherlands, Sweden and Poland.

Ms. Oshima has covered efforts to preserve endangered species and other environmental issues in the northern Japanese island of Hokkaido, and the "science city," a large collection of national and industrial laboratories that has been established at Tsukuba. Mr. Hirata's 35 years of work with Yomiuri, from which two previous Fellows have come, have included stints in the US to cover the Apollo lunar landing program and expansion of the biotechnology industry. He notes that the science section of Yomiuri, which circulates throughout Japan, started small but has expanded to more than 20 reporters.

Topics the visiting journalists intend to study include: applications of physics and biology, environmental consequences of electric utility competition, social implications of breakthroughs in molecular biology, applications of genetics in medicine, statistics, global change in the environment, land use and the environment, science policy and atmospheric sciences.

The Fellows are scheduled to be introduced to MIT President Charles M. Vest and others of the MIT community at a reception on Thursday, Sept. 21, at 4pm in the Bush Room, sponsored by Technology Review and the MIT News Office.

In the first of approximately 60

twice-weekly group seminars, the Fellows have met researchers from Lincoln Laboratory, the Whitehead Institute and the Department of Earth, Atmospheric and Planetary Sciences. In mid-October, the Fellows' host at lunch at The Boston Globe will be health and science editor Nils Bruzelius, a 1992-93 Knight Fellow. Late in October, the Fellows plan to attend the annual meeting of the Society of Environmental Journalists, which is being held at MIT this year and will be opened by Dr. Vest. Program chairman for the SEJ meeting is David Ropeik of WCVB-TV, Channel 5, Boston, who was a 1994-95 Knight Fellow.

Previously appointed Fellows for 1995-96 are: John D. Cox of The Sacramento Bee; John A. Dillon of The

Times-Argus of Barre-Montpelier and the Rutland Herald in VT; Rex A. Graham of the Albuquerque Journal; Megan Jaegerman of The New York Times; Jenni Laidman of the Bay City (MI) Times; and Edward Struzik of the Edmonton (Alta.) Journal and Equinox, a Canadian magazine.

The Knight Science Journalism Fellowships are part of the Program in Science, Technology and Society in the School of Humanities and Social Science. The 1995-96 Fellows bring the total selected for the program to 137, including 62 women and 75 men, of whom 39 came from outside the US. American science journalists have come from 24 states and the District of Columbia.

Victor K. McElheny

## Choline uptake in brain measured in CRC study

Researchers at McLean Hospital and MIT's Clinical Research Center (CRC), using a new assay technique, have obtained data showing that the brain's ability to take up a key nutrient from the blood decreases sharply with age.

The results, anticipated as a result of earlier pilot studies, suggest an explanation for why even those with a genetic predisposition to Alzheimer's disease don't develop symptoms until they age.

The investigation of the nutrient choline was published in the September 20 issue of the Journal of the American Medical Association (JAMA). Choline, vital to brain function, is obtained almost entirely from the diet.

The work was partially supported by a one-year research grant administered by the CRC using MIT patent royalties and by a research grant from the National Institute of Mental Health and an NIH grant to the CRC.

The study was based on continuing investigations in the laboratory of Professor Richard J. Wurtman, one of the authors. He is director of the CRC and a member of the Department of Brain and Cognitive Sciences. His investigations were the first to show that brain levels of choline could influence the ability of nerve cells to make the neurotransmitter acetylcholine, and the ability of all cells to make phosphatidylcholine (lecithin), a key constituent of all membranes. Dr. Wurtman's earlier work also showed that when choline is in short supply, these two pathways compete for it.

"When the nerve cells become active," he said, "almost all of the choline is shunted into making acetylcholine, and almost none into making membranes. So the amount of membrane in each cell disappears—by a process termed 'autocannibalism.'

"Presumably, the reduction in the

uptake of blood choline into brains of aged individuals (which the current study documents) would promote this 'autocannibalism' and lead to damage to, or even the death of, nerve cells in the brain."

The lead author on the JAMA study was Bruce M. Cohen, MD, of McLean's Brain Imaging Center, Harvard Medical School's Department of Psychiatry and the CRC. Other authors were Perry F. Renshaw, MD, Andrew L. Stoll, MD, Deborah Yurgelun-Todd and Suzann M. Babb, all of McLean Hospital. Dr. Renshaw and Dr. Stoll also have CRC appointments.

Twenty-eight volunteers took part in the study, 12 of them between the ages of 20 and 40 and 16 between the ages of 60 and 85. After an overnight fast, they received the equivalent of 4 grams of a choline salt.

Using a new, noninvasive assay technique (magnetic resonance spectroscopy), blood and brain levels of choline were measured periodically.

"We found that blood choline levels rose to comparable extents in young and old people," Professor Wurtman said. "However, brain levels showed a much smaller rise in the older subjects."

"These observations suggest that normal choline intake in a younger person might not be optimal once one ages. They also provide one hypothesis for explaining why Alzheimer's Disease tends to be a disease of the aged even though the genes that can cause it in many patients are, in fact, present from birth."

## Roberts takes post as ADA coordinator

A six months' search came to an end this summer when Barbara Roberts joined the staff as MIT's first coordinator for disability services.

Ms. Roberts came to MIT in July from the University of Rhode Island where she had been assistant director for student life, responsible for disability services for some 750 students with learning and/or physical disabilities. She was also the compliance officer for assuring that reasonable accommodations were made for disabled people. At MIT she is responsible for integrating policy, programs and training for persons with disabilities—staff as well as students—in compliance with the Americans with Disabilities Act (ADA).

After establishing programs at URI, Ms. Roberts said the opportunity to come to MIT was a new challenge to set priorities in making MIT a more welcoming place for disabled people. "At URI," she said, "I often felt I was a sole voice, and that has not been the case here. There is widespread interest in making improvements."

She has been working with the ad hoc committee on disabilities that was established last September and plans to use it as a basis for creating task groups to address specific problems such as access. Interested volunteers will be welcome to join these efforts, she said.

Ms. Roberts is a graduate of URI with a master's degree in adult education. She has consulted widely and for the past four years has chaired the Rhode Island Task Force on Learning Disabilities in Higher Education. She is a member of the National Association of Student Personnel Administrators and the American College Personnel Association and has spoken frequently on disability issues at their regional and national meetings.



Roberts

## Engineering dean search committee named

A committee has been formed by Provost Joel Moses to conduct a search for candidates for the Dean of Engineering's post.

The committee has been asked to conduct its search in the context of a review of future directions for research and teaching by the School.

The committee solicits thoughts from the MIT community both on future directions for the School and names

of individuals who should be considered candidates for the position of dean.

The committee will be meeting weekly until early November when it hopes to submit its recommendations to Provost Moses. In addition subgroups of the committee will be available to meet with groups or individuals who would like to make presentations or discuss issues. To schedule a meeting, call Carolyn Fialkowski at x3-3511 or

send e-mail to <cski@mit.edu>.

Any member of the committee will be pleased to receive comments or candidate suggestions. Faculty members are Professors Jack Kerrebrock (chair), Jesus Del Alamo, Merton Flemings, Woodie Flowers, Thomas Greytak, Arnaldo Hax, Barbara Liskov, Gregory McRae, Fred Moavenzadeh, Michael Triantafyllou and Jacquelyn Yanch. Student members are being selected.

## The shadow knows



Alter egos? A walk on the dark side? The lengthened shadows of this young couple seem to be heading in a different direction from their lighted bodies as they stroll through the Health Services Center.

Photo by Donna Coveney

### Voter alert

State Rep. Paul Demakis, whose legislative district includes the MIT campus, will hold district office hours in the Sky Room at 100 Memorial Drive from 5-7pm today (Wednesday, Sept. 20).

All MIT-affiliated people, especially students who live on campus, are invited to attend the office hours and voice their concerns about issues being discussed at the State House and in Cambridge. For more information, call Walter Milne, x3-5278.

# Institute Calendar

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

September 20 - October 1

## SEMINARS & LECTURES

WEDNESDAY, SEPTEMBER 20

**Dismantlement of Nuclear Weapons in the Former Soviet Union: What is Going Right and Wrong\***—Tom Cochran, National Resources Defense Council. The Defense and Arms Control Studies Program Seminar, 12-1:30pm, Rm E38-714. Bring a bag lunch; refreshments provided. More info: x3-0133.

**The Use of Tritium in an Isopycnic Model of the North Atlantic\***—Yanli Jia, Univ. of Southampton, UK. Physical Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915. More info: x3-0251.

**Heat Transfer in Steam Generator Fouling Deposits\***—Jennifer Uhle, MIT Graduate Student. Weekly nuclear engineering doctoral student seminar series in fission-related topics, 3pm, Rm 24-115.

**Detection of Arterial Lesions Using Nuclear Medicine\***—Marie-Jose Belanger, MIT. Nuclear Engineering RST Doctoral Seminar, 4pm, Rm 24-115.

**Overview of the Rise of the Central State Model and Its Spread to the Developing World\*\***—Thomas Ertman, Harvard/MIT Joint Seminar on Political Development, 5:30-9pm, MIT Faculty Club. Open to members only. Contact Raun Kupiec x8-7614.

THURSDAY, SEPTEMBER 21

**Summary of Recent Progress in High Z Limiter/Divertor Studies\***—Dr. Nobuaki Noda, National Institute for Fusion Science, Nagoya, Japan. Plasma Fusion Center Seminar Series, 11am, Rm NW17-218.

**New-and-Improved Products: Speeding Producer, Meet the Balking Consumer\***—Prof. Anirudh Dhebar, MIT. Sponsored by MIT International Center for Research on the Management of Technology, 12-1:30pm, Rm E52-175. Bring your lunch, beverage and dessert provided.

**Accurate Response: A New Approach to Supply Chain Coordination for Short Life Time Products\***—Marshall Fisher, Wharton School, Univ. of PA. MIT Operations Research Center and Decision Sciences Center Seminar Series, 4-5pm, Rm E40-298. Refreshments following, Rm E40-106. More info: x3-7412 or x3-6185.

**Relating Emissions' Sources to Ambient Air Measurements\***—Jonathan Fox, MIT. Sloan Automotive/Reacting Gas Dynamics Laboratories, 4-5pm, Rm 31-161. Refreshments, 3:45pm.

**Applications of the EEG Recorded in Flight and in Simulated Flight\***—Dr. Kurt Offenloch, Klinikum J. W. Goethe Zentrum der Physiologie, University of Frankfurt. Man-Vehicle Lab Seminar, 4-5pm, Rm 37-696.

**The Formation of Sunlike Stars\***—Frank H. Shu, Univ. of CA at Berkeley. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

**From Occupation to Autonomy: An Enduring Legacy\***—Dr. Sara Roy, Visiting Scholar at Harvard University Center for Middle Eastern Studies. Sponsored by MIT Arab Student Organization, 7pm, Rm 6-120. Refreshments. Call x3-4014 for more info.

FRIDAY, SEPTEMBER 22

**Electric Industry Restructuring and the Environment: Customer Access vs. Customer Choice\***—Stephen Connors, Director, MIT Electric Utility Program. Sponsored by the Analysis Group for Regional Electricity Alternatives. Brown Bag Luncheon Series, 12-1pm, Rm E40-464. More info: x3-7985.

**Localization and Motion Confinement Phenomena in Nonlinear Mechanical Systems\***—Dr. Alexander F. Vakakis, Univ. of IL at Urbana-Champaign. Sponsored by the Dept of Mechanical Engineering, Applied Mechanics Seminar, 2-3pm, Rm 5-234.

**Metabolic Engineering: Theory and Application\***—James C. Liao, Texas A&M Univ. Sponsored by the Dept. of Chemical Engineering, 3pm, Rm 66-110. Reception, 2:45pm.

**Simple Parameterization of Vertical Mixing in Mixed Layer and Upper Thermocline for Ocean Circulation Models\***—Dr. Dmitry Chalikov, National Meteorological Center. Sponsored by the Dept. of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

MONDAY, SEPTEMBER 25

**Electron Density Measurements of High-Density Plasmas Using Soft X-Ray Laser Interferometry\***—Dr. Alan Wan and Dr. Juan Moreno, Lawrence Livermore National Laboratory. Plasma Fusion Center Seminar Series, 2pm, Rm NW17-218.

TUESDAY, SEPTEMBER 26

**Paleoaltimetry Incorporating Atmospheric Physics and Botanical Estimates of Paleoclimate\***—Chris Forest, MIT. Ctr for Meteorology and Physical Oceanography Seminar, 2pm, Rm 54-915.

**Control of Spatial Organization During Cell Differentiation\***—Dr. Lucy Shapiro, Stanford Univ. Dept. of Biology Colloquium, 4:15pm, Rm 10-250.

WEDNESDAY, SEPTEMBER 27

**Lecture by Tim Trevin, UN Special Commission on Iraq. The Defense and Arms Control Studies Program Seminar, CIS, 12-1:30pm, Rm E38-714. Bring a bag lunch; refreshments provided. More info: x3-0133.**

**Analysis of North Atlantic Climatologies Through the Combined OGCM/Adjoint Approach\***—Lisan Yu, MIT. Physical Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915. More info: x3-0251.

**Destruction of Hazardous Waste Surrogates in an Acoustically Excited Dump Combustor\***—Prof. Ann Karagozian, UCLA. Aeronautics and Astronautics Distinguished Lecture Series, 3pm, Rm 9-150.

**Pure NQR Imaging (3): Experiment\***—G. John Zhang, MIT. Nuclear Engineering RST Doctoral Seminar, 4pm, Rm 24-115.

**Experimental Studies of the Earth's Deep Mantle\***—Dr. Charles Meade, National Resource Council, Washington, DC. Dept of Earth Atmospheric and Planetary Sciences Lecture, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

**Opening Reception for Women in International Development (WID)\***—Joint MIT-Harvard Group, 5-7pm, Rm E38-714. More info: 495-4249.

THURSDAY, SEPTEMBER 28

**Sustaining Innovation in the Face of Threat: The Impact of Rational Drug Design on Pharmaceutical Research\***—Prof. Rebecca Henderson, MIT. Sponsored by MIT International Center for Research on the Management of Technology, 12-1:30pm, Rm E52-175. Bring your lunch, beverage and dessert provided.

**Vehicle Control Issues in Automated Highway Systems: The California PATH Program\***—Karl Hedrick, Univ. of CA at Berkeley. Sponsored by the Center for Information-Driven Mechanical Systems, 3pm, Rm W31-301. Refreshments following, Rm 1-114. More info: x3-0490.

**Optimal Control of Execution Costs\***—Andrew Lo, Finance Group, MIT Sloan School of Mgmt. MIT Operations Research Center and Decision Sciences Center Seminar Series, 4-5pm, Rm E40-298. Refreshments following, Rm E40-106. More info: x3-7412 or x3-6185.

**Robust Numerical Computation of Flame Structure Using Unsteady and Uniform Strained Models\***—Costa Petrov, MIT. Sloan Automotive/Reacting Gas Dynamics Laboratories, 4-5pm, Rm 31-161.

**Kurdistan, Bosnia, Rwanda: Ethno-political Conflict and Humanitarian Intervention\***—Eric Morris, UNHCR; Visiting Scholar, MIT. The Inter-University Seminar on International Migration, CIS, 4-6pm, Rm E38-714. Refreshments. More info: x3-5892.

**Composite Fermions: New Particles in Two-Dimensional Electron Systems\***—Horst L. Stormer, AT&T Bell Laboratories. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

FRIDAY, SEPTEMBER 29

**Status of ITER\***—Dr. Gunter Janeschitz, ITER-JCT-JWS Garching. Plasma Fusion Ctr Seminar Series, 10am, Rm NW16-213.

**DOE's Role in a Restructured Electric Industry: The Quest for Relevance\***—Erin O'Neill, AGREA Research Assistant. Sponsored by the Analysis Group for Regional Electricity Alternatives. Brown Bag Luncheon Series, 12-1pm, Rm E40-464. More info: x3-7985.

**Human Visuo-Motor Performance in Weightlessness\***—Prof. Otmar Bock, Institute of Physiology, Deutsche Sporthochschule Koeln. Man-Vehicle Laboratory Seminar, 3-4pm, Rm 37-696.

**Dynamics of Structure Formation in Block Copolymers\***—Richard A. Register, Princeton Univ. Sponsored by the Dept. of Chemical Engineering, 3pm, Rm 66-110. Reception held before seminar, 2:45pm.

**Mineral Physics Constraints on Lower Mantle Properties\***—Prof. Donald Weidner,

SUNY at Stony Brook. Sponsored by the Dept. of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

**Improved Confinement with Reversed Magnetic Shear in TFTR\***—Dr. Fred Levinton, Fusion Physics and Technology. Plasma Fusion Ctr Seminar, 4pm, Rm NW17-218.

## COMMUNITY CALENDAR

**Family Resource Center Seminars\***—Sept 21: The Multicultural Family, 12-1:30pm, Rm 14E-304. Sept 22: Babysitting Co-ops and Playgroups: How to Grow Your Own, 12-1:30pm, Rm E18-201. Sept 29: Being an Involved Father When You Were Prepared to be Just Like Your Dad, 12-1pm, New England Deaconess Hospital, Rm TBA. Registration is required for all seminars at x3-1592. Seminars are free unless otherwise noted.

**Infant-Toddler Child Care Briefing\*\***—Introductory discussion for expectant parents and those new to parenting or child care. Sponsored by the MIT Family Resource Center, 12-1:30pm, Rm 4-144. Preregistration required; call x3-1592. Upcoming meeting: Sept 26.

**Infertility Support Group\*\***—Meets on Fridays, 12-1pm. If interested contact: Dr. Rochelle Friedman x3-2916.

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

**School Choice Briefings\*\***—Discussions for parents who are considering new elementary schools for their children, covering public and private school options, more. Sponsored by the MIT Family Resource Center, 12-1:30pm, Rm 4-148. Preregistration required, call x3-1592. Upcoming meeting: Sept 20.

**Wives' Group\*\***—Sept 20: "What to See in New England," Tunie Hamlen, Director, New England Sights, Cambridge. Sept 27: "Challenges To and Balances In Your Family Life at MIT—Coping with Changes," Dawn Metcalf, LICSW, Clinical Social Worker, MIT Medical Dept. Meetings are at 3:30-4:45pm, Rm 400, MIT Student Center. Babysitting available in Rm 491. All members of the MIT community are welcome. Info: x3-1614.

**Yoga\*\***—Beginners, 5:15-6:30pm, Dance Studio, Walker. Begins Monday, Oct 2. Sponsored by the MIT Women's League. More info: Ei Turchinets, 862-2613.

## MITAC

The MIT Activities Office (MITAC) is a non-profit employee service which serves the cultural and recreational needs of the MIT community, their families and friends. Two locations: (1) Rm 20A-023, 18 Vassar St, Cambridge - 9:30am-3:30pm, Monday, Wednesday, Thursday, and Friday (closed Tuesday and all Institute holidays); (2) Rm LLA-218, x6130, Lincoln Labs, Lexington, 1:15-4pm, Thursday and Friday only. Call x3-7990 at 20A-023 or e-mail <ekn@mit.edu> for further information. Please note that MITAC accepts only cash or a personal check (with a valid MIT ID) made payable to MIT. Credit cards not accepted.

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

**Dramashop Auditions/Technical Sign-Ups\*\***—Sept 27-28: For Student Written One-Act Plays presented in Nov. 7:30-10:30pm, Kresge Little Theater. 253-2908 or <ds\_officers@mit.edu>.

## EXHIBITS

**List Visual Arts Center (E15)\***—Annual Student Loan Art Exhibition. Features over 300 framed contemporary prints and photographs from MIT's permanent collections available for loan, by lottery, to students for dorms and workspaces. Lottery held Sept 20. List Visual Arts Center (E15). Tues, Thurs, Fri 12-6; Weds 12-8pm; Weekends 1-5; closed holidays. Curatorial Office Hours. Meet the curatorial staff for informal discussions and questions about art, Weds, 12:30-1:30pm. More info: x3-4680

**MIT Museum (N52)\***—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. More info: x3-4444.

**Compton Gallery\***—The Image of Boston: Perception and Change in the Modern City. Photographs by Nishan Bichajian taken from 1954-57 and Peter Vanderwarker in 1995 captures the physical change that has taken place in Boston over the past 40 years. Sept 21: Opening Reception, 5-7pm. Sept 21 through Dec 29. Weekdays: 9-5. More info: x3-4444.

See the MITAC monthly flyer distributed to all MIT employees for further information regarding other recreational and cultural events and various types of discounts currently offered to the MIT community by local organizations and businesses, either through a special coupon or by showing your MIT ID card.

**King Richard's Faire\*\***—Adult tickets \$13/each (reg. \$16) and valid only on Sept. 23, 30; Oct. 7, 9, 14, 21, 22.

**177th Topsfield Fair\*\***—Adult tickets \$4.50/each (reg. \$5 wk/\$7 wknds). Children under 10 admitted free with an adult.

**Fall Foliage River Boat Cruise (Haverhill, MA)\*\***—Oct. 15: 12 noon. Adult tickets \$12, children's tickets \$6. Must be purchased by 10/6.

**Country Christmas Shopping Trip (So. Deerfield, MA)\*\***—Oct 22. \$37.50 per person. One-day trip includes shopping at the Oakwood Farm Christmas Barn, followed by lunch at the Salem Cross Inn, ending with shopping at the Yankee Candle Company. Must be purchased by 9/29.

**Covered Bridges and Backroads of Rural Vermont\*\***—Nov. 4: Adult tickets \$24, children's tickets \$22.25. One-day trip includes stops in Woodstock, VT; Billings Farm and Museum; four historic Vermont covered bridges. Must be purchased by 10/20.

**Radio City Music Hall Christmas Spectacular (NYC)\*\***—Nov 11: Bus plus theatre tickets \$75/each and bus only tickets \$31.

**Discount Movie Tickets\*\***—Sony/Loews Theatres \$5 (\$4.50 plus 50¢ service charge); Showcase Cinemas \$5 (\$4.50 plus 50¢ svc chrg), General Cinemas \$5 (\$4.50 plus 50¢ svc chrg).

## MOVIES

Admission to below Lecture Series Committee Movies is \$2.00, and MIT or Wellesley identification is required. For the latest Lecture Series Committee movie and lecture information, call the LSC Moveline, x8-8881, or check TechInfo or the Web. All movies are in Rm 26-100 unless otherwise noted.

**Sept 20:** Moonlight and Valentino, 8pm (free sneak preview). **Sept 22:** Before the Rain, 7 & 10pm. My Fair Lady, 6:30pm, Rm 10-250. **Sept 23:** The Brady Bunch Movie, 7 & 10pm. **Sept 24:** 2001: A Space Odyssey, 7 & 10pm. **Sept 28:** Stand and Deliver (with a lecture by Prof. Amar Bose), 8pm. **Sept 29:** Batman Forever, 7 & 10pm. North by Northwest, 6:30pm, Rm 10-250. **Sept 30:** Under Siege II, 7 & 10pm. **Oct 1:** Amadeus, 6:45 & 10pm.

## LOOKING AHEAD

**Signal Transduction\***—Oct 15-17: Whitehead Institute Symposium XIII, Kresge Auditorium. Advanced registration encouraged: \$65, students \$25, MIT students free (Rm 68-120 or Whitehead Rm 201). More info: x8-5183.

Next deadline for listings: 12 noon Friday, September 22. Covers events from Wednesday, September 27 through Sunday, October 8. Listings for the Institute Calendar and Student Notices may be e-mailed to <tcalendar@mit.edu> or mailed to Calendar Editor, Rm 5-111. Early submissions encouraged.

## Institute Arts

For more arts-related information call the 24-hour hotline at 253-ARTS or consult the World Wide Web (techInfo) at <http://web.mit.edu/1962/tiserve.mit.edu/9000/23596.html>.

## MUSIC

**MIT Women's Chorale First Meeting\*\***—Sept 28: First meeting for weekly Thursday evening rehearsals. Open to all women in the MIT/Harvard community. 7:45-10pm, Emma Rogers Room (Rm 10-340). Marilyn Dorsey, 484-8187.

**Music and Dance of Bali\***—Sept 29: Gamelan Galak Tika, a 27-member community percussion ensemble in residence at MIT, will perform traditional and modern Balinese music and dance, including their first performance of *Taruna Jaya*, considered the pinnacle piece of Balinese music and dance. Gamelan Galak Tika's program includes pieces in five different Balinese styles. Galak Tika (which means "intense togetherness") is led by Balinese dancer I Nyoman Catra and composer/singer Desak Made Suarti Laksmi, guest artists in residence at MIT. 8pm, Kresge Aud. 253-2906.

**Family Weekend Concert\***—Sept 30: MIT Brass Ensemble, Lawrence Isaacson,

director; MIT Concert Band, John Corley, director; MIT Festival Jazz Ensemble, James O'Dell, director. Brass Quintet performs in Kresge Lobby—6pm; Concert—7pm, Kresge Aud. 253-2826.

**A Cappella Fest\***—Sept 30: Music, skits, and wholesome family fun featuring the Muses (women), MIT-Wellesley Toons (co-ed), Logarithms (men), Chorallaries (co-ed), Cross Products (co-ed), and Techiya (co-ed). 7:30pm, Rm 10-250. Info: Maya Kaushal, 253-5961.

**Deadline for Student Composition Competition\*\***—Dec 13: The MIT Symphony Orchestra, under the direction of David Epstein, is hosting a Student Composition Competition. Finalists will have their compositions read by the orchestra during the Spring '96 semester with the possibility of a performance by the MIT Symphony during the 1996-97 season. Applications are available at the Music Office, 14N-207 and through the Symphony home page: <http://www.mit.edu:8001/people/acohen/symphony.html>. The deadline for application is 5pm. Applications must be submitted to Edmund Jones, 14N-207, (253-2826). For details contact: David Epstein, 253-6962 or Symphony President Alan Pierson, <carrot@mit>.

**Gamelan Galak Tika Rehearsals/Meetings\***—Wednesdays—7:30-9:30pm, Kresge basement; Sundays—4:30-6:30pm, Kresge. Info: Evan Ziporyn, x3-9822.

**MIT Guild of Bell Ringers\***—Change ringing on hand bells. Beginners always welcome. Will also ring for occasions. Call Ken, 784-6114.

Meets Mondays, 6:30pm, 2nd floor balcony of Lobby 7.

## DANCE

**MIT Folk Dance Club\***—Sept 20: Beginner's Nights, Israeli Folk Dance, 7-10pm, Lobby 13. Sept 24: International Dance, 7-10pm, Sala de Puerto Rico. MIT/Wellesley students free, 25¢ others. Call x3-FOLK.

## FILMS

**Japanese Flicks\***—Sept 22: Three by Kurosawa. *Dreams*, 6:30pm; *Rhapsody in August*, around 8:45pm; *Rashomon*, around 10:30pm. All in Japanese with English subtitles. Rm 1-390. Screening times approximate. \$1-2 donation requested. More info x3-2839.

## THEATER

**Interviews for Director\***—Sept 20-21: MIT Community Players seek director for Dec production of Philip Barry's *Holiday*. Call x3-2530.

**Directors' Proposals Due\*\***—Sept 21: For original student-written one-act play scripts for Dramashop's Nov production. Due by 5pm, c/o Deb Smith, Bldg E33. Call x3-2908 or <ds\_officers@mit.edu>.

**Student Written One-Acts Cold Reading\*\***—Sept 26: Original student-written one-act plays chosen for Dramashop's Nov produc-



Physical Plant's Grounds Services Department has new digs at 310 Massachusetts Ave. Grounds supervisor John Butts shows grounds services manager Bob Hagerty one of the saws which he trains workers to use in maintaining MIT landscaping.

## Grounds staff has new headquarters

The people of Physical Plant's Grounds Services Department have a new home and they'd like to show it off to the rest of the community.

There will be an open house from 10am to 2pm on Friday, Sept. 22, at 310 Massachusetts Ave., Building NW62. The new location is near Random Hall on the west side of the avenue, just a few hundred yards from the Student Center.

Previously, the 45 people in the department were somewhat scattered—some in a garage at Vassar Street and Massachusetts Avenue, others further down Vassar Street in the building across from the athletic fields.

"We're all in one place now and we feel good about that," said Robert H. Hagerty, manager of Grounds Services. The staff numbers 42 hourly

people—including 25 groundworkers, eight drivers, four gardeners, three movers, two garage mechanics, three supervisors, one manager and one clerical person.

They are responsible for landscaping, grounds maintenance and snow removal on MIT's 150-acre campus, which extends more than one mile along the Charles River and which includes 60 academic buildings, 37 service-related buildings, 25 housing structures, 26 parking lots, five parking garages and 18 acres of athletic fields. Grounds is equipped with a fleet of 20 service vehicles, 26 pieces of heavy equipment and 87 pieces of small equipment.

The department has established a five-year tree pruning program and a three-year line-painting program for parking areas. In addition, the group

provides the Institute with a moving service, a shuttle service and bulk mail deliveries for the campus.

## New training to aid in reviews

(continued from page 1) tional assistance was provided by Alyce Johnson of Personnel, Rebecca Chamberlain of the Administrative Advisory Committee and Michael Weinberg of the Working Group on Support Staff Issues.

Annual written reviews are mandated in the human resources principles developed by the Reengineering Steering Committee (Tech Talk, December 14, 1994). The appraisal courses are part of a larger MIT commitment to provide training for new skills redesign work at MIT will require.

Course leaders trained so far include: Katherine Allen, Information systems, Lisa Bartolet, Industrial Liaison Program, Patricia Brady, Center for Real Estate, Richard Brewer, Office of Undergraduate Education and Student Affairs, Carolyn Bunker, Bursar's Office, Constance Cahill, biology, and Christine Cavanna, Computing Support Services.

Also Rebecca Chamberlain, Architecture, Robert Clark Jr., Audit Division, Joseph Connolly, Research Laboratory of Electronics, Robert L. (Larry) Donaghey, Physical Plant, Dierdre Dow-Chase, Media Lab, Thomas Duff, Office of Sponsored Programs, and Virginia Esau, Center for Materials Science and Engineering.

Also William J. Fitzgerald, Information Systems, Jeannette Gerzon, Career Services and Preprofessional Advising, Stephen Gorman, Comptroller's Accounting Office, Jacqueline Granville, Plasma Fusion Center,

Genevieve Hammond, Alumni Association, Valerie Hart, Telecommunications, and Jarmila Hrbek, Technology Licensing Office.

Also Alyce Johnson, Personnel Office, Bonny Kellermann, Treasurer's Office, James H. McCarthy, Personnel, John O'Connor, Audit Division, Elizabeth Ogar, Resource Development, Barbara Peacock-Coady, Leaders for Manufacturing and Laxmi Rao, Physical Plant.

Also Joe Recchio, Alumni Association, Carl Seagren, Housing and Food Services, Janet Serman, Alumni Association, Diana Strange, Alumni Association, Paula Suvanto, Center for Space Research, Athelia Tilson, Resource Development, and Jennifer Walsh, Personnel.

Additional course leaders will be trained early this fall.

Joanne Miller

### AARP returns

The first fall meeting of the MIT Cambridge Chapter of the American Association of Retired Persons will be held Tuesday, Sept. 26 in Rm 301 of the Student Center. After a brief business meeting, including election of officers, the speaker will be a Croatian graduate student who will discuss the history of that region.

Membership in AARP is open to all members of the community aged 50 or older, whether or not retired.

## Alumnus bats 1,000 as baseball mystery writer

An MIT graduate who earned a master's degree in physics 1989 has parlayed a love for baseball into a new career.

He's Troy Soos, who studied physics in the Laboratory for Nuclear Science under Professor June L. Matthews, who remembers him as a baseball fan who had nearly total recall for anything to do with baseball statistics.

He is now using his analytical mind—he did his graduate work in experimental nuclear physics—and his consuming interest in baseball (a former high school pitcher, he also attended a professional umpiring school) in an entirely new career as a writer of baseball mysteries.

The transformation has been recounted in *The Christian Science Monitor* in a story by Ross Atkin, who writes that while Mr. Soos enjoyed doing technical pieces for physics journals he decided he would try his hand at creative writing once he was out of school.

For several years, Mr. Soos did thermal physics research by day for a Boston area firm and spent his nights fashioning murder mysteries. His first one, *Murder at Fenway Park* (a player is bludgeoned to death), takes place in 1912, and was published by Kensington Publishing Corp. of New York City in 1994. That was followed by *Murder at Ebbets Field*, (a team owner is poisoned), with a third in the series, *Murder at Wrigley Field*, due out next spring.

Mr. Soos told Tech Talk the hard copy of *Murder at Fenway Park* has sold out and the paperback is doing well, as is the hardcover of the second book.

According to the *Monitor*, Kensington has extended Mr. Soos' contract to include three more titles, including *Hunting a Detroit Tiger*.

The *Monitor* reports that Mr. Soos "sets his stories in the early part of this century, using a mix of real and fictitious characters and incorporating many authentic historical details."

Mr. Soos told the newspaper he starts each book with a month or two of intensive research that sometimes takes him to the archives of the Baseball Hall of Fame in Cooperstown, NY. He also uses the Boston Public Library and his own resource material.

Mr. Soos, who lives in Cambridge, has now quit his regular job to concentrate on his writing career.

"I never intended to be a writer," he told the *Monitor*, adding that he was always a voracious reader. "I'd always been a mystery fan. A mystery has structure to it and I knew this would keep me from trying to write the great American novel and meandering all over the place."

Mr. Soos' sleuth is an old-time ballplayer, a utility infielder named Mickey Rawlings.

As the *Monitor* explains, "Soos produces his trusty baseball glove, a Rawlings, to show the roots of that name. It accompanies the author to park-league games, where he is an avid slow-pitch softball player."

Is Mr. Soos a Red Sox fan? "In the American League, yes," he told Tech Talk. "In the National League, it's the Chicago Cubs."

Charlie Ball

## Here & There

Dean William J. Mitchell of the School of Architecture and Planning is the author of a newly published book that takes a generally positive view of the electronic future.

Reviewer Mark Harris in the *Vancouver Sun* said that Dean Mitchell, although a working academic, has a prose style which inclines "toward elegance rather than obscurity," and that reading his book, *City of Bits: Space, Place and the*



Mitchell

*Infobahn* (MIT Press) was "a pleasure, not a chore."

The reviewer continued: "Unsurprisingly for a dean or architecture and planning... Mitchell's book lays out its arguments with the linear logic of one of Le Corbusier's early city grids. 'The keyboard is my cafe,' he writes, celebrating the Infonet and the new spatial freedom that it brings. 'Without leaving my office at MIT,' Mitchell marvels, 'I can teach a class in Singapore.'

Harris found Dean Mitchell "bullish on everything from virtual museums, which can obviously be more complete than anything found in the limited realm of the three-dimensional, to the coming marriage between persons and machines... Even better, freedom must flourish, because on the Net thought has become harder than ever to censor. 'Fahrenheit 451 is becoming irrelevant,' Mitchell assures us. 'You can burn books, but not bits.'"

A new book of 49 poems, *Without Warning*, has been published by Elizabeth Goldring, a research fellow and exhibits and projects director at MIT's Center for Advanced Visual Studies. She has also held an appointment in the Department of Architecture, where she has taught seminars in art and environmental

poetry.

The publisher, BkMk Press of the University of Missouri-Kansas City & Helicon Nine Editions, notes that for the past 10 years Goldring has been devoted to visualizing vision loss and creating the poetics of a visual language for people with low vision. Her "eye journals" documenting her own vision loss and periods of blindness form an important basis for her poetry.

A reviewer, Paula Dawson, writes: "Read *Without Warning* by Elizabeth Goldring and you will taste her world. Elizabeth's vision illuminates intimate moments. She draws the reader from her partner's socks to the sporadic darkness of her damaged retinas. She enables the reader to share her unique reality."

Her first book of poems was *Laser Treatment* (Blue Giant Press, Boston, 1983) She has presented her poetry and multi-media performances at exhibitions, events and festivals in Europe and the United States.

She is married to Otto Piene, senior lecturer and professor emeritus of visual design in the Department of Architecture. Together with Professor Piene she co-directed the International Sky Art Conferences from 1981 to 1986.

### QUOTES

"It makes you think about everything in a different way, and that's certainly one of the signs of a revolution. It helps organize what we're discovering every day in human genetics and brain science."—Dr. Steven Pinker, professor of psychology, on the emerging field of evolutionary psychology, which believes that human behavior has evolved in much the same manner as physical attributes, in *The Boston Globe*.

"The media always gets overexcited about this stuff."—Dr. Randall Davis, professor of computer science and engineering and associate director of the Artificial Intelligence Laboratory, on how newspapers and magazines often do more harm than good in wrapping stories on the rapidly changing information age in such buzzwords

as "cyber-porn, cyberspace and info-wars," in the *Montreal Gazette*.

"There has just been a lot of restructuring in industries that had been the crown jewels of the union movement—autos and steel and so on. As you have more workers chasing fewer jobs, it is harder to organize because people feel they have no bargaining power... This is a time when management has labor on the run."—Frank Levy, Daniel Rose Professor of Urban Economics, on the decline of the labor movement, in *The San Diego Union-Tribune*.

"We are seeing the beginning of a new era where the debate is no longer whether change is needed, but how to achieve significant change. We will see a rekindling of spirit in the labor movement."—Dr. Thomas A. Kochan, George Maverick Bunker Professor of Management, also on the topic of the labor movement, in *The Christian Science Monitor*.

"The issue is whether these weapons are particularly vicious and inhumane. I don't think they are. All weapons kill and maim. Let's not panic about lasers. I suspect they're not going to be as effective as the Red Cross fears or the military hopes."—Dr. Kosta Tsipis, director of the Program in Science and Technology for International Security, on concerns that laser-weapons systems under development could cause blindness, in the *Montreal Gazette*.

"If you believe the evidence and, of course, the defense says you should not because it has been tainted or planted and manipulated, but if you do accept some of these numbers... their combination leads overwhelmingly to one conclusion."—Arnold I. Barnett, professor of operations research and management, on the statistical evidence compiled by the prosecution in the O.J. Simpson murder trial, in *The Boston Globe*.

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Deadline is noon Friday before publication.

### ■ FOR SALE

Sleep sofa, beige, textured material, new mattress, \$75; JBL speakers L36s, \$150/pr; c. 1960 RCA Color TV console, still works and great furniture, \$200 or b.o. Aaron x3-8307, 969-0222.

Crafters: 2 holiday colored displays, ideal for wreaths & swags (can be disassembled), dried flowers and lots of supplies, too! Call x3-3382 or 344-8480 eves.

Free 1967 Case Tech yearbook ("The Differential") in perfect condition. Call x3-7112 or <levey@mit.edu>.

Bauhaus sofa, 78", off-white, not new but in decent shape, best offer. Call 625-8615.

Four, thirty pin 70 ns simms for PC, \$30/ea, \$110 for all 4. Steve, Linc x4378 or <steve@cckid.pn.com>. Call 335-6352.

Roller Blades, Brävoblade, Active Brake, black, sz 7/7.5, used for 1 hr, \$130 or bst. Rosalind x3-5742 or <Rosalind@wccf.mit.edu>.

Speakers: one pr KLH mod. #17 40 watt, 8 ohm, \$30/pr. one pair Jensen bookcase mod. #20, 40 watt, 8 ohm, \$30/pr; receiver stereo AKAI 40 watt, \$30. Helen x3-7762.

Reno Portable 2x CD-ROM player, 2 mos old, warranted, w/stereo headphones, case, a/c & PowerBook adapters, \$140 or best (\$280 new). Ted, 227-7364 or <metcalfe@mit.edu>.

Domain couch, floral chintz, 88", \$400; rug w/pad, 8.5'x11.5', wool grey-tones, \$200; Sunbeam smoker/grill, \$35; Pentax camera, IQZ928, \$200. Call 489-6316 eves or <cardon@atc.ll.mit.edu>

Vacuum cleaner, upright Hoover Elite 200, used 1 yr, \$75. Erik x3-0045.

IBM PS/2 mod 30 computer w/keyboard, mouse, clr monitor, bst offer; O'Sullivan computer cart, \$60, askg \$35; Panasonic KXP-1124 printer, used, \$50 or bst. Joan, Draper x8-3523.

Bike, 28" for tall person \$35; 4 tires, P 215-65-SR-15 \$60 for all 4. Call 395-7265 btwn 8-10am and 3-8pm.

Hospital bed used only 5wks, features: VHS-SR 2000 series; wireless remote 14 day prgrm, 107 channel; stereo Magnavox made in England. Call 396-4858 aftr 3pm.

Moving sale: Sharp Carousel microwave, 1yr old \$150; Maytag gas dryer, 10 yrs old, perf cond \$170; Whirlpool 14K BTU A/C, old & heavy but works great \$70. Joe x3-8213.

Hamadan runner 9' x 2.5' \$450; Dergazine 5.3' x 2.75' \$375; Sears vac w/pwr nozzle \$35; Electrolux vac, old \$40; Console humidifier, new pd \$120, sell for \$55. Call x3-3175 or 332-8251.

3-speed M's bike, Triumph, blk, 22" frame for sale as is. Brooks saddle, collapsible rear carrier \$55. Call 547-5357.

### ■ VEHICLES

1962 Mercedes-Benz 2210 S, gd cond, call for details, best offer. Call x3-0739.

1979 Toyota pickup w/cap on back, 130K, lots of rust but runs great \$600. Ken <kyaht@mit.edu> x3-6926 or 354-5132.

1983 Nissan Sentra wagon, 134K, orig ownr, 5-sp manual, many parts replaced, July sticker, only problem is rust, runs grt, \$550. Dick, Linc x7857, 508-443-8549 or <williamson@ll.mit.edu>.

1985 Cutlass Olds, bronze, 4-door, A/C, pwr windows, AM/FM, good running cond, one

# Evidence seen for early Earth layer differentiation

■ By Kathleen M. Rowe  
News Office

In a break from past thought on the evolution of the Earth, geologists Samuel Bowring of MIT and Todd Housh of the University of Texas at Austin have found evidence that early Earth quickly developed a crust and since then has been evolving toward an equilibrium state in composition and temperature. Predominant theory has the Earth slowly differentiating into crust and a complementary mantle over its whole history.

Professors Bowring and Housh's research on four-billion-year-old rocks (gneisses) from the Northwest Territories in Canada, described in the September 15 issue of *Science*, supports the theory that there is a limited amount of the very old continental crust because older crust has been continuously recycled, not because there was little crust early in Earth history.

Their work in studying the Earth's oldest known rocks suggests that plate tectonics, the theory that describes the surface of the Earth as a collage of moving plates, has acted to recycle existing crust as the edges of plates plunge beneath other plates and return to the underlying mantle. As the plates, which are the Earth's crust, return to the mantle, they efficiently recycle the old crust back to its ultimate

place of origin.

"Crust from the Archean period may have been formed in large volume, but lacking a deep 'root' beneath it which protected it from destruction, it may have been mostly recycled back into the mantle," Professor Bowring said.

It is only through the study of these old crustal rocks that geologists can get direct information about the Earth's processes four billion years ago. By studying the crust, scientists also can learn about the composition of the mantle of four billion years ago. These rocks from the Archean period (the time of formation of the planet until 2.5 billion years ago) were found by Professor Bowring in the 1980s when he was doing regional mapping to test geological models. It was later, in studying the rocks' ratios of two elements, samarium and neodymium, that the implications for the Earth's early history became evident, showing a decrease over the Earth's history in how differentiated its layers were.

The study of samarium and neodymium showed that early Earth was characterized by regions of very different chemical signatures. The best explanation for this, Professor Bowring said, is that the Earth formed a crust very early (generating the diversity) and subsequently continuously recycled that crust (progressively

eliminating the diversity.)

The scientists also contrast early Earth history to early evolution of the Moon. "The isotopic and geochemical signature of the Earth's mantle is fundamentally different than that of our nearest neighbor, the Moon," Professor Bowring said, "because the process of plate tectonics has operated on Earth over much of its history whereas on the

much smaller and colder Moon, it's never operated. Recycling of both continental and oceanic crust back into the Earth's mantle gives the Earth a distinctive geochemical signature that is absent in the Moon."

Dr. Housh was a postdoctoral associate under Professor Bowring from 1991 to 1992. This research was funded the National Science Foundation.

## ■ Awards & Honors

■ The Association of Biomolecular Resource Facilities has recognized Dr. Klaus Biemann, professor of chemistry, for his pioneering work in the application of mass spectrometry to the biological sciences at MIT for nearly 40 years. He received its Beckman Award for seminal contributions to the field at its meeting in July. Professor Biemann's laboratory developed and refined mass spectrometric methods for obtaining detailed structural information on biomolecules as well as technology to improve the sensitivity of computer algorithms for analyzing data.

■ Dr. Adel F. Sarofim, Lamont du Pont Professor of Chemical Engineering, has received the 1995 Award for Innovation in Coal Conversion by the University of Pittsburgh. The award is based on outstanding contributions to coal science and engineering.

■ The American Psychological Association has presented its William James Book Prize to Dr. Steven Pinker, professor of psychology. The prize, given for the book that best integrates the different areas of psychology, was given to Professor Pinker for his 1994 book, *The Language Instinct*.

## R.J. Caloggero of EECS dies

Richard J. Caloggero, administrative officer in the Department of Electrical Engineering and Computer Science since 1972 and an MIT employee since 1957, died September 13 after struggling with cancer for the past nine months. He was 61.

"Dick's sensitive administration for the past 23 years has given us stability, fostered good working relationships among all department personnel and helped us maintain a high esprit de corps," Professor Paul Penfield Jr., department head, said in a letter to the EECS community. Praising Mr. Caloggero's courage and devotion, Professor Penfield said: "From home and hospital, in the middle of medical treatments that used up his time and sapped his energy, he continued to lead our administrative staff. He saw to it that all the required tasks were completed on time. He never let his own troubles become a burden for others, nor did he ever lose his basic enthusiasm and optimism. His example of how to deal with life's difficulties is one that we are all learning from. We will miss him very much."

A new award in Mr. Caloggero's name has been established by some of his friends to recognize EECS employees who have, over an extended period of service, shown loyalty, dedication and effectiveness beyond normal expectations. "There is no one whose career exemplifies these characteristics better than Dick's," Professor Penfield's letter said.

Mr. Caloggero joined MIT on May 1, 1957, as a technician at the Draper Laboratory, then part of the Institute. He became an administrative assistant at Draper in 1964, worked briefly for the Planning Office starting in 1968, and joined the EECS department in 1972.

He is survived by his wife, Ruth (Sussmilch) Caloggero, three sons, two daughters and a sister.

A memorial service was held September 16.

Mr. and Mrs. Caloggero lived in Londonderry, NH. Donations in his memory may be made to the American Cancer Society, New Hampshire Affiliate, c/o Madeline Saulnier, 81 Litchfield Road, Londonderry, NH 03053.

## Florence Joep Smith

A memorial service will be held at 11 a.m. October 9 at the Parish of the Epiphany Church, Winchester, for Florence Joep Smith, 88, long a supporter of MIT, a school she never attended.

Mrs. Smith, who died September 9 at a Bedford nursing home, was active for years in the activities of the MIT Association of Alumni and Alumnae.

Her link to MIT was through her late husbands, Ralph T. Joep, who died in 1965, and Walter J. Smith, who died in 1990. Both were members of the MIT Class of 1928 and both were presidents of that class. She and Mr. Joep were married in 1932. In 1974 she and Mr. Smith were married.

Mrs. Joep Smith's service to MIT over so many years was recognized in singular fashion in 1984 when the Alumni/ae Association took the unusual step of making her an honorary alumna and presenting her its highest honor, the Bronze Beaver. She also was a member of the MIT Matrons and the Emma Rogers Society, a group named for the wife of MIT's founder.

Mrs. Joep Smith is survived by her children, Roxanne Joep McNamara of Rochester, NY; Deborah Joep Gasior of Park Ridge, NJ; and Theodore W. Joep of La Canada, CA, seven grandchildren, two step-grandchildren and four step-great-grandchildren.

Memorial contributions may be made to the Parish of the Epiphany Church, 70 Church St., Winchester 01890, or to Wellesley College, Wellesley 02181.


### JOSEPH P. SULLIVAN

A funeral Mass has been said for Joseph P. Sullivan, 73, of Brighton, a retired training supervisor in Physical Plant, who died on August 3. Mr. Sullivan worked at MIT from 1957 until his retirement in 1979. He was a Navy veteran of World War II and a past commander of his VFW post.


Mr. Sullivan is survived by his wife, (Ellen Breen) Sullivan; a daughter, Kathleen LaRhette of GA; six sons, Dennis of Worcester, W. Brendon of New Bedford, Thomas F. of FL, and Paul F., Jerome T. and Joseph P. Sullivan Jr. of Brighton; 10 grandchildren and one great-grandchild. Remembrances may be sent to Hospice Care, Inc., 41 Montvale Ave., Stoneham 02180.

### MCKAY MEMORIAL

A gathering in remembrance of Shawn McKay will be held in the MIT Chapel on Thursday, Sept. 21, at 7:30pm, followed by an unofficial wake at Toscanini's in the Student Center for coffee frappes. All friends of Shawn's are welcome. Please RSVP to <rsvp@wizardz.com> because seating space is somewhat limited.



starting October 10  
watch for details



# Boston skyline, neighborhoods transformed in 50-year period

Conservation-minded Boston may have a reputation for historical preservation, but change does occur, for better or worse. You can compare Boston's architectural past and present in *The Image of Boston: Perception and Change in the Modern City*, an exhibition of "before and after" photographs at the MIT Museum's Compton Gallery. An opening reception will be held Thursday, Sept. 21, from 5-7pm.

Curated by Lois Craig, lecturer emerita and retired associate dean of

the MIT School of Architecture and Planning, the exhibition features photographs taken by Nishan Bichajian in

physical transformation of an American city. At once document and art, the images from two eras challenge the viewer to consider the experience of the city, the intentions of city design and the art of photography.

In the 1950s Bichajian documented aspects of Boston's public image for a larger MIT study directed by Institute Professor Emeritus Gyorgy Kepes and Professor Kevin Lynch and supported by the Rockefeller Foundation. Entitled *The Perceptual Form of the City*, this pioneering research project probed the relationship between the sensual experiences of the city and an individual's capacity to use and enjoy the city's public spaces.

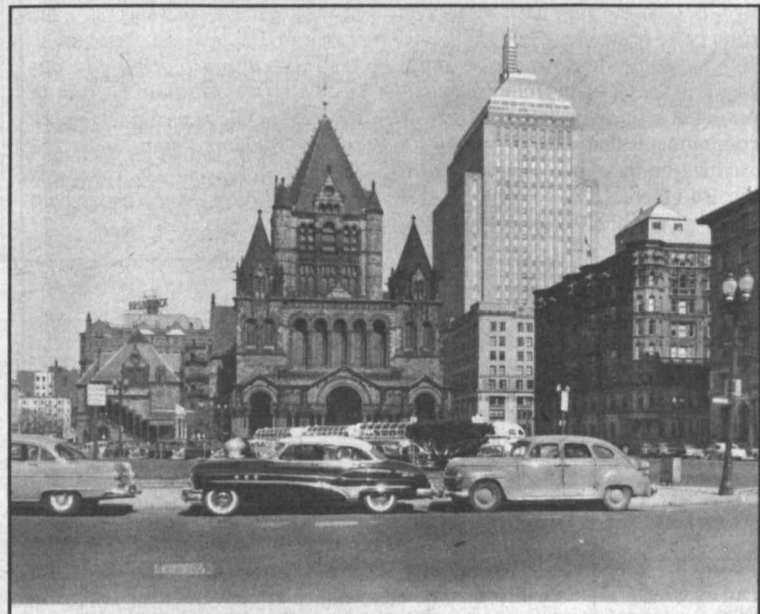
In 1995 Vanderwarker rephotographed the same sites to document changes in Boston's central city over a 40-year span. The resulting pairs of photographs are presented along with a portfolio of Mr. Bichajian's images which capture the grain and feel of the 1950s city from points of view not available to the contemporary photographer.

Professors Kepes and Lynch used maps, models, sound recordings, film and interviews as well as still photography to document perceptions of the city. Articles and books appeared in the wake of the research endeavor, notably Professor Lynch's *Image of the City* in 1960. Professor Kepes' commitment to art on a civic scale led to his founding of the MIT Center for Advanced Visual Studies in 1967. Many of the project's film and sound recordings have been lost. Substantial traces of the project's intellectual endeavor exist in the Institute Archives and Special Collections at MIT and in the Rockefeller Foundation Archives. Some 1,200 photographs and large-format negatives became part of the MIT Rotch Library Visual Collections and were central to the development of this exhibition.

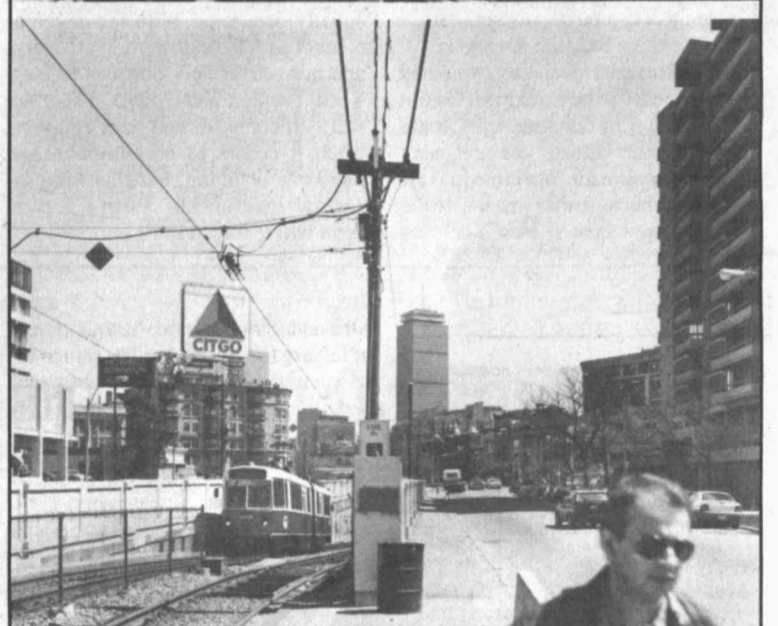
Mr. Bichajian, who studied at the school of Boston's Museum of Fine Arts, came to the MIT School of Architecture and Planning as an assistant to Professor Kepes. In 1954, Professor Kepes put Mr. Bichajian in charge of the still photography portion of the Boston project. Using a large-format Speed Graphic camera with a wide-field Ektar lens, Mr. Bichajian was guided by a morphology of optical characteristics developed by Professor Kepes. Photographs of Copley Square

the 1950s and Peter Vanderwarker in the 1990s. Although less than half a century separates the images, they represent the far sides of the astonishing

## Arts at MIT



Copley Square in 1955 and this year.



Kenmore Square as photographed in 1955 by Nishan Bichajian and in 1995 by Peter Vanderwarker. These and other pairs of photos are juxtaposed in the Compton Gallery exhibit *Images of Boston*.

include views from different vantage points and at different times: entering and leaving the square, the square by day and night, in sun and shadow and in different seasons, frog's eye and bird's eye views, the pavement textures above ground and the subway below, and a composite 360-degree view of the edges and adjoining streets photographed at 50-foot intervals. "The sequence notion excited my imagination," Professor Kepes recalled.

Mr. Vanderwarker, who trained as

an architect at the University of California at Berkeley, is known for his skillful photography of cities. His frequent collaborations with Boston Globe architectural critic Robert Campbell include an ongoing *Globe* series of before-and-after vignettes of Boston and the book, *Cityscapes of Boston: An American City Through Time*.

In conjunction with the exhibition, which runs through December 29, Mr. Vanderwarker will present a slide lecture on Thursday, Oct. 12, at 6pm.

## MIT authors included in acclaimed fiction collection

Three MIT staff members are among 32 who have works included in *All the Ways Home*, a collection of short fiction which has been nominated for a 1995 American Library Association lesbian-bisexual-gay fiction award. Lynne Levine, administrative secretary at the Center for International Studies; Scott Campbell, editor with the Center for Transportation Studies; and Judith Stein, administrative officer in the Program in Science, Technology and Society, one of the five editors of the project, will join fellow project editor Jo Schneiderman in a reading of selections from the book on Thursday, Sept. 21, at 4:30pm, in the Humanities Library Reading Room (14S-200).

Published by the New Victoria Publishers, *All the Ways Home* is a groundbreaking collection of short fiction ex-

ploring the usual and unusual pleasures and pitfalls of parenting and families through the unique lens of the lesbian and gay communities.

"While there have been several excellent non-fiction books addressing issues of lesbian/gay parenting, there have not been any fictional collections," Ms. Stein said. "As writers, we felt fiction was a medium that gave all of us the greatest opportunities to explore these issues."

The editors solicited stories from a diverse group of authors including parents and non-parents and writers of different races and from various regions. The project took more than five years to complete. "We are very proud of the final product," Ms. Stein said.

A reception with light refreshments will follow the reading. For more information, call x3-5683.

## MIT and Tsinghua University cooperate to create cross-cultural urban designs

Although mechanical engineers usually design bridges, a program sponsored by the MIT Department of Architecture and Planning and Tsinghua University in China has successfully built a bridge of design.

Since 1984, MIT students and faculty have collaborated in a biannual Joint Urban Design Summer Workshop with their counterparts at Tsinghua University in Beijing. This past summer, 21 graduate students in architecture and urban planning, Professor Jan Wampler of architecture and Dennis Frenchmen, senior lecturer in urban studies and planning, worked with students and faculty at Tsinghua University for five weeks. Their goal: to devise plans to rehabilitate and rejuvenate a traditional residential area near Beijing's Forbidden City.

### EXHIBIT AT WIESNER GALLERY

An exhibition of the resulting plans, sections, perspectives and photographs entitled *China Design Workshop, Summer 1995*, will be on view at the Wiesner Student Art Gallery from September 25 through October 20. The redesigns include housing, commercial space, muse-

ums and public facilities.

Professor Wampler noted that design problems such as traffic and overpopulation are common throughout the world, but individual countries have unique design issues influenced by cultural differences. "Because design is becoming truly international," Professor Wampler said, "our students have to learn to be sensitive to other cultures and not superimpose American standards."

### DIVERSE TEAM

"The exposure to the people, the culture and their lifestyle was exhilarating," said architecture graduate student Rukiye Devres, a participant in the workshop. "The helpfulness and charm of the people took us to a level of understanding beyond language," she added. MIT's diverse student population heightened the international nature of the design venture. "My team included a Turk, myself, a Greek, an American and a Chinese," Ms. Devres noted.

Professor Wampler finds the program valuable because participants are able to see their influences in real-life projects. Final proposals are presented to local government and

clients, and a report on the workshop is published.

The program is financially supported by the MIT School of Architecture and Planning and by a grant from the East Asian Architecture and Planning Program in honor of Paul Sun. In addition, this year, the Council for the Arts at MIT gave a grant to the studio.

The Wiesner Student Art Gallery is located on the second floor of the Stratton Student Center. For more information, call x3-3913.

## White is 1995-96 Karl T. Compton Lecturer

(continued from page 1) served the nation under five presidents, from 1963-1977, first as chief of the US Weather Bureau and finally as the first administrator of the National Oceanic and Atmospheric Administration. In these capacities he is credited with bringing about a revolution in the US weather warning system with satellite and computer technology, helping to initiate new approaches to the balanced management of the country's coastal zones and promoting the rebirth of

American fisheries.

As US commissioner of the International Whaling Commission (1973-77) he led some of the first efforts to save whales. From 1963-78, as US permanent representative to the World Meteorological Organization, he helped establish the World Weather Watch for continuously monitoring the earth's atmosphere, the Global Weather Experiment to extend the time range of weather forecasts, and the World Climate Program to achieve an improved

understanding of climate change.

For three years immediately before his election as NAE president, he was president of University Corporation for Atmospheric Research, a consortium of 50 universities that operates the National Center for Atmospheric Research. He subsequently was president of the Joint Oceanographic Institution, a university consortium that manages the international deep-sea drilling program.

# Thurow cites need for long-term perspective on R&D

■ By Lester C. Thurow  
Sloan School of Management

List the industries that are growing rapidly: biotechnology, microelectronics, telecommunications, and the industry that does not yet have a name but is at the intersection of computers, telecommunications, television and media arts. They have two common denominators. They are man-made brain power industries. They all could be located anywhere on the face of the globe.

More than 100 years ago, economists developed the "theory of comparative advantage" to explain industrial location. Then, the possession of natural resources and the amount of capital per worker seemed to determine location decisions.

Historically the theory explained what needed to be explained. Cotton was grown in the American South because the climate and soil were right. It was made into cloth in New England because that was where the water power existed. New York was

the economic center of the country since it had the best natural harbor on the East Coast and had both the location and the money to build the Erie Canal, which made it the preferred route for moving products in and out of the Midwest. Steel was made in Pittsburgh since doing so minimized transportation costs given the rivers and lakes and the iron and coal ore deposits. Given its location, Chicago had to be the transportation capital. Texas was oil.

But none of the industries that are now growing rapidly requires natural resources. If they were needed they could be bought on world markets and cheaply transported to wherever needed.

Capital-labor ratios have become equally irrelevant. With the development of a global capital market, everyone now effectively borrows in New York, London and Tokyo. There are still rich countries and poor countries when it comes to consumption and standards of living, but financing industrial investments doesn't depend upon where they will be built.

The whole distinction between capital and labor has vanished. Human capital is created in exactly the same investment process that creates physical capital. Labor, if one means unskilled and uneducated workers, simply isn't needed.

While these new man-made brain power industries are privately owned, much of the investment necessary to make them into operating realities is public investment.

Private industry will make R&D investments that are expected to pay off within five to seven years but it won't make the 20- to 30-year R&D investments that are necessary to create entirely new industries such as biotechnology. No hard-nosed capitalist would ever invest in the more than 20 years of education it takes to create a PhD. The payoffs are just too far into the future.

Yet just such investments are central in determining the winners in an era of man-made brain power industries.

Where will growing high-wage industries be located in an era of such industries? The answer simply depends

upon who mobilizes the resources to do the necessary research and development to create these industries and who develops the top-to-bottom skill base to staff these industries.

In the United States, both R&D investments (public and private) and investments in education are now declining. The reasons are numerous. With the end of the Cold War, military R&D is falling. On the civilian side of the budget, pensions and health care for the elderly are squeezing everything else out.

In the private sector, long-term R&D investments are being cut as firms merge and downsize. The monopolistic companies that used to do long-term R&D, such as AT&T or IBM, have seen their industries become competitive. To compete, they have withdrawn from basic research.

Capturing the man-made brain power industries of the future demands the same size, intensity and kinds of commitments that were necessary for the man-on-the-moon program, but it just isn't there.

What Washington should be debat-

ing is not the size of government but the proportion of output being devoted to investment in both the public and private sectors. Within government budgets, there are consumption activities that need to be cut (health care spending is certainly one) and R&D and educational investments that need to be expanded.

The same is true in the private sector. Health care should also be cut in the private sector and skill training and R&D should also be accelerated.

That famous bottom line is simple. If Americans want a good economic future with jobs at high wages, they are simply going to have to be willing to invest in those things that are necessary to generate that success in the era ahead. If they don't, they won't.

(This editorial originally appeared in the Business Section of The Boston Globe on September 12 and is reprinted here with the author's permission. Dr. Thurow is Lemelson Professor of Management and Economics.)

# MIT doctoral programs lead national peer review rankings

AEROSPACE ENGINEERING	BIOMEDICAL ENGINEERING	CHEMICAL ENGINEERING	CIVIL ENGINEERING	ELECTRICAL ENGINEERING																																														
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(continued from page 1)

teen MIT programs were in the top three in at least one of these categories.

MIT was number one in both categories in both civil engineering and materials science. It was first in either faculty quality or teaching effectiveness in seven other programs: cellular and developmental biology, molecular and general genetics, biomedical engineering, computer science, oceanography, economics, and linguistics.

In all the fields, Yale had 12 firsts, compared to MIT with 11; Stanford, 11; Berkeley, 9; Harvard, 8; Caltech, 8; Chicago, 6; Princeton, 5; UC San Diego, 3; Michigan, 3; and UC San Francisco, 3.

The study said 11 percent of the 3,634 programs were rated as "distinguished" in the quality of their faculty; 62 percent were rated "distinguished, strong or good;" 19 percent were considered adequate; 16 percent marginal; and 3 percent were considered "not sufficient."

The editors suggested that the data in the book, "Research-Doctorate Programs in the United States," may be useful to institutional administrators in allocating resources.

### SUMMARY ON WEB

The book is available from the National Academy Press (1-800-624-6242) for \$59.95 plus shipping charges. The Executive Summary can also be read on the World Wide Web at <http://www.nas.edu/new/> but the site is limited to 100 simultaneous connections and you may get the busy signal, "user anonymous access denied." Selected appendices may be downloaded only with Microsoft Excel 5.0.

The National Research Council, the principal operating agency of the National Academy of Science and the National Academy of Engineering, is a private nonprofit organization that provides science and technology advice under a Congressional charter.

The NRC spent four years developing the book, which was based on data from 1992 and reputation assessments in 1993. The project involved analyzing surveys from 8,000 faculty at 274 institutions (105 private and 169 public). From 1986 to 1992, these institutions awarded 143,000 doctorates, 90 percent of the total.

The NRC independently collected data from institutions on time required for PhD completion, research funding, number of faculty, number of awards and honors, and demographic statistics.

## Medical consumer wanted for panel

The Medical Consumers' Advisory Council (MCAC) is seeking a nomination for a support staff member to serve on the council.

The MCAC, a presidentially appointed committee, serves as a communications link between the Medical Department and its users. Its objectives are to keep the MIT community informed of the services available through the Medical Department and to discuss criticisms and suggestions for the modification or addition of services to meet the changing needs of the community.

The Council reports annually to the Medical Management Board, which is the governing board of the Medical Department within the MIT structure.

Interested persons should send their name, MIT address, telephone extension, e-mail address and a brief description of why they would like to serve on this committee to Nancy D. Kelly, administrative officer, President's Office, Rm 3-207, or e-mail <ndk@mit.edu>.

This table shows NRC rankings of MIT, Harvard and other top schools in "scholarly quality of program faculty" (first column) and "program effectiveness in educating research scholars and scientists" (second column) in the doctoral programs offered by MIT. The Institute was ranked 1, 2 or 3 in either of the two categories 34 times in these subjects. MIT's nearest competitor in this regard was UC Berkeley, with 16 in the top 3; next was Stanford, 13; Harvard, 11; and Caltech, 10. Harvard's rankings are included in courses where it competes with MIT but are not given in fields in which it does not offer a doctoral program.