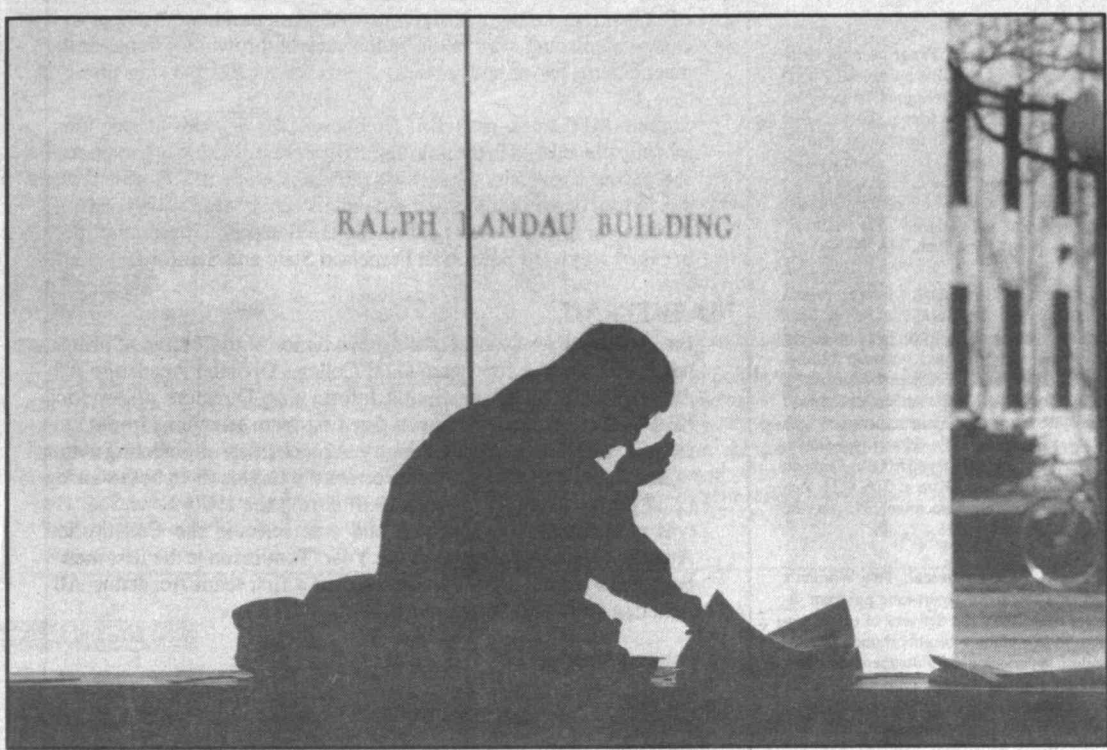


RALPH LANDAU BUILDING



**SILHOUETTE**—A student clearly enjoys his lunch as he licks his fingers and flicks through a newspaper in the passageway between Buildings 56 and 66. Photo by Donna Coveney

## IN BRIEF

### NO TECH TALK

Tech Talk will not be published March 27 because of the spring vacation break. The Institute Calendar next week will cover the period March 20-April 7, which includes the first week following the break. Deadline for listings in the Calendar, Institute Notices and Classified Ads will be, as usual, noon Friday, March 15.

### W-2s MISSING?

Employees who have not received their 1990 W-2 statements should call the payroll office to request a copy. The numbers are: Service Staff—x3-3338; Support Staff—x3-2740; Student Payroll—x3-3860; Voucher Payroll—x3-3557; Academic Staff—x3-2744; Administrative and Research Staff—x3-2774, and Graduate Student Staff—x3-2743.

### REMINDERS

■ Friday, March 15, is the deadline for submitting nominations for the major Institute-wide awards to be presented at the Awards Convocation on May 1. Nominations should be sent to the Awards Committee, Rm W20-549.  
 ■ Friday is also the final day to order additional supplies of the Report of the Committee on Sexual Harassment. Request copies in the Information Center, Rm 7-121, x3-4795.

### KIDSPACE

Technology Children's Center has immediate openings in its two-day, extended program at Westgate. Hours are 8:30am-3:30pm Tuesdays and Thursdays for children aged two years, nine months to five. Call Janet Cady, x3-5907, for more information.

**West Garage is undergoing extensive repairs. See story on page 8.**

### MIT IN FY 90

## Indirect Research Costs Were 30 Cents Per \$1

*If you are confused by "indirect cost rates," you are not alone. The "indirect cost rate" at Stanford University will be one of the subjects at a Congressional hearing in Washington beginning today, Wednesday, March 13. This article, the first in an occasional series on indirect cost matters, explains how to interpret MIT's indirect cost rate in a way that makes sense.*

■ **By James J. Culliton**  
 Vice President for Financial Operations

In fiscal year 1990 (ending last June), MIT received \$311 million in research grants and contracts from private and Federal sponsors (excluding awards to Lincoln Laboratory). Of that amount, \$292 million was spent for research conducted on the Cambridge campus (and the balance for research conducted at off-campus locations such as the Haystack Observatory).

That \$292 million consisted of two components. The first, \$203 million, was spent on direct costs, i.e., the costs incurred by individual projects for the conduct of on-campus research (salaries, wages, employee benefits, equipment purchases, materials and services, travel, etc.). The balance, \$89 million, is that portion of total MIT indirect costs which are attributable to the support of the on-campus research program (a portion of the cost of physical facilities, academic and general administration, the libraries, etc.). This \$89 million of research indirect cost is determined in accordance with estab-

lished federal guidelines which define allowable direct and indirect costs. These costs will be audited by the Defense Contract Audit Agency (DCAA), subject to final negotiation and approval by the Office of Naval Research (ONR), MIT's cognizant government agency.

It is the indirect cost component which has attracted the attention and controversy which is presently focused on Stanford. That attention is likely to be directed at other universities in the near future. The controversy involves a number of issues, but one of the recurring questions is, "How much of the research funding goes to the university for general support of the research and how much is available for the conduct of the research projects?" The problem is that the answer depends on how you view it, and the views differ widely.

For MIT, one obvious answer is that about 30 cents out of each research dollar expended by the Institute on campus in fiscal 1990 was used for the associated indirect costs (\$89 million out of \$292 million).

For those who view this, however, in terms of how the indirect costs relate

(continued on page 8)

## Middle East Series to Begin

President Charles M. Vest will moderate the first discussion in a new MIT Community Series on the Middle East on Monday, March 18, at 4pm in Huntington Hall (Rm 10-250). The program will begin with two talks by members of the political science faculty.

Professor Charles Stewart's talk, "Through A Glass Darkly," will examine American attitudes toward the Middle East and toward war. Professor Stewart specializes in American politics and Congressional-Presidential relations.

Professor Lincoln Bloomfield will discuss "An Expanding Involvement." Professor Bloomfield is a foreign affairs expert who has served in the State Department and on the National Security Council.

The program was arranged by Institute Professor Francis E. Low and a communications group he has formed to facilitate campus discussion on issues of the Middle East. Further programs throughout the spring will focus on topics such as history, religion, politics, oil, arms control, the West as seen by the Middle East, and others.

### JUNE 3

## NSF Director Massey To Speak at Graduation

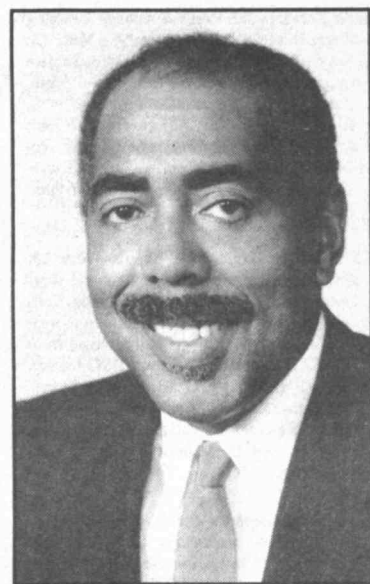
Dr. Walter E. Massey, the newly appointed director of the National Science Foundation, will be the commencement speaker on Monday, June 3.

Dr. Charles M. Vest, serving his first year as MIT president, said he was "particularly pleased that the new director of NSF and the new president of MIT will have this opportunity to visibly display our continuing partnership." He added, "This is especially appropriate because this academic year encompasses the one hundredth anniversary of the birth of Vannevar Bush, an important, creative genius in the development of each of our institutions."

The NSF is charged with strengthening the national scientific and engineering research potential and with improving science and engineering education at all levels. The agency has an annual budget exceeding \$2.3 billion and annually awards 13,000 to 15,000 grants for research in all fields of natural and social sciences, and engineering.

Dr. Massey was confirmed by the United States Senate to his presidential appointment as NSF director and began his six-year term of office on March 4. He had been a professor of physics at the University of Chicago, where he also served as vice president for research and vice president for the Argonne National Laboratory.

Dr. Massey's research has been in the many-body theories of quantum liquids and solids. He has lectured and written on the physics of quantum liquids and solids, the teaching of science and mathematics, and the role of science and technology in a democratic society.



Dr. Massey

Dr. Massey received lavish praise during his confirmation hearings. Sen. Thad Cochran, a Republican from his home state of Mississippi, said, "I am convinced you are going to make a tremendous contribution." Sen. Paul Simon, an Illinois Democrat, said, "He's just a top-drawer, top-quality person who will be an asset to this nation."

Dr. Massey was born and attended high school in Hattiesburg, Miss. He earned his bachelor of science degree in physics and mathematics from Morehouse College in 1958, and received both an MS and PhD in physics from Washington University in 1966.

After postdoctoral research at Washington University, Dr. Massey

(continued on page 6)

### \$566.3 MILLION

## Campaign is on Target

MIT's Campaign for the future is \$100 million ahead of where it was a year ago and continues to be on target toward its \$700 million goal, President Charles M. Vest reported at the February 20 faculty meeting.

The Campaign's original goal of \$550 million was reached in late December, well before the original target date of June 1992. The goal was raised to \$700 million last spring.

"In recent months we have been watching to see if the economic recession, the Middle East situation and the unsettled stock market would slow our success," President Vest said. Reporting figures prepared by Vice President and Treasurer Glenn P. Strehle, director of the Campaign, President Vest said: "I am pleased to tell you that the Campaign total now stands at \$566.3 million, up \$16 million since late December and \$100 million ahead of where we were 12 months ago. While some of our donors have dropped their giving, so far this year we have been able to keep the Campaign total on target toward the new goal."

President Vest said that one of his highest priorities for the remainder of the Campaign is to increase the number of endowed faculty chairs. "Although the Campaign is on target toward its goal of 100 new endowed chairs, we only have chairs for about one-fourth of the faculty and many departments have a far lower proportion."

The president said that the role of the faculty has been essential to the success of the Campaign. "Many of you have met with donors at one of the 27 Campus Visits or other events. Some of you have been involved directly in soliciting gifts. I look forward to joining with many of you in these efforts in the time ahead," he said.

### TCC Sale

Technology Children's Center, which operates MIT's Nursery School and Day Care Center, will hold a rummage sale Wednesday and Thursday, March 20 and 21, 3-7pm in the Eastgate nursery school classroom. Proceeds of the sale will benefit the TCC Scholarship Fund that was started last fall.

Donations of sorted children's and adult clothing, toys and books, clean and in good repair, will be gratefully accepted for the sale. Community members can use the sale as inspiration to begin spring cleaning.

Donations may be dropped off at the Eastgate TCC office daily from 8am-6pm. Call Judy Perry, x3-5907 (evenings 508-531-7053), for more information or to volunteer to help.

# Student Notices

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

## ANNOUNCEMENTS

**Career Services and Preprofessional Advising Recruitment Presentations\*\***—Mar 13: *Peace Corps*, Info Table, 9am-3pm, Student Center 1st floor lobby; Film, 4:30-6:30pm, Rm 4-149. *MIPS Computer Systems*, 7-9pm, Rm 4-145. *Trimple Navigation, Ltd.* 7-9pm, Rm 4-153. **Mar 14:** *Phillips Lab*, 6-8pm, Rm 4-149. **Mar 18:** *Grid Systems*, 7-9pm, Rm 4-149. **Mar 20:** *Cap Gemini America*, 7-9pm, Rm 4-149.

**MIT Minority Community Events**—Mar 13: Cultural Awareness Day, 12-2pm, BSU Lounge. **Mar 16:** Minority Leadership Conference. Minority Student Group representatives and/or other officers will get together to discuss their roles on campus. BSU lounge, time TBA. **Mar 19:** OME sponsors *Secrets and Strategies for Academic Success*—"Choosing a Major." BSU Lounge, 6-7:30pm. **Mar 20:** "Meet the Minority Faculty" Mixer. BSU Lounge, 5pm.

**Theses Workshops on the Mac\*\***—Mar 13-**May 1:** Free workshops for seniors and graduate students who are using the Macintosh computer to prepare their theses, sponsored by Information Systems. Wednesdays, 5-7pm, Rm 11-206.

**Graduate Student Council\*\***—Mar 13: Open House. Find out what the GSC does for graduate students. Ice cream, cookies, etc., provided. All grad students welcome. 5:30-7pm, Rm 50-222 (Walker 2nd Floor, enter from Memorial Drive). **Mar 19:** GSC monthly meeting, all grad students welcome, 5:30pm, Rm 50-222.

**Tech Model Railroad Club Clinic\***—Mar 16: "Basics of Car and Locomotive Maintenance," 8pm, Rm 20E-214. Call x3-3269.

**Final Examination Schedule:** All student should obtain one at the Information Center, 7-121, or at the Registrar's Branch Office, 3-123. Examinations not listed or a conflict in examinations (2 exams in the same period) must be reported to the Schedules Office, E19-338, by Friday, March 22.

**MIT Pistol & Rifle Club Basic Pistol Marksmanship Course\*\***—Starts Apr 1, 4 nights: Apr 1, 4, 8, 11, 6-9pm. DuPont pistol range. Course covers safe handling, storage and use of firearms as well as developing marksmanship skills to meet local police departmental requirements for pistol permits. Fee covers everything. Info/registration: Frank Gauntt, Draper x8-1476.

**Free Museum of Science Admission for MIT Students**—With MIT student ID, provided by Mass Beta chapter of Tau Beta Pi, the National Engineering Honor Society. Reduced admission to special exhibits.

**MIT Student Furniture Exchange\*\***—great bargains, used furniture and more, Tues/Th, 10am-2pm, 25 Windsor St (MIT Museum bldg, 1st fl). Donations welcome. x3-4293.

**Arts Hotline**—Recorded information on all art events at MIT may be obtained by dialing x3-ARTS. Material is updated every Monday morning.

**Nightline\*\***—a student-run campus hotline open every evening of the term, 7pm-7am. If you need information about anything or you just want to chat, give us a call. We're here to listen. x3-8800.

## RELIGIOUS ACTIVITIES

The Chapel is open for private meditation 7am-11pm daily.

**Baptist Student Fellowship\*\***—Weekly Worship and Bible Study each Tuesday at 6pm in the chapel; snack supper fellowship immediately preceding at 312 Memorial Drive, 5:15pm. Graduate Student Study every other Thursday at 1pm, 312 Memorial Drive. Info x3-2328.

**Morning Bible Studies\*\***—Fri, 7:30-8:30am, L-217. Ed Bayliss, x3456 Linc.

**Noon Bible Study\***—Every Wed, Rm 1-132, bring lunch. Ralph Burgess, x3-8121. (Since 1965.) (Graduate Christian Fellowship.)

**MIT Bible Study Group\***—The Economy of God, a look at God's eternal purpose to dispense Himself into man based on the

revelation of the Bible, Fri, 8pm, Student Ctr Rm 407. Singing, prayer, Bible reading, fellowship.

**Tech Catholic Community\*\***—Masses: Sat, 5pm; Sun, 10am & 5pm. Tues & Thurs, 5:05pm, Fri, 12:05pm, MIT Chapel. Info x3-2981.

**Chinese Christian Fellowship\***—Join us for a discussion of what loving God practically means in our daily lives, Wednesdays 7-9pm. All English-speaking undergraduate and graduate students are welcome (you don't have to be Chinese!). Investigative Bible discussion is also offered at the same location and night, 7:30-8:30pm. For location and further info contact Carl Lim x5-7508.

**MIT Christian Community\*\***—Come and join monthly lunch and discussion on God and Christians at MIT with your fellow faculty, staff, administrators, and grad students. Info: Park x3-2875.

**MIT Christian Impact\***—The weekly meeting for the ministry of Campus Crusade for Christ. Wind up the week: relax, snack, sing, laugh through skits and gain practical insight from God's Word. Meets Friday 7:17pm, Student Ctr, 3rd fl.

**United Christian Fellowship\*\***—Large group meetings. Join us for a time of worship, prayer, and Biblical teachings, Fridays, 7pm, Rm 6-321.

**Christian Science Organization at MIT\***—Weekly Testimony meetings, Thurs, 8pm, MIT Chapel.

**Graduate Christian Fellowship\*\***—Come join other grad students, faculty and staff in learning about and growing in the Christian faith. Activities open to both Christians and those interested in learning more about Christianity. Info: John Keen x3-7706, Dave Otis x3-2198.

**MIT Orthodox Christian Fellowship\*\***—The newly formed MIT OCF will meet every other Monday night at 8pm in the MIT Chapel. Vespers (Evening Prayer) will be followed by Fellowship/Discussion. Open to Orthodox Christians and those interested in learning about the ancient Christian Faith. Info: Arlene Lanciani Marge x3-3555.

**Church of Latter-day Saints Student Association at MIT\***—Sunday services, Cambridge University Ward, meets every Sunday 3-6pm at the Cambridge Chapel, corner of Brattle Street and Longfellow Park. Meetings are for students and young single adults. **Mar 17:** Piano concert w/Jung Yoo performing Beethoven, Brahms & Debussy, 7:30pm.

**MIT Hillel\***—Mar 13, 20: Israeli Folk Dancing, 7-11pm. **Mar 15:** Shabbat Services, 5:30pm, Walker 50-010; Shabbat Dinner, 6:30pm, Walker blue Rm; Faculty Chat/Oneg Shabbat w/Prof. Robert Weinberg, 8:30pm, Walker Blue Rm. **Mar 16:** Orthodox Shabbat Services, 9am, Walker 50-010. A reminder: Passover is coming, Mar 29 is the First Seder! For home hospitality, haggadahs, campus seder, and passover lunches & dinners, contact Hillel. **Mar 17:** Passover Basket Project for Jewish Elderly, leave from MIT Hillel at 9:30am. **Mar 18:** Israel Folk Dance Festival, 3pm, Kresge, Tkts \$5, \$7, \$8 avail at Hillel or box office. **Mar 18:** Project Mazon all week: bring your sealed non-perishable food (chametz) to Hillel for distribution to area food pantries. **Mar 24:** Project Mazon delivery day, to help call x3-7214. More info: x3-2982.

**MIT Islamic Society\***—5 daily prayers in the prayer room, Ashdown House (Bldg W-1) west bsmt. **Friday congregation:** 1:10-1:45pm in Ashdown House (Bldg W-1) west bsmt. Info: x8-9755.

**Lincoln Laboratory Noon Bible Studies\***—Tues & Thurs, Kiln Brook III, Rm 239. Annie Lescard, x2899 Linc.

**Lutheran Ministry and Episcopal Ministry\*\***—Weekly Service of Holy Communion—Wed, 5:10pm, MIT Chapel. Supper follows at 312 Memorial Drive. For further info, call x3-2325/2983.

**MIT Vedanta Society\***—Meditation and discourse on the Bhagavad Gita. Swami Sarvagatananda, MIT Religious Counselor. Classes held Fridays 5:15pm, MIT Chapel.

## OPPORTUNITIES

**The Writing Prizes.** Cash prizes awarded in each category: fiction, short story, poetry, drama, essay, scientific and engineering writing, science writing for the public. For applications and guidelines contact The Writing Program, Rm 14E-303. Deadline: Apr 11.

**MIT Japan Science and Technology Prize.** The MIT Japan Program is now accepting applications for this award, which is made possible by the Japan-U.S. Friendship Commission. It will cover airfare and local expenses for the winner to attend a professional meeting in Japan during the 1991-92 academic year. Applications require a letter of recommendation and a brief essay about the meeting the applicant wishes to attend and why. All MIT graduate students currently enrolled in science and engineering departments are eligible to apply. Applications and further information may be obtained from Cornelia Robart, E38-700, x3-2839. Deadline: Apr 19.

## INTERNATIONAL

**MIT-Japan Program.** Go to Japan for a year of fun and excitement—all expenses paid—with the MIT-Japan Program. Further info: x3-2839.

## STUDENT JOBS

There are more job listings available at the Student Employment Office, Rm 5-119. The Student Employment Office has many "one time only" jobs. Many students find these jobs a good way to earn money fast.

**Off Campus, Technical, Programming.** Programmer needed to refine a financial Lotus-based program for marketing and presentation to Lotus. Needed to link files, install a graphic summary, and separate forecasting and financial models among other finishing tasks. May work at home in coordination with project leader over a 3 month time period. Contact: Michael Gatto at (508) 384-7554. Address: 95 Clark Road, Wrentham, MA, 02093.

**Off Campus, Non-Technical, Clerical.** Person needed to do secretarial/clerical work for a small publishing company. Involves handling newsletter subscriptions, customer billing, using a data base, and customer relations. A familiarity with Macintosh and Microsoft Word necessary, and some experience with FileMaker is preferable. Hours: 4-5 hours, one day per week. Salary: \$7.00/hr. Contact: Ms. Colleen Lannon-Kim at 576-1231. Address: Pegasus Communications, 345 Harvard St, 2F, Cambridge, MA.

**Off Campus, Non-Technical.** The Women's Service Club seeks a part-time program director to facilitate the delivery of social services to low income neighborhoods. Job includes: supervision of volunteers, securing program funding through proposal development and grantsmanship. Experience, good oral and written communication skills necessary. Hours: 9am-5pm, 25 hrs/wk. Contact: Ms Alma Williams at Women's Service Club, 464 Mass. Ave., Boston, MA 02118.

**Off Campus, Technical, Programming.** A small Cambridge policy analysis firm seeks SAS programmer to work on health care policy project. Requirements: Thorough knowledge of statistics; extensive experience in large database management; familiarity with both mainframe and PC SAS; working knowledge of MS-DOS. Public health policy background a plus. Programmer will work with a four-person team of researchers and writers. Good communication skills and team spirit essential. Send resume and cover letter by 4/15/91. No phone calls. Hours: 20-40/wk. Send Resume to: Amy Lockwood, BOTEC Analysis Corporation, 1698 Massachusetts Avenue, Cambridge, MA 02138.

## VOLUNTEERS

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

**LaVerde's Shop and Share.** LaVerde's market is offering a new fundraising program. Not-for-profit, charitable, or service organizations can get 5% cash back on all purchases made in their behalf for a given three-day period. An excellent way to get the MIT community to help support your group. For more information, please call or visit Ken Ripley at LaVerde's, 621-0733.

**Road Race.** The Cambridge Council on Aging is hosting a five-mile walk/run race on Sunday, April 7. The race will be held at the Cambridge Fresh Pond Reservoir. Volunteers needed to get pledges for the race. For information on how to register, call Sunday Kahn 349-6220.

## UROF

MIT and Wellesley students are invited to join with faculty members in pursuit of research projects of mutual fascination. Spring term projects are now posted on the bulletin boards in the infinite corridor by the Admissions Office and in our office. For further information, read details on procedures in the participation section of the directory.

Faculty supervisors wishing to have projects listed should send project descriptions to the UROF office. Questions? Contact UROF at x3-7306, 20B-140.

Summer is almost here! The deadline for summer UROF proposals requesting full or partial funding from UROF is April 17, 1991. UROF proposals wherein faculty supervisors are providing all of the student summer stipend should be submitted by May 31, 1991. Proposals must be submitted at the UROF office at 20B-140. Detailed information are posted on the UROF bulletin board in the infinite corridor.

**1991 Carroll L. Wilson Awards.** Two planned \$4,000 undergraduate awards will be awarded to students in any department at MIT on the basis of a competitive evaluation of proposals by a Prize Committee. The broad aim of the Wilson Awards is to provide opportunities for MIT students to pursue a challenging activity. The Wilson Awards have been funded by individual and corporate contributions, from colleagues and friends of the late Professor Wilson, from all over the world. The deadline for submitting applications is Monday, April 1, 1991. Information and applications are available in the Undergraduate Education Office, 20B-140, x3-7909.

# Sports at MIT

## TRACK

Senior track man Mark Dunzo of Los Angeles returned from last weekend's Division III National Indoor Track & Field Championship at Wesleyan University as the national title holder in the 400 meters. Dunzo took the race with a time of 49.4 seconds. Senior weightman J.P. Clarke of Orange, N.J., earned All-America honors along with Dunzo by placing third in the 35 lbs. weight throw. MIT finished the meet in a tie for seventh place.

Former MIT track man Bill Singhose '90, of Springfield, Ore., recently placed first in the pole vault in the open division of a meet held at Stanford University where he is a graduate student. Singhose broke the 16 foot barrier for the first time in his career with a vault of 16' 3/4". The competition was held in conjunction with a triangular meet between Hayward State, San Francisco State and Stanford.

## BASKETBALL

Basketball player David Tomlinson, a senior from Colorado Springs, has been named a first-team GTE College Division Academic All-America by the College Sports Information Directors of America (CoSIDA). Tomlinson is one of five first-team selections from Divisions II & III throughout the country. A mechanical engineering major with a chemistry minor, Tomlinson led the Engineers in both scoring (22.7 points) and rebounding (13.6) during the 1990-91 season. He was named All-New England and was selected the Constitution Athletic Conference Player of the Year. Tomlinson is the first men's basketball player at MIT to be selected a first team Academic All-America since Ray Nagem in 1980.

## GYMNASTICS

Gymnast Lisa Arel earned the sixth All-America honor of her collegiate career at last weekend's National Collegiate Gymnastics Association national championships at Gustavus Adolphus College. Arel, a junior from Lee's Summit, Mo., placed fourth in the floor exercise portion of the competition with a personal best score of 9.3/10.0.

## FENCING

Two MIT fencers have qualified for the National Collegiate Athletic Association Championships to be held March 20-24, 1991, at Penn State. Felice Swapp, a junior from St. John's, Antigua has been named in the women's division and sophomore Hendrik Martin from Waterloo, Belgium, was a selection in the men's epee.

## FOOTBALL

MIT football defensive back coach Vaughn Williams has accepted a job with the Barcelona, Spain, entry in the new World League of American Football set to begin play this month. Williams joins former Boston College coach Jack Bicknell's staff for the initial WLAFF season.

Roger F. Crosley

**Integrating Information Sources for Financial Applications.** The Sloan School of Management is involved in a long term project involving the integration of information obtained from distributed heterogeneous information sources. The focus is on connectivity from organizational and technical perspectives. The goal is to solve problems and establish new research themes for this area. A prototype database integration system is being developed under UNIX in C, shell, and Lisp. Several students are sought with skills in either finance and banking or databases and software development. Please send resumes to E53-321. Faculty supervisor: Prof. Stuart Madnick, E53-321, x3-6671; contact: Natasha Collins, x3-2650, or Henry Kon, x3-9690.

**Biochemistry of a Unique Protein.** The project is to examine the formation of the chromophore in a Green-Fluorescent Protein from cnidaria. Protein biochemistry and molecular biology will be used. Some lab experience required. Faculty supervisor: Arthur Baggeroer, 5-206A, contact: Douglas Prasher, WHOI, (508)457-2000 x2311.

**Fluidized Bed Research.** A UROPer is needed for ongoing fluidized bed hydrodynamics research. Work to be done includes fabrication of experimental apparatus, development and set-up of instrumentation, and data acquisition. Shop experience important. Faculty supervisor: Prof. Leon Glicksman, 3-433; contact: Detlef Westphalen, 7-008, x3-7080.

## CABLE

For more information call Randy Winchester at x3-7431.

**March 13:** Channel 8: 11am-12:30pm—Live coverage of the MIT Optics and Quantum Electronics Seminar.

**March 14:** Channel 8: 9pm-12am—Teach-in on the War in the Persian Gulf.

**March 15:** Channel 8: 9pm-12am—Teach-in on the War in the Persian Gulf.

**March 18:** Channel 8: 4-5:30pm—Live coverage of the MIT EECS Colloquium Series "Ocean Warming Experiment," A. Baggeroer, MIT.

**March 19:** Channel 8: 4-5:30pm—Live coverage of the MIT VLSI Seminar.

## TECH TALK (USPS 002157)

March 13, 1991  
 Volume 35 Number 25

**Publisher**  
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 Director: Kenneth D. Campbell; Associate Director: Robert C. Di Iorio; Senior Assistant Director: Charles H. Ball; Chief Science Writer: Eugene F. Mallove; Assistant Directors: Naomi F. Chase; Donna Coveney; Joanne Miller; Assistant Editor: Elizabeth A. Thomson; Administrative Assistant: Myles Crowley; Senior Staff Assistant: Lisa Damtoft; Receptionist: Cynthia Consentino.

Tech Talk is published weekly except for most Monday holiday weeks by the News Office, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139-4307.

Postmaster: Send address changes to Tech Talk, Room 5-111, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139-4307.

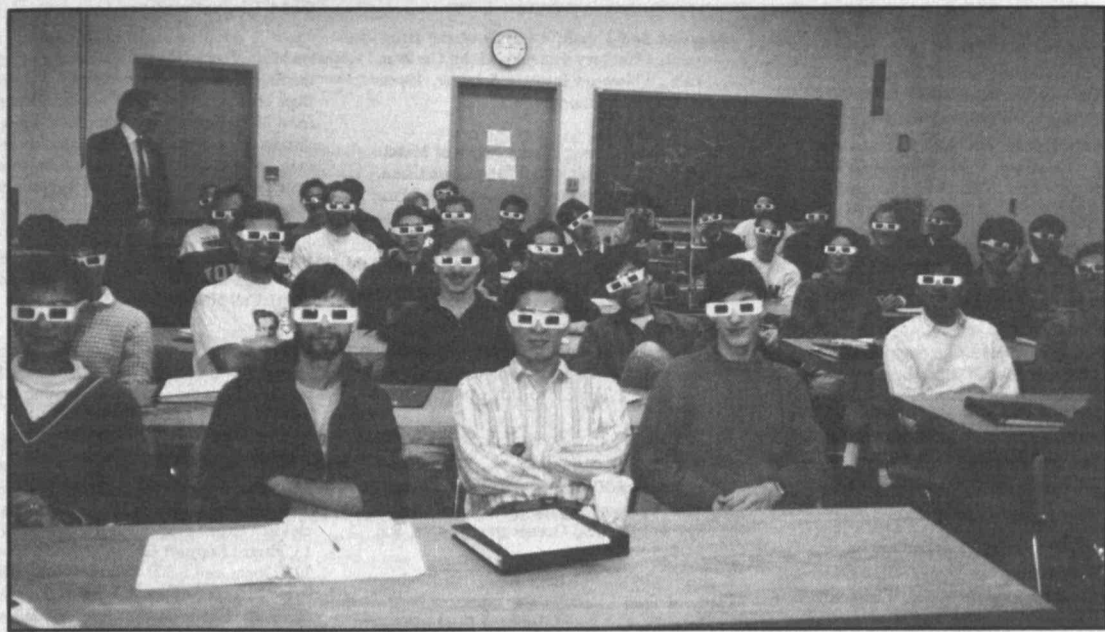
Tech Talk is distributed free to faculty and staff offices and residence halls. It is also available free in the News Office and the Information Center.

Mail subscriptions are \$18 per year. Checks should be made payable to MIT and mailed to Business Manager, Room 5-111, MIT, Cambridge, MA 02139-4307.

Second class postage paid at Boston, MA.

Permission is granted to excerpt or reprint any material originated in Tech Talk.

## No, Not a 3-D Monster Movie



Students in Professor John D. Joannopoulos's class, Physics 8.511: Theory of Solids, have donned special glasses (linearly polarized plastic) to view 3-D images of what an electron "sees" and "does" in a solid. The projected images that the students are viewing were computed from precise fundamental calculations done in Professor Joannopoulos's research group. Professor Joannopoulos (standing) is complementing his own research by developing a 3-D medium for disseminating results to make them immediately available to classroom audiences. His colleague, physics Professor A. Nihat Berker, says, "This photograph reflects the fundamental research, innovative teaching, and a bit of nostalgia—the paper glasses—which, come to think about it, may be much of what the Institute is all about."

Photo by Leon Aalberts

### K-12 FOCUS

## Survey Updates Educational Outreach

From chemistry magic shows to robot tours to talks on the history of clocks, this spring MIT staff, students and faculty will present at least 29 educational programs that reach out to students in grades K-12 and the community at large, a recent News Office survey has found.

These programs range from tours of MIT laboratories to scientific road shows to the recruitment of pre-college teachers among graduating MIT seniors. Specifically, spring outreach efforts include the High School Studies Program, which offers kids in grades 7-12 a range of noncredit courses over 10 Saturdays; seminars in nuclear technology at the Nuclear Reactor Lab for pre-college science teachers; tours of the Haystack Observatory in Westford; and a Spring

Outreach Day at the Plasma Fusion Center.

Overall, the survey found 40 educational outreach programs offered through the Institute. Half of these programs focus on science and engineering. They include the Chemistry Magic Show for children in grades 4-6 and On Science and Engineering, a three-week lecture series for second graders.

A total of 11 programs address education in general. These include the Cambridge Partnership for Public Education, which runs a variety of programs including Project RICH (Reading Improvement with Computer Help), and Parenting Programs, which address issues like child care and discipline.

For those interested in extended study, 12 programs run for more than a

week. These include the Minority Introduction to Engineering and Science, which introduces minority high-school students to engineering and science via a 6-week summer program; SAT Preparation, which runs for 6 weeks on Sunday afternoons and includes an intensive review of either verbal or math skills; and the Young Scholars Program, which gives 20-40 middle-school students two-week summer internships at Haystack Observatory.

In a further breakdown of the programs, 10 reach out to children in elementary schools, 12 to those in junior high, and 28 to high-school students; several cover all three age groups.

In addition, six programs focus on teachers. These include the Nuclear and Particle Physics Program for High School Physics Teachers and the Science and Engineering Program for High School Teachers.

Finally, eight programs offer tours of various MIT facilities, including the Francis Bitter National Magnet Laboratory and the MIT Museum. And 10 of the 41 programs are run by MIT students.

For more information on any of these programs, or if you have a program the News Office might not know about, contact Outreach Coordinator Elizabeth Thomson at the News Office, Rm 5-111, x8-5402.

amount of his or her loan obligation for the year in which the fund is awarded. In other words, those with larger loans to repay will receive larger gifts from the Fund. "It's a way to provide people who need the money the most the greatest amount of money," Mr. Slibeck said.

The Senior Gift Committee decided on the gift after holding several open meetings and sending out surveys to members of the class (200 surveys were returned). "We tried to make it a very open process," Mr. Slibeck said.

Overall, he said, the class felt that the Fund would not only be of benefit to MIT, but to the public education system in general. "MIT prides itself on being a leader in professional education," Mr. Slibeck said. "Pre-college teaching is an important profession that has not been fully addressed by MIT. There are programs in existence that support getting certification to teach in public schools, but we felt that our gift is a way to make this a more formal commitment."

The Gift Committee hopes to raise money for the fund by sending a packet of information to everyone in the Class of '91 after Spring Break, and by holding a telethon from Sunday, April 7, through Wednesday, April 10. "The goal is to call everyone in the class and ask them to pledge," Mr. Slibeck said.

If you'd like to help with the telethon, call Barbara Peterson, at the Alumni Office, x3-5489. Said Mr. Slibeck: "We need all the help we can get."

### 103 MEMBERS HERE

## Faculty Elected to NAE

Three faculty members and several alumni have been elected to the National Academy of Engineering.

The election brings to 103 the number of MIT faculty elected NAE members. The Academy now has 1,580 members.

Elected were:

Thomas L. Magnanti, George Eastman Professor of Management Sciences, Sloan School, codirector, Operations Research Center, and codirector, Leaders for Manufacturing Program. "For leadership in operations research including fundamental contributions to optimal design of communication and transportation networks, and in education in manufacturing."

Frank A. McClintock, professor in the Department of Mechanical Engineering. "For pioneering and sustained contribution to the understanding of the process of ductile fracture of engineering materials."

Earl M. Murman, head, Department of Aeronautics and Astronautics, director, Project Athena. "For contributions to computational fluid dynamics, transonic and vortex flows, and the

utilization of computers in engineering education."

Joining Professor McClintock, Class of '42, in the NAE were 12 other alumni:

John E. Anderson '50, senior corporate fellow, Union Carbide Corp.; Bruce G. Collipp '52, marine engineering consultant, Houston; Maurice C. Fuerstenau '57, professor, University of Nevada; Bernard M. Gordon '48, president and chief executive officer, Analogic Corp.; James F. Jackson '62, deputy director, Los Alamos National Laboratory; Rudolf E. Kalman '53, professor, University of Florida.

Thomas J. Kelly '70, vice president, information resources management, Grumman Corp.; James L. Massey '60, professor, University of Zurich; William H. Phillips '39, distinguished research associate, NASA Langley; Kenneth F. Reinschmidt '60, president, advanced systems development services, Stone & Webster; William B. Rouse '72, chairman and chief scientist, Search Technology, Inc.; Charles A. Zraket '53, trustee, MITRE Corp.

### TWO-YEAR TERM

## Kardar to Occupy New Class of 1948 Chair

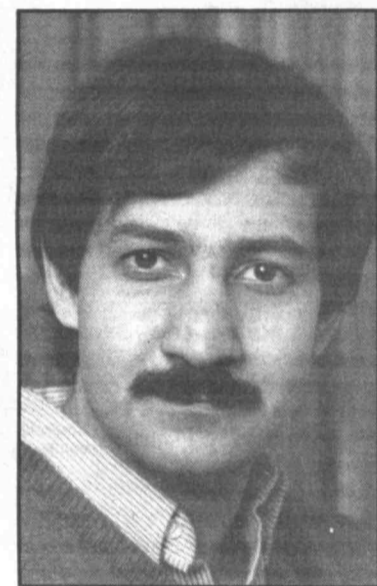
Associate Professor Mehran Kardar of the Department of Physics has been selected as the first recipient of the Class of 1948 Professorship. He will hold the chair for a two-year term.

The chair was established by the class in celebration of its 40th reunion.

Professor Kardar, a condensed matter theorist who works primarily on problems in statistical physics, has made important contributions in a wide variety of areas, including dynamics of growing interfaces, polymers in random media, morphological transitions in membranes, and the phases and phase transitions in thin films and layers.

He received the bachelor of arts in natural sciences (1979) and the master of arts (1983) from Cambridge University, England, and the PhD from MIT (1983). He was a junior fellow at the Harvard Society of Fellows from 1983-86 and was appointed to the MIT faculty as assistant professor of physics in 1986. He became an associate professor in 1990.

His honors include an A.P. Sloan



Professor Kardar

Fellowship in 1987, the Bergmann Memorial Research Award in 1988, the Presidential Young Investigator Award in 1989, and the Graduate Student Council Teaching Award in 1990.

### UNIQUE GIFT

## Senior Class Program To Encourage Teaching

More MIT graduates may become public-school teachers in coming years thanks to a \$60,000 loan-forgiveness program soon to be created by the Class of 1991 as its senior gift to the Institute.

"The point of the Class of 1991 MIT Teaching Fund is to break down barriers, dismantle the financial disincentives encountered in choosing a career in education," said Jason B. Slibeck, a senior in political science and chair of the gift committee.

The class hopes to raise \$60,000 over the next five years by asking seniors to pledge a donation of, say, \$250, which would be given in installments over that period.

Actually, the gift of \$60,000 is almost triple the average gift of \$16,000 given by graduating classes. The reason, said Mr. Slibeck, is that the class combined the traditional senior gift (given the year of graduation and designated for a specific purpose) with the four-year pledge recent graduates also make (which gives a certain amount of money per year for general Institute giving). The result is that all of the combined monies will go to the MIT Teaching Fund.

The Fund will be available to MIT graduates between 1992 and 1996 who are teaching full-time in a publicly funded school in the United States.

The amount of money each teacher will receive is proportional to the

### CASE STUDIES

## MIT to Host City Design Meeting

The Design Arts Program of the National Endowment for the Arts has selected MIT to host the first Northeast Mayors' Institute on City Design April 4-6. The sessions will be held at the American Academy of Arts and Sciences.

Professor J. Mark Davidson Schuster of MIT, the Institute director, said its goal is "to foster a better understanding of the design of cities and to help mayors realize the tremendous influence they exert on the design of their communities."

The National Mayors' Institute on City Design was established in 1986 and a decision was made last year to create four regional institutes. The other regional hosts are the University of California at Berkeley, Tulane University and the University of Minnesota.

Recruitment of mayors to attend the Northeast Mayors' Institute is under way, Professor Schuster said. Six who have accepted to date include Mayors Alice Wolf of Cambridge, Kevin Sullivan of Lawrence, James Howanec of Lewiston,

Me., Gene Eriquez of Danbury, Conn., Karen Johnson of Schenectady, N.Y. and Cardell Cooper of East Orange, N.J.

Dr. Schuster, associate professor of urban studies and planning, said there would be 18 participants, equally divided between mayors and design professionals.

The majority of time, he said, will be spent in the presentation of case studies by the mayors and in roundtable discussions, allowing the mayors and urban designers to discuss issues facing cities and to determine how quality design can improve the way each of the participating cities works and looks.

The faculty for the Institute will include Dean John de Monchaux of the MIT School of Architecture and Planning and Dr. Gary A. Hack, professor of urban design at MIT.

Others will be Alex Krieger, head of Urban Design Programs at the Harvard Graduate School of Design; Sam Bass Warner, professor of history at Boston University; Mary Means, founder of the

"Main Streets" program of the National Trust for Historic Preservation and a planning consultant; Frank Keefe, former Massachusetts secretary of administration finance, now senior vice president of JMB Urban Development Company; Paula Collins (MIT '75), principal of the Western Development Group in San Francisco; Susan Child, landscape architect and president of Susan Child & Associates; and Robert Campbell, architect and architectural critic for The Boston Globe.

Mayor John K. Bullard of New Bedford (MIT '74) will serve as honorary chairman of the Institute and will deliver the opening presentation. Speaking of the importance of training mayors to think in urban design terms, Mayor Bullard said, "I have come to realize that as mayor of New Bedford, I am also its principal urban designer and cultural steward. I learn as much as I can about the design process so I can understand how to direct my city's physical development and, at the same time, enhance its historic, economic and aesthetic assets."

# Institute Calendar

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

March 13 - 24

## ■ SPECIAL INTEREST

**MIT/TCA Blood Drive\***—Mar 13-15: Mar 13: 12-5pm, Mar 14-15: 1-6pm. Kresge Auditorium Lobby. For more information or to schedule an appointment, please call the TCA at x3-4885 or x3-7911 or call the Red Cross at 1-800-258-0025.

**The US in the Middle East\*\***—Mar 18: "Through a Glass Darkly," Professor Charles Stewart, and "An Expanding Involvement," Prof Lincoln Bloomfield. MIT Community Series on the Middle East, 4-6pm, Rm 10-250. Lectures begin at 4pm, followed by an open discussion moderated by President Charles Vest at 5pm. All members of the community are encouraged to attend and participate.

## ■ SEMINARS & LECTURES

Freshmen are encouraged to attend departmental lectures and seminars. Even when these are highly technical they provide students one means to learn more about professional work in a department and field.

### WEDNESDAY, MARCH 13

**Made in America; Regaining the Productive Edge\*\***—Dr Don P Clausing, MIT. Sponsored by the MIT Enterprise Forum, 7:45pm, 10-250.

**Probing Optoelectronic Devices with Noise\*\***—J Schlafer, GTE. EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B.

**Chemical and Biological Warfare\***—Matthew Meselson, Harvard. MIT Seminar on Technology, Defense and Arms Control in a Changing World, 12-2pm, Rm E38-714. Bring a lunch, drinks provided.

**Aga Khan Program Travel Grant Presentation:** Pascal Coste, 1817-1827\*\*—Kara Hill. 12-1:30pm, Rm 5-216.

**Wind-Driven Open-Ocean Current Fluctuations\*\***—Dr Roger Samuelson, WHOI. Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

**Hydrodynamics Research at Leningrad Maritime University\***—Prof Kirill Rozhdestvensky, Leningrad Maritime Univ. Sponsored by the Dept of Ocean Engineering, 3:30pm, Rm 5-314.

**Negative Drift Force on a Submerged Circular Cylinder\***—Yuming Liu, MIT. Sponsored by the Dept of Ocean Engineering, 3:30pm, Rm 5-314.

**Convergence to Steady State of Solutions of Viscous Conservation Laws\*\***—Dr Gunilla Kreiss, Royal Institute of Technology, Stockholm. Special Applied Mathematics Colloquium, 4pm, Rm 4-163. Refreshments, 3:30pm, Rm 2-349.

### THURSDAY, MARCH 14

**Worst-Case Analysis of Heuristics for the Bin-Packing Problem with General Cost Structures\***—David Simchi-Levi, Columbia University. Sponsored by the Operations Research Center, 4pm, Rm E40-298. Refreshments served after Seminar, Rm E40-162.

**Measurement of Hydrocarbon Emissions During SI Engine Warm-up\***—Kyoungdoug Min, PhD candidate, MIT. Sponsored by the Sloan Automotive/Gas Dynamics Laboratories, 4:15-5:15pm, Rm 37-232. Refreshments, 4pm.

**Soundtracks of the 80s: Case Studies of Media Music\***—Claudia Gorbman, Indiana Univ.; Martin Marks, MIT. Sponsored by the MIT Communications Forum, 4-6pm, Rm E15-070 (Bartos Theatre).

**Frictional Properties of Simulated Fault Gouge: Implications for Fault Stability and Earthquake Afterslip\*\***—Dr Chris Marone, Univ California, Berkeley. EAPS Lecture Series, 4-5pm, Rm 54-915.

**Molecular Genetics of Yeast Ribosome Biogenesis\*\***—John Woolford, Carnegie-Mellon Univ. Whitehead Institute Seminar, 4pm, WIBR Auditorium.

**Strings and Quantum Gravity\*\***—Prof Barton Zwiebach, MIT. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

### FRIDAY, MARCH 15

**Structure, Scale and Universality in Turbulent Flows\*\***—Prof K R Sreenivasan, Yale Univ. Fluid Dynamics Seminar, sponsored by the Dept of Aeronautics and Astronautics, 12-1pm, Rm 33-206.

**What Liquid Crystals Can Tell Us About Melting\***—J David Litster, MIT. Sponsored by the Center for Materials Science and Engineering Colloquium, 12:15pm, Rm 12-132. Lunch available.

**Curious Near Absence of Lightning from Torrential Rain-Producing Micronesian Cumulonimbi\***—Tsutomu Takahashi, Kyushu Univ, Fukuoka. Quasi-Biweekly Seminar Series sponsored by the Center for Meteorology and Physical Oceanography, 2pm, Rm 54-915.

**Estimation of Geotechnical Parameters from Field Measurements\*\***—Prof Antonio Gens, Technical University of Catalunya, Barcelona, and Visiting Professor, MIT. Geotechnical Seminar Series, 2-3pm, Rm 1-350.

**On Academic Engineering Research\*\***—Prof Lalit Anand, MIT, on leave at NSF. Mechanical Engineering Colloquium, 3pm, Rm 3-133. Refreshments, 4pm, Rm 1-114.

**Micron-Scale Electric Motors\*\***—Prof Jeffrey Lang, MIT. Sponsored by the Center for Information-Driven Mechanical Systems, 3pm, Rm 3-343. Refreshments following, Rm 3-445.

**Processes of Subduction Accretion and Exhumation at a Cenozoic Subduction Zone, Washington State\*\***—Prof Mark Brandon, Yale. EAPS Lecture Series, 4-5pm, Rm 54-915.

### MONDAY, MARCH 18

**Micro-gee Vibration Isolation with Enhanced Performance through Feedback\*\***—Dr Norman Wereley, MIT. Materials, Structures and Aeroelasticity Seminar Series, 3pm, Rm 33-206.

**The Mechanics of Irregular Gravity Waves\***—Prof Paolo Boccotti, Istituto di Idraulica, Università degli di Genoa, Italy. Special Coastal and Oceanographic Engineering Seminar, 3-4pm, Rm 48-308.

**The Technology and Issues of Nuclear Power Plant Decommissioning in the 1990s\*\***—William Cloutier, TLG Engineering Inc. Sponsored by the American Nuclear Society, MIT, 3:30pm, Rm NW12-222.

**On Building Systems That Will Fail\*\***—F J Corbato, MIT, Turing Medal Lecture. EECS Colloquium Series, 4-5pm, Rm 34-101. Refreshments, 3:30pm.

**Some Pros and Cons of the Use of Incineration for Waste Disposal\*\***—Adel Sarofim, MIT. Sponsored by the Ralph M Parsons Laboratory for Water Resources and Hydrodynamics, 4pm, Rm 48-316.

**Doppler Techniques to Retinal Blood Flow\*\***—Dr Gilbert Feke, Eye Research Institute. Fluid Mechanics Seminar Series, 4-5pm, Rm 5-234.

**Kennecott Journey: The Paths In and Out of Town\***—William Cronon, Yale Univ. Part of a lecture series on history and the global environment, sponsored by the MIT History Department, 4pm, Rm E51-332 (Schell Rm).

**Matchings and Covers in Hypergraphs and a Semirandom Method\*\***—Prof Jeff Kahn, Rutgers Univ. Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments, 3:30pm, Rm 2-349.

**Ty Transposition and Pseudogene Formation in Yeast\*\***—David J Garfinkel, National Cancer Institute. Whitehead Institute Seminar, 4pm, Whitehead Auditorium.

**The Biologist as Artist: Modernist Practice in the Life Sciences in Late 19th-Century America\*\***—Philip Pauly, Rutgers. Program in Science, Technology, and Society Spring Colloquium, 4-6pm, Rm E51-004.

**Changing the Waste Makers: the Politics of Garbage\*\***—Reid Lipset, MIT. Cosponsored by the Center for Technology Policy and Industrial Development, 4pm, Rm E40-212.

**The US in the Middle East\*\***—see above, Events of Special Interest.

**Multidimensional Wavelet Bases\***—Wayne Lawton, AWARE, Inc. Wavelet Seminar, Dept of Mathematics, 4:05pm, Rm 2-151.

**Recursive Derivation of Explicit Equations of Motion for Efficient Dynamic/Control Simulation of Large Multibody Systems\*\***—Dr Kurt Anderson, TRW. MIT/Draper Joint Seminar Series in Dynamics, Guidance and Control, 4:15pm, Draper 1409B.

**Of Kali, Kalma, and Karl Marx: Aspects of Colonial and Post-Colonial Calcutta\***—Sugata Bose, Tufts Univ. Sponsored by the Aga Khan Program for Islamic Architecture at Harvard & MIT, 5:30pm, Harvard Univ. Sackler Museum, Rm 318.

### TUESDAY, MARCH 19

**Non-Imaging Optics Concentrated Solar Energy, and Solar Pumped Lasers\*\***—Roland Winston, Univ. of Chicago. Seminar on Modern Optics and Spectroscopy, 11am-12pm, Rm 37-252. Refreshments follow lecture.

**Research at MSEL in Multi-AUV Systems and Adaptive Reasoning for AUV Control\***—Roy Turner, Univ of NH, Marine Systems Engineering Lab. Autonomous Underwater Vehicles Seminar Series, 12pm, Rm E38-300. Bring lunch.

**Multicriteria Optimization of Manufacturing Systems\*\***—Mansoor Mollaghasemi, Univ of Louisville. Sponsored by the Dept of Mechanical Engineering, 3pm, Rm 35-520.

**Will Nuclear Weapons Testing Ever Be Stopped?\***—Jack Ruina, MIT. MIT Defense and Arms Control Studies Program Seminar Series, 3:30-5pm, Rm E38-714.

**Links Between Refugee Policy and Migrant Policy in Europe: What Happens After 1992?\***—Jonas Widgren, UN High Commissioner for Refugees. Inter-University Seminar on International Migration, CIS, 4-6pm, Rm E38-615. Refreshments.

**Impact of Gigachip Technologies on Future Systems\*\***—Pallab Chatterjee, Texas Instruments. VLSI Seminar, 4pm, Rm 34-101. Reception, 3:30pm.

**Using 3-D Euler Flow Simulation to Assess Effects of Periodic Unsteady Flows Through Turbines\*\***—Dr R H Ni, Pratt & Whitney Aircraft. Gas Turbine Laboratory Seminar, 4:15pm, Rm 37-232.

**White Dwarf Pulsars\***—Joseph Patterson, Columbia Univ. Astrophysics Colloquium, sponsored by the Center for Space Research, 4:15pm, Rm 37-252. Refreshments, 3:45pm.

### WEDNESDAY, MARCH 20

**Polarization Related Phenomena in Interferometric Fiber Optic Sensors\*\***—A Kersey, Naval Research Laboratory. EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B.

**Microsoft Word (for the Macintosh) User Group\*\***—Topic: Positioning graphics. Sponsored by Information Services, 12-1pm, Rm 10-105. Contact Phyllis Crier, x3-0736.

**Fundamentals of Inertial Navigation and Guidance\***—Leonard Wilk, Draper. Seminar on Technology, Defense, and Arms Control in a Changing World, CIS, 12-2pm, Rm E38-714. Bring a lunch; drinks provided.

**Interpretation of Shipboard-mounted ADCP Data\*\***—Dr Julio Candela, WHOI. Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

**Symbolic or Not?\***—Jean-Marie Clarisse, MIT. Sponsored by the Dept of Ocean Engineering, 3:30pm, Rm 5-314.

**Nuclear Methods for Remote Elemental Composition Analysis in Oil Exploration\*\***—Dr Jeffrey Schweitzer, Schlumberger-Doll Research. Special Seminar Series on the Scientific and Industrial Applications of Radiation Technology, 4-5pm, Rm 9-150.

**Supercomputer Applications at MIT: Geophysical Applications on an MIMD Computer\*\***—Dr Arthur Cheng, MIT. Sponsored by the MIT Supercomputer Facility, 4-5pm, Rm 10-105. Fourth in a series of monthly seminars sponsored by MITSF.

**Resurgence of Labor Movements and Constraints to Macro Stability: Lessons from Turkey and Brazil\***—Paulo Vieira da Cunha, The World Bank. The MacArthur Workshop on Development, Security, and International Cooperation Seminar Series, 4-6pm, Rm E38-714.

**Laboratory Experiments on the Motion and Structure of Concentrated Vortices\*\***—Dr V A Vladimirov, Lavrentyev Institute of Hydrodynamics, Siberian Division of the USSR Academy of Sciences. Special Fluid Dynamics Seminar, Department of Aeronautics and Astronautics, 4pm, Rm 33-206.

**Parameter Estimation for Spatial Processes From Complete and Incomplete Data\***—Basilis Gidas, Brown Univ. Sponsored by the Operations Research Center, 4pm, Rm E40-298. Refreshments served after Seminar, Rm E40-162.

### THURSDAY, MARCH 21

**Molecular and Genetic Analysis of the Drosophila Olfactory System\***—John Carlson, Yale. Whitehead Institute Seminar, 12pm, Whitehead Auditorium.

**Research in Progress: Manufacture of Metal-Matrix Composites\*\***—Jung-Hoon Chun, MIT. Laboratory for Manufacturing and Productivity 1991 Seminar Series, 3-4pm, Rm 35-520.

**Electromagnetic Fields: Health Effects and Policy Issues\***—Robert Pool, Nature; William Thilly, MIT; Louis Slesin, Microwave News; Harvey Sapolsky, MIT, moderator. Sponsored by the MIT Communications Forum, 4-6pm, Rm E15-070 (Bartos Theatre).

**Observational Studies of Persistent Anomalies in Surface Air Temperature over the United States and Canada\***—Bradfield Lyon, MIT. Sponsored by the Center for Meteorology and Physical Oceanography, 4pm, Rm 54-915.

**Study of Fuel Injection Environment in the Inlet Port of Spark Ignition Engines\*\***—Damien Maroteaux, Visiting Scholar, MIT. Sponsored by the Sloan Automotive/Gas Dynamics Laboratories, 4:15-5:15pm, Rm 37-232. Refreshments, 4pm.

**TeV Physics on an eV Budget: Measurement of Atomic Parity Nonconservation\*\***—Prof Carl Wieman, Univ of Colorado. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

**Collaborative, New York\***—Henry Smith-Miller, Laurie Hawkinson, Nicholas Quennell, Guy Nordenson. Sponsored by the School of Architecture and Planning, 7:30pm, Rm 9-150.

### FRIDAY, MARCH 22

**Stochastic Diffusion of Charged Fusion Products Due to Toroidal Field Ripple in TFTR\***—Rejean Boivin, Princeton Plasma Physics Laboratory. Plasma Fusion Center Seminar Series, 4pm, Rm NW17-218.

## ■ FILMS

**Video News Tapes on India from Newstrack\***—Mar 18: Showing in a series of video tapes, covering events during February, from Newstrack, an independent news agency in New Delhi. Sponsored by the Center for International Studies, 10:30am & 4:30pm, Rm E38-615.

## ■ COMMUNITY INTEREST

**Alcoholics Anonymous (AA)\*\***—Meetings every Tues, 12-1pm; Thurs, 12-1pm, Rm E23-364. For info call Alice, x3-4911.

**AI-Anon\*\***—Meetings every Fri, noon-1pm, Health Education Conference Rm E23-297; every Tues, noon-1pm, Rm 1-246; and every Mon, 12-1pm, Lincoln Lab Bldg 1218, Family Support Ctr. The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Call Alice, x3-4911.

**Alcohol Support Group\*\***—Meetings every Wednesday, 7:30-9am, sponsored by MIT Social Work Service. For info call Alice, x3-4911.

**Children's Swim Program\*\***—A few openings remain for children 9-24 months. Program begins Mar 16. Fee: \$40 for eight half-hour sessions. For more information or to pre-register (required), contact Child Care Office, 4-144, x3-1592.

**Co-Dependents Anonymous (CoDA)\***—Meetings every Thurs, 6:30-8pm, Rm 66-156. Info: Alice, x3-4911.

**Eldercare Support Group\*\***—Meetings every Monday 12-1pm, Rm 8-219. For info call Carole x3-9368 or Maria x3-8820.

**Informal Embroidery Group\*\***—MIT Women's League, 10:30am-1:30pm, Rm 10-340. Upcoming dates are: Mar 20, Apr 3 & 17, May 1 & 15, June 12. Info: x3-3656.

**Graduate Student and Postdoc Parents Support Group\***—Co-leaders: Dawn Metcalf, MIT Social Worker, and Rae Goodell, MIT Coordinator of Parent Programs. Ongoing, meets weekly. Info: Dawn Metcalf, x3-4911, Rm E23-344, or Rae Goodell, x3-1592, Rm 4-144.

**Habitat for Humanity\***—Help build affordable housing for deserving families. Volunteer for a work day Mar 16. Info: Augie Lee x5-7202 or Hoang Tran x5-9544.

**Japanese Cooking\*\***—Mar 15, Apr 19: Learn Japanese cooking in 2 easy lessons, 4-6pm. Taught by Debbie Samuels, a veteran cooking instructor. Mar 15: onigiri, sunomono, yakitori, tofu dish, steamed giner cake. Apr 19: sushi. \$20/class or \$35/both, preregistration and nonrefundable prepayment required.

Call Susan Sherwood x3-8095. Sponsored by the MIT Japan Program.

**Boston Mutagenesis Group\***—Meetings are held the first Wednesday of the month in the 6th floor conference room, E17, 7pm. Speakers from MIT, Harvard and other local schools discuss their research; related topics include mutagenesis, carcinogenesis, cellular repair systems and DNA damage in prokaryotic and eukaryotic cells. Info: Kara Best x3-6729.

**Narcotics Anonymous\***—Meetings at MIT, every Mon, 1-2pm, Rm E23-364 (MIT Medical Dept). Call 569-0021.

**Overeaters Anonymous (OA)\*\***—Meets Thurs, 1-2pm, Rm E23-364. Only requirement for membership is the desire to stop eating compulsively. Info: Alice, x3-4911.

**Parenting Support Groups—New Parents Support Group\*\***: Tuesdays, 12-1:30pm, contact Rae Goodell, x3-1592. For parents of children up to 6 months old or expected by 4/15. **Parent Support Group\***: Wednesdays, 12-1:30pm, call 1-800-882-1250. **Parenting After Divorce Support Group\*\***: Biweekly Fridays, 12-1pm, contact Rae Goodell x3-1592. **Child Care Briefings\*\***: Introductory seminars, 12-1:30pm, Rm 4-144 on Mar 20, Apr 3 & 17, May 1, 15 & 20, June 12 & 26. **Breastfeeding: The Video\*\***: Apr 18, May 30, 7-9pm, Rm E23-297.

**Rummage Sale\***—Mar 20-21: Children's and adults' clothing, toys, books, etc., to benefit MIT's day care center and nursery school, Technology Children's Center. 3-7pm, TCC, Eastgate Plaza, in the nursery school. Donations (clean and sorted, please) accepted between 8am-6pm at TCC/Eastgate beginning March 11. Judy Perry x3-5907 for more info.

**Social Security Information\*\***—Francine Kolias, Field Representative from the Somerville office of Social Security, will present an overview of Social Security benefits and Medicare at two sessions: **Mar 15**: Lincoln Laboratory, 12:30-2:30pm, Rm A-166. **Mar 22**: Campus, 12:30-2:30pm, Rm 10-105 (Bush Rm).

**Support Group for People with Relatives in the Middle East\*\***—Tuesdays, 12-1:30pm, Rm E23-501. Sponsored by the Social Work Service of the Medical Department. Lunches welcome. Further information: Jackie Buck or Dawn Metcalf, x3-4911.

**Wives' Group\*\***—Mar 13: "An Informal Discussion of 'How Women in Different Countries Deal with Combining Career and Family Life,'" members of Wives' Group and Charlotte Schwartz. **Mar 20**: "Religious America and Religious Cults," Bernard Campbell, CSP, Catholic Chaplain at MIT, 3-4:45pm, Rm 491 Student Ctr. Babysitting in Rm 407. All women in MIT community welcome. Info: x3-1614.

## ■ HEALTH EDUCATION

**Weight Control Workshop\*\***—Starts Mar 13: Weight Control 10 week program meets weekly, 12:30-1:30pm, sponsored by the Medical Dept. Cost \$85, \$70/students and MIT Health Plan members. Info/registration x3-1316.

**Nursing Mothers' Support Group\*\***—Pregnant and breastfeeding women at MIT meet to gain confidence and share info and practical tips. First Tues of each month, 10-11am and third Weds of each month, 4-5pm, Rm E23-297. Babies welcome. Info: Margery Wilson 868-7218.

**Working Mothers Support Group\*\***—An ongoing support group that meets to discuss parenting-related issues in a casual atmosphere. Meets every other Thursday, 12-1:30pm (drop in anytime), Rm 18-591. Info: Janette Hyde x3-4290.

## ■ MITAC

**Ticket locations and hours:** Tickets may be purchased at the MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm Monday-Friday. Lincoln Lab sales in Rm A-218, 1-2pm Tuesday-Friday. Friday ticket sales in Lobby 10 and E19, 12-1:15pm. Further details on events are included in MITAC's monthly flyer. To avoid disappointment, make reservations and purchase tickets early. Because MITAC is nonprofit, refunds are not available.

MITAC, the MIT Activities Committee, offers discount movie tickets for General Cinema and Loews Cinemas, both are \$4/ea (Loews tickets are not valid the first 2 weeks a movie is released). Tickets are good 7 days a week, any performance. Showcase and Entertainment cinema tickets have been discontinued.

**Bingo Getaway—Apr 6:** Meshantucket Pequot Bingo in Ledyard, CT, \$57/pp (incl bus, bingo admission, 2 U-Pick-Em specials & 2 Bonanza cards). Bus lvs Hayward Lot 9am, returns approx. 10pm. Non-smkg bus, reservations and full payment due Mar 22.

**The Wizard of Oz—Apr 7:** Boston Children's Theatre, 2pm, New England Hall, tkts \$4 (reg \$5).

**Spring Weekend in Montreal—Apr 13-15:** Bus leaves West Garage Apr 13, 7am; returns approx. 7pm, Apr 15. Cost: \$125/pp/dbl occup (incl round-trip bus, 2 nights' lodging in downtown Montreal, & 2 continental breakfasts). Reservations & full payment must be made by Mar 13.

**Nunsense—Apr 21:** Charles Playhouse, 3pm, tkts \$19/ea (reg \$23.50), purchase by Apr 1.

**Boston Classical Orchestra—Apr 24:** Mozart, Beethoven and Haydn; Old South Meeting House, 8pm, tkts \$9/ea (reg \$12), purchase by Apr 10.

**Fallen Angels—Apr 25:** Noel Coward's comedy, Lyric Stage, 8pm, tkts \$12.50 (reg \$13.50), purchase by Apr 11.

**Spring Escape to Martha's Vineyard—May 18-19:** 2 days & 1 night at The Wesley, a charming Victorian hotel overlooking Oak Bluffs Harbor, \$67/pp/dbl occupancy, incl 1 night's lodging & all round trip transportation charges, including bus to Wood's Hole, Vineyard Haven ferry, island transport between the hotel and ferry terminal. Bus lvs Hayward Lot at 7am on 5/18, returns approx 9pm on 5/19. Space is limited.

**Red Sox Tickets—May 21:** vs Milwaukee. **June 18:** vs Seattle. **Aug 16:** vs Kansas City. Games at 7:35pm, \$10/ea (grandstand), first come, first served.

**Tired of automotive woes?** Discount coupons now avail for **Merchants Tire & Car Care**, 10% off all reg automotive svcs, 5% off all regular priced tires. Avail in MITAC office.

**North Shore Music Theatre Corporate Discounts!** Enjoy top-notch theatrical productions at \$3 off all Broadway shows. Call 922-8500 for tkt reservations.

**Museum of Fine Arts—**The Council for the Arts has 10 passes employees may borrow for free admission. Call the MIT libraries, x3-5651, for availability. At Lincoln Lab, MFA passes are available in A-150.

**Arlington Capitol Theatre discounts!** Commercial, 2nd run, and art-type films, only \$3/pp with MIT ID (reg. \$4/pp). Located at 204 Mass Ave, call 648-4340 for more info.

**Gunstock Ski Discounts** are here! Coupons for \$10 off midweek lift tickets, \$5 off on weekends.

The new **City Books** will be arriving soon!

**Winter Ferry Discounts** to Martha's Vineyard, \$1 off, and Nantucket, \$2 off (valid through 4/15, limit 4 per coupon).

**Just arrived:** Discounts for **Taxman** (20% off on tax preparations) and **Kay Jewelers** (10% off, some restrictions apply).

**Coming soon:** Free passes to the **Comedy Club** at the Charles Playhouse.

Check the MITAC office for a complete listing of other discounts currently available (i.e., **Magic Kingdom Club Card** for Disney World discounts).

## ■ SOCIAL ACTIVITIES

**French Lunch Table\*\*—**Come to lunch and speak French; every Tuesday from 1-2pm in Walker dining hall. Look for the table with the tablecloth. All levels welcome. Sponsored by the Foreign Languages & Literatures Section.

**German Lunch Table\*\*—**Come to lunch and speak German; every Monday from 1:15-2pm in Walker dining hall. Look for German flag. All levels welcome. Sponsored by the Foreign Languages & Literatures Section.

**Japanese Lunch Table.** Bring a bag lunch and talk with native Japanese speakers. Special cultural event each month. Beginning Japanese speakers especially welcome. Sponsored by the MIT Japan Program, the Dept of Foreign Languages and Literatures, and the MIT Japanese Wives' Group. Meets Tuesdays at 1pm in Walker 220. More info: Susan Sherwood x3-8095.

## ■ MOVIES

Admission to below Lecture Series Committee movies is \$1.50, and MIT or Wellesley identification is required. For the latest Lecture Series Committee movie and lecture information, call the LSC Moveline, x8-8881.

**LSC Movies\*\*—Mar 15:** *Henry and June*, 6:30 & 10pm, Rm 26-100. *Alexander Nevsky*, 7:30pm, Rm 10-250. **Mar 16:** *The Freshman*, 7 & 10pm, Rm 26-100. **Mar 17:** *2001: A Space Odyssey*, 6:30 & 10pm, Rm 10-250. **Mar 22:** *Pacific Heights*, 7 & 10pm, Rm 26-100. *Kind Hearts and Coronets*, 7:30pm, Rm 10-250. **Mar 23:** *Winnie the Pooh*, 3, 7 & 10pm, Rm 26-100. **Mar 24:** *Airplane!* 7 & 10pm, Rm 10-250.

## ■ MUSIC

For recorded information on upcoming concerts and lectures call the MIT Music and Theater Arts Concert Line, x3-9800. Updated weekly.

**MIT Musicians Behind-the-Desk Concert Series\*\*—**Proposals are now being accepted for this new and improved series, planned for Fall 1991. Participation is open to all MIT academic, support, technical and administrative staff. Concerts will be held at noon on Fridays in Killian Hall Oct 4-25, Nov 1-22, Dec 6-13. Deadline for application is May 31. Call x3-2906.

**MIT Chapel Series\*—Mar 14:** Fantasias, Fugues and Fragments. David Schulenberg, harpsichord. **Mar 21:** Lyricum Woodwind Quintet, 12pm, MIT Chapel.

**MIT Chamber Chorus\*—Mar 14:** John Oliver, Director. J S Bach Cantatas. 8pm, Killian Hall.

**MIT Jazz Bands\*—Mar 15:** Jamshied Sharifi and Everett Longstreth, directors. 8pm, Kresge. Tkts \$1 at door.

**Advanced Music Performance Concerts\*—Mar 15:** Chung-Pei Ma, violin, student of Masuko Ushioda. Prokofiev and other works. 12pm, Killian Hall.

**MIT Symphony Orchestra\*—Mar 16:** David Epstein, director. Bruckner. 8:30pm, Kresge. Tkts \$1 at door.

**MIT Brass Ensemble\*—Mar 20:** Lawrence Isaacson, director. 8pm, Killian Hall.

**Cantata at Noon\*—Mar 22:** Conductor Edward Cohen. J S Bach, Cantata #77. 12pm, Killian Hall.

## ■ THEATER

Call the Theatre & Dance Performance Hot-Line at x3-4720 for complete up-to-date information on theatre and dance performances at MIT.

**After the Fall\*—Mar 14-16:** MIT Community Players production of drama by Arthur Miller. Josephe Bowen, director. 8pm, Kresge Little Theater, tkts \$8, \$7 MIT, \$6 students/seniors, \$5 MIT students.

**Cymbeline\*—Mar 14-17, 21-23:** Presented by the Shakespeare Ensemble at MIT, directed by Grey Johnson. 8pm, Sala de Puerto Rico. Tkts \$6, students/seniors \$5.

## ■ DANCE & MOVEMENT

**To Dance is to Live\*—Mar 21:** Collaborative dance/poetry work based on the life and impact of dance pioneer, Isadora Duncan. Choreographer-performer Julie Ince and poet Ruth Whitman. 8pm, Kresge Little Theater. Call x3-0312.

**Tai Chi\*\*—**Ancient Chinese system of exercise beneficial to one's physical, mental and emotional health. More info: Lisa x3-5695.

**MIT Ballroom Dance Club Workshops\*—Mar 17:** Beginning Viennese Waltz 1-2pm, Intermediate Cha Cha 2-3:30pm, Professional Foxtrot 3, 4:30-5:30pm. Morss Hall, Walker Memorial. General Dance: 3:30-4:30pm, free. Membership through June 1991: Students, \$3, MIT/Wellesley affiliates, \$5; others, \$10. Workshop admission fees range from 50¢ to \$4 depending on membership and level. No partner necessary, info x8-6554.

**MIT Folk Dance Club\*—**Three nights of dancing. Sunday: International Dancing, 7-11pm, Lobby 13, with Early Teaching from 7-7:30pm. Tuesday: Advanced Balkan Dancing, 7-11pm, Rm 491, Student Center. Wednesday: Israeli Dancing, 7-11pm, Lobby 13, with Early Teaching from 7-7:30pm. Info: x3-FOLK.

**Aerobics Classes\*—**Sponsored by the MIT Dance Club, Every Mon, Wed, Fri, 6-7pm, Bldg W31 Dance Studio. \$4/class, beginners welcome. More info: Julia, 492-1369.

**Yoga\*—**Ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 5:10pm; Intermediate/Advanced: Mon, 6:30pm, Rm 10-340. For information call Ei Turchinetz, 862-2613.

**Kundalini Yoga\*—**Monday classes, 6-7pm, Rm 1-136. Beginners welcome. \$1/class. For information call Andy Rothstein 232-9961.

**MIT Dance Workshop Classes\*—**An activity of the Theatre Arts program taught by members of the Beth Soll & Co, MIT's resident dance company. Beginning Modern Technique, M,W, 3:30-5pm, T-Club Lounge, Dupont Cir; Intermediate Modern Technique, Tu, Th, 5:30-7pm, Walker-201; Composition/Improvisation, Tu 1-2:30pm, Walker-201; Technique/Repertory/Improvisation, Wed 11-12:30, Walker-201. Tap, Fri 12-1:30pm, Walker-201. Info: x3-2877.

## ■ EXHIBITS

### LIST VISUAL ARTS CENTER

**Juan Francisco Elso Padilla.** First US showing of works by Padilla, a Cuban sculptor who died of leukemia at age 32. Highly personal blend of secularism, mysticism, magic and ethics seeking to identify and embody a Latin American mythology, drawing on both Afro-Cuban and Indian traditions. **Robert Arneson: The Jackson Pollock Series.** Large portrait busts and heads of Pollock, which are both dramatic psychological studies and technical tours de force. Also included are ceramic recreations of Pollock's final car crash and a full-scale sculptural interpretation of one of Pollock's major paintings. **Barbara Broughel: Storytelling Chairs.** Ensemble of eight richly doctored and decorated early American chairs by the New York-based sculptor creates an environment for reflecting on the little-appreciated extent to which colonial American culture was indebted to Iroquois example and precedent. Through Apr 14. Open M-F 12-6pm, Sat, Sun 1-5pm.

### THE MIT MUSEUM

**MIT Museum Bldg (N52)—Works by Robert Preusser.** Overview of paintings done since the 1930s by former MIT Professor of Visual Design, Dept of Architecture. Through Apr 4. **American Color: Photographs by Rodger Kingston.** A visual documentation of the ways advertising, architecture and celebrity define us as American. Through Mar 24. **Doe Edgerton: Stopping Time.** Photographs, instruments, and memorabilia documenting the late Harold Edgerton's invention and use of the strobe light. Ongoing. **Light Sculptures by Bill Parker.** Vivid interactive light sculptures, each with its own personality and set of moods. Ongoing. **Holography: Types and Applications.** Scientific, medical, technical and artistic imaging drawn from the work of the Spatial Imaging Group at MIT's Media Lab. Ongoing. **Math in 3D: Geometric Sculptures by Morton G. Bradley, Jr.** Colorful revolving sculptures based on mathematical formulae. Ongoing. Tues-Fri 9-5; Sat-Sun 1-5.

### HART NAUTICAL GALLERY

**Ongoing exhibits: George Owen '94: Yacht Designer—**Ship Models, Half Models in Naval Architecture. Ongoing. 77 Mass Ave, Mon-Sun 9am-8pm.

### CORRIDOR EXHIBITS

**Corridor Exhibits: Bldg 1 & 5, 2nd floor: John Ripley Freeman.** Lobby, Bldg 4: **Norbert Wiener, Karl Taylor Compton.** Community Service Fund, Ellen Swallow Richards. **Women at MIT.** An overview of the admission of women at MIT. Five photographic panels with text documenting the circumstances that increased the number of women in the classroom since Ellen Swallow Richards. Bldg 6: **Laboratory for Physical Chemistry.** Bldg 4: **Edgerton's Strobe Alley:** Exhibits of high-speed photography. (Corridor Exhibit).

### OTHER EXHIBITS

**Institute Archives and Special Collections—Jerome C. Hunsaker, Father of Aeronautics at MIT:** Chronicles his founding of aeronautics at the Institute; his design and construction of Navy airships and NC-4, the first airplane to cross the Atlantic, and his role in leading the Dept of Aeronautical Engineering from 1939-51. **The Tech Show:** "Engineering is interfering with fun...Wish my four year stretch were over and done." That's from 1947 but it could be sung today. Portrays an MIT institution with a 92 year history.

## ■ WELLESLEY EVENTS

### LECTURES & EVENTS

**Mar 14:** "Adult Daughters and Elderly Parents," Harriet Davidson, 12:30-1:30pm, Cheever House.

**Mar 17:** "Anonymous 4," all-woman quartet, medieval music, call 235-0320 x2077.

**Mar 19:** "Africans in the Bible," Robert Bennett, Episcopal Divinity School, 4:30pm, Clapp Library Lecture Room.

**Mar 20:** "The Politics of Black Feminist Thought," Patricia Hill Collins, Univ Cincinnati, 4:15pm, Clapp Library Lecture Room.

**Mar 21:** "Feminization, Professionalization and Social Control: The Case of Public School Teaching," Jo Anne Preston, 12:30-1:30pm, Cheever House. "Molecular Signals and Cell Responses in the Rhizobium-Legume Symbiosis," Sharon Long, Stanford, 5pm, 277 Science Ctr.

Send notices for Wednesday, March 20, through Sunday, April 7 to Calendar Editor Rm 5-111, before 12 noon Friday, March 15.

# Here & There

■ When MIT's remarkable Taylor brothers were separated in February by the death of Professor Edward S. Taylor at the age of 88, it ended "an intimate professional and personal relationship which lasted for 65 years."

Those were the words of Professor C. Fayette Taylor, spoken at services for his younger brother.

In his remarks, he said, "Eddy was destined from childhood to be an engineer. . . He was the most original and independent of the four of us [brothers]—instead of routinely following the family tradition to Yale, he chose MIT as the best engineering school of the time."

In 1926, when C. Fayette Taylor invited Edward to join him at MIT as a member of the aeronautical engineering staff, specializing in engines, he said, "Fortunately, the MIT authorities accepted this rather blatant act of nepotism."

The rest is history. Together, they built a teaching and research program in the field of airplane and other types of internal combustion engines in a laboratory named for the man who provided the funds for its building and equipment, Alfred P. Sloan, president of General Motors.

While C. Fayette concentrated on the laboratory's administrative work and classroom teaching program, Edward took charge of the teaching and research program. After World War II, as founder and head of the new Gas Turbine Laboratory, he played a key role in the development of the jet engines that power today's high-performance aircraft.

Interestingly, Edward Taylor had no graduate degrees, an unusual circumstance even then among MIT faculty members. But C. Fayette, who had a PhD, conferred a very special distinction on his brother in his memorial tribute:

"I can say without reservation that Eddy was the best mechanical engineer I have ever known, and I have known a lot of them, some quite famous. As I observed his logical and thorough approach to technical analysis and practical design problems, it was equivalent to a postgraduate course in engineering for me."

He ended, "Our close relationship, both professional and personal, continued to the end, and I shall miss him sadly."

■ This letter from Dr. Erik Brynjolfsson, assistant professor of management science at the Sloan School, appeared in The New York Times:

"Perhaps the greatest benefit the war in the Middle East could provide is to rouse us into a sensible energy policy. A gas tax could help avert the next crisis before it begins.

"If we're willing to send half a million fellow citizens into battle, to protect oil supplies and our economic way of life, we should be no less willing to make the small sacrifice of paying more for gasoline. A revenue-neutral plan that reduced Social Security taxes by \$1 billion for every penny of gas tax would leave the working poor and middle class better off than before. In the long term, the whole country would benefit from reducing the hidden tax of pollution, congestion and dependence on foreign oil.

"With oil prices now down substantially, let's not squander this opportunity to win the next war without firing a shot."

### CLIPS AND QUOTES:

—A student project in the Chemical Engineering Laboratory

involving M&M candies (MIT Tech Talk, Dec. 5) found a national audience when the Associated Press moved a story and a photograph. After that, reports Professor Jeffrey L. Feerer, the telephone kept ringing with requests for interviews, which resulted in stories in The New York Times, The Los Angeles Times and The Christian Science Monitor, among many other newspapers. Radio commentator Paul Harvey referred to us as M&MIT. In all cases, Professor Feerer explained the serious aspects of the project, such as undergraduate involvement in meaningful research and the educational benefits of university-industry collaboration.

—In the wake of the victory over Iraq, Dr. Barry R. Posen, associate professor of political science and an expert on military matters, offered this caveat to New York Times columnist Anthony Lewis: "Don't get the idea it will always be this easy. The terrain was favorable to our high-tech weapons, and we were up against a second-rate gangster. We must not confuse what we did here with using military power to redirect the domestic policy of a society."

—A Page One story in The Wall Street Journal focused on MIT physicist Alan Guth's revolutionary "inflation" theory for the origin of the universe. The story said the idea came to him late one night at his home in Menlo Park, Calif., in 1979, before he came to MIT, as he sat scribbling at his desk. "It came as a bolt out of the blue," he told the Journal. "After all those years in physics, I had done something of great significance." The article also mentioned the computer simulation work being done in cosmology by Professor Guth's colleague, MIT physicist Edmund Bertschinger.

—From The Chronicle of Higher Education: "'Athena'—an innovative computing environment developed at the Massachusetts Institute of Technology—is now being used at Iowa State University and North Carolina State University. The two state universities are using the software for their own large-scale, high-performance, UNIX-based computing networks for students, faculty members and researchers."

—Charles H. Ferguson, research associate with the Center for Technology, Policy, and Industrial Development, told The Los Angeles Times that the Japanese high tech industry may fare better in a worldwide recession than its US counterpart: "The Japanese will have more staying power and more resilience than we do."

—In a Wall Street Journal article on a worldwide tunnel-building boom, MIT's Frank P. Davidson of the System Dynamics Group, a long-time advocate of macroengineering projects such as tunnels across oceans and continents that would serve as frictionless vacuum chambers for high-speed travel, said: "You could go from Boston to London in 40 minutes. You are looking at something that is going to happen."

—Economics professor Robert M. Solow, defending a Princeton economist's use of face-to-face interviews as a research tool in determining why businesses generally are so slow to change prices, told The Wall Street Journal: "Imagine how you'd feel if your doctor didn't ask you where it hurt..."

Charlie Ball

# Classified Ads

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

**INSTRUCTIONS:** Ads are limited to one (of approximately 30 words) per issue and may not be repeated in successive issues. All must be accompanied by full name and extension. Persons who have no extensions or who wish to list only their home telephone numbers, must come in person to Rm 5-111 to present Institute identification. Ads using extensions may be sent via Institute mail. Ads are not accepted over the telephone.

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

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

Deadline is noon Friday before publication.

## ■ FOR SALE

Imagewriter II for Mac, only 8 mos young, cable included, supercheap, \$180; Panasonic printer for IBM, used 3x, Coop sells for \$350, now \$150. Bernie Auyang, dorm x5-8683.

Guitar FX-Rack, ADA TFX4 w/flange, chorus, echo w/foot sw, \$200; (2) Carvin Pa cabs, \$400; Whirlwind 12 ch snake, \$100; 5 space FX rack bag, \$75. Jeff x3-8756.

2 Fisher Price car seats (fits infant through toddler), \$25 ea. Anne x3-4411.

Ski boots: Nordica 955, W's sz 8 1/2, \$60; Lange, M's sz 10, \$40. Call x3-3096 or 508-650-9642.

Whirlpool wash mach, bst offer; IBM PC-XT & Proprietary, 256K, monochr mntr, Hercules Graphic Card + orig card, orig doc & Final-Word, bst offer. Call x3-8216 or 666-0643.

Golden Retriever puppy, M, AKC, champ bred, hips & eyes cleared, pick of the litter. Call x3-3175 or 332-8251.

CampuAdd 286 complete AT-compat cmpr sys, includes 40M HD, NEC prntr, modem, mntr, DOS, Windows, other sftwr & docs, \$900 or bst. David Fisher x3-6457 or 723-3367.

Q-sz waterbed w/htr. Les Kalman, dorm x5-7328.

3-sp M's Eng bike, Raleigh, exc cond, rarely used, \$50; 3-sp F's Eng bike, Raleigh, gd cond, nw trs, basket, \$35. Judy x3-6737.

Hvy duty 9.2' inflatable boat, seldom used, will assemble & deliver, \$400 firm. Pat x3-2210.

IBM compat Tandy 1000 cmpr 640K, 5 1/2 dr w/ RGB color mntr, DOS/DeskMate, \$750; craftsman Trac dr snowblower, 5HP, \$500 or bst. Call 508-478-6044 or 508-473-5312.

Large walnut office desk, 6 drws, one file, plus pullout shelf, bst offer. Call 864-5554 lv mssg.

Beaulieu Super 8 sound movie camera, incl editing equip & proj (pd \$1300), ask \$800. Julie x3-5623.

Encyclopedia Britannica set 1990, brand new in boxes, at big discount, \$950. Call 489-1386 eyes.

## ■ VEHICLES

1979 Mercury Zephyr wagon, from Florida in 1986, nw fuel pump & exh, runs v well, gd transp, \$495. Jim x3-2048 or 1-934-6782 eyes.

1982 Plymouth Reliant, auto, a/c, ps, pb, 67K, nw water pump, belts, hoses, lifetime muff, no rust, \$900 firm. Call 497-1479 aftr 4pm.

1982 Honda Accord LX, 5-sp, a/c, 1 ownr, runs & looks exc, many nw parts, must see, 30-40 mpg, \$1400. Stu, Linc x2116 or 603-895-9463.

1984 Nissan 200SX, auto, AM/FM/cass, a/c, cc, power pkg, black, hitchbk, 76K, \$3500 negot. Call 494-1931 lv mssg.

1985 Caprice Classic, all power, Alpine stereo, nw brks/batt, \$3500 or bst. Diane x3-5646.

1987 Mercury Topaz LE, 60K, ps, pb, pw, pl, stereo cass, \$3500. Call Li 244-3446.

## 4,000 PER MONTH

# Electronic Requisitions Speed Deliveries

Members of the MIT community can now use electronic requisitioning to place orders with the Office of Laboratory Supplies, usually with next-day delivery, Barry Rowe, director of the Department of Purchasing and Stores, has announced.

The new service is part of the Electronic Requisitioning (EREQ) program begun by the department last year as a free service to members of the MIT community.

In addition to the new Lab Supplies service, EREQ saves time and paperwork by allowing users to instantly create and forward requisitions to the General Purchasing Office. For requisitions of \$500 or less, users can get an immediate purchase order number that they can then relay to the vendor. Requisitions over \$500 are reviewed by the General Purchasing Office, which will usually assign a purchase order number in two hours.

1988 Nissan Pulsar NX, 5-sp, black, T roof, AM/FM/cass stereo, nw brks/trs, exc maint, 52K, \$7800. Tom 617-254-9090.

1988 Acura Legend, 4-dr, stereo, alarm, all pwr options, 2-tone white & silver, 1 ownr, 35K, perf maint, \$15,300. Call x3-5316 or 964-6164 eyes.

1989 Toyota Camry, 21K, dlx auto, a/c, pwr pkg, cc, stereo cass, exc cond, \$9800 or bst. Li x3-0991.

## ■ HOUSING

Bar Harbor, ME: beaut Mt Desert Island, 2BR, fully-furn oceanfront cabin, avail June, July & Sept, \$1300/2 wks, \$2500/mo, incl utils. Call x3-5757.

Beacon Hill: unique studio w/sep ktchn, 1 T stop or 15 min walk from MIT, mod bath w/jacuzzi & terrarium, carpeted, a/c, \$675/mo ht incl. Call x3-0593.

Belmont: 8 rm Colonial for sale, 3 1/2 BR, 1 1/2 bath, eat-in-ktchn, refin hdwd flrs, landscaping, move-in cond, by ownr \$235,000. Call x3-4394 or 484-8254.

Cambridge, mid: sunny, spac condo w/13x20 LR, eat-in-ktchn, 2 lrg BR, hall/study, hdwd flrs, quiet red-brick elev bldg, ord, \$129,000. Call 492-0652.

Mt Washington valley: lakeside cottage w/sandy beach, slps 8, fum, rowboat, canoe, 5 mins Kancamagus, 15 mins N Conway, avail 6/29-8/10, \$700/wk. Call Linc x5431 or 508-779-6473.

Winthrop: spac 2BR, quiet st., nr ctr, hdwd flrs, mod eat-in-ktchn, refrig, stove, d/w, tile bath, w/d hkup, storage, yd, f & b porch, on pub transp, \$725+. Call x3-6616 or 846-2982.

Woburn Lexington line: sunny 1BR apt in 2-fam w/fenced yd, eat-in ktchn, nr 128 & 93, on T, quiet nrhd, no fee, no pets, \$625 incl ht. Mayrene x3-6246 or 508-881-7136.

## ■ WANTED

Full-time, in-home child care helper wanted for 6+ weeks starting mid-March, Natick. Must have own transp. All x3-2222.

## ■ ROOMMATES

Arlington: rm for rent in lrg home nr lake & golf course, 15 min Hvd Sq, fum, linens, own TV & refrig, use of ktchn, w&d, prkg, avail now, bus to Alewife. Call x3-2534 or 648-7425.

Cambridge: lrg rm in 2BR rent-cont apt, nr Hvd Sq, no smkng, pets ok, laundry, avail 4/1, \$385/mo htd. Jamie x3-3947 or 547-7410.

Cambridge: lovely, modern, 2BR apt to share, betw/Hvd & Central Sq, on quiet st, \$450/mo. Call 354-5557.

Cambridgeport: roommate needed to shr 2BR apt, non-smkr pls, \$328/mo, ht incl. Tom x3-6944 or 497-6130.

## ■ MISCELLANEOUS

Russian language svcs: interpreting, translating, word processing, editing, language instruction. Call 662-3153.

Available: covered parking spot nr Hvd Sq, easy walk or ride to MIT. Naomi x3-8468 or 876-7773.

The immediate turnaround for small dollar requisitions was developed to address the large number of such orders. "Seventy percent of the 84,000 purchase orders issued on campus per year are under \$500 each," Mr. Rowe said. "Electronic speed ordering allows requisitioners to bypass Purchasing, which takes that horde of paper out of the purchasing stream." These orders are reviewed by Purchasing the next day using system-generated reports.

Before the EREQ system was begun, "we had about 100 people a day visiting the General Purchasing Office to get purchase order numbers," said Diane Devlin, assistant director for purchasing methods and procedures. "With EREQ, after only eight months that number has been reduced by 50 percent."

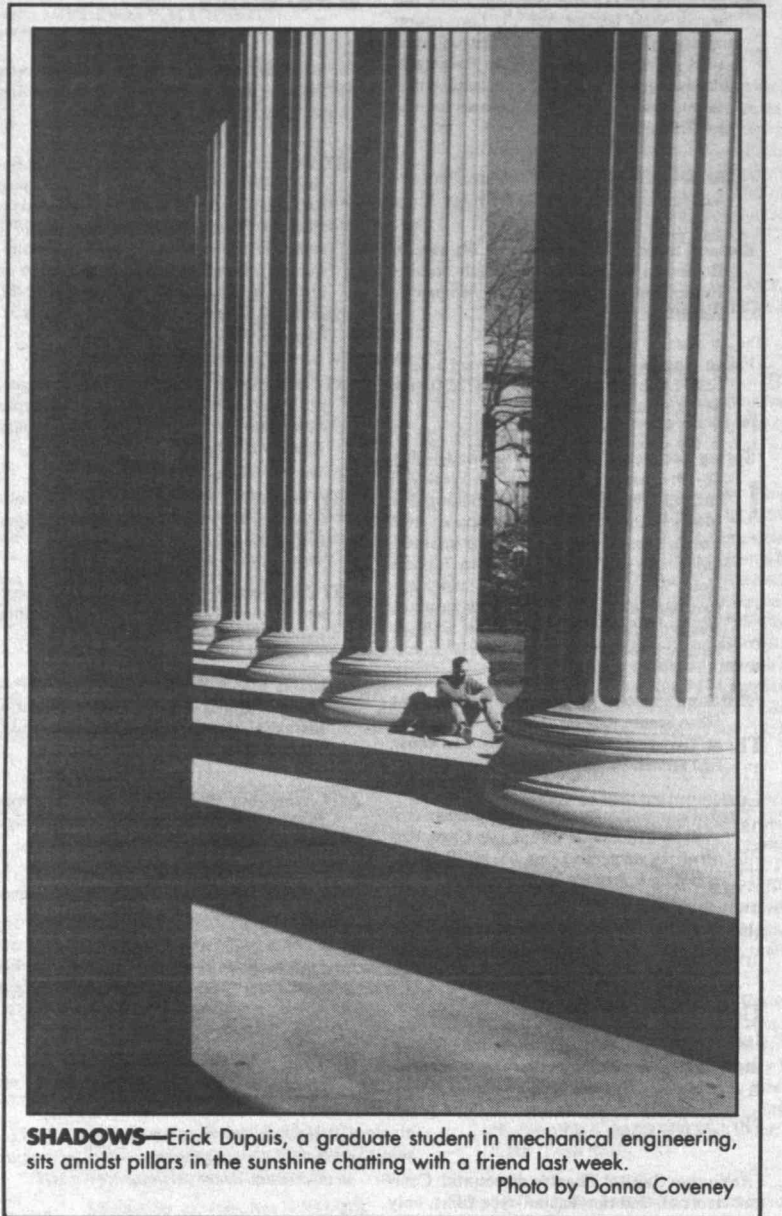
EREQ also allows users to access helpful information in the purchasing, stores, and accounts payable databases. For example, a user might track down a purchase order number or get data on the status of invoices under his or her account numbers.

Since EREQ was introduced in May 1990, said Mr. Rowe, use of the service has increased dramatically each month. More than 700 people have become EREQ users, and during February users logged on to the system "more than 4,000 times to create electronic requisitions and speed orders and to view the status of their business," Mr. Rowe said.

In fact, he said, "over 40 percent of the requisition business of the General Purchasing Office is now being processed electronically."

In the future EREQ will include electronic routing, which will allow labs and centers on campus that are serviced by other MIT purchasing offices to use the system if they choose. Also, users will be able to order materials and services from other MIT departments through EREQ. These additions should be available by next year, Mr. Rowe said.

Users can access EREQ with a 5ESS phone, a network connection or a modem (for those with analog phones). "We wanted EREQ to be universally available to the MIT community," said Ms. Devlin. Users must attend an hour-long training session to go over the system and receive a user name and password. For more information, contact Ms. Devlin at x3-7035.



**SHADOWS**—Erick Dupuis, a graduate student in mechanical engineering, sits amidst pillars in the sunshine chatting with a friend last week. Photo by Donna Coveney

## NSF's Massey To Speak at Graduation

(continued from page 1)

joined Argonne National Laboratory as a postdoctoral fellow and became a staff physicist. He was appointed assistant professor of physics at the University of Illinois in 1968. He served as an associate and then full professor at Brown University starting in 1970 and was named Dean of the College in 1975. While at Brown, he originated and directed ICTOS (Inner City Teachers of Science), a program to educate science teachers for urban schools.

In 1979 he became director of Argonne National Laboratory and professor of physics at the University of Chicago. He was appointed vice president for research in 1982, formulating, representing and implementing the university's research policies and relations with industry and federal agencies.

Dr. Massey served on the board of trustees of the Rand Corporation and

the board of directors of the MacArthur Foundation. He was chairman of the board of the Argonne National Laboratory/University of Chicago Development Corporation and a member of the boards of several companies.

He is a past trustee of Brown University and a former member of the Department of Physics Visiting Committee at MIT. He was vice president of the American Physical Society, president of the American Association for the Advancement of Science, and a member of President George Bush's Council of Advisers on Science and Technology.

Dr. Massey has received numerous awards, including the Distinguished Service Citation of the American Association of Physics Teachers in 1975. He also was cited by *Change* magazine that year as one of the 100 most important educators in America. He holds 11 honorary degrees.

# Professor Cecil C. Hall Dies

Cecil E. Hall, a retired professor of biophysics who played a major role in the development and use of the electron microscope, died March 5 in Jasper, Ark., where he lived, at the age of 78. He formerly was a resident of Lincoln, Mass.

A native of Nottingham, England, Professor Hall received a BS from the University of Alberta in Canada in 1935, an MA from the University of Toronto in 1936 and PhD from MIT in 1947.

He came to MIT in 1941 as a research associate and member of the faculty in the Department of Biology, becoming an associate professor of biophysics in 1947 and a full professor in 1964. He retired in 1970.

While at Toronto, Dr. Hall built an electron microscope "from scratch" for the Eastman-Kodak company, according to Dr. Francis O. Schmitt, Institute Professor Emeritus and professor emeritus of biology. Over the years, Dr. Hall and Dr. Schmitt collaborated on a number of research projects involving electron microscopy.

Professor Hall's extensive publications included a widely used textbook, *Introduction to Electron Microscopy*, in the 1950s.

During World War II, Professors Hall, Schmitt and Irwin W. Sizer, professor emeritus of biochemistry, investigated materials of value in the treatment of burns and also the nature of the material embedded in the skin of victims of blast pigmentation.

In 1960, Dr. Hall was part of a team

that made the first direct pictures of tiny antibody molecules, the body's defense agents which give immunity against disease. The electron microscope permitted direct visualization of individual molecules, providing more exact information on the size and shape than could be obtained by any other method.

## FENWICK GILROY

Word has been received of the January 7 death of Fenwick Gilroy, 92, of Stoneham. Mr. Gilroy was a service staff member at Lincoln Laboratory from 1952 until his retirement in 1963. His survivors include a son, F. Lloyd Gilroy, and two daughters, Isabel Dole and Edna Taylor.

## MITCHELL O. HOENIG

A memorial service was held last week in the MIT Chapel for Mitchell O. Hoenic, 64, of Cambridge, a research engineer at the Plasma Fusion Center. Mr. Hoenic died March 1 at Beth Israel Hospital following a long struggle with cancer.

At the PFC Mr. Hoenic was the leader of the demonstration poloidal

coil project which recently underwent successful testing in Japan. He had recently received a certificate of appreciation from the Department of Energy for his pioneering work in fusion energy research.

A native of Czechoslovakia, Mr. Hoenic was a graduate of Imperial College London in 1949. He joined MIT in 1972 and had also taught at Harvard and Northeastern Universities.

He leaves his wife, Hannah R.W. Boulton; two sons, Peter A. of Watertown and Stephen J. Hoenic of Wayland; two daughters, Susan M. Hoenic of Griggstown, N.J., and Sandra Meyerson of Boston, and one granddaughter. Memorial contributions may be sent to the American Cancer Society.

# THE ARTS

The Arts Page is produced by the Office of the Arts in collaboration with ARTSNET--253-4003

## Music Mania Unabated

MIT is alive with the sound of music this week. The next three days alone have seven musical events. Please see Tech Talk's Calendar for complete listings.

### Three for Thursday

This week's Thursday Noon Chapel Concert features David Shulenberg, harpsichord, performing fantasias, fugues and fragments by J.S. and C.P.E. Bach, Byrd, Rameau, and de la Guerre, including a recently discovered fantasia by C.P.E. Bach and new versions of unfinished works by J.S. Bach.

The MIT Concert Chorus, directed by John Oliver, and joined by members of the MIT Chamber Orchestra perform Bach Cantatas BWV 8, 131, and 105 at 8pm in Killian Hall (14W-111).

And, from 9-1am, Lobdell Dining Hall resounds with the second round of the Battle of the Bands, a competition featuring original and contemporary music performed by ensembles made up of at least 50% MIT students.

### Friday Frequencies

At 12noon on Friday, March 15, Advanced Music Performance graduate student Chung-Pei Ma, violin performs Prokofieff's Sonata No. 2 in D Major, Op. 94a and other works.

And, at 8pm in Kresge Auditorium, the MIT Jazz Ensemble and the MIT Jazz Band, Jamshied Sharifi and Everett Longstreth, directors perform in a dual concert. \$1 at the door.

### Saturday Disparity

On Saturday, March 16, you can begin your evening at 8:30pm in Kresge Auditorium with a very proper and refined concert by the MIT Symphony Orchestra, directed by David Epstein, featuring Bruckner's Symphony No. 9. \$1 at the door.

Then, at midnight, you can get tacky, outrageous, and downright rude at the annual Bad Taste Concert by the MIT Chorallaries in Rm 10-250.

## Road to 'Rune'

Rune, the MIT journal of arts and letters, is now accepting submissions for 13 Rune to be published this spring. Writers, photographers and other graphic artists are encouraged to submit their work. The deadline is Friday, March 15. Rune editor William Ober said a particular need is a graphic for the cover. Manuscripts and graphics may be sent to Rm 50-309 or electronically to <rune@athena.mit.edu>. All artwork will be returned.

## 'CYMBELINE'

# Little-Known Shakespearean Romance Opens

The Shakespeare Ensemble presents the rarely-produced Shakespearean romance *Cymbeline*, March 14-17 and March 21-23 at 8pm in the Stratton Student Center's Sala de Puerto Rico. Tickets \$6, \$5 students/seniors with ID.

Grey Johnson, associate artistic director of Gloucester Stage Company, directs this modern-dress interpretation of Shakespeare's melodramatic tale of murderous family manipulations, jealousy, tested virtue, framed betrayals, concealed and mistaken identities, and war by the Britains against the conquering Romans, ending happily with reunion and reconciliation.

Johnson states that "*Cymbeline* has to be approached as a fable — a lovely,

interesting, theatrical fable, complete with the evil stepmother queen, a confused king, and lovers split apart. The play is not pure history, not pure comedy, and not pure tragedy. It's a fantastical, comical, melodramatic, romantic stew."

"One of the beauties of the play," Johnson continued, "is that since it is one of Shakespeare's later plays, the language is extraordinarily rich and pure."

Johnson also delights in directing a play that is so rarely produced. "How often can we find true surprises in Shakespeare's works and language?" he reflected.

Critics of the past have either hated or loved this play. Poet Alfred Tennyson was buried with a copy of *Cymbeline*,

his favorite Shakespeare play, while playwright and critic George Bernard Shaw buried the play. Shaw called *Cymbeline* "...stagnant trash of the lowest melodramatic order, in parts abominably written, throughout intellectually vulgar, and judged in point of thought by modern intellectual standards, vulgar, foolish, offensive, indecent, and exasperating beyond all tolerance."

All the critics seem to agree, however, that Imogen, the female lead, is one of the loveliest, strongest, and most fully-developed of Shakespeare's female characters.

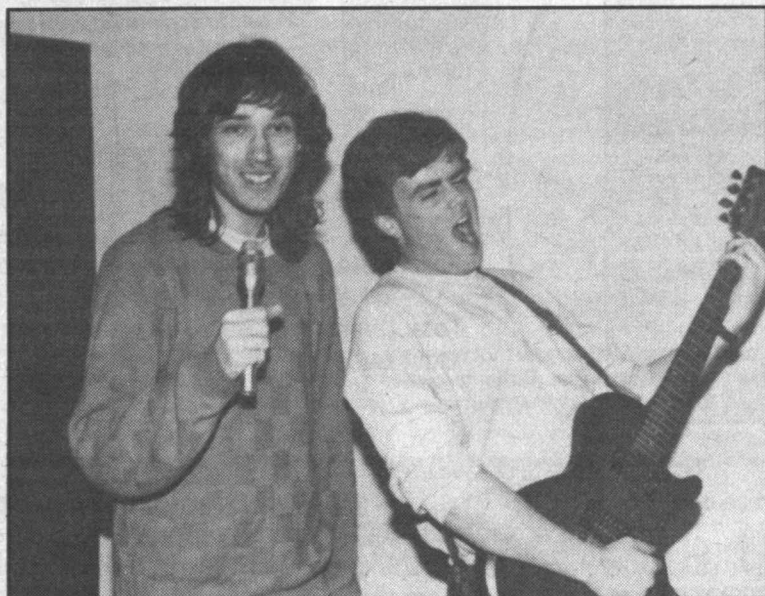
And, of the rousing and stirring conclusion, Oscar James Campbell, editor of *The Reader's Encyclopedia of Shakespeare* (1966) states that the last scene is a "tour de force, an excellent

exhibition of [Shakespeare's] technical skill, as full of suspense and surprise as any ... audience could wish. The scene presents eight surprises and has evoked wonder that Shakespeare could cram into 480 lines two dozen situations, any one of which would have been enough to carry a whole act."

Cast member Lindasusan Ulrich '91 composed the songs for the show, which adapt Shakespeare's lyrics to a contemporary rock and roll beat.

-- Lynn Heinemann

Photos by Grey Johnson and Chris Crowley G



Harry Teplitz '91 (left) and Sean Ningen '93



Lindasusan Ulrich '91 (left) with Andrea Leszek '92



## Send in the Clowns

Gary Isaacs, SB '79, SM '80, Ringling Brothers and Barnum & Bailey Clown College '90 lectures on "The Importance of Humor in My Careers as an Engineer, Investment Banker, Photographer and Clown," on Monday, March 18, 8pm, Rm 10-250.

He will speak in full clown make-up, describing the roots of his interest in the circus; points in time while a student at MIT when he nearly joined the circus; important elements of humor found during his various "legitimate" careers in engineering, investment banking, and photography; events that drove him to interrupt a career in investment banking to pursue clownhood; how bringing humor to others while at Clown College improved and refocused his outlook on career and life.

In conjunction with this event, MIT Dramashop is forming a clown troupe at MIT, with a grant from the DeFlorez Humor Fund. Their first organizational meeting will take place tonight (Wednesday) at 7:30pm in Rm 1-136. Semi-professional clown Ed Dama will teach the fundamentals of costume assembly, juggling, skits, slapstick, make-up, magic, mime, and movement. Information: 253-2877.



Clowns from the Cirque de Paris, 1922, above.

## Harbison CD Available

New World Records has released a recording of MIT Class of '49 Professor John Harbison's *The Flight Into Egypt*, performed by the Cantata Singers, conducted by David Hoose.

Richard Dyer of the Boston Globe called it "perhaps the most important of the new records" issued during the holiday season.

*The Flight Into Egypt* was commissioned by the Cantata Singers in 1986 and subsequently won the Pulitzer Prize in Music in 1987.

Also on the recording are two other Harbison works: *The Natural World*, with mezzo-soprano Janice Felty and the Los Angeles Philharmonic New Music Group conducted by Harbison; and *Concerto for Double Brass Choir and Orchestra* with the Los Angeles Philharmonic Orchestra conducted by André Previn.

## Where the Earth Meets the Sky



Photographs of *Life on the Tibetan Plateau*.

Photographs by graduate student Eric Fuchs of rarely-seen landscapes and people in many officially-closed areas of Tibet and its neighboring provinces will be on display in the Wiesner Student Art Gallery in the Stratton Student Center from March 17 through April 6. The exhibit is funded in part by grants from the Council for the Arts at MIT and the Boston Photo Lab.

# Indirect Research Costs Were 30 Cents Per \$1

(continued from page 1) to direct costs, there is a different answer: For each dollar of direct costs incurred in performing on-campus sponsored research in fiscal 1990, the Institute spent 44 cents for the associated indirect costs (\$89 million of indirect costs compared with direct costs of \$203 million).

So far so good, but the view gets hazy when we introduce the concept of an "indirect cost rate," which is the mechanism by which the Institute "collects" or recovers indirect costs from each individual project.

If MIT recovered indirect costs by charging every research project 44 cents for every dollar of direct costs they incurred, the "indirect cost rate" for on-campus research would be 44 percent and it would be applied to total direct costs of \$203 million. The Federal government, however, stipulates that on research grants and contracts the indirect cost rate can be applied *only* to certain defined direct costs (we must exclude equipment, subcontract costs over \$25,000, etc.). Those certain defined direct costs are referred to as the modified total direct cost base (MTDC).

For fiscal 1990, the total costs in the on-campus MTDC base were \$145 million. In order to recover the allowable \$89 million in indirect costs using the MTDC base of \$145 million (rather than the total direct costs of \$203 million), the rate must be higher than 44 percent. For MIT, this calculation, with some minor adjustments, results in a fiscal 1990 on-campus indirect cost rate of 62 percent.

So where's the confusion? Unfortunately, when discussing university indirect cost rates, most newspaper articles and some Congressional in-

vestigators make a simple, but perhaps understandable, mistake, and thereby convey the impression that indirect costs are substantially higher than is actually the case in relation to direct costs. They assume that a rate of 74 percent at Stanford means that the university spends 74 cents in indirect costs for every dollar of direct cost. On that basis, they would also assume incorrectly that MIT spends 62 cents in indirect costs for each dollar of direct cost, rather than the 44 cents shown above.

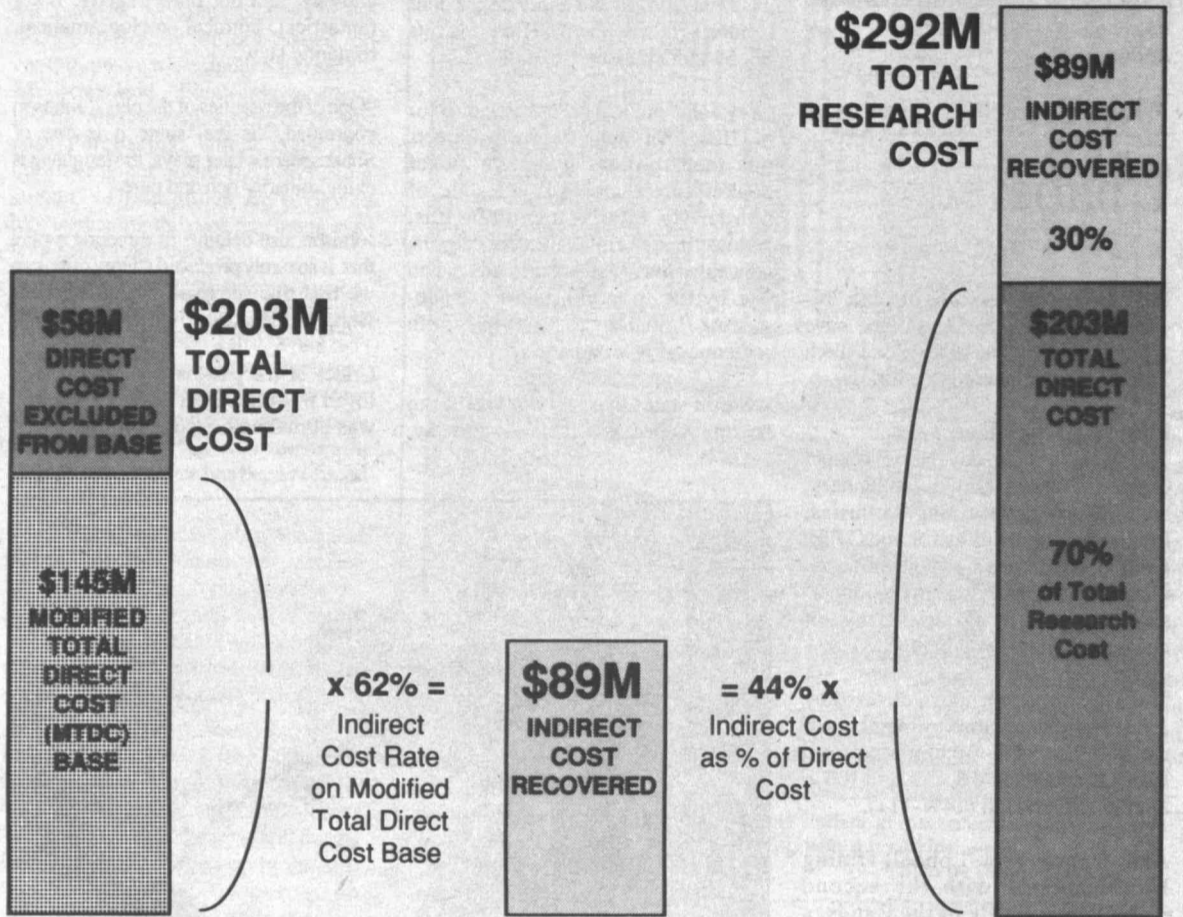
Can we correctly interpret the indirect cost rate for MIT in a manner that makes sense? Try this:

Out of each dollar spent by MIT in 1990 for sponsored research conducted on campus, the Institute spent 30 cents for the associated indirect costs. Stated differently, the Institute spent 44 cents in indirect costs for each dollar of direct cost spent by on-campus research projects. In order to recover the 44 cents for each dollar of direct cost, the Institute applied an indirect cost rate of 62 percent to a subset of direct costs referred to as the "modified total direct cost (MTDC) base."

The foregoing deals only with one source of confusion among the many relating to indirect costs. There are other misconceptions which should also be examined, such as the view that indirect costs are not, in fact, real costs but constitute some form of mark-up, fee or profit. If there is any aspect of indirect costs which the reader would especially like to see addressed in a future issue of Tech Talk, feel free to communicate that issue to the Vice President for Financial Operations.

# DIRECT AND INDIRECT COST OF MIT CAMPUS RESEARCH, FY 90

$$\begin{matrix} \$203 \text{ Million} \\ \text{Total Direct} \\ \text{Cost} \end{matrix} + \begin{matrix} \$89 \text{ Million} \\ \text{Indirect Cost} \\ \text{Recovered} \end{matrix} = \begin{matrix} \$292 \text{ Million} \\ \text{Total Research} \\ \text{Cost} \end{matrix}$$



Total research cost ("volume") is \$292M, of which \$89 million (or 30%) is indirect cost attributable to research. [89/292 = .30] Thus, 30 cents of each dollar of research goes to recovery of indirect costs. The indirect cost of research (\$89M) as a percentage of the direct cost (\$203M) is 44%. [89/203 = .44] The indirect cost rate of 62.0% is applied to a base of modified total direct cost. Thus, \$145M x 62.0% = \$89M. [89/145 = .62] Figures are slightly off due to rounding and adjustments. GRAPHIC BY LISA DAMTOFT

## Waste Strategy Talk Set

A critique of current solid waste management policy will be the focus of a talk Tuesday, March 19, by Reid Lifset, associate director of the Project on Solid Waste and the Environment at Yale University.

Mr. Lifset, who received the SM degree from MIT's Department of Political Science in 1987, and colleague Marian Chertow recently published an article in *The American Prospect* in which they examined the current trend toward banning certain types of waste.

Bans of products like Styrofoam cups and disposable diapers affect only a tiny portion of the waste stream, say Mr. Lifset and Ms. Chertow, and are of dubious environmental value. However, Mr. Lifset has argued that

product bans have had a strong political impact. In response to the threat of a ban, consumer product companies are committing resources to recycling and public relations.

In his talk Tuesday Mr. Lifset will present ideas for policies that would foster low-waste goods and packaging, including ways to institutionalize incentives to produce less waste.

The talk will be held from 4-6pm in Rm E40-212.

It is sponsored by MIT's Hazardous Substances Management Program, the Department of Political Science, and the Science, Technology, and Society Program.

For more information, call Jennifer Nash at x3-2727.

## West Garage Closes Saturday

West Garage will be completely closed starting Saturday, March 16, and continuing until the end of the month. Some of the garage's five levels have been closed since March 4 while the structure's concrete walls, floors and pillars are refurbished.

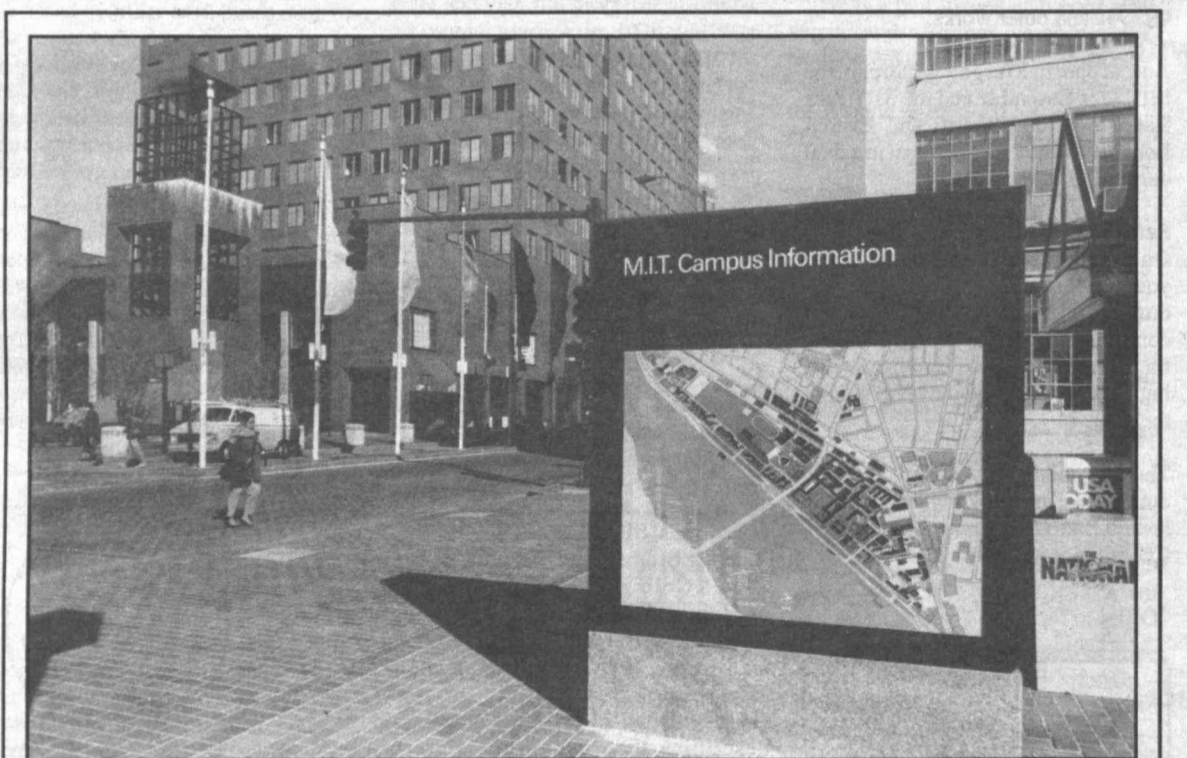
Alternative parking arrangements appear to be working smoothly, Dor-

othy Shannon, manager of the Parking and Traffic Division of the Campus Police Department has reported.

"I have not received one complaint," Ms. Shannon said, "and I want to extend my thanks and those of the Campus Police for the cooperation of West Garage parkers."

Alternative parking from March 16 to the end of the month will be at the Ames Street Lot which is reached via the East Garage entrance, and at the lot next to the Whitehead Institute at the corner of Ames and Main Streets. Entrance is from Ames Street behind the Texaco Station.

From April 1-30, two West Garage floors will be closed at a time. Alternative parking sites will be the lots at 243 and 275 Vassar St. and the lot next to Whitehead. The Ames Street lot will not be available after April 1 when excavation work will begin there for the new biology building.



**TRAVELERS' AID**—A new campus map, similar to the one near the Stratton Student Center, has been installed by the subway exit at Kendall Square. Photo by Donna Coveney

## Committee to Aid HASS Dean Search

Professor Suzanne D. Berger, head of the Department of Political Science and Ford International Professor of Political Science, has been named to chair an advisory committee appointed by Provost Mark S. Wrighton in connection with his search for a new dean of humanities and social science.

Professor Philip S. Khoury has been acting dean since July 1, 1990. He succeeded Professor Ann S. Friedlaender, who served as dean from 1984 to June 30, 1990. Dr. Friedlaender is the Class of 1941 Professor of Civil Engineering and Economics.

The eight-member Dean of Humanities and Social Science Advisory Committee includes two students, one a graduate student, the other an undergraduate. The other members are:

Professor Robert J. Silbey, head, Department of Chemistry; Professor Alan Brody, head, Music and Theater Arts Section; Professor Peter S. Donaldson, head, Literature Section; Associate Professor Rosalind Williams, Writing Program; Paul L. Joskow, Mitsui Professor of Economics and Management, Department of

Economics and Sloan School; Laura A. Hastings, graduate student, political science; Nancy J. Schondorf, a Burchard Scholar majoring in materials science and engineering.

Professor Berger said the committee welcomes statements from the community on the School of Humanities and Social Science in general, the position of dean, and individuals who should be considered for the post. All communications will be treated as confidential, she said. The committee can be contacted at her address, Rm E53-473, or by fax at x8-6164.

### Erratum

There was a mistake in the spring health education brochure that should make the Active Parenting of Teens series more attractive.

There is **no fee** for the 10-session series that begins Monday, April 8. Preregistration and a book purchase (\$15) are required. Call x3-4911 or x3-1592 for further information.