

Att: newcomers

President and Mrs. Paul E. Gray and the MIT Women's League will hold a wine and cheese open house for newcomers to the community and their spouses on Wednesday, Oct. 14, 4-6pm at the President's House, 111 Memorial Drive.

Kids' splash

A few spaces are left in the Child Care Office's swim classes this fall. Classes will be held in Alumni Pool for eight Saturdays, beginning October 17, on the following schedule: 9:15-9:45am, children 9-18 months; 10-10:30am, children 2-3 years, and 10:45-11:15am, children 4-5 years. The fee is \$30 per child. Call the Child Care Office, x3-1592, to sign up.

Big picture

The Registrar's Office and the Audio-Visual Service will present a half-hour demonstration of a large-screen video projector system Tuesday, Oct. 13, at 9:30 and 11am in Rm 4-270.

The system, which projects a 7 and one-half-foot image, could be used in classrooms for viewing MIT cable channels, videotapes, Boston TV stations or computer graphics. The community is invited to the demonstration.

Radon test

Radon test kits for checking the air in your home and the water in your well are available for \$6 to members of the community. Kits can be picked up any working day, 4-5:30pm in Building 58, first floor. A delivery service is run Thursday mornings for Lincoln Lab participants.

The nonprofit service is run by students under the supervision of Professor Lee Grodzins. For more information, x3-4151.

More English

The Child Care Office will offer a series of classes in English as a second language for child care providers and parents, beginning Tuesday, Oct. 13, 6:30-7:30pm, at the Westgate Nursery School. Twenty sessions will be offered on Tuesdays and Thursdays. The fee is \$80.

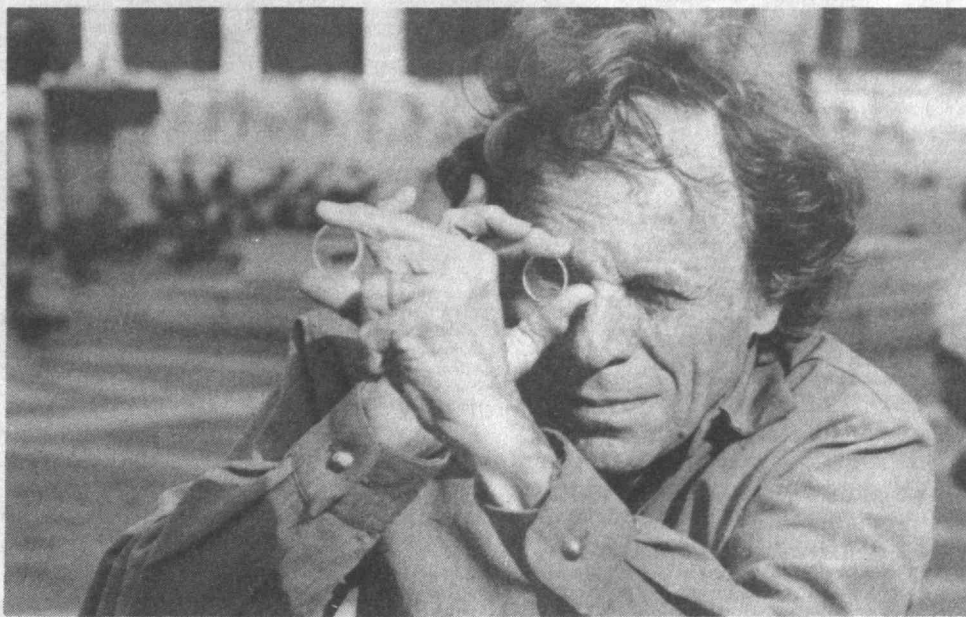
Designed for beginning/intermediate students, the course will emphasize speaking, vocabulary development, listening and grammar. The instructor will be Joan Kimball.

If there is sufficient demand, a second class may be offered later at Eastgate.

Coop rebate

James A. Argeros, Harvard Coop president, has announced that the annual patronage rebate for the year ended June 30 is 9.5%. Rebate checks will be available at the Harvard Square store beginning Wednesday, Oct. 14, or at other branches if prior arrangements have been made.

Tech Talk will not be published next week because of the holiday.



Professor Philip Morrison will demonstrate how instruments change how we perceive the world in his first show, Tuesday, Oct. 20, on PBS.

Morrison to host 'Ring of Truth'

By EUGENE F. MALLOVE
Staff Writer

Institute Professor Emeritus Philip Morrison needs little introduction to the MIT community and avid readers of his monthly Scientific American book review column. Now he will become known to a much wider audience when his PBS television series, *The Ring of Truth*—six science programs about “how we know what we know”—debuts October 20th.

Professor Morrison captures the theme of the series, “The best way I know of to persuade you of anything is not to plead with you to trust me, not to invoke authority in general, not even to call on some expert, but to show you just what it is that persuaded me. That is the way we tried to build our six-hour science series on PBS, *The Ring of Truth*. It is an exciting thing to look inside the works, and

that is just where we take you on a varied and lively journey.”

And from where did the series get its title, with literally a Morrisonian poetic ring? Says Dr. Morrison, “We took our series title from the old practice of throwing a suspected coin on the tabletop to hear its ring; when the coin rang out, it might be a precious metal. A leaden coin gave a dull sound, even though it might look and heft just right. Not all coins that ring true are real ones, but the test helps; the ring of truth is not yet the truth, but it brings you closer. Certainty is always hard to come by.”

“It is drawing out everyday experience, stretching it to new places, by new ways of looking, audacious effort and strange conditions, that let us listen, always thoughtfully, for that ring of truth—

(continued on page 8)

Affirmative action on faculty 'not satisfactory,' Gray says

By KENNETH D. CAMPBELL
Staff Writer

“The headline is, the record is not satisfactory” on affirmative action recruitment of minorities and women for the MIT faculty, President Paul E. Gray told the Faculty Council at its September meeting.

Dr. Gray reviewed hiring statistics and the faculty profile in the 12 months from April 1, 1986, to March 31, 1987, a period when affirmative action responsibility shifted from the Academic Council to the senior officers: the deans, associate provosts and vice presidents.

He said the original MIT goal, formulated in 1970 “admittedly by a relatively uninformed process,” called for one black faculty member in each department and two in the large departments. That goal,

over a five-year period, was for a total of 28 to 30 black faculty members.

“It's pretty clear, with the benefit of hindsight, that this was very optimistic,” he said.

Three in 1970

He noted that there were three blacks on the MIT faculty in 1970. In 1980, there were 21 underrepresented minorities, including 19 blacks; in 1985, there were 20 under-represented minorities, including 16 blacks; and on March 31, 1987, there were 17 under-represented minorities, including 14 blacks. That is “less than half of the goal” he said.

Comparing the 1980 record with the spring of 1987, Dr. Gray said the number of under-represented minorities had declined in Schools of Science; in Human-

(continued on page 8)

AIDS Awareness activities set today

The MIT Medical Department is sponsoring two activities today (Wednesday, Oct. 7) in recognition of this week as AIDS Awareness week in Massachusetts.

A video screening of “AIDS: Beyond Fear” will be presented at noon in the Emma Rogers Room (10-340). Developed by the American Red Cross, “Beyond Fear” is an update on the AIDS epidemic, focusing variously on the virus, the individual and the com-

munity. Following the film, members of the Medical Department staff will be available to answer questions.

Also on Wednesday, an AIDS Information Table will be open in the Maclaurin Lobby offering a broad range of informational literature. Medical Department staff will be there to answer questions as well.

To learn more about AIDS or other AIDS-Aware activities, call the Health Education Service, x3-1316.

Improvements in benefits to take effect in January

Starting January 1, a dental plan will become available to MIT employees, life-insurance benefits will be significantly improved, and an alternative Blue Cross-Blue Shield plan with higher deductibles but significantly lower premiums will be offered.

Vice President Constantine B. Simonides, who announced the changes, said they are the first outcome of a wide-ranging strategic review of benefits, which began last spring. This review is being guided by a steering committee of MIT senior officers chaired by Senior Vice President William R. Dickson.

Employee costs and other details concerning the new programs will be announced later this month.

The dental plan—the cost of which will be shared by MIT and employees who choose to enroll—will offer coverage by DELTA Dental. The plan will pay the cost of most cleanings and examinations, part of the cost of basic services such as fillings and extractions, and a lesser part of the cost of major restorative services, such as dentures, bridges and crowns.

The new life-insurance program includes \$50,000 of basic coverage paid for by MIT, plus an employee option of buying additional insurance up to five times annual salary at age related rates. Employees who have purchased optional insurance under the current plan may retain that coverage in lieu of participating in the new program. Employees who elect to retain their current coverage (which is limited to two or three times salary up to \$160,000) will not have any MIT-paid basic coverage.

The net cost of the new life-insurance plan will be less for most participants for a comparable amount of insurance for two reasons:

1) MIT will pay the full cost of \$50,000 coverage for eligible employees; 2) The tax on imputed income paid by some employees in the current plan is eliminated because of the way the new program has been designed.

(continued on page 8)

Diet and health

The Medical Department will offer a three-session program, Anti-cancer, Anti-heart attack Diet, on Wednesdays, beginning October 21, noon-1pm in Rm E23-297.

The first meeting will be on diet and heart disease and decreasing the risk of heart disease. The second will be on diet and cancer controversies and the third will offer practical suggestions on how to put recommendations into practice.

Food choices and recipe modification will be discussed. Slides will be used in all meetings and there will be taste tests at the final session.

The instructor will be Nena Hester, RD, of the dietetics and nutrition department of Brigham and Women's Hospital. The fee is \$15, payable in advance to the Medical Department and mailed to the Health Education Service, Rm E23-205.

INSTITUTE NOTICES

- *—Open to public
- **—Open to MIT Community only
- ***—Open to members only

Announcements

Add Date: Fri, Oct 16—Last day to add subjects to registration and last day for juniors and seniors to change an elective to or from Pass-Fail grading.

Career Planning and Placement Company Recruitment Presentations**—Proctor & Gamble—Oct 7, 4-8pm, Rm 5-127. Lotus Development Corp—Oct 8, 6-8pm, Rm 4-153. Schlumberger Offshore Services—Oct 13, 7-9pm, Rm 4-149. Northrop Electrical Mechanical Division—Oct 15, 5-7pm, Rm 1-150. Touche Ross Management Consultants—Oct 15, 5-7:30pm, Rm 1-150. Lockheed Corp—Oct 15, 7-9pm, Rm 1-132. Mead Data Central—Oct 15, 7-9pm, Rm 8-105. Draper Lab—Oct 16, 4-5pm, Rm 1-132. Exxon—Oct 19, 4-6pm, Rm 4-149. Hewlett Packard—Oct 20, 6-9pm, Rm 34-101. Marine Midland Bank—Oct 20, 6-8pm, Rm 4-145. Advanced Micro Devices—Oct 20, 7-8:30pm. The Boeing Company—Oct 21, 7-9pm, Rm 4-149. Booz, Allen & Hamilton—Oct 22, 4:30-6:30pm, Rm 4-149. Merrill Lynch—Oct 22, 4:30-6:30pm, Rm 4-159. Varian Associates—Oct 22, 7-9pm, Rm 8-119.

Nightline**—a student-run 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. x3-7840.

Club Notes

MIT Student Television Channel 36**—Seeks people interested in programming the cable television network. Info: Christopher Coon, x5-9432 dorm.

MIT/DL Bridge Club*—Duplicate bridge, Tues, 6:30pm, Rm 33-419. ACBL masterpoints awarded; come with or without partner, newcomers always welcome. Special tournaments monthly. Handicap game, 3rd Tues every month. Info call Gary Schwartz, x8-2459 Draper, or Mark Dulcey, 868-5518. Admission: \$1/students, \$2/non-students.

MIT Go Club*—Meets every M/Th, 5-7pm, Bldg NE43 7th floor lounge. Ring bell to get in if locked. Info: x3-4874.

MIT Chess Club*—Players of all levels welcome for informal play and rated tournaments, Sat, 1-5pm, Rm 5-232. Bring equipment. Info: George Yu, x5-9616 dorm or x3-7001.

MIT Table Tennis Club**—Meets Fri, 8-10pm; Sat, 6-9pm, DuPont T-Club Lounge. All levels welcome. Info: Hoang Do, x3-2843.

MIT Science Fiction Society*—The world's largest open collection of science fiction books and magazines is located in Student Ctr Rm 473. Meetings, Fri, 5:30pm. Info: x5-9144 dorm.

Animal Rights Forum*—Meets 2nd & 4th Weds each month, 5pm, Rm 8-105. Info: Peter Mead, x5-9616 dorm.

COCA (Committee on Central America)**—Meets at least once a month to plan activities relating to events in Central America. Info: Charlie Welch, 783-1668 eves/messages.

MIT Nautical Association**—Recreational and competitive sailing on the Charles and beyond. Sailing Pavilion open every day, 9am-sunset until Nov. Sailing cards on sale at Cashier's Office, Lobby 10: \$5/students, \$15/faculty, staff; \$20/alumni. Free basic sailing classes, Mon & Thurs, 5:15pm. Free boardsailing classes, Thurs, 5:15pm. Racing, Mon, 6pm. Info: x3-4884.

MIT Scuba Club**—The Club sponsors dives throughout the year, and has periodic meetings. Call Scuba Locker (x3-1551) for rental information. Club info: Krisztina Holly, x5-7351 dorm or Dave Michael, 598-2451 eves.

MIT Outing Club*—Camping, cycling, climbing, canoeing, cabins, meets M/Th, 5-6pm, Student Ctr Rm 4m1. bg% IsQc5-B=UIMk5-s-QC1*j2515Jj"2 r lM=1zUIUc1Q%9=%9k\$J93% %QuI%+IfaQQ+Q%9c0139215TDZT&&*

iU+K7-k0013RT7.k++00137-KKY0013c013T4LLSYX.+0013R /,jZ7g sport of soaring. We fly from the Mansfield airport every weekend and some holidays (weather permitting). Mansfield is 45 minutes south of Cambridge, off Rt 95. Student membership: \$125; typical flight: \$16. Contact: Bob De Saro, 890-8925 or 264-4426 eves.

MIT Hobby Shop**—Complete supervised facilities for woodworking and metalworking, Rm W31-031, M-F, 10am-6pm; Wed, 10am-9pm. Fees: \$15/term students; \$25/term community. Info: x3-4343.

MIT Yoga Club**—Strengthen mind and body with Kundalini Yoga, M/W, 5:30pm, adjacent to Burton House Dining Hall, 2nd flr. Beginners welcome. Info: Fred, x3-7143 or 625-0813 eves.

MIT Aikido Club**—Non-competitive martial discipline, meets M-F, 5:30pm, DuPont Exercise Rm. Beginners always welcome. Info: Mitch Hansberry, 1-872-5015 or 258-1272.

MIT Karate Doshinkan*—Classical (noncompetitive) Okinawan-Japanese karate, teaching a system for lifelong good health as well as self-defense. Men and women of all ages encouraged to participate. Beginners welcome, MWF, 5-6:30pm, Meet on lawn between W33 and W23. Mark, x3-0988; Bill x3-6578 or Jim, x3-0472.

Religious Activities

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

Tech Catholic Community*—Roman Catholic Masses: Suns, 9am, 12 & 5pm, MIT Chapel. Tues & Thurs: 5:05pm, MIT Chapel. Fri, 12:05pm, MIT Chapel. Chaplaincy Office: x3-2981.

MIT Hillel**—Oct 4-17: The Sukkah will be open for meals on the West Porch of Walker Hall. Bring your own or buy dinner in the Kosher Kitchen (Walker 50-007), and bring it to the Sukkah. **Fri, Oct 9:** Conservative/Reform Services, 5:30pm, Hillel. **Thurs, Oct 15:** Simhat Torah celebration, 7pm, Tremont St. Shul, Cambridge. Meet at rear door of Hillel, 6:30pm, to walk over. **Fri, Oct 16:** Conservative/Reform Services, 5:30pm, Hillel.

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.

Baptist Student Fellowship*—Sunday Night—Protestant worship service for all interested students and community, Sundays, 7pm, MIT Chapel; **Boston-Wide Tuesday Night Fellowship**—Tues, 6-8pm, Metropolitan Baptist Church, Cambridge. Dinner and topical Bible study; **Married Couples Fellowship**—Wed, 8-9:30pm, Westgate Cl-1; **Graduate Study in Romans**—Thurs, 1-2pm, W2a. Bring your lunch (PBj provided).

United Christian Fellowship**—MIT Chapter of Inter-Varsity Christian Fellowship. Large group meetings, every Fri, 7-8:30pm, Rm 6-321. Join us for worshipful singing, prayer, sharing & Bible teaching on "People of Faith." Small group Bible studies during the week in various dorms. Info: Poh-Min Lim, x5-6481 dorm.

MIT Islamic Society*—Daily prayers, Ashdown House (basement), 5 times a day. Call x5-9749 dorm, for schedule. Friday prayer, Ashdown House 1-1:30pm, Khutba starts at 1pm, congregation at 1:20pm.

MIT Bahai Association*—Informal discussions, Thurs, 8pm, Nancy, x3-3361 or Brian, 354-0117.

Meditation and Discourse on the Bhagavad Gita*—Swami Sarvagatananda, minister, Ramakrishna Vedanta Society of Boston, MIT Vedanta Society, Fri, 5:15pm, MIT Chapel.

Christian Science Organization at MIT*—Weekly Testimony meetings, Thurs, 7:30pm, Rm 4-145.

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

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

Noon Bible Study*—Every Wed, Rm 66-160, bring lunch. Ralph Burgess, x3-8121. (Since 1965.)

Edgar Cayce Study Group*—Tuesdays, 6:30-9pm, Edgar Cayce's Search for God material will be used as the basis for group discussion & meditation. For info: Douglas McCarroll, 497-0819 12-9pm or Scott Greenwald, x3-7423.

MIT Campus Crusade for Christ*—Fridays, 7:17pm, Marlar Lounge, Rm E37-252. TGIF weekly meeting of MIT Campus Crusade for Christ. We "thank God it's Friday" every week with singing, biblical input, discussion and fun. Info: x5-9153 dorm.

Graduate Christian Fellowship**—Come join other grad students, faculty, and staff as we meet to learn about and grow in the Christian faith. Activities are open to both Christians and those interested in learning more about Christianity. Info: Curt Bronkhorst (G), x3-4414, Reta Lee (Staff), x3-3680, Roz Wright (G), x3-7314.

Graduate Studies *

The Committee on Foreign Scholarships strongly encourages seniors and graduate students to apply for the grants for international study. These awards are not only for liberal arts majors; many recipients go abroad to complete projects in science and engineering. Unless otherwise indicated, applications are available in Rm 5-106, and more information available from Claire Kramsch, Rm 14N-207, x3-4771.

Luce Fellowships. A fairly new award for one year professional work in an Asian country for an individual up to the age of 30 with a college degree. Fifteen scholarships awarded annually nationwide. MIT students with good academic records and other accomplishments are in excellent position to be considered. The award, which provides an unusual opportunity for a direct Asian experience, is open to all fields except Asian Studies. Information: Prof Myron Weiner, Rm E53-369, x3-8093. Deadline: Oct 17, 1987.

German Academic Exchange Service (DAAD) Award. Grants awarded to US citizens for study and research, in all fields, in the Federal Republic of Germany. Applicants must be proficient in German. No more than two applicants can be recommended for this program from MIT. Completed applications due in Rm 5-106 by 5pm, Mon, Oct 19, 1987.

Marshall Scholarships. Established by the British government as a gesture of thanks to the US for Marshall aid, these prestigious and highly competitive academic scholarships are annually awarded to 30 US citizens under the age of 26 for two years (or in some cases three) of graduate study in any field at any British university. Former recipients include in particular many present leaders of US academic institutions, as well as of other fields. Science and technology have been historically underrepresented, and candidates for study in these areas are especially encouraged to apply. MIT could field many more qualified candidates than typically submit applications. Initial interview required as part of application process held by appointment with Prof Linn Hobbs, Rm 13-4062, x3-6835. Submit applications directly to the British Consulate General, 4740 Prudential Tower, Boston, MA 02199 by Oct 22, 1987.

Rhodes Scholarships. A highly competitive award for two years study at Oxford University. Applicants from any field with excellent scholastic records and other personal accomplishments are eligible. The prestige of the award makes it a sought-after scholarship, important for the opportunities it presents at Oxford, and for its subsequent career value. The scholarship has been awarded to many MIT students in the past with many more eligible than typically apply. Further information and applications available from Prof Eugene B. Skolnikoff, Ctr for International Studies, Rm E38-648, x3-3140. Deadline: Oct 26, 1987.

Student Jobs

There are more job listings available at the Student Employment Office, Rm 5-119. **Special Note:** 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
Laserink Incorporated needs someone to assist customers at the Walk-in Self Service Center. Must have good interpersonal skills; be able to solve problems as they arise with software/hardware, and be willing to accept challenges. Experience mandatory with Macintosh, last printing and a variety of software packages (IBM helpful). Must type 60 wpm. Hours flexible. Wage: \$6/hr. Contact Sarah Grey, 225-2525. More information in Student Employment's Technical Notebook.

On Campus: Non-Technical
Office assistant for Physical Plant Operation Center. General clerical work including filing, light typing, preparing reports. Also some data entry and word processing using Symphony. Other duties as necessary. Hours: Sat and/or Sun, 8-16 hrs/wk, negotiable (some hours during the week possible). Wage: \$5.75/hr. Contact Bob Coates, Rm E19-135, x3-1372/1500.

UROP

MIT and Wellesley students are invited to join with faculty members in pursuit of research projects of mutual fascination. Further project listings and fall guidelines (outlining proposal procedures) are posted on the bulletin boards located in the main corridor and in the UROP Office. Faculty supervisors wishing to have projects listed should send project descriptions to the UROP Office. Questions? Contact UROP at x3-7909, Rm 20B-141.

Joel M. Orloff Undergraduate Research Prize. Nominations from faculty are invited. A cash award will be presented in early November to the undergraduate who has demonstrated the most outstanding ability and creativity in physics-related research (conducted in any department) during the past summer and/or academic year. Nominations should be made by the student's faculty supervisor, and should be sent to the UROP Office by November 6.

Sea Grant UROP Awards. Grants of \$800 each will be given for undergraduate research in any area related to the study and management of the ocean and ocean resources. Proposals may come from departments throughout MIT (Wellesley students may also apply). A letter of recommendation should accompany the proposals and be sent to the UROP Office by October 16.

Diagnosis of Pavement Conditions from Radar Data. Project involves development of techniques for interpreting radar information describing physical pavement conditions, and inferring underlying causes and mechanisms from these interpretations. Activities will involve radar waveform synthesis, laboratory testing, and signal processing. Seeking student with programming skills in "C" and interest in electromagnetic waves and signal processing. Faculty supervisor and contact: Dr. Kenneth Maser, Rm 1-170, x3-1287.

Transformer Monitoring Project. UROPer needed to aid in the analysis of heat transfer within power transformers. UROPer will conduct experiments measuring the temperature distribution within the core and windings of a transformer and analyze results. Students should have solid background in thermodynamics. Basic understanding of transformers is helpful, but not necessary. PAY. Faculty supervisor: Prof Fred Schweppe, Rm 10-176, x3-4640. Contact: Prof Schweppe, or Wayne Hagman, Rm 10-058, x3-2087.

Cable Television Schedule

MIT Cable Television serves the MIT campus. For connection and programming information, call x3-7431.

This schedule is subject to change. For up-to-date information, call Randy Winchester, x37431.

Wednesday, October 7
Channel 10:
11am-12noon—Live coverage of the Optics and Quantum Electronics Seminar.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
11am-12noon—"Commitment and Gene Rearrangement During Differentiation of Lymphocytes" Tasuku Honjo, Faculty of Medicine, Kyoto University, Japan.
12-1pm—"The Human Gamma Delta T Cell Receptor" Dr. Michael S. Krangel, Division of Tumor Virology, Dana-Farber Cancer Institute.
1pm—"Regulation of Protein Function by Phosphorylation-Dephosphorylation" Dr. Edwin Krebs, Howard Hughes Medical Institute, University of Washington School of Medicine.
5pm—"Heterogeneity in CD4+ T Lymphocytes: Activation Requirements and Effector Functions" Dr. Kim Bottomly, Department of Pathology, Yale University School of Medicine. Live from Harvard Medical School.

Thursday, October 8
Channel 8:
Physics 8.01 Help Session 4. Program will repeat until 5pm.

Channel 9:
3-4pm—Live coverage of 12.964 Mesoscale Ocean Dynamics.

Channel 11:
10:30-11:45am—12.758, live from WHOI.
12-1:30pm—Introduction to Observational Physical Oceanography. Live from WHOI.

Friday, October 9
Channel 8:
5pm—Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
10-11am—"The Role of Localized mRNAs in Specifying Cell-Type During Early Frog Development" Douglas Melton, Department of Biochemistry and Molecular Biology, Harvard.
11am-12noon—"Regulation of T Cell Responses to Infectious Diseases" Dr. Robert Finberg, Laboratory of Infectious Disease, Dana-Farber Cancer Institute and Harvard Medical School.
12noon—"Molecular Analysis of the Origin of Replication Associated with DHFR Genes" Dr. Nicholas Heintz, Department of Biochemistry, College of Medicine, University of Vermont.

Saturday, October 10
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Sunday, October 11
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Monday, October 12
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Tuesday, October 13
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Wednesday, October 14
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm, 10/15.

Channel 10:
11am-12noon—Live coverage of the Optics and Quantum Electronics Seminar.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
11am-12noon—"Heterogeneity in CD4+ T Lymphocytes: Activation Requirements and Effector Functions" Dr. Kim Bottomly, Department of Pathology, Yale University School of Medicine.

12-1pm—"Molecular Analysis of the Origin of Replication Associated with DHFR Genes" Dr. Nicholas Heintz, Department of Biochemistry, College of Medicine, University of Vermont.

1pm—"Spatial Structure of Mammalian Metallothionein, A Conquest by Spectroscopy" Dr. Jeremias H. R. Kagi, Department of Biochemistry, University of Zurich, Germany.
5pm—"Regulation of Erythropoiesis" Dr. David G. Nathan, Dept. of Medicine, Children's Hospital. Live from Harvard Medical School.

Thursday, October 15
Channel 8:
Physics 8.01 Help Session 5. Program will repeat until 5pm.

Channel 9:
3-4pm—Live coverage of 12.964 Mesoscale Ocean Dynamics.

Channel 11:
10:30-11:45am—12.758, live from WHOI.
12-1:30pm—Introduction to Observational Physical Oceanography. Live from WHOI.

Friday, October 16
Channel 8:
5pm—Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
10-11am—"The Human Gamma Delta T Cell Receptor" Dr. Michael S. Krangel, Division of Tumor Virology, Dana-Farber Cancer Institute.
11am-12noon—"Commitment and Gene Rearrangement During Differentiation of Lymphocytes" Tasuku Honjo, Faculty of Medicine, Kyoto University, Japan.
12noon—"Activated Endothelium and Cell Mediated Immunity" Dr. Jordan S. Pober, Department of Pathology, Brigham & Women's Hospital and Harvard Medical School.

Saturday, October 17
Channel 8:
Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Sunday, October 18
Channel 8:
Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Monday, October 19
Channel 8:
Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Channel 9:
1-2pm—Live coverage of 12.964 Mesoscale Ocean Dynamics.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
10-11am—"Regulation of Erythropoiesis" Dr. David G. Nathan, Dept. of Medicine, Children's Hospital.
11am-12noon—"Molecular Analysis of the Origin of Replication Associated with DHFR Genes" Dr. Nicholas Heintz, Department of Biochemistry, College of Medicine, University of Vermont.
12noon—"The Role of Localized mRNAs in Specifying Cell-Type During Early Frog Development" Douglas Melton, Department of Biochemistry and Molecular Biology, Harvard.
4pm—"The Organization of Glycosphingolipids in Bilayers and Biological Membranes" Dr. Thomas E. Thompson, Biochemistry Dept, Univ of Virginia. Live from Harvard Medical School.

Tuesday, October 20
Channel 8:
Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Channel 10:
4-5:30pm—Live coverage of the MIT VLSI Seminar.

Channel 11:
10:30-12noon—12.800 Fluid Dynamics of the Atmosphere and Ocean. Live from WHOI.

Wednesday, October 21
Channel 8:
Physics 8.01 Help Session 6. Program will repeat until 5pm, 10/22.

Channel 10:
11am-12noon—Live coverage of the Optics and Quantum Electronics Seminar.

Channel 11:
10-11am—13.861 Ocean and Seabed Acoustics I. Live from WHOI.

Channel 13:
11am-12noon—"Spatial Structure of Mammalian Metallothionein, A Conquest by Spectroscopy" Dr. Jeremias H. R. Kagi, Department of Biochemistry, University of Zurich, Germany.
12-1pm—"Commitment and Gene Rearrangement During Differentiation of Lymphocytes" Tasuku Honjo, Faculty of Medicine, Kyoto University, Japan.
1pm—"Heterogeneity in CD4+ T Lymphocytes: Activation Requirements and Effector Functions" Dr. Kim Bottomly, Department of Pathology, Yale University School of Medicine.
5pm—"Multiple Biologic Activities of Human Interleukin-6" Dr. Stephen C. Clark, Director, Hematopoiesis Research, Genetics Institute, Cambridge, Mass. Live from Harvard Medical School.

TECH TALK



October 7, 1987
Volume 32 Number 10

Tech Talk is published 37 times a year by the News Office, Massachusetts Institute of Technology. Director: **Kenneth D. Campbell**; Associate Director: **Robert C. Di Iorio**; Assistant Directors: **China Altman**, **Charles H. Ball**, **Donna Coveney**, photojournalist; **Eugene F. Mallove**; **Joanne Miller**, Tech Talk editor; **Reporter Lynn Heinemann** (Institute Calendar, Classified Ads, Institute Notices).

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

Address news and editorial comment to MIT News Office, Room 5-111, MIT, Cambridge, MA 02139. Telephone (617) 253-2701.

Mail subscriptions are \$18 per year by first class mail. Checks should be made payable to MIT and mailed to Business Manager, Room 5-113, MIT, Cambridge, MA 02139.

High temperature superconductivity probed

By EUGENE F. MALLOVE
Staff Writer

Superconductivity has been discovered as high as 130 degrees Kelvin and the phenomenon may be found at room temperature and above before long. The new research era began with the discovery last year by IBM scientists J. Georg Bednorz and K. Alex Müller of zero resistance current flow at 40 degrees Kelvin (in the ceramic material lanthanum copper oxide doped with barium or strontium atoms). Despite this breathtaking success that seems to foretell a technological revolution, the quest to explain superconductivity at elevated temperatures continues without a definitive physical model.

Two MIT investigators, Professors Robert J. Birgeneau and Marc Kastner—both physicists working in the Center for Materials Science and Engineering, now believe they are hot on the trail of an explanation for superconductivity at elevated temperatures. Their evidence comes from neutron scattering experiments involving the parent material (La_2CuO_4) that reveal hitherto unobserved magnetic properties within crystal lattices. Their pioneering work appears in the October 5th issue of *Physical Review Letters*.

Incredibly, five months ago neither physicist had even done any work in superconductivity. But after considering the data they have gathered recently, a confident Professor Birgeneau says, "We believe that we are the closest to explaining the phenomenon, but I'm not sure everyone would agree with that. The majority of theoretical models as of the last few weeks are based on our experiments."

Understanding the esoteric and subtle quantum phenomena that permit ordinary as well as high temperature superconductivity is not easy, but intuitive visual models are possible. In ordinary low temperature superconductivity (below about 20 degrees Kelvin), which has been known since 1911, pairs of electrons move together to facilitate a collisionless flow of current through a material. This pairing is caused by a spontaneous distortion of the crystal lattice.

But theorists have been sorely pressed to extend the quantum mechanical theory of this mechanism to higher temperature behavior, hence the need, perhaps, for an entirely new superconductivity theory for higher temperatures. Says Dr. Birgeneau, "Our conclusion before even starting the work was that these materials must contain within them a completely new and unprecedented mechanism for superconductivity."

The two MIT researchers began by encouraging the MIT Crystal Physics and Optical Electronics Lab, headed by Dr. Harry Tuller, to generate a sizable single crystal of lanthanum copper oxide material. The lab was among the first in the world to accomplish this feat. In a collaborative venture, the MIT group also received crystals grown by a Japanese laboratory in the Nippon Telegraph and Telephone Corporation.

Why their interest in a single large crystal? Because early on they felt that the two-dimensional aspects of the phenomenon were likely to be important. (The large crystals have current-carrying copper-oxide layers alternating with layers of lanthanum-oxide). In fact, it is difficult to produce superconductivity in large crystals, but an extended lattice permitted observing how crystal properties changed while impurity atoms necessary for superconductivity were added. The researchers wanted to understand the pre-existing state in which move the all-important "holes"—atoms with missing electrons.

From the beginning they expected that the "magnetic spins" of each of any copper atom's four neighboring copper atoms would be opposite (anti-parallel) to the magnetic spin of that atom. They observed this in a crystal by using neutron beams from a reactor at the Brookhaven National Laboratory. Neutrons provide an ideal probe of magnetic spin in atoms. By controlling and observing the direction and energy of scattered neutrons, the pattern of magnetic spins can be observed in the different layers of a 2-D crystal.



Professor Robert Birgeneau, left and Professor Marc Kastner demonstrate a new high temperature ceramic superconductor. —Photo by Donna Coveney

After some false starts, a real breakthrough occurred during an intense observing period at the Brookhaven reactor on the July 4th weekend. The MIT group discovered waves of magnetic spin fluctuation passing through their crystal at ten times the velocity of sound in that material—a completely unexpected finding. These waves apparently go through with an energy ten times what anyone had imagined and lead to a possible explanation of how superconductivity can occur at elevated temperatures.

Professors Birgeneau and Kastner suggest that the charge carriers in the crystal lattice are coupling to these fast waves of magnetic spin fluctuation. In their view, superconductivity at elevated temperature is a highly two-dimensional property that allows electron transport with what are, in effect, waves of magnetic spin rather than waves of overall atomic motion as in conventional superconductivity. The spin waves are present in what is called a "quantum spin fluid."

What the MIT researchers and their Brookhaven collaborators have seen that no one had before is rapid magnetic spin fluctuation combined with the correla-

tion of spins over a distance hundreds of atoms long—the long range synchronization of atomic spin directions. The characteristic time of this fluctuation is extremely fast—approaching one thousandth-trillionth of a second.

While the MIT experiments provide presumptive evidence for a new mechanism of superconductivity at elevated temperatures, much theoretical work remains to be done, cautions Professor Birgeneau. At a seminar at MIT's Center for Theoretical Physics he challenged others to tackle this difficult problem. He warns that there may well be competing effects that will destroy superconducting as temperature is further increased—analogue to destruction of ordinary superconductivity by high magnetic fields.

He says optimistically, "With this mechanism there doesn't seem any reason why you couldn't reach room temperatures. But that has to be qualified by saying that we have what we think are exciting results which point in the direction to go and certainly enable one to rationalize very high temperature superconductivity."

Health effects of fish oils is subject of MIT symposium

By ELIZABETH TAYNTOR
Sea Grant Communications

The MIT Sea Grant Program will present its fifteenth annual Lecture/Seminar entitled Health Effects of Omega-3 Fatty Acids: Fish Oil and Other Sources, on October 8.

Eating fish is good for you, and scientists have recently discovered what they believe is one of the reasons why—Omega-3 fatty acids. Clinical and experimental studies have demonstrated that these compounds, a component of fish oil, reduce the risks of heart disease and may be therapeutic in treating the disease. Early studies also suggest that Omega-3 fatty acids have therapeutic value in the treatment of rheumatoid diseases, like arthritis, may reduce the risks of acquiring the disease, and may cause it to regress. Still others, looking for a wonder "drug" to cure or prevent cancer, hope that fish oil may play a role in the fight against that disease although there is not yet sufficient evidence to support these claims.

Cosponsored by MIT Sea Grant, the New England Fisheries Development Foundation, and the ILSI Research Foundation, this day-long conference will attempt to clarify some of the medical, chemical and legal issues surrounding the consumption of fish oil. Leading authorities will present clinical and experimental evidence of short- and long-term effects of Omega-3 fatty acids on cancer and cardiovascular and rheumatic diseases, including arteriosclerosis and arthritis. Experts will also discuss sources of the fatty acids, regulatory considerations, and the role of public health education.

The opening Sea Grant Lecture, Impact of Dietary Fat on Human Health, will be delivered by Dr. Robert S. Lees, professor of cardiovascular disease at MIT and director of medical research at New England Deaconess Hospital in Boston. Dr. Lees will present a review of published literature on the preventative and therapeutic effects of Omega-3 fatty acids on cardiovascular and rheumatoid diseases and cancer. His findings will show that in spite of advances, there are still many unknowns and much research that needs to be done particularly in the areas of rheumatoid diseases and cancer.

In addition, many questions remain as to how to ensure consumer safety, how to ensure the quality of Omega-3 fatty acids, what doses and sources are necessary for therapeutic or preventative benefits to be realized, and what constitutes proper marketing and distribution of the product.

The Symposium will be held in Kresge Auditorium. The registration fee of \$100 includes lunch, coffee breaks, and a seafood reception. Advance registration is required. Proceedings of the conference will be published and should be available in May 1988. For more information contact Madeleine Hall-Arber, x3-7041.

Quasiquicentennial Fact

MIT's main dome, atop the MacLaurin Building, rises some 150 feet—roughly the height of a 12-story building. It surpasses the dome of St. Sophia in Istanbul by 15 feet.

Colloquium to hear 3 control experts

Three internationally renowned researchers will speak in the Colloquium Series of the Laboratory for Information and Decision Systems and the Center for Intelligent Control Systems on October 7 and 8.

Professor Karl Astrom, Professor of Automatic Control at the Lund Institute of Technology, Lund Sweden, will speak at 5pm on October 7 in Rm 34-101. The title of his talk is "Towards Intelligent Controllers." A reception will follow.

Professor Astrom is one of the leading researchers in the world in the field of control. He has made seminal contributions to adaptive and stochastic control and is instrumental for the implementation of several advanced control schemes in the process industries.

On October 8, Professor Anil Nerode, professor of mathematics and director of the Mathematical Sciences Institute, Cornell University, will discuss "An Overview of Methodologies for Intelligent Control." His talk will be at Harvard University, Aiken 241, at 3pm.

Professor Nerode is an eminent logician who has been interested in the foundations of computer science. His most recent interest is in the foundational and analytical aspects of artificial intelligence.

Also on October 8, Professor Eugene Wong, chairman of the Department of Electrical Engineering and Computer Sciences at the University of California at Berkeley will speak in the LIDS Colloquium series on Systems, Communications and Control. His talk, "Processing Rules in Database Management," will take place in Rm 9-150 at 5pm. A reception will follow.

Professor Wong is known for his pioneering contributions to stochastic processes and random fields and related applications in nonlinear estimation and signal processing. Recently he has made important contributions to the theory and technology of relational database systems. The Ingres database system grew out of his work at Berkeley.

To be placed on the mailing list for further LIDS and Center colloquium announcements, please contact Center headquarters, x3-2141.

Union Oil executive to give Lewis Lecture

Union Oil Co.'s chief executive officer, Fred L. Hartley, will deliver the 1987 Warren K. Lewis Lecture in Chemical Engineering at 3pm Friday, October 16, in Rm 66-110.

Mr. Hartley will discuss "American Technological Leadership in Crisis."

The distinguished lectureship honors the memory of Warren K. Lewis (1882-1975), the father of chemical engineering, who spent nearly all of his professional life at MIT.

Mr. Hartley is board chairman and CEO of Unocal Corp., Union Oil's parent, and board chairman of Unocal Canada Limited. He is a director of the American Petroleum Institute, the California Chamber of Commerce, Rockwell International, and Union Bank and Alliance to Save Energy. He is a trustee of the California Institute of Technology and the Committee for Economic Development and a member of the National Academy of Engineering, the National Petroleum Council, the Conference Board and the British-North American Committee. He was commissioner general of the U.S. exhibition at EXPO 86 in Vancouver and, as commissioner general, was accorded the rank of ambassador by President Reagan.

THE INSTITUTE CALENDAR

October 7-25

Events of Special Interest

Loving Lust for the Sex Enthusiast*—Dr Roger Libby, sexologist, Lecture Series Committee Lecture, Oct 21, 8pm, Kresge Auditorium. Tickets: \$1.50, on sale starting Oct 8, in Lobby 10, at LSC events and in Rm W20-469.

Seminars and Lectures

Wednesday, October 7

Switching by Symmetry Breaking: A Digital Optical Switch*—Y. Silberberg, Bell Communications Research, EECS/RLE Seminar on Optics and Quantum Electronics, 11-12pm, Rm 36-428.

Choosing a FORTRAN Compiler*—Bob Zaret, Information Services FORTRAN consultant, Information Services Seminar, 12-1pm, Rm 9-150. Comparisons and demos of compilers for both MS/PCDOS and Macintosh computers.

Mass, Heat and Nutrient Fluxes in the Subtropical North Atlantic*—Stephen Rintoul, WHOI/MIT, Dept of Earth, Atmospheric, and Planetary Sciences Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

Pin Power Reconstruction*—Ken Rempe, Dept of Nuclear Engineering Seminar, 3-4pm, Rm 24-213.

Application of Machine Intelligence to Signal Understanding*—Tom Goblick, Lincoln Labs, Dept of Electrical Engineering and Computer Science Digital Signal Processing Group Seminar, 4-5pm, Rm 36-428. Refreshments served, 3:45pm.

Radon-222 on a Forested Watershed*—Dave Genevoux, Ralph M. Parsons Laboratory Aquatic Sciences Seminar, 4pm, Rm 48-316.

Antarctic Ozone*—Prof Michael McElroy, Dept of Earth and Planetary Sciences, Harvard University, Dept of Earth, Atmospheric, and Planetary Sciences Conoco Lecture, 4-5pm, Rm 54-915.

Computer Graphics Research at NYU*—Ken Perlin, New York University, Media Lab Colloquium, 4:30pm, Rm E15-305.

Towards Intelligent Controllers*—Prof Karl Johan Astrom, Lund Institute of Technology, Lund, Sweden, Ctr for Intelligent Control System Colloquium, 5pm, Rm 34-101. Reception follows.

Confessions of an Editorial Cartoonist*—Mike Peters, Lecture Series Committee Lecture, 8pm, Kresge Auditorium. Tickets: \$2, on sale in Lobby 10, at LSC events and in Rm W20-469.

Thursday, October 8

Impact of Dietary Fat on Human Health*—Dr Robert S. Lees, MIT prof of Cardiovascular Diseases and director of Medical Research, Deaconess Hospital, The Fifteenth Annual Sea Grant Lecture, 8:45am, Kresge Auditorium. Free.

Macintosh Public Domain Software*—Becky Waring, co-director, BCS Mac Users Group, Information Services Seminar, 12-1pm, Rm 37-252. Demonstrates games, fonts, desk accessories, utilities and other free (or almost free) programs.

Deregulation Revisited: Safety and Economics*—Robert Reed Gray, general counsel, secretary and member Board of Governors, Flight Safety Foundation, Inc; Counsel, Winthrop, Stimson, Putnam and Roberts, Washington, DC, Flight Transportation Laboratory Seminar, 2-3:30pm, Rm 33-319.

An Overview of Methodologies for Intelligent Control*—Prof Anil Nerode, director, Mathematical Sciences Institute, Cornell University, Ctr for Intelligent Control Systems Seminar, 3-4pm, Harvard University Aiken 241.

Transport of Small Molecules through Rubber and Glassy Polymers: Models and Mechanisms*—Prof S.A. Stern, Dept of Chemical Engineering and Materials Science, Syracuse University, Program in Polymer Science and Technology Seminar, 3:30pm, Rm 12-142. Refreshments, 3:30pm.

Large-Scale Scheduling in Manufacturing Facilities*—Uday Karmarkar, Graduate School of Management, University of Rochester, Operations Research Ctr Seminar, 4pm, Rm E40-298. Coffee and cookies follow.

The History of Theories of the Origin of the Solar System 1905-1985*—Prof Stephen Brush, University of Maryland, Physics Colloquium, 4:15pm, Rm 10-250. Refreshments served, 3:45pm, Rm 26-110.

Processing Rules in Database Management*—Prof Eugene Wong, chairman, Dept of Electrical Engineering and Computer Sciences, University of California at Berkeley, Laboratory for Information and Decision Systems Colloquium, 5pm, Rm 9-150. Reception follows.

Friday, October 9

Lattice Dynamics and Spin Fluctuations in La₂CuO₄*—Prof Robert J. Birgeneau, MIT Dept of Physics, Center for Materials Science and Engineering Seminar, 12:15pm, Rm 12-132. Lunch served.

Women and the Honduran Peasant Movement*—Ms Elvia Alvarado, founder, Honduran Federation of Peasant Women (FEMUCH), Depts of Political Science/Urban Planning/Anthrop/Arch/Women's Studies/Foreign Languages and Literatures/Spanish Group/COCA Seminar, 1:30pm, Rm 1-236 (Spofford Rm).

Interactions Between Genetics and Engineering in Recombinant Mammalian Cell Structures: The SV40 System*—Nicholas G. Valkanas, Chemical Engineering Seminar, 2pm, Rm 66-110.

A Novel Fluorinated Siloxane-Nylon-6 Diblock Copolymer for Improved Mechanical Toughness*—Cary A. Veith, Chemical Engineering Seminar, 3pm, Rm 66-110.

Tuesday, October 13

Microsoft Word for the PC*—Maureen Doherty, Microsoft, Information Services Seminar, 12-1pm, Rm 9-150. Demonstrates advanced features of Word, including style sheets, outlining, and use of mouse and Windows.

Receptor-Mediated Fertilization in Mammals*—Dr. Paul Wasserman, Dept of Cell and Developmental Biology, Roche Institute, Biology Colloquium, 4:15pm, Rm 10-250. Coffee served, 3:45pm, outside Rm 10-250.

Wednesday, October 14

Waveform Measurement in High Speed Silicon Circuits Using a Picosecond Photoelectron Scanning Electron Microscope*—J.M. Halbout, IBM, EECS/RLE Seminar on Optics and Quantum Electronics, 11-12pm, Rm 36-428.

Microsoft Word 3.01 for the Mac*—Maureen Doherty, Microsoft, Information Services Seminar, 12-1pm, Rm 37-252. Demonstrates advanced features of Word 3.01, including style sheets, outlining, use of Switcher, and scientific fonts.

Rossby-Kelvin Instability*—Satoshi Sakai, MIT, Dept of Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

Computational Studies of Leading-Edge Vortices*—Earl Murman, MIT Dept of Aeronautics and Astronautics, Dept of Mathematics Numerical Analysis Seminar, 4pm, Rm 4-163. Refreshments served, 3:30pm, Rm 2-349.

Laser Light Scattering on Polynuclear Iron Complexes*—Hans-Walter Rich, Ralph M. Parsons Laboratory Aquatic Sciences Seminar, 4pm, Rm 48-316.

Adjoint Sensitivity Analysis of Radiation-Induced Corrosion*—Scott Simonson, Dept of Nuclear Engineering Reactor Engineering Section Doctoral Seminar, 4pm, Rm 24-121.

Geologic Exploration of Solar System*—Dr. Charles A. Wood, NASA, Houston, Texas, Dept of Earth, Atmospheric, and Planetary Sciences Conoco Lecture, 4-5pm, Rm 54-915.

Overview of AI Activities at SDR*—Dr. P. Mullarkey, Schlumberger-Doll Research Labs, Ridgefield, CT, Dept of Civil Engineering Intelligent Engineering Systems Labs Seminar, 4:15-5:15pm, Rm 1-350. Donuts & coffee served, 3:45pm. To meet the speaker, leave a message with Kruba, x3-8437.

The Identities of the Mona Lisa*—Lillian Schwartz, Media Lab Forum Lecture with Film and Video Examples, 4:30pm, Wiesner Bldg Bartos Theater.

An Overview of Japanese Material Research in University and Industrial Laboratories*—Prof Mildred Dresselhaus, Institute Professor of Electrical Engineering and Physics, MIT-Japan Science and Technology Program Seminar, 5:30pm, Rm 4-159.

Thursday, October 15

New Macintosh Machines*—Diane Dodge, Apple Computer, Information Services Seminar, 12-1pm, Rm 9-150. Demonstrating the Mac SE and the new Mac II, with its superb graphics, color, and sound. Hands-on tryouts, Microcomputer Center, Rm 11-209, 2-4pm.

Diffusion of Polymers in Random Media*—Prof M. Muthukumar, Polymer Science and Engineering, University of Massachusetts, Program in Polymer Science and Technology Seminar, 3:30pm, Rm 8-314. Refreshments, 3pm.

Research in Cellular and Lightweight Structural Sandwich Panels*—Prof Lorna Gibson, MIT Dept of Civil Engineering Seminar on the Role of Materials in Facility Design and Construction, 4pm, Rm 1-236. Refreshments served.

Expert Systems and Constraint Based Programming: New Representations for Problem Solving*—Tom Martin, Arthur D. Little Artificial Intelligence Group, Operations Research Ctr Seminar, 4pm, Rm E40-298. Coffee and cookies follow.

Computation, Measurement, Communication and Energy Dissipation*—Dr. Rolf Landauer, IBM-Thomas J. Watson Research Ctr, Physics Colloquium, 4:15pm, Rm 10-250. Refreshments served, 3:45pm, Rm 26-110.

Art and New Technologies: Two Multimedia Speculations*—Prof Barry Vercoe, MIT Experimental Music Studio; Prof Richard Leacock, MIT Film/Video Group, MIT Communications Forum Seminar, 4-6pm, Wiesner Bldg Bartos Theatre.

Friday, October 16

Effect of Metal Additives on Soot Formation*—Alan S. Feitelberg, Chemical Engineering Seminar, 2pm, Rm 66-110.

American Technological Leadership in Crisis*—Dr Fred Hartley, chief executive officer, Union Oil, W.K. Lewis Lecture, Chemical Engineering Seminar, 3pm, Rm 66-110.

The Benjamin Linder Peace Tour*—Dr. David Linder, Committee on Central America (COCA) Lecture, 3pm, Rm 10-250. Dr. Linder's son was killed by the Contras while working on a small hydroelectric project.

Infrared Surface Temperature Measurements on TFTR*—Dr. Michael Ulrickson, Princeton Plasma Physics Lab, Plasma Fusion Ctr Seminar, 4pm, Rm NW17-218.

Meta-Neuroanatomy: The Myth of the Unbounded Mind/Brain*—Prof Christopher Cherniak, University of Maryland, Philosophy Colloquium, 4pm, Rm 37-212.

Monday, October 19

Mathematical Models of Synchronous Programming: The Language SIGNAL and Its Applications*—Dr. Paul LeGuernic and Dr. Albert Benveniste, Inst de Recherche en Informatique et Systems Aleatoires, Rennes, France, Laboratory for Information and Decision Systems Seminar, 2-3pm, Rm 37-232.

Stall Flutter of Graphite Epoxy Wings with Bending-Torsion Coupling*—Peter Dunn, MIT, Dept of Aeronautics and Astronautics Seminar on Structures, Materials and Aeroelasticity, 3pm, Rm 33-206.

Gas-Liquid Circulation and Vertical Flows*—Prof Nigel Clark, Dept of Mechanical and Aerospace Engineering, Fluid Mechanics Seminar, 4-5pm, Rm 5-234.

Combinatorial Regularity*—Prof Egon Schulte, MIT, Dept of Mathematics Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments, 3:30pm, Rm 2-349.

Spacecraft Attitude Dynamics*—Prof P. Hughes, University of Toronto, Dept of Aeronautics and Astronautics Seminar on Guidance, Dynamics and Control, 4:15pm, Rm 33-206.

Tuesday, October 20

Progress in Tunable Ti:Al₂O₃ Lasers*—Antonio Sanchez, Lincoln Laboratory, George R. Harrison Spectroscopy Laboratory Seminar on Modern Optics and Spectroscopy, 11-12pm, Rm 37-252. Refreshments follow.

Beyond Word Processing: Using PC's for Russian*—Prof Slava Paperno, Cornell University, Information Services Seminar, 12-1pm, Rm 9-150. Demo of the Cornell Russian Support package, which includes word processing, database management, communications and computer-assisted language drills with on-line vocabulary help.

Performance-Directed Synthesis of Digital VLSI Circuits*—Jonathan Allen, MIT, VLSI Seminar, 4pm, Rm 34-101. Refreshments served, 3:30pm.

Quadratic Splines for Convective Free Surface Flows*—D. Nakos, Informal Hydrodynamic Seminar, 4pm, Rm 5-314.

Structural Studies of Muscle Contraction and Activation*—Dr. Hugh Huxley, Brandeis University, Biology Colloquium, 4:15pm, Rm 10-250. Coffee served, 3:45pm, outside Rm 10-250.



Photojournalist L. Barry Hetherington discovered all kinds of patterns as he emerged from the main entrance recently.

TBA*—Prof Peter Goldreich, California Institute of Technology, MIT Astrophysics Colloquium, 4:15pm, Rm 37-252. Refreshments served, 3:45pm.

Optical and Thermal Response of Laser-Tissue Interactions*—A.J. Welch, University of Texas-Austin, MIT Laser Biomedical Research Ctr/MGH Wellman Laboratories/Harvard-MIT Division of Health, Science and Technology Seminar, 5-6pm, Rm E25-111. Refreshments served, 4:30pm.

Puzzles Old and New: Some Historical Noters on Painstaking Pleasers*—Jerry Slocum, collector, MIT Museum Lecture, 7pm, MIT Museum. Free.

Wednesday, October 21

Research Challenges in Long Wavelength Diode Lasers*—D. Flanders, Lasertron, EECS/RLE Seminar on Optics and Quantum Electronics, 11-12pm, Rm 36-428.

CADD: An Update*—Ted Kelley of SofLink, Information Services Seminar, 12-1pm, Rm 37-252. Demonstrates Drawbase by SKOK, a state-of-the-art pc-based CADD system. Comparison to Autocad will be given.

The Use of Bilinearly Weighted Cross Sections for Few-Group Transport Analysis*—Myung Hyun Kim, Dept of Nuclear Engineering Seminar, 3-4pm, Rm 24-213.

Polynomial Approximation of Functions of Matrices, With Applications to the Solution of a General System of Linear Equations*—Hillel Tal-Ezer, Tel-Aviv and Brown Universities, Dept of Mathematics Numerical Analysis Seminar, 4pm, Rm 4-163. Refreshments served, 3:30pm, Rm 2-349.

Carbon Cycling in Sediments*—Ann McNichol, Ralph M. Parsons Laboratory Aquatic Sciences Seminar, 4pm, Rm 48-316.

Visualization of Mixed Convection Recirculating Flow in Rod Bundle*—Wilson Luangdilok, Dept of Nuclear Engineering Reactor Engineering Section Doctoral Seminar, 4pm, Rm 24-121.

Secondary Minerals in Tufts at Yucca, Mt., Nevada: Will They Immobilize Leakage from Stored Radioactive Waste?*—Prof Roger Burns, MIT Department of Earth, Atmospheric, and Planetary Sciences, Dept of Earth, Atmospheric, and Planetary Sciences Conoco Lecture, 4-5pm, Rm 54-915.

Overview of AI Activities at CDM Federal Programs Corp*—Dr. H. Horsey, R. Buehler, CDM Federal Programs Corp, Fairfax, VA, Dept of Civil Engineering Intelligent Engineering Systems Labs Seminar, 4:15-5:15pm, Rm 1-350. Donuts & coffee served, 3:45pm. To meet the speaker, leave a message with Kruba, x3-8437.

Learning and Memory in Drosophila Studied with Mutants*—William Quinn, MIT Dept of Brain and Cognitive Sciences, MIT Ctr for Cognitive Science Seminar, 7:30pm, Rm 34-401B. Commentary: Suzanne Corkin, MIT Dept of Brain and Cognitive Sciences.

Baba-Yaga in the Context of Early Indo-European Mythology*—Michael Shapiro, visiting scholar, Columbia University, Dept of Foreign Languages and Literature Lecture, 7:30pm, Rm 4-159.

Thursday, October 22

HyperCard on the Macintosh*—Diane Dodge, Apple Computer, Information Services Seminar, 12-1pm, Rm 10-105. Demonstrates a unique information environment for your Macintosh.

The Challenge of "Continuing Airworthiness" in International Aviation Operations*—Thomas P. Messier, director, Office of International Aviation, Federal Aviation Administration, Flight Transportation Laboratory Seminar, 2-3:30pm, Rm 33-319.

What is the Future for VSAT's: Is it Bypass or More?*—William Osborne, Comsat Technology Products; Bob Dunlap, Telecommunications Enterprises Inc; Terrence McCarty, NYNEX, MIT Communications Forum, 4-6pm, Wiesner Bldg Bartos Theatre.

Chaos in Chemistry*—Prof Fred Schneider, University of Wurzburg, Physics Colloquium, 4:15pm, Rm 10-250. Refreshments served, 3:45pm, Rm 26-110.

Friday, October 23

The Commercial Costs of Congestion*—Joseph Tranfo, vice president/public relations, United Parcel Service, Ctr for Transportation Studies Luncheon Seminar, 12:45-2pm, Rm 1-236. Optional luncheon, 12-12:45pm; \$2/students, \$4/non-students.

Algorithmic Sensors for the Monitoring of Fermentations and Cellular Metabolism*—Joseph J. Vallino, Chemical Engineering Seminar, 2pm, Rm 66-110.

Interphase Partitioning in Multi-Component Polymer Systems*—Prof Jebb Koberstein, University of Connecticut, Chemical Engineering Seminar, 3pm, Rm 66-110.

Effects of Gravitoinertial Force and Head Movements on the Vestibulo-Ocular Reflex*—Dr Paul DiZio, Ashton Graybiel Spatial Orientation Laboratory, Brandeis University, Dept of Aeronautics and Astronautics Man Vehicle Laboratory Seminar, 3-4pm, Rm 37-186, McNair Bldg. Coffee and discussion follow.

Films

Low Reynolds Number Flows and An Interview with G.I. Taylor*—Fluid Mechanics Films, Oct 8, 4-5pm, Rm 3-270.

Vorticity*—Fluid Mechanics Film, Oct 15, 4-5pm, Rm 3-270.

Fundamentals of Boundary Layers and Boundary Layer Control*—Fluid Mechanics Films, Oct 22, 4-5pm, Rm 3-270.

Community Meetings

Alcoholics Anonymous (AA)*—Meetings every Tues, 12-1pm, Rm E23-364. For info call Sarah, x3-4911. Also, Thurs, 12noon, Rm 24-110. Info: Joan, x3-1973.

AI-Anon*—Meetings every Fri, noon-1pm, Health Education Conference Rm E23-297. The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Call Sarah, x3-4911.

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

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

Overeaters Anonymous*—Meetings every Mon, 12-1pm, Rm E23-297. This is not a lunch time meeting, so please do not bring any food.

MIT Faculty Club*—The Club is open Mon-Fri. Luncheon hours: noon-2pm; dinner hours: 5:30-8pm. For dinner and private party reservations, call x3-4896, 9am-5pm daily.

VAX Systems Managers at MIT*—VAX Resource Ctr monthly meeting of MIT people who work with VAXes. The membership will discuss new products from DECWorld, Wed, Oct 7, 2-4pm, Rm E25-401. Contact: Shava Nerad, x3-7438.

MIT/BCS MicroVAX/VAX Users Group*—MIT VAX Resource Ctr/Boston Computer Society meeting with other users of MicroVAX, VAX Station and other computers. We speak VMS and UNIX/Unix, Thurs, Oct 8, 7pm, Rm 1-390. Contact: Shava Nerad, x3-7438.

Take Back the Night Meetings*—AWS/Profemina weekly meetings to plan a week of activities (Nov 2-16) to increase awareness of sexual assault against women, Mons, 5:30pm, Student Ctr W20-447.

International Cooking Demonstration*—Tech Community Women demonstration of East Indian Cuisine, Tues, Oct 20, 7:30pm, Rm 10-340. Contact: Kumud Kumar, 577-8824 or Ruth Harper, 449-5834. Newcomers welcome.

MIT Wives' Group: Morning Group, Oct 14—John Hancock Tower and Copley Square. Info: Kazuo Kikuchi, 641-1583 or Ryuko Sakai, 646-8741. Oct 21—Where's Boston & Quincy Market. Info: Sylvie Thibaud, 621-0748 or Tomoko Sato, 641-1704. Afternoon Group, Oct 7—How to Survive the American Supermarket: Local Foods, Supermarket Customs and the Package Labeling Daze—Janet van Ness, director, MIT Health Ed. Oct 14—Making Your Way Through the Medical Care System—Janet van Ness. Afternoon group meets 3-5pm, Walker Rm 50-220. Babysitting provided in Walker Rm 50-201. All women of the MIT community welcome.

Informal Embroidery Group—MIT Women's League Group meets Oct 14 & 28, Nov 25, Dec 9, Jan 13 & 27, Feb 10 & 24, March 9 & 23, April 13 & 27, May 11 & 25, June 8, 10:30-1:30pm, Rm 10-340.

Alumni Activities

Power Dinner: Food and Mood—Dr. Judith Wurtman, author and professor, MIT Clinical Research Ctr, MIT Club of Boston Dinner Presentation, Oct 13, 6:30pm, MIT Faculty Club. Paid reservations due by Oct 9 (\$18-20). Info: x3-8242.

What Makes DEC a Success?—Winston Hindel, Senior VP of Corporate Operations, MIT Club of Boston Luncheon Presentation, Weds, Oct 21, 12-2pm, Ramada Inn on Soldiers Field Rd. Paid reservations (\$12.50; \$15.50) due by Oct 13. Info: x3-8242.

MIT Activities Committee

MITAC, the MIT Activities Committee offers discount movie tickets for General Cinema, Showcase and Sack (USA Cinemas) Theaters (\$3 ea). Tickets are good 7 days a week, any performance.

Tickets may be purchased at MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm. Mon through Fri. Ticket are sold in Lobby 10 and E18 on Fridays 12-1pm. Lincoln Lab employees may purchase tickets in Rm A-263 from 1-2pm, Tues-Fri only. Check out our table of discounts for camping, dining, musical and cultural events available to you through MITAC.

Tickets are still available for:

Hayride and Country Dance at Silver Ranch. Sat, Oct 17. Leave West Garage, 9am; return approx 4pm. Cost: \$20.75/adults; \$18.75/children under 12.

Annual Pilgrimage to Fall River Discount Outlets. Sat, Oct 24. Leave West Garage, 8:30am; return approx 5:30pm. Tickets: \$8.50/pp.

A Weekend in Montreal. Nov 6-8. Explore the exotic flora at the Botanical Gardens; toast to an evening of merriment and frivolity at Old Munich (oompa-pa band and all); take an adventure on the smooth, clean Metro; feast on superb cuisine; discover the architectural artistry of "The Old City," and more! You're on your own for 3 days and 2 nights to explore all the nooks and crannies of Montreal. Depart from the West Garage Fri, Nov 6, 7am; return Sun, Nov 8, approx 6pm. Cost: \$85/pp/double occupancy only. Limit two (2) tickets/pp with an MIT ID. Ticket sales (for this event only) begin Thurs, Oct 8, 10am! Make your reservations in Rm. 20A-023.

Hay Fever. Thurs, Nov 12, 8pm, Lyric Stage. Become tangled in a comedic web of frolic and fanfare by Noel Coward: "Hilarious flirtations and romantic misunderstandings ensue when each member of a flamboyantly ultra-Bohemian family invites a guest for the weekend." A play that ignites the rambunctious spirit, and stirs the playful, amorous soul! Tkts: \$9/pp (reg \$10/pp), available in Rm 20A-023.

Ski Show. Thurs-Sun, Nov 12-15, Bayside Exposition Ctr. Unearth your favorite woollens from the cedar chest; rediscover the tasseled ski cap; wax your skis and get ready for this year's Ski Show. Everything from a \$4,000,000 Ski Market Sale; Ray-Ban Fashion Spectacular; Salute to the 1988 Olympic Games to a Ski Swap; Vermont Country Store; and the newest on boots, bindings, skis, etc. Get primed for that first run down those white slopes! Tkts: \$4/pp (reg \$5/pp), available in Rm 20A-023.

New York City Shopping Madness with Radio City Music Hall Christmas Show Option. Sat, Nov 21. Try on the perfect cashmere scarf at Saks; walk through fluorescent Times Square; rummage through sidewalk finds; take a carriage ride around Fifth Avenue, and just take in the whole kinetic pulse of the city. And, as a special holiday treat, MITAC is offering a limited number of Radio City Music Hall Christmas Show tickets for the Sat, Nov 21, 12:30pm performance, based on a first-come, first-served basis. Bus leaves West Garage, 7am sharp; returns approx 12am (midnight). Cost: \$18/pp—bus only; \$40/pp—bus and show (1 ticket). Make your reservations NOW in Rm 20A-023.

The Lion, the Witch, and the Wardrobe. Fri, Nov 27, 7pm, Boston Children's Theatre at New England Life Hall (Arlington stop on the Green line "T"). Don't miss an evening of adventure as "four incredible children enter the enchanted wardrobe to the land of Narnia"—filled with "forest creatures, kings, the White Witch, unicorns"—and more! Tkts: \$3.50/pp (reg \$4/pp), available in Rm 20A-023.

Christmas Steam Train Ride and Dinner in Essex, CT. Sat, Dec 5. Join Santa, Mrs. Claus, and the elves on board the Christmas train as we steam along the Connecticut River and enjoy the winter wonderland and holiday decorations. Back at the railroad station for hot beverages, gift shopping, or just keeping warm around the pot-bellied stove. Then off to the Dock at Saybrook for a hearty meal. Cost: \$27.50/adult; \$23.50/child (ages 2-11). Bus leaves West Garage at 10am; returns approx 7:30pm. Make reservations in Rm. 20A-023.

FYI II Tempt the palate with the savory aromas of Quaking Plum Pudding or Harvest pumpkin pie; watch the artistry of 19th century dances; participate in corn grinding, cider making, herb and spice crushing, and more during *Old Sturbridge Village's 1830's Thanksgiving, Nov 21-29*. Celebrate the tradition, feast, and festivity of the holiday! Call 1-347-3362 or 1-347-5383 for more info.

FYI III Put Your Thinking Caps On! If you have any suggestions for future MITAC events, we'd like to hear about them! Please don't hesitate to call x3-7990 with your ideas for recreational and cultural activities! Also, if you are interested in joining the MIT Activities Committee, call the MITAC office (x3-7990) for more info.

FYI III. Remember that old Rambler station wagon chok-ing, churning, rumbling its way down to the Southeast Expressway? Calm your automotive blues with a jaunt to the Auto Show, Oct 31-Nov 8, at the Bayside Expo Center. Dealerships from Ford, Chevy, Audi, Nissan, BMW, and more. \$1-off discount coupons for the show now available in MITAC. Reg \$6/pp; with the coupon, \$5/pp.

Council for the Arts Museum Passes. On campus, there are 10 passes employees may borrow for free admission to the Museum of Fine Arts. To check on availability, call x3-5651. At Lincoln Lab, passes are available in the Lincoln Lab Library, Rm A-150.

Museum of Science Tickets. Available for only \$1. Pay another \$1 at the door, for a total savings of \$3/pp/adult; \$1/pp/child (reg \$5/pp/adult; \$3/pp/child).

The Steamship Authority Discounts are here. Only \$6/pp (adult) round trip to Martha's Vineyard (reg \$7.50) and only \$13.60/pp (adult) round trip to Nantucket (reg \$17). Stop by Rm 20A-023 for more info.

The Greater Boston Books and City Books are coming! Look for them in mid-October.

Important! To avoid disappointment, purchase tickets and make reservations early as we are limited by ticket availability and transportation. All MITAC events and ticket purchases are non-refundable due to the non-profit nature of our organization.

Special Events

Halloween Party—Tech Community Women party, Sat, Oct 24, 8:30pm, Muddy Charles Pub (Rm 50-110). Open to TCW members & spouses/guests over 21. Cost: free/TCW members & spouse/guest; \$5/TCW membership fee for non-members; cash bar. Bring: an appetizer or munchies, board games optional, costumes/masks welcome. Pub policies governing private parties state that no admission will be charged and that only members may be admitted. Newcomers and other members of the MIT community are encouraged to attend. TCW memberships, open to any female MIT student/employee or female spouse of student/employee, available at the door for \$5. Contact: Kathy Maldegen, 577-1766 or Eri Kondo, 489-2230.

Movies

Children of Paradise—Lecture Series Committee Classic Movie, Fri, Oct 9, 6:30pm, Rm 10-250. Admission: \$1.50. MIT/Wellesley ID required.

ET: The Extraterrestrial—Lecture Series Committee movie, Fri, Oct 9, 7 & 10pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

An America Tail—Lecture Series Committee movie, Sat, Oct 10, 3, 7 & 9:30pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

And Now for Something Completely Different—Lecture Series Committee movie, Sun, Oct 11, 6:30 & 9pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

Les Diaboliques—European Club of MIT French Film Classic, Tues, Oct 13, 7:30pm, Rm 10-250. European Club members/\$1; non-members/\$1.50. Homemade refreshments available.

Ninotchka—Lecture Series Committee Classic Movie, Fri, Oct 16, 7:30pm, Rm 10-250. Admission: \$1.50. MIT/Wellesley ID required.

Amadeus—Lecture Series Committee movie, Fri, Oct 16, 6:30 & 10pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

The Living Daylights—Lecture Series Committee movie, Sat, Oct 17, 7 & 10pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

Tootsie—Lecture Series Committee movie, Sun, Oct 18, 6:30 & 9:30pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

Tillie's Punctured Romance—Lecture Series Committee Classic Movie, Fri, Oct 23, 7:30pm, Rm 10-250. Admission: \$1.50. MIT/Wellesley ID required.

Crimes of the Heart—Lecture Series Committee movie, Fri, Oct 23, 7 & 10pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

The Karate Kid: Part II—Lecture Series Committee movie, Sat, Oct 24, 7 & 10pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

Gallipoli—Lecture Series Committee movie, Sun, Oct 25, 6:30 & 9:30pm, Rm 26-100. Admission: \$1.50. MIT/Wellesley ID required.

Music

Guest Artist Series—Wolfgang Hofman, organ, Tues, Oct 6, 8pm, Kresge Auditorium. Free.

Thursday Noon Chapel Concert—Mannheim Quartet, Oct 8, 12:05pm, MIT Chapel.

MIT Women's Chorale—First Rehearsal, Thurs, Oct 8, 7:45pm Rm 10-340. All women of the MIT community welcome. Information: Jane Howard, 648-1936.

MIT Brass Ensemble—Richard Given, director, Fri, Oct 9, 12noon, Bldg 14 Sculpture Court. Bring your lunch. Free. Rain date Fri, Oct 16.

Thursday Noon Chapel Concert—Muratore/Hughes Duo, guitar and voice Spanish music, Oct 15, 12:05pm, MIT Chapel.

Composers in Recital Series—William Albright, organ, piano, harpsichord, Sat, Oct 17, 4pm lecture; 8pm recital, MIT Chapel. Admission: \$8/general; \$4/MIT students. Includes performance of "Sphaera," work for piano and tape commissioned by the Experimental Music Studio.

Thursday Noon Chapel Concert—New Arts Winds, Thurs, Oct 22, 12:05pm, MIT Chapel.

MIT Faculty Series—Rose Mary Harbison, violin and John Harbison, piano, Fri, Oct 23, 8pm, Kresge Auditorium. Free.

MIT Symphony Orchestra—David Epstein, director; Carlos Prieto, cello performs Dvorak Cello Concerto, Sat, Oct 24, 8:30pm, Kresge Auditorium. Tickets \$1 at the door.

Theater

An Evening of One-Act Plays—MIT Dramashop student-directed performances, Oct 8-10, 8pm, Kresge Little Theatre. Critique and coffee hour follows performances. Info: x3-2877. Free.

Dance

A Concert of New Dance and Music—Beth Soll and Company and Elizabeth Vercoe, Boston composer, MIT Council for the Arts/Dance Projects Inc/MIT Dance Workshop/Dean School of Humanities and Social Sciences Program featuring the world premiere of "Persona", Oct 16-17, 8pm, Kresge Auditorium. Tickets: \$10/general; \$5/students & seniors; \$5/MIT ID available at Bostix or Ticketron outlets and at the door. Info: x3-0862 or 547-8771.

MIT Dance Workshop—Regular meetings: Beginning Technique, Mon/Wed 3-5pm, Dupont's T-Club Lounge; Comp/Improv, Tues 3-5pm, Dupont's T-Club Lounge; Intermediate Technique, Tues/Thur 5:30-7pm, Walker 201.

MIT Dance Club—Mon: Aerobics, 6:30pm, Jazz I, 7:30pm, Dance Studio; Weds: Aerobics, 8pm, Jazz I, 9pm, T-Club Lounge. Cost: \$3/class-MIT; \$4/class non-MIT. Info: Julia, 492-1369 eves.

MIT Folk Dance Club—weekly dancing-Sun, International Dancing, 7:30pm, Student Center Sala de Puerto Rico; Tues, Balkan and Western European Dancing, 7:30pm, Rm 407 Student Center; Wed, Israeli Dancing, 7:30pm Sala de Puerto Rico.

Yoga—ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 5:15pm; Intermediates: Mon, 6:15pm. For information call Eii Turchinetz, 862-2613.

Exhibits

LIST VISUAL ARTS CENTER

Terry Winters: Schema. Seventy-five small drawings in graphite and watercolor which present a laboratory, a compendium, of this New York-based contemporary artist's favorite motifs: cells, sacs, crystals, embryos, caught in a state of flux and transformation. Through Nov 29. **Jenny Holzer: Signs.** The first traveling museum exhibition of this contemporary American artist, noted for her provocative writings utilizing a variety of media, including electronic signs, granite benches, and bronze and aluminum plaques. Also, unannounced works on public electronic signs throughout the Boston area, Oct 8 through Nov 15. **Peter Fischli/David Weiss.** Film and photographs by Swiss duo, engaged in an ongoing collaborative quest, both comic and melancholic, for moments of order within the chaos of reality. Oct 9 through Nov 15.

THE MIT MUSEUM

MIT Museum Bldg—Puzzles Old and New. The largest, most diverse collection of puzzles ever assembled for public exhibition documents the evolution of puzzles from ancient to modern times, from Chinese rings and magic squares to Rubik's Cube. Eight oversized puzzles for hands-on experiences. Opening reception—Oct 20, 5-7pm. Oct 21 through Jan 2, 1988. **Water Poon, Evelyn Hui, Xiang Ming Zeng.** Paintings in contemporary and traditional styles and photographs by Chinese artists. Sponsored by the Hong Kong Student Society and the MIT Chinese Students Club, Through Jan 2, 1988. **1988 Wildlife Photography Exhibition.** 30 captivating prize-winning photos from an international competition sponsored by BBC Wildlife Magazine, the Fauna and Flora Preservation Society and the Natural History Museum, London. Through Jan 30, 1988. **Holography Studies.** Changing exhibit of a variety of hologram types and applications, sponsored by the MIT Media Laboratory SpXial Imaging Group, ongoing. **Light Sculptures** by Bill Parker, MIT '74. Changeable, touchable plasma sculptures by the artist who developed this medium. Ongoing. Hours: Tues-Fri 9am-5pm, Saturdays 10-4pm. MIT Museum closed to the public on Mondays; open 12-4pm Sat-Sun; \$2 donation requested.

Compton Gallery—Inner Spaces: New Macrolens Abstractions. Spectacular color photographs of flowers by Vernon Ingram, MIT professor of biology. Through Oct 31. Gallery hours: Weekdays 9am-5pm, closed Saturdays.

Hart Nautical Gallery

Ongoing exhibits: George Owen '94: Yacht Designer—Line drawings and half-models designed by one of the early professors of naval architecture at MIT. **MIT Seagrant—A** review of MIT ocean research; **Half Models in Naval Architecture and Ship Building—**Half-models, ship drawings and photographs illustrate how the half model has aided ship and yacht designers and builders.

Edgerton's Strobe Alley—Exhibits of high speed photography. Main corridor, 4th floor.

Corridor Exhibits

Corridor Exhibits: Building 1 & 5, 2nd floor: John Ripley Freeman Lobby, Building 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. Building 6: **Laboratory for Physical Chemistry.**

OTHER EXHIBITS

Institute Archives and Special Collections—1904-05: A Pivotal Year for MIT. A display of sentiment in opposition to a merger with Harvard—President Henry Smith Pritchett's proposed solution to Tech's financial problems—is presented in two parts: *The Students and The Alumni.* Hall exhibit cases in 14N, 1st floor.

Jazz Musicians: Photographs of Jazz Musicians in Performance by Reaz Haque—Rotch Visual Collections Exhibit, through Oct 9, Rm 7-304. Hours: 9am-6pm.

Wellesley Events

Jewett Arts Center—Susan Schmidt: **Site Drawings,** Recent works by Boston artist Susan Schmidt recreate the repetition and complexity of machinery and built structures in contemporary space, through Oct 18. **Sculptor and Architect: A Collaboration.** Sculptor Michael Singer and Boston architect Michael McKinnell collaborate on the design and planning of a site and work for the Wellesley College campus, Oct 17 through Jan 3, 1988.

Rape and the Rise of the Novel—Prof Francis Daly Fergusson '65, University of California-Berkeley and author of *Wordsworth: Language as Counter-Culture,* Lecture, Wed, Oct 7, 8pm, 105 Pendleton West.

Jazz Concert—Paul Barringer, piano; Alan Dawson, drums, and John Lockwood, bass, Thurs, Oct 8, 8pm, Jewett.

Nicaragua—Mary Holden, assistant to the chaplain, Central American Concern Committee Lecture, Thurs, Oct 8, 7:30pm, Slater House.

Legacies: On the Air and in the Classroom—Elizabeth Pleck, visiting research scholar, Wellesley College Ctr for Research on Women, Lunchtime Seminar, Oct 8, 12:30-1:30pm, Cheever House.

A Spectacular View of the Advent of Printing—John Dreyfus, typographical advisor, Cambridge University Press and the Monotype Corp; author, *A History of the Nonesuch Press,* American Printing History Association/Friends of the Wellesley College Library Lecture, Thurs, Oct 15, 7pm, Margaret Clapp Library Lecture Rm.

Life After Work: Women's Retirement—Ruth Harriet Jacobs, visiting research scholar, Wellesley College Ctr for Research on Women, Lecture, Thurs, Oct 15, 12:30-1:30pm, Cheever House.

Wellesley College Choir Concert—Instrumental and vocal works of Bach, Brahms, Mendelssohn and others, Sun, Oct 18, 4:30pm, Houghton Memorial Chapel.

Guatemala—Beatrice Mantz, professor of anthropology, Central American Concerns Committee Lecture, Sun, Oct 18, 7:30pm, Margaret Clapp Library Lecture Rm.

Death Scenes: The Theatricality of Apparently Natural Occurrences in the Victorian Life Cycle—Prof Nina Auerbach, University of Pennsylvania, Lecture, Mon, Oct 19, 4:15pm, Margaret Clapp Library Lecture Rm.

Obituaries

Two students die

Two MIT students died last weekend in separate incidents which are being investigated by county medical examiners.

The body of Jeffrey W. Liebman, 22, a senior in mechanical engineering, was found Friday night, Oct. 2, hanging in his bedroom at 10 Magazine St., Cambridge, where he lived. He was found by a friend with whom he shared the apartment. Cambridge police notified Campus Police of the incident about 8pm. Mr. Liebman was from Walden, N.Y. The Middlesex County medical examiner is investigating.

On Saturday, Oct. 3, at about 8:15pm, Kent D. Anderson, a graduate student in Course 6, fell from the sixth- or seventh-level balcony inside the Hyatt Regency Hotel, Cambridge, to the floor of Jonah's, a restaurant. Mr. Anderson, whose 24th birthday occurred on the day of his fall, died about two hours later in surgery at Massachusetts General Hospital, police said. He lived at Ashdown. Mr. Anderson was from Duluth, Minn. The Suffolk County medical examiner is investigating.

Daniel M. Hooley

Daniel M. Hooley, 83, of Arlington, a retired senior clerk at Lincoln Laboratory, died September 5. He worked at Lincoln from 1961 until his retirement in 1970. He is survived by a daughter, Eileen Heffernan.

Everett Aho

Services were held in the Carlisle Congregational Church for Everett Aho, 71, of Bedford, who died September 22. Mr. Aho was an engineering assistant at Lincoln Laboratory from 1954 until his retirement in 1983.

He leaves his wife, Tyne Peterson; a daughter, Susanne Lundin of Hopkinton, R.I.; a son, Stephen D. Aho of Bedford, and a granddaughter. Memorial contributions may be made to the church.

John Worsencroft

Word has been received of the September 13 death of John Worsencroft, a retired heating and ventilation mechanic at Lincoln Laboratory. A resident of Beverly, he was 66, and had retired in 1985 after 25 years. He leaves a widow, Barbara.

Joseph Bleiler

Joseph Bleiler, 68, of Watertown, a retired supervisor at Lincoln Laboratory, died September 24. He had worked at Lincoln from 1951 until his retirement in 1985.

Survivors include his widow, Ethlyn and a son, Stephen.

The Business of Business—Cathy Cote, vice president of manufacturing, Prime Computer; Karen MacKenzie, office manager, CimTelligent; Susan Macksey, promotions coordinator, Allen and Unwin; Lisa B. Martin, director of marketing/sales, Jazz Boat Associates, Career Panel, Wed, Oct 21, 7pm. Info/location, call 235-0320 x2352.

The Other Bottom Line in Business: Ethics—James Burke, chairman, CEO, Johnson & Johnson, Alumnae Association Ethical Issues Lecture, Thurs, Oct 22, 4:15pm, Houghton Memorial Chapel.

Social Change in the Nursing Profession in India—Geeta Somjee, visiting research scholar, Wellesley College Ctr for Research on Women, Luncheon Seminar, Thurs, Oct 22, 12:30-1:30pm, Cheever House.

Lark Quartet Concert—New York-based string quartet performs works of Beethoven, Britten and Dvorak, Sun, Oct 25, 8pm, Jewett Arts Ctr.

Piece Together—Chamber opera for women's voices and piano, performed in place of sermon during regular scheduled worship, Sun, Oct 25, 11:15am, Houghton Memorial Chapel.

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.

MIT Cable System—Submit announcement in writing to Rm 9-050. We prefer a day's warning, but faster action may be possible. Useful also for correcting errors, notifying about cancellations, and dealing with emergencies. If you have met the Tech Talk deadline, your announcement is automatically put on cable (except for exhibits and some multi-meetings programs).

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

Send notices for Wednesday, October 21 through Sunday, November 1, to Calendar Editor Rm 5-111, before 5pm, Thursday, October 15.

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 telephones, 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. MIT-owned equipment may be disposed of through the Property Office, x3-2776.

Early Deadline: 5pm Thursday before publication.

For Sale

Walnut dbl drsr, 8 drwr, 17-1/2x11x30", \$250; walnut nit stand, top drwr w/cbnt dr, 17-1/2x18x25-1/2", \$80; wh bkshlvs, 36x8x27", \$20. Call 547-3119 eves.

HP Vectra PC 256K RAM, 2 disc drv, mntr, sftwr & accessories, \$2,200 or bst. Call 682-8345 eves.

Rowing erg, elec resistnc, cal/time readout, \$600 new, askg \$300. Bernadette, x3765/3808 Linc.

2 br nw snw trs, Eagle GT mts, 215/65/R15, \$175 or bst. Kathy Wade, x7711 Linc.

Full-sz, dbl bed mtrsr, \$10. Marty, x2846 Linc.

K-sz wrtbrd cmplt, inc hdbrd, \$200; bike handlebar pack, nryl nw, \$20. Steve, 641-0900 eves.

Bang & Olufsen 7700 sys, cass, trntbl, amp & tunr, askg \$1,000. Call 494-1709.

Sofa bed, \$65; flr lmp, \$18; 10-spd L's Raleigh bike, \$55; ping pong tbl w/paddls, \$50; cfee tbl, 22x53x15-1/2, \$65; Knoll sidebrd, 6'2", pd \$900, \$200; trnk, \$10; AM/FM/cass stereo, 2 spkrs, \$45; framd pix & postrs, \$25; brwn quilted bedspread, nw \$10; misc cheap furn, console tbl, \$5; suitcases, \$5. Call 332-8251.

Glf clubs, Wilson Signature, 3-9 irns, pitchng wedge, sand wedge, puttr, 1,3,5,7 wds, askg \$150. Dave, x3-2385 or 183-338 Bates.

Roche-Bobois flr cushn/sofa, 4 cushns, 3' sq, removbl backs, deep rst colr, orig \$2,000, gd cond, \$300 or bst. Call x7702 Linc.

Twin bed w/hdbrd, old but gd, \$20; sewng chr, \$5; reclnr w/wrn seat & arms, \$10. Claire, x3-2292 or 267-5734.

Encycl Brit, '75, 30 vols, like nw, orig \$1,250, mst sell, \$450. Call 411-1531.

Nikon camra sys, inc 6 lenses & mny accessrs, will sell only as a cmplt sys, serious inquiries only, \$2,500. Tom, x4212 Linc or 245-9187 eves/wkends.

Firewd, oak, pine, mapl, approx 2 cords, \$50 or bst; 100' snw fence & posts, usd, gd cond, \$10; old ham radio, National mdl NR173, mfg 1947, bst offr. Bill, x8-2968 Draper or 944-7307 aftr 5pm.

7-pce sectnl LR set, br nw, still has tags on it, bge, askg \$1,400. Call 528-2413 eves.

2 BSO tix, Thurs, 12/9, 8pm, Strauss *Elektra*, orch seats, \$38 (subscrpt rate). Joanne, x3-5810.

35mm Ricoh, 6 mos old, exc cond, askg \$175. Jeannie, x3-2650.

19" Toshiba prtbl colr tv, gd cond, oldr set gets grt VHF recptn, gd UHF, \$100 or bst. Mitch, x3-17830 or 876-6319.

Hafner DH200 pwr amp, \$250; Hafner DH110 preamp w/xtrnl Marcot PPA2 preamp, \$300; Sony ST-J5K tunr, \$170; Kinetic Audio Labyrinth spkrs, mint cond, orig pckng; Minolta X-1 bdy, \$150. Haim, x3-5934 or 494-0184.

Wden drifting tbl: velum cvr w/oak constrctn, hvy mtl angular cntrl, 48x38, askg \$175; drifting chr w/bck, dk tan w/castrs, \$50. Sabina, x3-6244.

IBM PC/XT, 640K, ser, par, 5.25" & 3.5" floppies, 10 MB HD, Sigma colr 400, Princeton SR-12 colr mntr, Hayes 1200B modm, mouse 8087, pwr conditnr, DOX 3.3, othr accessors, all for \$2,200. Oren, x3-8022.

W's sz 14 coats: blk 100% wool coat w/fur collar, orig \$350, wrn only a few times; gr/blk fake fur coat; raincoat w/lining; olive colrd wool-blnd coat; bst offr for any or all. Call 926-2317.

Yamaha orgn, mdl 115, auto rhythm sectn & fun blcks, begnrr's mnl & 60 orgn pces, nw cond, \$850. Susan, x7500 Linc or 651-0643.

Nw Framework Molecular mdls kit, \$12; tbl lmp, \$5. Lisa, x3-6357 or 354-3989.

Kenmore 30" gas range, continous clineg ovrn, wh enamel top, \$95; dk wd bkahlf, 79"hx59"wx7"d, perf for paprbacks, \$35. Call x3-2866 or 527-9228.

19" RCA XL-100 colr tv, w/ant & cabl connctr, \$100 or bst; M's fig akts, sz 8, \$35 or bst; M's hcky akts, sz 9, \$45. Andrew, 625-4472.

Pr of Ohm F spkrs discontinued, fantstc sound, walnt finsh, exc cond, \$800; rcvr hi pwr, 400W, Pioneer SX 1250, exc cond, \$350. Call x3-5302 or 899-5678 eves/wkends.

17" Sony Trinitron colr tv, gd cond, \$90. Jack, x8-1604 Draper.

Drop leaf tbl, dk wd finsh, exc cond, \$35. Call 566-5873.

RT airline tckt to anywhere on Piedmont Airlines (inc W coast), gd til 12/17, (excl 11/24, 25, 28-30), \$250 or bst. Catherine, 494-8925 lv msg.

Btfl antq mahog DR tbl, 42" w w/1 leaf, \$300. Call x3-5611 11-3 or 876-5516 all othr times.

Roland cube 40 watt keybrd/guitr amp, sm sz, gd practice amp, still nw, \$180. Call x3-2796 or 484-3903 eves.

Dbl bed, mtl frm, mtrsr, box spr, gd cond, 1-1/2 yr old, orig \$173. Keiko, x3-5740 or 787-2854.

Vehicles

'66 Chevy Nova, 66K, 4-dr, auto, 6 cyl, 1 fmly, always grgd, \$2,500. Call x3-6601 or 944-6743 eves.

'66 Ford Mustang fctbk 2+2, red w/blk int, 289, 3-spd, fld-dwn rear seat, console, 4 nw rads on fctry GT whls, nw: rad, strtr, alt, batt, cltch parts, brks (inc whl cylndrs), fendrs, rear qtr panls, frnt & rear valenca, bmpsr, lites & all nw chrome, mtr rns v strng, bdy cmpltly restrd, appraisd \$6,900. sac for \$5,600. Tom, x814-470 Linc or 692-7746 eves.

'69 Plymouth Valiant, auto, 4-dr, no rst, rns gd, nw rad trs, \$950 or bst. Call 662-6938 eves.

'71 VW Campr, orig ownr, all srvc rcrds avlbl, rns well, some rst, bst offr. Aney, x3-3416 or 625-3506 lv msg.

'73 Chevy Malibu for parts, rcntly in accidnt, eng rns perf, mny nw parts inc stl beltd rad trs, only had 78K on it. Call x3-5115 or 492-5143 eves.

'76 Toyota Celica GT, 5-spd, AM/FM, silvr/gr, GT trim, gd cond, 66K, nw Michelin trs, nw exh sys, nw brks, cmplt srvc rcrd, well-maint, \$800 or bst. R. Lee, x3-7265 or 235-0983.

'76 Pontiac Catalina, a/c, AM/FM, 86K, bl, \$600 or bst. Ed, x5-9520 dorm.

'76 Datsun B210, 2-dr, 4-spd, shift, 95K, eng & bdy in gd cond, mst sell now, askg \$200. Jin, 862-1695.

'76 Vega Travel Trailr, 28', htr, stv, fridge, toilet, \$5,200 nego. Call x3-7059.

'76 Dodge Tradesman Window van, slant 6 eng, 60K, 5 seats, pltrfm bed, grt vac vehicle, \$900. Call 731-0498.

'77 VW Rabbit, 110K, exc cond, rebld & pwrfl eng, rns grt, AM/FM stereo, mved from CA last yr, \$750, pref delivry on 10/30. Shiro, x3-0251 or 923-0912 at 8pm.

'77 Ford Granada, exc mech cond, 51K orig, askg \$995 or bst. Donna, x3-2889 or 322-3341 6-8pm.

'77 Honda Civic, red, exc cond, mny nw prts, entire nw brks, nw rst, no oil-burn, AM/FM/cass stereo, 4 nw trs, \$1,100 or bst. Call 731-3920.

'77 Toyota Corona wgn, 103K, nw cltch, brks, fendrs, gd mech cond, nds bdy wrk for rst, grt grad stndt trnsprtn, \$700. Bob, x3-5597 or 964-2160.

'77 Honda Accord, 43K, orig ownr, nw brks & exh, \$700. Jim, x3-8540.

'78 Mazda GLC htchbck, 79K, rns gd, some bdy rst, AM/FM, \$600 or bst. Glenn, x3-7347.

'78 Chevy Monza htchbck, 6 cyl, auto, a/c, AM/FM/cass, 55K, exc cond, \$950. Bill, 494-5264.

'78 Toyota Corona, dk gr, hi mi, v gd cond in & out, 4-dr, rns gd, nds muff, frnt brks, \$500 or bst. Dave, x5716 Millstone or Joan, 452-5323.

'79 VW Rabbit, 120K, auto, some rst, nw shcks, trs, exh & othr prts, \$700. Malcolm, x3-5948 or 923-9547.

'79 AMC Spirit, 2-dr, auto, nw brks, exh, wtr pump, crmt stckr, \$875. Jon, x8-4871 Draper or 937-5528 aftr 6pm.

'79 Chevette, 4-dr htchbck, 88K, 4-spd mnl, studded snw trs on rims, orig ownr, in Needham, \$650. Paul, x8-3370 Draper.

'79 VW Scirocco, 4-spd, a/c, Alpine stereo, hi mi, mny nw prts, ovrral v gd cond, nds nothing, \$1,300 or bst. Buck, x3-3185 or 749-4138 eves.

'79 Subaru sta wgn, 4WD, 4-spd, a/c, AM/FM/cass, rad trs, only 87K, grt eng for wnter, rst on rt fendr, \$900 or bst. Call 492-4830.

'79 BMW 320i Luxus, frm GA in Aug, no rst, 2 ownrs, sunrf, alloys, Blaupunkt cass, srvc log, orig paint, immac cond, \$5,950. Call x3-2048 or 1-934-6782 eves.

'79 Toyota Corolla, mint cond, 63K, orig ownr, 2-dr, 5-spd, mnl, FM, xtra rad snw trs, \$1,200. Call x3-2386 M-Th aftrnoons or 492-4252 eves/wkends.

'79 Ford Granada, 62K, gd eng & bdy, nw exh sys, ribl, \$1,100 or bst. Dick, x3-7202.

'82 Honda Civic, lt bl, exc bdy & mech cond, nw trs & brks, 38-40mpg, askg \$1,800. Call 632-6725.

'82 Honda V45 Sabre, 750cc mtrcycl, mech sound & v strng, br nw rear tr, batt & brks all arnd, wtr coold, \$300 (4 into 1) Kercker exh sys, 2 Bell helmets, mnl & tools, lckng sys, \$950 or bst. Mario, x8-4715 Draper or 324-3516 aftr 5pm.

'83 Nissan Sentra, 4-dr wgn, wh, 53K, 1 ownr, std, AM/FM, nw cltch, brks & shcks, \$2,800. Call 522-0937 eves/wkends.

'84 Ford Bronco XLT, 4-whl drv, exc cond, 37K, auto, stereo, Chapman, mny xtras, \$9,900 or bst. Bill, x4799 Linc or 245-8111.

'85 Ford Escort, wh, std, exc cond, 20K, \$4,250 or bst. Trish, x3-5322.

'85 Mitsubishi Tredia, 4-dr sdn, 5-spd, 30K, AM/FM/tape, 4 spkrs, exc cond, \$4,300. Call 731-8094.

Housing

Lexington, MIT facilty hm, for rnt 1/1/88-6/30/88, contmpry styl, w/grg, wded lot, all appliances, piano, hi-fi, etc, exc schools, \$1,250/mo. Call 862-9462.

Rm for rnt, fully furn, own tv & fridge, ktchn privlgs, wshr/dryr, off-st prkg or grg, nr public trnsprtn. Call x3-2534 or 648-7425.

Peabody, Ledgewood, immac lrg 1BR pnthse condo, priv, pool, \$139,000 or bst. Call x3-2169 or 535-4480.

Belmont sublet, mid 1/88-6/88, furn 3BR apt, 1-1/2, LR, lrg attic, \$1,100/mo+ util. Marui, 484-6163.

Lrg furn contmpry 3BR, 3b, LR, DR, lrg ktchn, 2 frpics, dck, 2-car grg, nr 128 in Bedford, \$1,650/mo+ util or bst. avlbl 1/88 for 5-7 mo. Alan, x3-2356 or 275-4477.

Brighton, off Market St, sunny 2BR apt, hdwd flrs, lrg LR & DR, D/D ktchn w/nw fridge, quiet st nr evrythng, \$750/mo unhtd. Anna, x8-1704 Draper or 566-0027 eves.

Watertown nr Camb, Belmont, 2BR condo w/feel of a hse, lrg yrd, grdns, patio, lrg sunny LR, DR, updatd ktchn, oak flrs, gumwd trim, \$175,000. JoAnne, x3-7157 or 924-7292.



Diving head coach Dave Michaels works with Betsy Pillsbury, a paraplegic who learned scuba diving in Alumni Pool. —Photo by Donna Coveney

Disabled learn scuba in pool

The MIT swimming pool is usually peopled by strong young swimmers in training or others doing laps to keep themselves fit. On Thursday nights, however, the scene is different.

On those nights in the fall and spring, handicapped men and women from a club called Moray Wheels come to the pool to learn how to scuba dive in what is one of the few sports available to them.

"The handicapped are equal to us in the water," explained David Michael, MIT's diving coach and one of the volunteer instructors in the program from its inception. "The equalizer is the fact that water buoys them up as it does an able-bodied person, creating weightlessness in effect and eliminating gravity as a factor."

Only about half of the club members are handicapped. "That's because a disabled person needs the support of an able-bodied person to get to and from the water," Michael explained. The disabled include paraplegics, quadraplegics, amputees and blind persons.

Once in the water, Michael told the Daily Item of Lynn, which did a feature story on the program, "a paraplegic can take care of himself very nicely... and some quadraplegics can as well."

Though some handicapped swimmers don't have the power to propel themselves through the water that able-bodied divers do, they can adapt, he said.

"A person can be very skilled, and/or very much at home in the water without being a good swimmer," he explained.

Michael became involved in the club through one of its cofounders, Rusty Murray of Nahant, a former MIT employee, whom he had taught to scuba dive.

Spacious condo, 3-1/2BR, eat-in ktchn, prch, prkg avlbl, 1475 s.f., nr prks, schools, Coolidge Corner, Brookline, \$207,000. Call 734-6968.

Wanted

Rainbow hrd disk cntrlr brd RCD51-BA or BB. China, x3-2705.

Used stereo spkrs in gd cond, rsnbl price. J.D. Schaefer, x5-8259 dorm or x3-3261 for msg.

2-3BR hse/apt, Camb & suburbs, for prof visting Sloan School, 1/48-6/30/89. Judy Hoer, x3-3490.

Slightly disabd prsn nds ride frm Bldg 45 to Shawmut Sta area (Dorchester), Tues or Thurs pm, will pay for gas. Marian, x3-1757 Tues & Thurs or 288-8379 othr days.

Bike, nw or old. Erik, x3-3496 or 354-7111.

Miscellaneous

Prkg space avlbl nr Central Sq, \$90/mo. Robert, x3-1899.

Free fridge if your move my nw 1 frm the bamnt to the 1st flr. Ann, x3-4007 or 646-9281.

Orinoco River VZ adventure, early Dec, 3 W 35+ sk 1-3 more for lo-cost holiday. Cora, x8-5233 Whitehead.

Forrtn or time-share on MIT account: MicroVax II wrk statn w/71 MB disk RAM, 13MB physical memry, 2 floppy drvs, 1 TK50 mag tape drv, 19" hi-res mono display, BA123 world box, LA100 line prntr. Dave Wilson, x3-5121.

Surplus Property

The Property Office has this excess MIT equipment for transfer within MIT. Unless noted, items are at the Equipment Exchange, 224 Albany St., open Tues & Thurs 11am-3pm. After 30 days, items are sold to individuals. Where noted, bids and offers go to Earl C. Fuller, Institute Property Officer, E19-429, x3-2779, with envelope so marked. Always reference case number on the envelope. MIT reserves the right to reject any and all bids.

He said the disabled participate in the scuba program both for pleasure and to become certified divers. While they learn at MIT and at the giant ocean tank of the New England Aquarium, they do their diving either in tropical waters or on Boston's north shore.

MIT makes the pool available through its community outreach program. Michael, officially, is an associate professor of physical education. In addition to giving diving instruction, he teaches all levels of swimming classes, coaches the ski-team and runs the intra-mural program.

He stresses that all the scuba diving instructors in the Moray Wheels program—there are more than a dozen—are volunteers.

"They do it for the love of sport and out of caring for people who are disabled," he said.

Michael added this: Anyone in the Institute family is welcome to join us, either as a student or a helper."

—Charles H. Ball

Goody Prize offered

Applications for the Marvin E. Goody Prize, a \$5,000 award for a graduate thesis in the building arts, are available in the Graduate School Office, Rm 3-134.

The aims of the award are to extend the horizons of existing building techniques and use of materials, to encourage links between the academic world and the building industry and to increase appreciation of the bond between good design and good building. The award is given to a graduate student preparing a thesis for the SM, MARCH or MCP degree to be completed not later than September 1988.

The Prize was established by Joan E. Goody, as a memorial to Marvin E. Goody, an MIT alumnus and faculty member. It is administered by a committee consisting of Dean John P. de Monchaux of the School of Architecture and Planning, Professor David H. Marks, head of the Department of Civil Engineering, Professor Frank E. Perkins, dean of the Graduate School, and William R. Dickson, senior vice president of MIT.

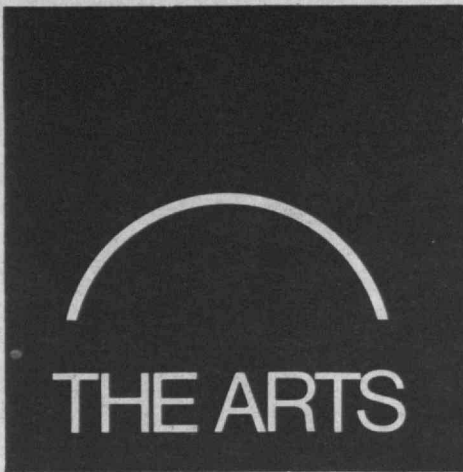
Application forms and further information are available from Jackie Sciacca in the Graduate School Office. Deadline for application is Friday, Dec. 18, with the winner to be announced Monday, Jan. 11, 1988.

Mona Lisa program

"The Identities of the Mona Lisa" will be the subject of the first lecture in The Media Lab Forum on Wednesday, October 14, at 4:30pm in the Wiesner Building's Bartos Theater.

The speaker, Lillian Schwartz, is widely known for her work in graphics, film, video, animation and special effects. Using film and video examples of her work, she will describe her recent research identifying the model immortalized in Leonardo da Vinci's "Mona Lisa."

The Media Lab Forum, sponsored by MIT's Media Laboratory, will offer a series of talks on the media arts and sciences. Admission is free and open to the public.



List Center Invites You

An artist who puts her work on the electronic signs at ballparks... two Swiss artists who made a film with styrofoam cups, a tea kettle and sugar cubes as "characters."

These are the people whose work will be seen in two exhibitions opening with a reception Friday, October 9, 5-7pm in the List Visual Arts Center of the Wiesner Building.

The first, Jenny Holzer of New York, is a "language artist," creating her works as posters, t-shirts, furniture, billboards, plaques and electronic message boards. Ten of her electronic signs will be in the List Center and other works will show up around the MIT campus.

Her language work will also be seen in Filene's Basement and other seemingly unlikely places in the Greater Boston area.

"This reflects our idea that art questions all aspects of life; it doesn't just hang on a wall," said Katy Kline, curator of the List Center.

The film referred to above, a half-hour long and running continuously during gallery hours, is from Swiss collaborative team Peter Fischli and David Weiss, who will also have 30 photographs on display.

In their film, *Der Lauf der Dinge* (*The Way Things Go*), household objects begin rolling, melting, dripping, steaming and toppling to create a series of dramatic tension-filled temporary crises and resolutions. This film was received with considerable enthusiasm in European circles and is being introduced to US audiences with this project.

Holzer's works are created as anonymous statements to be seen and considered by passersby... when least expected. Works of the Swiss artists, based in Zurich, have been described as representing their quest—comic and melancholic—for moments of order within the chaos of reality.

What does this mean?

The specialists at the List Center hope that students and all other MIT people will go over to find out for themselves.

Addressing the matter of connecting the art of our time to the people of our time, Theodore F. Wolff, a longtime art writer for the Christian Science Monitor, wrote:

Art, after all, isn't a game played by a few for themselves with the public permitted to watch at a worshipful distance, but the individual and collective expression of humankind. It is created by men and women to serve humanity's purposes, and its heart, soul, and very reason for being are tied up with human needs, values, aspirations, dreams, realities, and ideals.

About Fischli and Weiss, Ms. Kline has written: "They conjure up provisional arrangements which defy both gravity and logic in a paradoxical attempt to better understand the world. Their work pushes the mundane to the point of magic... they elevate the mildest moments to the poignancy of poetry."

Ms. Holzer and at least one of the Swiss team will be present at the Friday reception. She will give a slide talk on her own work and that of other socially committed artists who work in public spaces, Tuesday, October 27, 7pm in the Bartos Theater on the lower level of the Wiesner Building.

Also at the List, until November 29, is "Terry Winters: Schema," a series of 75 drawings based in part on natural phenomena and motifs, companion to an exhibition of Winters' paintings at the Museum of Fine Arts, Boston. "Jenny Holzer: Signs" and "Peter Fischli/David Weiss" will be in place until November 15.

Catalogues accompany all three exhibitions and are available at the gallery desk. Admission is free. Weekdays: 12-6, weekends 1-5. 3-4680.

—China Altman

MIT's Composers in Recital Series will feature William Albright in a moveable concert of music for organ, piano and harpsichord, occurring both in the MIT Chapel and The Cube of the Wiesner Building, Saturday, October 17, at 8pm.

The program will begin in the Chapel with organ works of Bach, Albright and Handy. At intermission, the performer and the audience will move across campus to The Cube, MIT's Experimental Media Facility. This second half will present harpsichord works by Albright including the Boston premiere of his *Four Fancies* for Harpsichord and a performance of *Sphaera*, a piano and four-channel computer-generated tape piece commissioned in 1985 by MIT's Experimental Music Studio.

As a composer Albright is best known for his keyboard works. He will present a free lecture, "Composing for the Eighties: *Sphaera* and other keyboard works," on the same date as the concert, 4pm in the MIT Chapel.

Admission to the concert is \$8, \$4 to MIT Students with I.D. If available, tickets will be sold at the door one hour before the performance. For series subscription and other information: 3-2906. The Composers in Recital Series is being recorded by WGBH-FM for later broadcast.

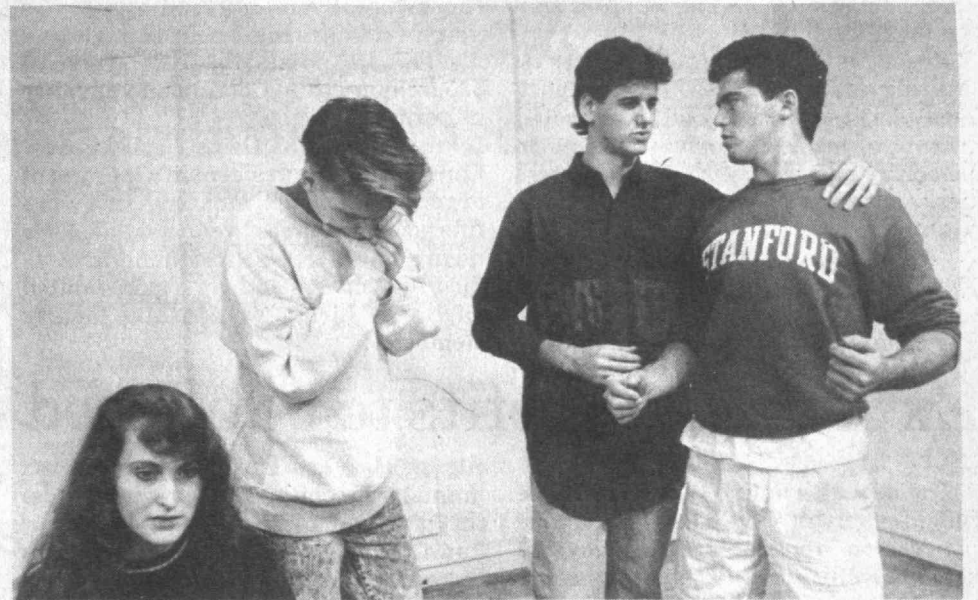
Acclaimed by classical and jazz audiences alike, Albright specializes in concerts of new music for organ and piano. A superb organist and pianist, he has premiered more than 30 new works written by American and European composers.

At the Albright concert, you will be able to hear new music from familiar instruments alone and in combination with computer-generated tape. About such opportunities, critic John Rockwell made the following give-it-a-chance appeal in the New York Times:



Composer William Albright.

Electronic instruments are simply that—instruments... they will be used by composers as all instruments have been used in the past. We must observe music as clearly as we can, and make judgments based on our own ears and our experience... If we stick to the music and work hard to see patterns as they really are, and not as someone else tells us they are, then we may find ourselves more in tune with the future than might otherwise be possible."



Students in rehearsal for the year's first "Evening of One Acts," in Kresge's Little Theater, October 8-10. Actors Alice Paquette '89, Per-Gunnar Ostby '89, Hank Nowak '88 and graduate student Jim Harrison are preparing for Pinter's *The Collection*. To be followed by a critique, cider, coffee and cookies. Free.

—Photo by L. Barry Hetherington

Beth Soll Dances At Kresge

Beth Soll and Company and Boston composer Elizabeth Vercoe will present a concert of new dance and music featuring the world premiere of "Persona" and three repertory works: Beth Soll's "JumpShout" and "Still Light" and Elizabeth Vercoe's "Herstory III: Jehanne de Lorraine," Friday and Saturday, October 16-17, in Kresge Auditorium.

Admission: \$10, \$5 seniors/MIT ID's. Tickets are available at Bostix, all Ticketron outlets and at the door. Information: 3-2877 or 547-8771.

Beth Soll has a reputation as New England's leading innovator in dance. In addition to directing her company, she is a lecturer and director of the Dance Workshop at MIT. During the last three years, Ms. Soll has had teaching and performing engagements in Paris, Budapest and Edinburgh, Scotland.

"Persona," with original music score composed by Ms. Vercoe, is a trio based on a solo that Soll originally made and performed in Paris in the Spring of 1986. Live music will be performed by Boston pianist Vivian Taylor; costumes and set are by French artist Anne Saussois.

"JumpShout" (1987), for six dancers, is performed to the music of the Black South African group, Malombo. Malombo's polyrhythmic structure sets the tone for an optimistic dance which has been described by Christine Temin of the Boston Globe as a dance of "innocent exuberance."

"Still Light" (1985) includes a Soll solo influenced by early modern dancers Isadora Duncan and Mary Wigman, as well as a quartet. Ms. Temin said: "It is intensely theatrical, with the four women... striking poses suggesting the most melodramatic moments of religious rituals... 'Still Light' is a mature and mysterious piece."

Elizabeth Vercoe's "Herstory III: Jehanne de Lorraine" features singer Sharon Mabry who records on the Owl label, and pianist Rosemary Platt, a familiar figure in the women's music movement and a recognized authority in the field. Vercoe's music has been performed widely in Europe. She has received awards in international competitions and her music is recorded on Northeastern and Coronet records.



An example of the art of Jenny Holzer, whose major exhibition opens at MIT's List Visual Arts Center this Friday, October 9, 5-7pm, on the main entry floor of the Wiesner Building (E15). Students and all members of the community are invited. The work above was installed in Candlestick Park, San Francisco, earlier this year. Watch for her signs and plaques around the campus in places where you would least expect them.

Affirmative action on faculty 'not satisfactory,' Gray says

(continued from page 1)

ties, Arts and Social Sciences, and in Architecture and Planning.

The number of under-represented minorities increased, from 1980 to 1987, in engineering and in the Sloan School.

The faculty percentage of under-represented minorities as of March 31 was 1.8 percent (17 of 964). Since April 1, the faculty rate of hiring of under-represented minorities was 3.4 percent (one of 29 faculty members hired in that period).

The current number (October 1) of under-represented minorities is 18, 15 of whom are black.

87 Women faculty

The situation for women faculty is more heartening by comparison but still unsatisfactory, Dr. Gray said. The number of women faculty has increased from 16 in 1971, to 71 in 1980, to 87 last spring.

Since 1980, the number of women faculty has increased in the Sloan School; in the School of Science, and the School of Engineering. In Humanities, Arts and Social Sciences, the number of women is the same in 1987 as in 1980. However, five women faculty in Brain and Cognitive Sciences, who formerly were part of HASS, now report to the associate provost and vice president for research. In Architecture and Planning, the number of women is the same in 1987 as in 1980.

The faculty percentage of women as of March 31 was nine percent (87 of 964). Since April 1, the faculty rate of hiring women was 24 percent (7 of 29).

The current number of women on the faculty is 94.

Referring to affirmative action on both minorities and women, Dr. Gray said, "I don't mean to suggest with these numbers that there haven't been some encouraging actions taken." He said the appointments of seven blacks to postdoctoral instructorships is an encouraging sign for the future.

President Gray said that minority recruiting was successful when the department head gave the matter personal attention, made extensive contacts in person by telephone with other universities, and tailored the recruiting accordingly.

"An important issue is, what are the size of the pools?" said Dr. Gray. The small size of the pools is a measure of a "national failure," he said.

"But saying the pool is too small is not sufficient for MIT. We have always regarded ourselves as being able to fish better than other universities, whatever the size of the pool. . . We can do better," he said.

"Most of us have failed. I include in that the president, the provost, the deans. Not all, but most. . . I put myself in the list of folk who have not persuaded others that we are serious."

Dr. Gray said MIT could take little comfort in the fact that other major universities have similar records, or the fact that the science and engineering emphasis at MIT means that the faculty pools of minorities and women are smaller than in the liberal arts universities.

Regarding other research universities, Dr. Gray said "I know none which have done a lot better" than MIT. He acknowledged that MIT loses "some of our best junior women faculty to other institutions" and mentioned the use of visiting professorships as a way of bringing new talent to MIT.

President Gray said the low number of minority doctoral candidates was a continuing problem, with industry recruiting potential doctoral candidates before MIT can get them into a PhD track. He said some other universities were offering graduate students greater incentives than MIT was offering.

Professor Tunney Lee, head of the Department of Urban Studies and Planning, cited the success the department had had in recruiting minorities through full fellowships. "It's going to cost more money. It's not just jawboning. Putting money up front does work."

Mary Rowe, special assistant to the president and adjunct professor of management, said Columbia University had recently announced a program to forgive the debts of minority undergraduates going on to graduate school at Columbia. This was possible because of a recent \$25 million gift to Columbia to advance minority education.

Provost John M. Deutch, speaking for himself and the president in a meeting of department heads Monday, said that financial resources were available for hiring under-represented minorities as faculty members and, on a more limited basis, for hiring women and faculty members.

Expanded benefits to be offered

(continued from page 1)

The new alternative Blue Cross/Blue Shield plan will have a \$350 deductible per person applicable to all covered expenses which will be paid by the employee. Once the deductible is paid, the employee will pay 20 percent of covered expenses until the employee's yearly out-of-pocket payments—including the deductible, but not premiums—reach \$1,000 per person or \$2,000 per family. At that point the plan will pay all additional covered expenses. Because of the \$350 comprehensive deductible and the required copayments, employee premiums for the new Blue Cross/Blue Shield plan will be less than half of the premiums for the current plan.

The alternative Blue Cross/Blue Shield plan was offered because of "the dramatic increases in Blue Cross/Blue Shield costs experienced this year and projected for 1988," Mr. Simonides said. Premiums for the four HMOs offered by MIT also will go up next year, but the increases are "substantially less than Blue Cross/Blue Shield."

Edward W. Powers, a full-time consultant at MIT for the benefits review, explained that the six health plans available to MIT employees "provide choices ranging from low cost, first-dollar coverage through quality HMOs, to two indemnity (Blue Cross/Blue Shield) plans which offer more choice of providers but higher premiums or copayments." Still more options in these and other programs are likely to be available a year from now in January 1989, Mr. Powers said.

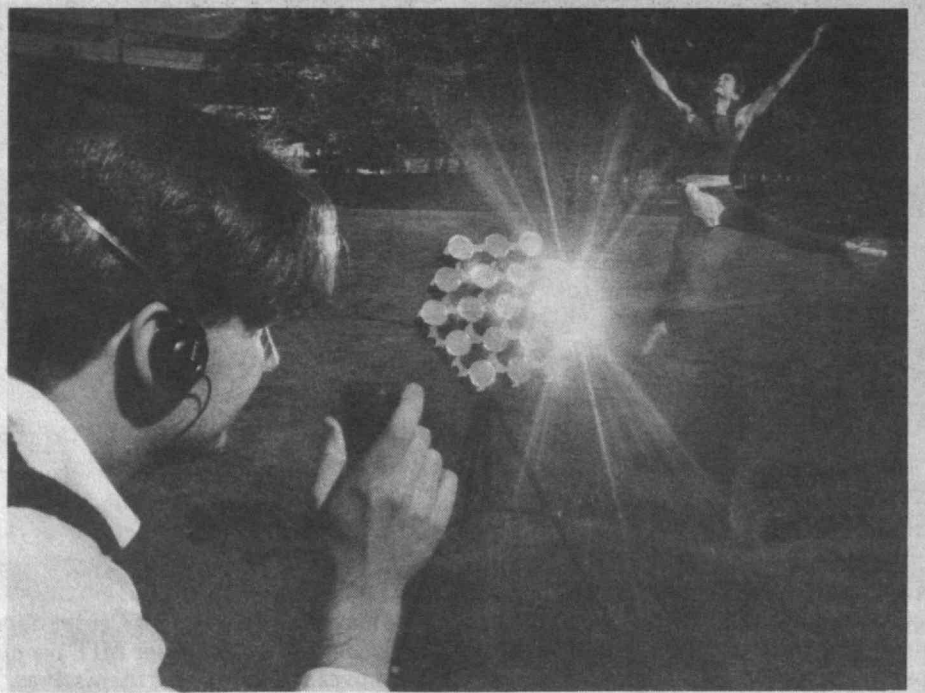
Mr. Powers, formerly associate general counsel for employee relations and bene-

fits at Harvard University, is project manager for the strategic review, under the direction of Director of Personnel Joan F. Rice and Vice President Simonides, who is also a member of the review Steering Committee.

Other steering committee members are Professor James D. Bruce, vice president, Information Systems; Deputy Treasurer Allan S. Bufferd; Professor Sallie W. Chisholm, associate chair of the Faculty; James J. Culliton, vice president for financial operations; Professor Kenneth A. Smith, associate provost and vice president for research, and Glenn P. Strehle, vice president and treasurer.

Ad hoc teams of project staff include representatives from personnel, financial operations, treasurer's office, medical, and other administrative areas. The initial focus of the review has been on the larger benefit programs, such as life and health insurance, and those that require more extensive study, such as the Institute's retirement plans.

Participation in the new benefit plans for employees represented by a union is subject to collective bargaining.



CAVS graduate students Shawn Brixes and Laura Knott recently recreated Sky Chasm a collaborative multi-media installation/performance they presented this summer at documenta 8, a festival in Kastle, West Germany.

—Photo by Donna Coveney

Morrison to host 'Ring of Truth'

(continued from page 1)

maybe not always to catch it. We followed with a light heart a winding path through ancient history into the present, to meet scientists and craftsmen, athletes and scholars, to travel our own country and overseas, to encounter striking finds on wild cliffs or at the kitchen sink, in a laser lab or among rainbows from the stars. We invite you to come along, to ponder and test for yourself all you will see and hear."

Professor Morrison has been at MIT since 1964, having joined the permanent faculty in 1965. His career in science and science teaching has been extraordinarily varied and productive. Early a polio victim, as a five year-old boy living in 1920s Pittsburgh he became an avid radio ham and electronics tinkerer. But instead of becoming a radio engineer as originally intended, he graduated from Carnegie Institute of Technology with a degree in physics. In graduate school at Berkeley he studied under J. Robert Oppenheimer.

Working on the Manhattan Project at Los Alamos, Dr. Morrison was involved in an extremely hazardous aspect of bomb development that killed two of his colleagues: experimentally measuring the amount of nuclear material required for criticality. He was one of two "gadget engineers" appointed to handle final design details and to transport the nuclear

cores to the Trinity test site and later to Tinian Island for the raids on Japan. Since then, Dr. Morrison, like many of his colleagues, has worked for the control of nuclear weapons with a fervor equal to that of his Los Alamos years.

In the mid-1950s, Dr. Morrison and his colleagues began a quest to understand the origins of cosmic rays. Along the way, he and Giuseppe Cocconi fastened on the possibility that some form of radiation could be used by civilizations to communicate across a galaxy. In 1959, they published an historic paper in *Nature* that spawned the present worldwide search for extraterrestrial intelligence (SETI) via radio-telescopes that explore the microwave region of the electromagnetic spectrum. Since then, Dr. Morrison has been a steady advocate of SETI efforts that now include searches that scan simultaneously millions of channels of the microwave spectrum.

In recent years, his wife Phyllis, a teacher of science and art, has been his collaborator as an author, as a disarmament advocate, and on the forthcoming television series. Once a year they review about 50 children's books for *Scientific American*. In 1980, with four Boston area colleagues, they published *The Price of Defense: A New Strategy for Military Spending*. Their book of images illustrating the scale of the universe, *Powers of Ten*, was published in 1982. Coinciding with the broadcast of *The Ring of Truth*, Random House will publish an extravagantly illustrated companion volume with the same title, written by Philip and Phyllis Morrison.

The major funder for *The Ring of Truth* series is Polaroid Corporation, which is celebrating its 50th anniversary this year. Other contributors are the Corporation for Public Broadcasting, Public Television Stations, the National Science Foundation, the Carnegie Corporation of New York and the Arthur Vining Davis Foundation. The series' executive producer, Michael Ambrosino, is the originator of the acclaimed NOVA and Odyssey programs and founder of his own production company in 1976, Public Broadcasting Associates, the organization that produced *The Ring of Truth*.

Perhaps the best reasons to tune in the series—even if you think you know all there is to know about atoms and the hidden universe—are the words of Professor Morrison's colleagues in science and writing. Fellow MIT Professor Victor Weisskopf: "Scientific knowledge and understanding is not a purely cerebral affair; it is soaked with emotions, excitement and nervous tension, as everybody knows who has heard Philip Morrison talk." And from Carl Sagan: "The people who attend his lectures never forget them."

Dates to note

The 1988 benefits open enrollment period will be from November 2-December 4, Kerry B. Wilson, assistant director of personnel for compensation, has announced. Enrollment kits will be mailed by the end of October and a series of meetings will take place in November. Important open enrollment events include:

October 21: An insert will be included in Tech Talk featuring details about the enrollment period and benefits changes.

October 30: A detailed description of 1988 benefits choices will be enclosed with paychecks.

November 1: An enrollment kit—including forms and instructions—will be mailed to employees at work.

November 5-19: Enrollment meetings will take place at various locations across campus.

Meeting schedules will be published in the October 21 issue of Tech Talk and in the October 30 payroll stuffer and will indicate meetings at which Blue Cross/Blue Shield, HMO, and life insurance representatives will be present to answer questions about the health and benefits plans.

December 4: Deadline for 1988 health, dental, supplemental life insurance and FRAP elections.

December 15: Deadline for changing the taxability of 1988 RPSM contributions.