



Early deadline

Because of the Labor Day holiday September 4, the deadline for inserting listings in the Institute Calendar, Notices and Classified Ads will be **noon Thursday, August 31.**

LIS deadline

Friday, Sept. 1, is the deadline for fall-term registration for the Lowell Institute School. Applications and catalogs are available in Rm E32-105 or by calling x3-4895.

TAP briefings

The Benefits Office will conduct information meetings and staff information booths to provide an opportunity for benefits eligible members of the MIT community to learn about the Tuition Assistance Plan and to have their questions about the plan answered by members of the Benefits Office Staff.

The meetings will be held in the Bush Room (10-105). Each meeting will begin with a brief presentation about the plan and will be followed by a question and answer session. The meetings will be held on Thursday, Aug. 31, 12:15-1:00pm and 1:15-2pm and on Tuesday, Sept. 5, 1-1:45pm.

The information booths will be set up on Wednesday, Sept. 6, 10am-noon in the Building E25 Atrium, and on Tuesday, Sept. 12, 11am-1pm in Lobby 10.

Arts grants

The Grants Program of the Council for the Arts at MIT is accepting applications for the first of its four deadlines during the 1989-90 academic year on Friday, Sept. 22.

The Grants Program has been established to promote cultural activity at the Institute by providing financial and administrative support to arts projects in all disciplines. All members of the MIT community are encouraged to submit proposals. Remaining deadline dates for 1988-89 are: November 13, February 14 and April 11.

Application forms and guideline brochures are available at the Office of the Arts (E15-205, Wiesner Building), or call Mark Palmgren, the program officer, for more information, x3-4003.

TT is back

Effective with this issue, Tech Talk returns to a regular weekly schedule.

Upcoming Holidays

Following are recognized Institute holidays and the dates on which they will be observed for the next few months.

Labor Day — Monday, September 4; Columbus Day — Monday, October 9; Veteran's Day — Friday, November 10; Thanksgiving Day — Thursday, November 23; Christmas Day — Monday, December 25; New Year's Day — Monday, January 1.

Magnetic boost looms for neural research

By **EUGENE F. MALLOVE**
Staff Writer

You may not know that there are at least four ways to make your toe twitch: Simply *will it* and let your nervous system work its course; *implant* current-carrying electrodes in the brain or along the nerve path to the toe; stimulate that same area of the brain or nerve path through *external* electrodes on the skin; or stimulate that area with a pulsed external magnet.

Of the three artificial methods, the magnetic approach is the only one which is both noninvasive and painless. An intense magnetic field applied for a fraction of a second from outside the body induces a small electrical current in the underlying

nerve tissue, which then cascades to a full-blown neurological reflex—twitching a toe or thumb, for example. Since its advent in the mid-1980s, magnetic stimulation has proved to be an exquisite tool for neurological diagnosis and research.

When a new MIT project comes to fruition, more precisely focused magnetic stimulation of the brain and nerve paths will likely become an even keener tool on the frontiers of clinical neurology and brain research. Researchers at MIT's Francis Bitter National Magnet Laboratory, led by principal investigator Dr. David Cohen, recently received from the National Institutes of Health a three-year, \$683 thousand grant to develop a highly focused magnetic stimulator.

Within six months, Dr. Cohen estimates, the Laboratory will have a prototype device more focused than any yet made, and working at an intensity sufficient to stimulate the nervous system. The more focused the stimulator, the stronger the magnetic field must be. The magnetic field concentrated for a few hundred millionths of a second will be very strong, at a level of about 17 Tesla or about 340,000 times that of the ambient field at Earth's surface.

The technology of stimulating human nerves with magnetic fields dates back to 1985 when British researchers first announced successful trials of their type of instrument. According to Dr. Cohen, these researchers found to their surprise that magnetic stimulation produced "no real pain, only a dull thumping sensation," a negligible effect compared with the pain that is experienced in the external electrical shock approach. In 1984, Dr. Cohen had reported but had not reduced to practice the idea of a more focused and painless magnetic stimulator.

Today there are a handful of companies that make magnetic stimulators, but as
(continued on page 7)



Above, members of the MIT Musical Theatre Guild gleefully deliver into Kresge the character/plant they leased from a professional theater supplier so they can make a full-scale production of *Little Shop of Horrors*. It's the story of young, insecure Seymour Krelborn (Burriss Jackes '90), who is lured by a talking plant (Voice: Rick Buellesbach '90, Puppeteer: Douglas Stetson '90), and by his love of the beautiful, abused Audrey (Susan Elia W'91) into "doing bloody, awful, evil things." Plant deliverers are, l to r, Lola Matysiak '91, Doug Stetson '90, Anne Orio, Michael Friedhoff '90, making his directorial debut with *Little Shop*, Rick Buellesbach '90, and graduate student Bob DeVivo. *Little Shop* started as an off-Broadway production in the early 80's. The music, by Alan Menken, is a mixture of Motown, funk and Broadway styles, with a great deal of close harmony and Sondheim-esque musical dialogues. The script, by Howard Ashman, pokes fun at most of American culture, mixing early 60's stereotypes with urban squalor, Motown, Faust, and lots of dark humor. Performances Aug. 25, 26, 27, Sept. 1, 2, 3, 7, 8, 9, in Kresge Little Theatre. Reserved seating, admission: \$8 general, \$7 faculty/staff, \$6 students/senior citizens, \$5 MIT students. Information x3-6294.

—Photo by L. Barry Hetherington

MIT joins new football conference

Formation of the Eastern Collegiate Football Conference, a five team charter member NCAA Division III Conference which will begin play in September, has been announced by Royce Flippin, director of athletics at MIT.

Assumption, Bentley, Stonehill and Western New England Colleges and MIT are the Conference charter members. Merrimack College will decide this fall if it wants to join the league for the 1990 season. The conference consists solely of private colleges in New England. Discussions are being held with other independent Division III football institutions in regard to conference expansion in the future. Professor Flippin will serve as the first commissioner of the conference.

During the first year there will be no conference standings because the teams

play differing numbers of games. Individual and team statistics will be compiled and published weekly, according to Roger Crosley, MIT sports information director, who will be publicity director for the new conference.

MIT will begin conference play September 23 with a 2pm home game against Stonehill. Other games against conference opponents will be at home against Western New England September 30 at 1pm; at Stonehill October 14 at 1:30pm; at home against Assumption October 28 at 2pm, and at home against Bentley November 4 at 1pm.

Non-conference games will be at home against UMass Boston October 7 at 1pm; at Siena College October 21 at 1:30pm, and at WPI November 11 at 1:30pm.

—Roger F. Crosley

Class of 1993 is biggest since '89

This year's freshman class, due on campus tomorrow, will have about 50 more people than last year's, according to Elizabeth S. Johnson, associate director of admissions.

For the last three years the Institute has admitted slightly fewer undergraduates than usual because the number of people who enrolled in 1985 was high, provoking a housing crunch. Now that those students have graduated the number of people admitted to this year's incoming class was increased. "We're back to the pre-1986 level," Ms. Johnson said.

All in all, 1,061 freshmen are expected to register this year. According to Michael C. Behnke, director of admissions, 33 percent graduated in the top one percent of their high school class; 85 percent in the top five percent. A total of 2,018 persons were admitted out of 6,695 applicants.

The class of 1993 represents all the states and 39 foreign countries. Thirty-three percent are women, 16 percent are underrepresented minorities (blacks, Mexican-Americans, Puerto Ricans, native Americans, other Hispanic Americans) and 24 percent are Asian Americans.

New traffic fees, fines announced

Campus Police have announced an increase in parking-violation fines and an end to the practice of only warning on-campus speeders.

Effective October 1, the following fine structure will be implemented: Overtime parking, no permit for the area, parking in an area not marked for parking—\$10. Blocking roadway, driveway, entrance or crosswalk; parking in a no-parking zone; parking or driving on a sidewalk or lawn—\$15. Blocking fire lane or hydrant, parking in a reserved space—\$20. Blocking loading zone or dumpster, parking in area reserved for the handicapped, blocking wheelchair ramp, driving to endanger, speeding—\$25. The changes have the approval of the Committee for Transportation and Parking.

(continued on page 7)

INSTITUTE NOTICES

•--Open to public
 ••--Open to MIT Community only
 •••--Open to members only

Announcements

International Open House Volunteers Needed**--Medical Dept/Dean's Office Event, Wed, Sept 6, 9:30-5pm, Rm 10-105. Info: x3-1614.

International Open House**--Medical Dept/Dean's Office Event to welcome international students, staff, faculty and their families, Sept 6, 9:30-5pm, Rm 10-105. **Evening with MIT Faculty**--Wed Sept 6, 7:30-9pm, Rm 10-105. Chaired by Prof/Associate Provost Samuel J. Keyser, with Profs Charles L. Cooney, Isabelle deCourtivron, Alvin Drake, Frank E. Perkins and Frank Solomon.

Hosts to International Students Program--MIT Women's League program to host foreign students coming to MIT for the first time. Provide a welcome, occasional hospitality and friendship. All financial and academic problems handled by specific MIT offices. Info/volunteer forms: Kate Baty, 861-6725 or Pam Daveta, x3-3656.

MIT Language Conversation Exchange**--Medical Dept program to assist members of the MIT community to practice a language with a native speaker. Applications accepted throughout the year. To exchange English or another language and be matched with someone with your interests, call the secretary of the Language Conversation Exchange, x3-1614.

MIT Student Furniture Exchange**--MIT Women's League store, Tues/Th, 10am-2pm, 25 Windsor St (N52), x3-4293.

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

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

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

Club Notes

MIT Radio Society and UHF Repeater Association Monthly Ham Exams**--All classes, Novice to Extra, Sept 20, Oct 18, Nov 22, Dec 20, Rm 1-150. Reservations requested 2 days in advance. Contact Nick Altenbernd, 437-0320. Exam fee: \$4.50. Bring copy of current licence (if any), 2 forms of picture ID and completed form 610 available from FCC, Quincy, MA, 770-0423.

MIT/DL Bridge Club**--Duplicate bridge, Tues, 6:30pm, Student Ctr Rm 407. ACBL masterpoints awarded; come with or without partner, newcomers always welcome. Handicap game, 3rd Tues every month. Info call Gary Schwartz, x8-2459 Draper, or Mark Dulcey, 247-2300. Admission for regular games: \$1/students, \$2/non-students.

MIT Student Bridge Club**--Duplicate games Mon, Thurs, Sat and Sun and teams following 7:30pm, usually at Student Ctr (see posters). Lessons, 7pm, if required. Refreshments. Info: Bo-Yin, x5-9865 dorm or David, x5-7522 dorm.

MIT Go Club**--Meets every Wed, 5-7pm, Rm 24-612 (ESG Lounge). Info: John Cox, x3-7887 evcs.

MIT Entrepreneur's Club**--Regular meetings, Tues, 6pm, Rm 66-144. Club members present new ideas; support source for undergraduates with business interests. Info: Doug Ling, x3-0757 or Richard Shyduroff, 876-2271.

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: x8-5126.

Hunger Action Group**--Meets Tues, 7pm, Baker Master Suite Lounge. Volunteers at soup kitchens, Boston

Food Bank; sponsors forums, films addressing hunger- and development-related issues. Contact Susmitha, x5-8528 dorm or Irene, x5-8492 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 evcs/messages.

Club Latino at MIT**--Student organization to promote exchange of cultural backgrounds between members of the MIT Hispanic community and other MIT affiliates. Info: Miguel Velez, x3-5958 or e-mail latinos@athena.mit.edu.

MIT Outing Club**--Camping, cycling, climbing, canoeing, cabins. Meets 1st Mon of month, 6pm, W20-461. Rental hours, M/Th, 5-6pm, W20-461. Also, see our bulletin board in "Infinite Corridor" next to Athena. Info: Dave Campbell, x5-9623 dorm.

MIT Soaring Association**--Weekend Soaring--Learn the exciting 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: \$175; typical flight: \$16. Contact: Cathy Keller, x0814 Linc or 327-3193 evcs.

MIT Sport Parachute Club**--Learn to skydive: experienced jumpers go out every weekend; beginners, call for information on our first jump courses. AFF and Static-line. Carl, 225-0408.

MIT Nautical Association**--Sailing Pavilion on Charles River open every day, 9am-sunset. Sailing, windsurfing and coastal cruising. Free basic sailing classes, Wed, 5:15pm and Sat, 9am. Membership cards on sale at Cashier's Office: \$15 students, \$35 staff/faculty, \$45 alumni.

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 Aikido Club**--Non-competitive martial discipline, meets M-F, 5:30pm, DuPont Exercise Rm. Beginners always welcome. Info: Mitch Hunsberry, x8-1272.

MIT Judo Club**--Meets M/Th, 5:30-7pm, Dupont Gym Wrestling Rm. Info: Donna Duffy, x3-5773 or 661-9469.

MIT Wu Tang Martial Arts Club**--Learn Northern Chinese kung fu. Long fist and praying mantis styles, short sabre and sword. Meets T/Th, 8-10pm; Sat, 9am-12noon, Burton Dining Hall. Info: Matt Cordery and Paul Filmer, x3-1911.

MIT Karatedo Doshinkan Club**--Classical noncompetitive Okinawan Karatedo, MWF, 5:30-7pm, meet outside Dupont (W31) by BBQ pits. Rain schedule: MWF, 4:30-6pm, W31-225 Dance Studio. Info: Jim, x3-0472.

Religious Activities

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

MIT Hillel**--Shabbat services will resume and the Kosher Kitchen will reopen, Fri, Sept 1. Info: x3-2982.

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.

United Christian Fellowship**--Large group meetings. Join us for worshipful singing, prayer, sharing and Bible teaching, and small group Bible studies during the week in various dorms, Fri, 7pm, Student Ctr Mezzanine Lounge. Info: Tracy, x5-9688 dorm.

Graduate Christian Fellowship**--Come join other grad students, faculty and staff in learning about and growing in the Christian faith. Activities open to both Christians and those interested in learning more about Christianity. Info: Curt Bronkhorst, x3-4414 or Roz Picard, x3-7314.

MIT Islamic Society**--5 daily prayers in the prayer room (Ashdown House basement). Friday prayer, 1:10-1:45pm. Qur'an study groups in English and Arabic meet 8pm & 9pm at the prayer room. Info: x8-9755.

Christian Science Organization at MIT**--Weekly Testimony meetings, Thurs, 7pm, MIT Chapel.

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 1-132, bring lunch. Ralph Burgess, x3-8121. (Since 1965.)

MIT Bible Study Group**--The Economy of God, a look at God's eternal purpose to dispense Himself into man based on the revelation of the Bible, Fri, 8pm, Student Ctr Rm 407. Singing, prayer, Bible reading, fellowship.

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 Notices

Fannie & John Hertrz Foundation Graduate Fellowship, 1990-91. Financial support for outstanding students pursuing graduate studies in applied physical sciences. NOT for students in biological sciences or for those

Whitaker Fund lists grants

Research awards totaling \$2.4 million have been made to 40 faculty members in the Boston biomedical area from the Whitaker Health Sciences Fund. Announcement of the awards for 1989-90 was made by Dr. Irwin W. Sizer, president of the Fund.

Ten of the awards are designated solely for MIT faculty members, including three collaborative grants between MIT life scientists and bioengineers or biophysicists. Thirty grants support collaborative research between faculty of MIT and the medical schools of Harvard University, Boston University and Tufts University. The grants are for \$48,000, excluding overhead, for which a separate payment will be made to the academic institution to cover indirect costs.

The awards to MIT faculty members are:

George B. Benedek, Caspari Professor of Physics, and Gregory A. Petsko, professor of chemistry, "Phase Separation in Concentrated Protein Solutions."

Karen K. Gleason, assistant professor of chemical engineering, "Modification of Protein Structure Near Charged Interfaces."

Martha L. Gray, assistant professor of electrical engineering and computer science, and Lee Gehrke, assistant professor in the Harvard-MIT Division of Health Sciences and Technology, "Electromechanical and Metabolic Properties of Articular Cartilage: Effects of Human Inter-

leukin-1 and Interleukin-1 Antagonist."

Peter S. Kim, assistant professor of biology at MIT and the Whitehead Institute, "Synthetic Catalytic Subdomains of Enzymes."

Peter T. Lansbury, assistant professor of chemistry, "Conformational Studies of the Alzheimer's Disease Amyloid Protein and Synthetic Analogs."

Ruth Lehmann, assistant professor of biology at MIT and the Whitehead Institute, "Genetic and Molecular Analysis of the Pumilo Gene in Drosophila."

Glenn D. Rennels, assistant professor in the Harvard-MIT Division of Health Sciences and Technology and in electrical engineering and computer science, "A General Design for Computer Systems to Assist Preoperative Evaluation."

Hermann Stellar, assistant professor of brain and cognitive sciences and of biology, "Molecular Genetic Studies on Neuronal Specificity in Drosophila."

Ioannis V. Yannas, professor of mechanical engineering and of materials science and engineering, and Arthur D. Lander, assistant professor of brain and cognitive science and of biology, "Search for Optimal Pore Diameter of Substrate for Nerve Regeneration."

Helmut Zarel, assistant professor of Whitaker College, Division of Toxicology, "Isolation and Molecular Characterization of Revertants from Transformed Fibroblasts and Epithelial Cells."

The grants to Professors Lansbury, Lehmann, Stellar and Zarel are renewals.

seeking professional degrees or PhD and professional degrees (i.e. joint PhD/MD programs). Provides cost-of-education allowance of \$8,000 and a stipend of \$15,000 (nine months) US citizenship or documented evidence of application for citizenship required. Applications available in the Dean of the Graduate School Office, Rm 3-138. Deadline: Nov 1, 1989.

Int'l Notices

MIT-Japan Science and Technology Program. A unique opportunity to science and engineering students to spend a year working at a major Japanese company or laboratory. Students are trained in Japanese language and culture at the Program's expense before being placed in Japan. Placement is tailored to the student's background and experience. Travel to/from Japan and living expenses will be covered. For further information, call Patricia Gereik, x3-3142, Ctr for International Studies, MIT-Japan Science and Technology Program, Rm E38-656.

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.

On Campus Non-Technical: Libraries-Administrative Services. Duties include filing invoices and data entry. Requirements: knowledge of IBM computers. Prefer: Experience with Lotus 1-2-3. Hours: 5 hrs/wk flexible within 9am-5pm M-F. Salary: \$6.35/hr. Contact: Joseph Higgins, 14S-330, x3-5678.

Off Campus Non-Technical: Student needed to devote 15 to 25 hours/week working on campus dropping off literature to university buildings throughout the year. Work schedule is very flexible. Salary: \$7/hr. Contact: Kathleen, 423-5567.

Part-time package handlers needed. Take a chunk out of your college costs with the new UPS tuition reimbursement program. Hours: 10:30pm-2:30am or 4am-8am. Salary: \$8-9/hr plus \$2,000/term in tuition reimbursement. Contact: UPS 762-9911.

Off Campus Technical: Expert in C language for of Saber-C product. Must be experienced with software development on UNIX workstations, have system level knowledge of UNIX. Ideal candidate will also have experience in several of the following: paging, linking, debugging, CASE and LISP environments, object oriented programming, and databases. Contact: Duncan Mewherter, Saber Software, 185 Alewife Brook Parkway, Cambridge, MA, 876-7636.

UROP

Welcome to all students, old and new. MIT and Wellesley undergraduates are invited to join with faculty members in pursuit of research projects of mutual fascination. Faculty supervisors wishing to have projects listed should send project descriptions to the UEO. Questions? Contact us, x3-7909, Rm 20B-141.

The 1989-90 UROP directory is available in the Undergraduate Education Office (UEO), 20B-141. Project listings and guidelines will be posted on the bulletin boards located in the infinite corridor and in the UEO/Proposals for fall UROP support will begin to be reviewed on Sept 12. For further information, read details on procedures in the participation section of the directory.

Computer Programming and Protein Folding. Position available for a student with experience in computer programming and knowledge about protein structure. The position entails implementing and modifying existing programs to predict certain protein structural motifs from amino acid sequence, analysis of data from these programs, and reviewing literature to compare results. Must be able to program in C. Familiarity with VMS or UNIX desirable. Person should be able to work independently and efficiently. Contact faculty supervisor: Dr. Peter S. Kim, Dept of Biology, Whitehead Institute, x8-5184.

Visible Language Workshop. Student needed for project in building modular graphical data. Tools made would be available for lab-wide use with present usage in user interaction with maps. Experience with C required and some knowledge of computer graphics preferred. Faculty supervisor: Prof Muriel Cooper; contact: Ming Chen, x3-4406, E15-443.

Chemistry Lab. Enthusiastic undergraduate needed to help set up new chemistry lab. Work involves setting up and calibrating equipment, organizing lab supplies and helping with research in solid state chemistry. Chemistry major preferred. Contact faculty supervisor: Prof H. Zur Loye, Rm 2-202A.

Ultraviolet Radiation. Study the effects of ultraviolet radiation on skin. Knowledge of freshman chemistry and biology extremely useful. Primary responsibilities include treatment of mice with different pharmacological agents and ultraviolet radiation, and general laboratory work. Contact: Michael Moran, Wellman Laboratories, Mass General Hospital, Boston, 726-6169.

Mammalian Sex-Determination. Position available at the Whitehead Institute for an organized hardworking student to participate in this study, by the isolation and characterization of cosmid clones using molecular genetic techniques. Faculty supervisor: David Page; contact: Elizabeth Simpson, x8-5164.

Processing of Dental Ceramics for CAD/CAM Applications. Project involves developing processing techniques and materials for use with the Cerec (Siemens) system of CAD/CAM preparation of dental restorations. The work is being done in the Ceramics Processing Research Laboratory, under the direction of a Harvard School of Dental Medicine Prosthodontist. Contact faculty supervisor: Dick Pober, 12-003, x3-3878.

Geochemistry of Heavy Metal Pollutants. UROP available in the study of the geochemistry of heavy metal pollutants in the environment. Duties include some field sampling, laboratory sample preparation methods and construction of lab apparatus. Minimum qualifications are 1 year of a chemistry lab course, the ability to work with one's hands and an interest in environmental chemistry of metal pollutants. Contact faculty supervisor: Harry Hemond, x3-1637 or Michele Knox, x3-1691--leave name and number.

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MIT's Lowell Institute School

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 MIT Room E32-105

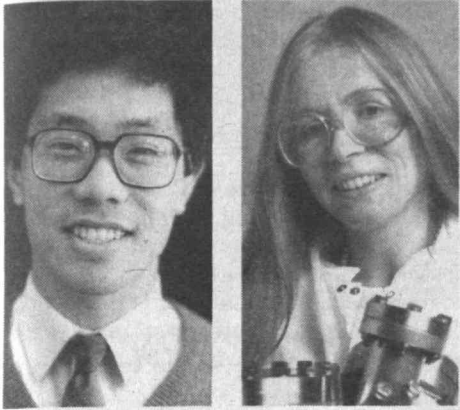
Deadline: Sept. 1
 (617) 253-4895

Two are named to career chairs

The Department of Materials Science and Engineering has announced the appointments of two of its faculty members to term chairs.

Yet-Ming Chiang has been named the Kyocera Associate Professor of Ceramics for a five-year period.

Nicole Herbots has received a Carl Richard Soderberg Assistant Professorship for a two-year period.



Dr. Chiang

Dr. Herbots

The appointments, effective July 1, were announced by the department head, Merton C. Flemings, Toyota Professor of Materials Processing.

Professor Chiang, who holds the SB (1980) in materials science and engineering and the ScD (1985) in ceramics, both from MIT, focuses his research on the properties and processing of electronic and structural ceramics. He has previously held the Dupont Career Development Chair and the Mitsui Career Development Professorship of Contemporary Technology. Professor Chiang has been a member of the faculty since 1984.

The Kyocera Corp. of Kyoto, Japan, the world's largest maker of ceramics packaging for integrated electronic circuits, endowed the chair in 1985.

Professor Herbots did her undergraduate and graduate study at the Université

Catholique de Louvain, Belgium, where she was a member of the microelectronics department. She came to MIT in 1987 and previously was IBM Assistant Professor of Electronic Materials. Her main interest is the study of ion beam formation of interfaces and epitaxy in semiconductors, using scanning tunneling microscopy and combined ion molecular beam deposition, a novel thin film growth technique. She has designed for that purpose a new ultra-high-vacuum facility combining molecular beam and ion beam deposition, which will be in operation in the fall. The facility combines molecular beam and ion beam deposition as well as surface and chemical characterization by photoelectron spectroscopy.

The Soderberg Professorships, established in 1975, recognize the late Professor Soderberg for his pioneering work in design and development of turbine engines.

Shimizu joins consortium

The Shimizu Corporation, one of the largest design/engineering/construction companies in Japan, has become a member of the MIT Affiliates Program of the Intelligent Engineering Systems Laboratory.

The laboratory, in the Department of Civil Engineering, is involved in education and research in the application of artificial intelligence, multimedia computer environments, communications and graphics technologies to improve the quality and productivity of engineering and construction. Its work is funded by a consortium of affiliates from the computer hardware and software industry and the architecture/engineering/construction industry.

Shimizu, with annual sales of about \$10 billion, is deeply involved in construction research and development activities, including construction technology, underground space utilization, biotechnology, construction in space, offshore structures and large-body water purification.

Professor Steven R. Lerman, director of the IESL, said that Shimizu provides more than just research funding. "They participate in our research, providing their understanding of real world problems and help direct the adaptation of developing technologies to solve these problems," he said.

Professors Robert D. Logcher and Duvvuru Sriam are co-technical directors of the lab. Six other faculty and research staff, 16 graduate students and staff from other affiliate organizations are also involved in the IESL research program.

Shimizu first became involved in a comprehensive joint research program with MIT three years ago. Recently this has been expanded to include IESL participation with a research project in advanced construction management systems. Professor Logcher is principal investigator. This project is directed towards developing knowledge-based information systems that will help a construction manager determine the causes for deviations from construction plans.

—Robert C. Di Iorio

2 win fellowships

Two postdoctoral associates at MIT have received Lawton Chiles Fellowships in Biotechnology from the US Department of Health and Human Services.

They are among 20 in a new program to encourage the applications of engineering, mathematics, chemistry and physics to the analysis of biological processes. Lawton Chiles, a former senator from Florida, played an instrumental role in establishing the program.

The fellows at MIT and their projects are: Deborah E. Leckband, PhD, of chemical engineering, "An Immobilized Enzyme System for Heparin Removal," and Timothy M. Swager, PhD, of chemistry, "Molecule Based Biosensors from Functionalized Microelectrode Arrays."



Joe Costello, technical assistant in the Safety Office, poses with racks of hazardous chemicals waiting to be shipped out. —Photo by Donna Coveney

Chemical waste is expensive

A flatbed truck leaves MIT every ten days carrying 50-60 drums of chemical waste at a cost of \$14,700 per load—roughly one year's tuition at MIT.

The chemicals are transported to places in Illinois, Louisiana, North Carolina, New York and Alabama that have facilities for destroying them. About 85 percent is incinerated; 10 percent reacted and the remainder buried in EPA-approved secure landfills.

The annual quantity totals about 125,000 pounds. Most of it is in partially filled containers because of the risks of combining similar waste from different departments.

Many never-opened containers also are shipped out because researchers refuse to use someone else's chemicals even from an unopened container and vendors will not take them back.

"With chemicals, buying in bulk is definitely not an economy measure," said John M. Fresina, director of the Safety Office. He noted, for example, that a pound of sodium costs \$36 to buy, but \$48 to get rid of; it costs \$17 per gallon to buy benzene, but \$32 to dispose of it.

"If all of the chemicals purchased at MIT were used, the problem would disap-

pear," Mr. Fresina said. "In the long run it will be cheaper to buy chemicals for particular purposes in smaller quantities to minimize—or eliminate—leftover waste.

"We need to educate the community on the need to reduce unnecessary purchase of chemicals in bulk to reduce disposal volumes and costs," he said.

As an example, he cited the use of one-way, nonrefundable "lecture bottles," (small compressed gas cylinders), which cost \$300 to \$500 to dispose of. MIT has spent more than \$12,000 to clear them from the campus.

"We are urging both requisitioners and vendors to make use of returnable lecture bottles," he said.

MIT is required by federal regulation to keep track of 366 chemicals and soon will begin to track all chemicals from purchase through disposal, Mr. Fresina said. The tracking program will be the shared responsibility of all users of chemicals and Purchasing and Stores.

"This is one way we can verify and certify to regulatory agencies that we are aware of the problem and doing what we can to reduce the quantity of chemicals used at MIT," he said.

Big dig solves heavy problem

By ELIZABETH A. THOMSON
Staff Writer

Timothy Grove had a problem.

The associate professor in earth, atmospheric and planetary sciences had landed a valuable gift from General Electric Superabrasives—a hydraulic press capable of recreating pressures found inside the Earth—but he couldn't get it into his office. For that matter, he couldn't get it into MIT.

The press is simply too heavy.

Though only about eight feet high by six long by two wide, the unwieldy instrument weighs 6.4 tons (a large African elephant tips the scales at about five). "There isn't an elevator on campus that will hold it," said Grove, who works on the twelfth floor of the Green Building (Bldg. 54). To make matters worse, very few floors at the Institute can take that kind of weight, so the press can't be moved from building to building along the corridors.

Enter Physical Plant and the problem-solving powers of Construction Coordinator John J. Barbato. "He sought out every possible way of getting this piece of metal into our basement," Grove said. The solution? The big dig.

You may have noticed the earth-moving equipment and crane between Buildings 54 and 18 earlier this month. Mr. Barbato and colleagues dug a hole three feet deep down to the top of the tunnel connecting the two buildings, cut an opening in it, and lowered the press through the hole. From there, "we were able to scoot the press along the tunnel to a location in the basement of 54," Mr. Barbato said.

In the next step, Physical Plant replaced the planking over the opening, water-proofed it and replaced the loam and

grass. Barbato points out that "since the planking can always be removed at a later date if needed, we'll be able to take the press out in later years, or bring in new equipment."

Professor Grove plans to use the press to recreate pressures and temperatures characteristic of the Earth about 400 miles down. In other words, the instrument is capable of subjecting a rock sample to temperatures in excess of 2,500°C and pressures of more than 100,000 atmospheres (the pressure at the bottom of the ocean—at the deepest depths—is about 700 atmospheres).

"Basically, what we'll do is melt rocks under those conditions," Professor Grove said. "The purpose is to understand how the interior parts of the Earth have evolved. We want to try to understand where melts are produced in the Earth's interior, and how that process results in the chemical layering we see in the Earth's mantle and crust [the two outer layers of the globe]."

In its previous life the press was used to make diamonds, "though not of the same quality as [the gemstones] you would mine," Grove said. Rather, the resulting stones were used to machine such things as engines and auto parts (diamond is, after all, the hardest material on Earth).

Professor Grove learned of the press, which he estimates is worth \$500,000-800,000 on the market, from Mark Sneeringer, PhD '81, a department alum who works for GE. "GE acquired it from another company, but it couldn't be used in their operation," Professor Grove explained.

"They said we could have it for the price of moving it, which turns out to be not quite as easy as we thought."

Catalogue is issued; new prices listed

Copies of the 1989-90 edition of the Courses and Degree Programs Bulletin (the catalogue) are now available on campus.

Faculty and staff members should be receiving their copies through Institute mail. Upperclass, graduate and Wellesley students can pick up a copy of the catalogue at the distribution center in Rm 5-134 now through registration day. Students are asked to show identification when picking up a book. Freshmen will receive their catalogues at the Residence/Orientation Center in the West Lounge of the Student Center.

Along with the new catalogue come some changes in the distribution policy. The cost of the catalogue is now \$5. All faculty, staff, students and alumni are entitled to one free copy of the catalogue. Additional copies must be paid for. Also, all applicants will be charged for a copy of the book.

After registration day, the Information Center (Rm 7-121) will distribute catalogues to students who show identification. Also, MIT employees who wish to receive a copy of the catalogue may do so there.

In addition, catalogues will be sold at the MIT Museum Store on the first floor of the Student Center. The MIT Press Bookstore, 292 Main Street, Kendall Square, and both branches of the Tech Coop will continue to sell the catalogue.

Phone inquiries about the catalogue (as well as questions on orders made) can be made to a special request line, x3-7738. Catalogues can be ordered via first or second class mail. Transfer, special and domestic graduate applicants will be charged \$5 per copy for second-class mailing of the catalogue that will take four weeks for delivery. First-class mailings will be handled by the Communications Office at a charge of \$8 per copy and should arrive one week after payment is received.

Canadian and Mexican applicants must also pay \$8 per copy to ensure timely delivery of the catalogue via first-class mail. Overseas applicants must pay \$16 per copy to cover mailing costs through an international mail service company.

THE INSTITUTE CALENDAR

August 30 - September 10

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

Seminars and Lectures

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

Monday, August 28

Characterization of Resistive Fluid Turbulence and Consequences of Plasma Transport--Dr. G.S. Lee, Plasma Fusion Ctr Seminar, 4pm, Rm NW17-218.

Friday, September 8

Fluid Modeling of the Plasma Edge Including Impurities--Dr. Bas Braams, Princeton Plasma Physics Lab/Courant Institute, Plasma Fusion Ctr Seminar, 4pm, Rm NW17-218.

Community Meetings

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

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

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

Co-Dependents Anonymous (CoDA)**--Meetings every Thurs, 6:30-8pm, Rm 66-144. Info: Sarah, x3-4911.

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

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

MIT Faculty Club**--Closed for renovations, through early Sept.

Office Workers Issues Group**--Women's Forum informal support staff meetings, Wed, 12:10-1pm, Rm 8-219. Bring your lunch; network or talk about office worker's issues.

MIT Women's Book Discussion Club**--Meets 1st & 3rd Thurs each month, 1-2pm, Rm 10-340. Sept selection, *After the Second Set: Conversations with Simone de Beauvoir*, by Alice Schwarzer, 1984. Bring lunch. Info: Ellie Bonsaint, x3-5763.

Working Mothers Support Group**--Meets every other Tuesday, 12:1-1:30pm (drop in any time), Rm 4-175. Next meetings: Sept 5 and Sept 19. An ongoing support group that meets to discuss parenting-related issues in a casual atmosphere. Info: Janette Hyde, x3-4290.

Tai Chi Class**--Women's League/Taoist Tai Chi Society of Massachusetts lessons of ancient meditative exercise which can relieve stress and improve concentration and perception. 10-week class begins Tues, Sept 5, 5:10pm, Rm 10-340. Wear loose clothing. Info: Nancy Collins, x3-8381, John, x3-4434, or Pam, Women's League office, x3-3656.

Informal Embroidery Group**--MIT Women's League group meets Sept 6 & 20, Oct 4 & 18, Nov 1 & 15, Dec 6, Jan 3 & 17, Feb 7 & 21, March 7 & 21, April 4 & 18, May 2 & 16, June 6, 10:30am-1:30pm, Rm 10-340.

Health Education

From Smoker to Non-Smoker**--Medical Dept Smoking Cessation 5-week program meets weekly starting Thurs, Sept 7, 12-1:30pm. Cost: \$30, \$25/MIT Health Plan members. Info/registration: x3-1316.

Nursing Mothers' Support Group**--Pregnant and breastfeeding women at MIT meet to gain confidence and share info and practical tips. Beginning Sept 5, first Tues of each month, 10am and third Weds of each month, 4pm, Rm E23-297. Babies welcome. Info: Connie Bean, x3-1316.

MITAC

MITAC, the MIT Activities Committee offers discount movie tickets for General Cinema (\$3.50) and Showcase (\$3.75). Please Note: Due to the recent purchase of USA Cinema by another cinema chain, USA Cinema tickets are no longer available. 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. Please note: There are no ticket sales in Lobby 10 or Lobby E18 through Aug. Lincoln Lab employees may purchase tickets in Rm A-263 from 1-2pm, Thurs and Fri only (through August).

Check out our table of discounts for dining, musical and cultural events available to you through MITAC.

Preview of Autumn MITAC events. Please note tickets for these events will not be sold until after the October MITAC flyer has been distributed, shortly after Labor Day. For further information, please call the group leaders, not the MITAC Office.

Fall Foliage, Lake Winnepesaukee. Oct 7-8. Stay at Wolfboro Inn and enjoy Oktoberfest on board the Mt. Washington (dinner, dancing and entertainment). Sunday breakfast, cruise and return to the Inn for brunch. Price: approx \$96/person double occup. (\$71 without Oktoberfest.) Details: Liz, x3-1674.

Philadelphia Weekend by Train. Oct 27-29. Stay at a hotel in Independence Sq for 3/2 nights. Welcome dinner; walking tour followed by lunch at Dickens Pub. Sunday breakfast. Transfers and more. Approx \$249. Details: Joan, x3-8246.

Veteran's Day Weekend in New York. Nov 10-12. Trip includes hotel and round trip bus fare. Approx \$140/person double occup. Info: Alice, x8-9299.

Montreal Christmas Shopping Spree. Nov 24-26. Enjoy Thanksgiving at home and spend the rest of the weekend in Montreal. Approx \$120/person inc round trip bus fare and 2 nights hotel. Details: Alice, x8-9299.

The City Books are Here. Only \$1 ea (reg \$7.50). Discount coupon books, from dining to health clubs to car washes and more. (Coupons valid through Oct 15, 1989.)

Riverside Park Discount Coupons. Riverside Amusement Park, Agawam, MA. Admission \$10.95 (reg \$14.95), or \$7.95/child under 48" height (reg \$10.95). Available in MITAC Office, valid through Oct 1.

The Steamship Authority Discount Coupons are Here. Offering reduced fares to Nantucket and Martha's Vineyard. With the discount coupon, round-trip fare to Martha's Vineyard is \$6/adult (reg \$7.50), \$3/child (reg \$3.80), and round-trip fare to Nantucket is \$13.60/adult (reg \$17) and \$6.80/child (reg \$8.50). Discount coupons are available in the MITAC office.

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 the MIT Libraries, x3-5651. At Lincoln Lab, passes are available in the Lincoln Lab Library, Rm A-150.

PLEASE NOTE: Museum of Science tickets no longer available. Due to the recent revamping of the Museum of Science Corporate Discount Ticket Program, the \$1 discount tickets are no longer available.

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.

Social Activities

Bienvenidos a MIT**--Club Latino/Graduate Student Council welcome picnic for new and veteran students, Thurs, Sept 7, 4pm, BBQ area near Student Ctr.

Japanese Lunch Table**--Every Tues, 1pm, Walker Rm 220. Bring bag lunch and speak Japanese with native speakers. All levels welcome.

Theater

Little Shop of Horrors**--MIT Musical Theatre Guild production, Sept 1-3, Sept 7-9, 8pm, Kresge Little Theatre. \$8, \$7 MIT faculty & staff, \$6 students & seniors, \$5 MIT student ID. Info: x3-6294. Mail order: PO Box 3, MIT Branch, Cambridge 02139.

Dance

MIT Dance Workshop First Meetings**--Composition/Improvisation: Tues, Sept 12, 11-12:30pm, Walker 201; Intermediate Modern Technique, Tues, Sept 12, 5:30-7pm, Walker 201; Beginning Modern Technique, Wed, Sept 13, 3:30-5pm, Dupont Ctr, T-Club Lounge; Repertory/Improvisation, Thurs, Sept 14, 11-12:30pm, Walker 201. Come prepared to dance.

MIT Ballroom Dance Club Workshops**--Sun, Sept 10: Swing I, 1-2pm, \$50/member, \$75/non-member; Merengue I & II, 2-3:30pm, \$75/member, \$110/non-member; General Dancing, 3:30-4:30pm, free; Dance Exhibition, 4:30-5:30pm, free, Student Ctr Sala de Puerto Rico. No partner necessary. Info: x8-6554.

MIT Folk Dance Club**--weekly dancing--Sun, International Dancing, 7:30pm, Student Ctr Sala de Puerto Rico; Tues, Balkan and Western European Dancing, 7:30pm, Student Ctr Rm 407; Wed, Israeli Dancing, 7:30pm, Student Ctr Sala de Puerto Rico. Info: x3-3655.

Rhythmic Gymnastics Classes for Women**--MIT Women's League classes, Thurs, 12-1pm, Rm 10-340. Info: Helena, 596-2396 evs.

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

Aerobics Classes**--MIT Dance Club classes, through Aug, M/W/F, 6-7pm, Dance Studio (2nd floor DuPont Gym). Info: 492-1369.

Exhibits

LIST VISUAL ARTS CTR

Student Loan Art Exhibition and Lottery. Prints, drawings, and photographs displayed for distribution by lottery to full-time, registered MIT students for the 1989-90 academic year. Sept 5 through Sept 21. Lottery: Sept 22. Remo Campopiano: In Residence. Creating a room-size installation, including among other elements, a coffee-table landscape inhabited by a colony of live ants. Sept 5 through Nov 19. Still Performance: Rimma and Valery Gerlovin. Collaborative photographs by Soviet emigre artists which mix language and portraiture in the creation of poetic and paradoxical visual formulas to explore philosophical questions. Catalogue available. Sept 5 through Oct 8. Hours: Weekdays, 12-6pm, Weekends, 1-5pm. Closed holidays.

THE MIT MUSEUM

MIT Museum Bldg (N52)--Math in 3D: Geometric Sculptures by Morton C. Bradley, Jr. Revolving sculptures based on mathematical formulas. Form and color relations lend these works a unique visual appeal, ongoing. Holography: Types and Applications. Changing

Virginia L. Sherbs dies at 45

Virginia L. Sherbs, who as administrative coordinator played a key role in the work of the MIT Commission on Industrial Productivity, died August 24 of cancer, which struck her early in July.

A memorial service will be held at 2pm Thursday, Sept. 7, in the MIT Chapel.

Ms. Sherbs, who was born February 11, 1944, had been a member of the staff at MIT for 14 years. In June, when the industrial productivity commission completed its work, Ms. Sherbs was appointed program coordinator for the Center for International Studies' Seminar on Foreign Politics and the National Interest (Seminar XXI).

Professor Richard K. Lester of the Department of Nuclear Engineering, who was the executive director of the Commission on Industrial Productivity, said:

"Ginny Sherbs was a consummate professional, a superb colleague, and a vital, warm and generous person. As the Commission's administrative coordinator she played a central role in the project, and her talent and dedication contributed greatly to its success. Her death comes as a profound shock, and she will be sorely missed by everyone associated with the Commission."

Made in America, the hard-cover, book-length report of the Commission, acknowledges Ms. Sherbs' contribution. "Ginny Sherbs served with distinction as the Commission's administrative coordinator; in circumstances that were never less than challenging, she kept the Commission running smoothly," the acknowledgment read.

Ms. Sherbs was at MIT from 1969 to 1980, first with the Operations Research Center, then with the Draper Lab's Systems Test Group, part of the Apollo Project. She then became assistant to the head of the Department of Nutrition and Food Science and later held a similar position in the International Nutrition Planning Program. From 1980 to 1984 she was office

exhibit demonstrating the uses of this three-dimensional imaging medium. Works include scientific, medical, technical, and artistic imaging drawn from the work of the Spatial Imaging Group at MIT's Media Laboratory, 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. MIT Museum closed to the public on Mondays; Open 12-4pm Sat-Sun.

Compton Gallery--Stopping Time. Photographs, instruments, memorabilia documenting Harold E. Edgerton's invention and use of the strobe light, Through Sept 15. 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. 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--1887: The Founding of the Lawrence Experiment Station. Second in a series of three exhibits in commemoration of the Lawrence Experiment Station's 100th anniversary. Jerome C. Hunsaker, Father of Aeronautics at MIT. Chronicles his founding of aeronautics at the Institute; his design and construction of Navy airships and NC-4, the first airplane to cross the Atlantic, and his role in leading the Dept of Aeronautical Engineering from 1939-51. Happy 50th, Class of '39. Hall exhibit cases in 14N, 1st floor.

Wellesley Events

Jewett Arts Center**--Style and Science: Examining a Polykleitan Statue. A technical and stylistic analysis of the most important work of classical sculpture in the Wellesley College Museum collection. Through Oct 22. Giorgio Vasari's Holy Family: Master and Pupil in a Renaissance Workshop. Examination of a Renaissance masterpiece reveals clues to the structure of the Renaissance workshop. Through Oct 22.

Jewett Arts Ctr Gallery**--150 Years of Photography, Part I: Invention. Daguerreotypes, cyanotypes and cartes-de-visite by pioneering photographers. Through Oct 22.

Guilty Children**--Improv comedy performance, Fri, Sept 1, 8pm, Alumnae Hall Auditorium. Info: 235-0320 x2375.

Contemporary Folk Music**--Christine Lavin, Sun, Sept 3, 8pm, Houghton Memorial Chapel. Info: 235-0320 x2375.

Organ Recital**--James F. Christie on the Fisk Organ, Sat, Sept 9, 8pm, Houghton Memorial Chapel. Info: 235-0320 x2077.

Send notices for Wednesday, September 6 through Sunday, September 17 to Calendar Editor Rm 5-111, before 12noon Thursday, August 31.

administrator and manager of Boston Medical Products, Inc. From 1984 to 1986 she was program coordinator at Simmons College's Graduate School of Management. She returned to MIT in 1987 to work with the industrial productivity commission.

Ms. Sherbs is survived by her husband, Charles Malkiel of Newtonville; her father, Edward, of Dedham; five sisters; two brothers; and eleven nieces and nephews.

Contributions in her memory may be made to Newton-Wellesley Hospital, Development Office, 2014 Washington St., Newton, Mass., 02162.

Orowan memorial

A memorial service for Professor Emeritus Egon Orowan will be held in the MIT Chapel Friday, Sept. 15, at 2:30pm. Professor Orowan, an authority on the physics of metals, was a member of the faculty from 1950 until his retirement in 1968. He died August 3 at the age of 87.

Leo F. Bertolami

Leo F. Bertolami of Acton, formerly of the North End, died July 12, at the age of 85. Mr. Bertolami was a member of the service staff in Physical Plant from 1943 until his retirement in 1968.

He is survived by three sons, Joseph of North Carolina, Leo F. Jr. of Acton, and John F. of Nantucket, and six grandchildren. Memorial contributions may be sent to the Italian Home for Children, 1125 Centre Street, Jamaica Plain 02130.

Ward B. Carroll

Ward B. Carroll, a Campus Police officer from 1963 until his retirement in 1974, died on July 5. He was 80 and is survived by his widow, Catherine Carroll of Cambridge.

Marilyn J. Cook

Marilyn Jean Cook, 41, of Arlington, Texas, died July 17, following a long illness. She was a senior staff assistant in the Department of Materials Science and Engineering from 1981 until her illness. She leaves her husband, Walter Cook.

Martha B. Dunn

Private services have been held for Martha B. Dunn, 87, of Cambridge, who died July 19. Mrs. Dunn worked in the Comptroller's Payroll Office from 1956 until her retirement in 1972.

She leaves a daughter, Rose Claire Levine of Cambridge; a son, Ralph S. Dunn of Los Angeles, and two grandchildren. Memorial contributions may be made to the charity of one's choice.

Harold J. Heyland

Harold J. Heyland, 82, of Saugus, died July 10. Mr. Heyland worked in Physical Plant from 1961 until his retirement in 1972. He leaves his widow, Theresa V. Heyland, and a son.

Anne Humphries

Anne H. Humphries, 72, of Venice, Fla., died on April 20. Mrs. Humphries was an administrative assistant at the Center for Space Research from 1953 until her retirement in 1978.

She leaves a brother, Frederick H. Koek, and a sister, Clara March.

Elinor Jennings

Elinor Jennings, 83, a retired staff member at the Draper Laboratory, died July 1. She worked at Draper from 1963 until her retirement in 1971. She leaves her husband, Clifford R. Jennings of Lowell.

George Morrison

Word has been received of the June 14 death of George Morrison, 81, of Longboat Key, Fla. Mr. Morrison was a member of the service staff at Lincoln Laboratory from 1958 until his retirement in 1973.



Upwards of 1,000—the biggest group ever—attended the annual picnic of the Quarter Century Club held August 17 in McDermott Court.

—Photo by L. Barry Hetherington

Variety marks QC Club Office

Question: What MIT office with a staff of four organizes the August picnic for over 800 present and former long-term employees, runs the MIT Activities Committee (MITAC), and administers the United Way campaign, among other things?

Answer: the MIT Quarter Century Club.

Surprised? If so, you're not alone. According to Ann P. Brazier, manager of the office, "many people aren't aware of how many different activities are run through our office."

Over the years the 39-year-old club has grown to become much more than its original charter as a social organization for long-term employees. Though still an active club for people who have worked at the Institute for more than 25 years, the QCC is also the hub for a variety of programs and events that affect every MIT employee. These include:

—The United Way campaign. The campaign itself lasts for six weeks in the fall when all MIT and Lincoln Lab employees are asked to contribute to the United Way. For QCC staff, however, "it's a year-round activity," said Ms. Brazier. It takes that long to prepare for, run, and conclude a campaign for about 11,000 people. The office handles every detail, including the accounting. "All the returns come here, and all supplies [for department solicitors] come out of here," said Nancy A. Drago, last year's campaign coordinator.

—The Retirement Dinner. Every year about 150 Institute employees retire, but not before each is invited to the annual Retirement Dinner. Including guests, a total of 200-250 people attend the event each year. The dinner entails "a tremendous

Power outage reveals good backup system

MIT's emergency power system functioned perfectly on Aug. 3 when there was a 25-minute interruption in electric service coming from Commonwealth Electric.

Thomas E. Shepherd Jr., associate director of Physical Plant, said the ComElectric outage gave the emergency system its first test since last February when an outage revealed some gaps in the campus backup system.

The gaps revealed in February had been covered, Mr. Shepherd said, and the latest outage did not bring any reports of damage to research projects. Three people were stuck in elevators in buildings 37, 54 and 13 for a brief time, he said. They used elevator telephones to reach the Campus Police and Physical Plant people went to those buildings and brought the elevators to the next floor either manually or with emergency power.

ComElectric power was off from 1:35 to 2pm and again for about a minute at 4pm, Mr. Shepherd said. The first outage occurred as the utility company was in the process of switching Cambridge to a new 115,000 volt substation. A malfunction caused the wrong breaker switch to open and a large section of the city, including MIT and Polaroid, lost power.

amount of detail work," said Ms. Brazier. For example, each retiree is given a special certificate with hand-lettered calligraphy in recognition of his or her service to the Institute.

—MITAC. Every week 75 to 100 MIT people visit the QCC office to pick up movie tickets or sign up for one of the many events offered through the MIT Activities Committee. What began as an experiment in 1984—it started on a six-month trial basis—has grown to become one of the largest programs offered through the office. "It's one of those programs that's just mushroomed," said Ms. Brazier. MITAC is now up to about 70 activities a year, in addition to ongoing services like discount coupons (the CityBooks) and movie tickets.

—The travel program. The QCC's travel program organizes some 30 trips annually to a variety of exotic locations. Though the program is primarily marketed to MIT alumni—it's one of the largest alumni travel programs in the country—trips are open to all members of the MIT community.

—AARP. The QCC provides administrative and logistical support for a chapter of the American Association of Retired Persons based at the office. The chapter is very active with eight meetings a year and a number of trips and activities. Anyone who lives in Cambridge or is a retired member of the MIT community is invited to join.

—Quarter Century Club. The QCC office is, of course, the administrative base for the club that gave it its name. To that end staff organize and produce at least three annual events for the 2,100 members: the annual meeting where new members are inducted, a summer picnic, and a holiday gathering in December. Last year the club also held a dinner dance at the Cambridge Marriott in October.

—Elizabeth A. Thomson

Nursing group formed

Pregnant and breastfeeding women at MIT are invited to join an ongoing Nursing Mothers' Support Group sponsored by the Health Education Service of the Medical Department.

The purpose of the program is to help mothers gain confidence and to share information and practical tips with other breastfeeding women.

One-hour meetings will be held the first Tuesday of each month at 10am and the third Wednesday at 4pm. Evening and weekend times may be scheduled as needed. The location is the Health Education Conference Room (E23-297) on the second floor of the Medical Department (near the glass atrium).

Margery Wilson of the Medical Department has volunteered to lead the group. She is the mother of a 13-year-old daughter and a nursing infant.

Babies are welcome and meetings are free. Call Connie Bean in the Health Education Service, x3-1316, for further information.

—Here & There—

Bob Zarella says he wishes he could find the right words to thank all the members of the MIT community who responded to the plight of Aaron Donaghey, the paralyzed son of MIT electrician Robert "Larry" Donaghey.

There were contributions of money, but there was more, from all segments of the community, he reports. "It was all so sincere," he said, emphasizing the word, and somewhat unexpected, too, because of the different spheres in which MIT people work.

Zarella, also an electrician and a close friend of Donaghey, mentioned a faculty member's wife who contributed a painting she had done to a raffle. Another professor, he said, helped make contact with a company he has worked with that manufactures wheelchairs. Even retirees contacted him, one in a telephone call from Florida, after reading about Aaron in Tech Talk.



Altogether, about \$35,000 has been raised thus far both inside and outside MIT, most of which went to buy and equip a van for Aaron, who was left paralyzed from the chest down after an automobile accident last December. A large portion of the money came from a benefit dance at the Woburn Elks hall in May, which attracted about 500 persons, many of them MIT people, Mr. Zarella said.

Aaron, who spent several months at University Hospital in Boston after the accident, stayed briefly at a rehabilitation clinic and has returned to his Billerica home, which had to have an addition constructed to provide room for special equipment. Aaron will now have therapy as an out-patient at the clinic.

In the meantime, he attended his high school prom and also graduation ceremonies at Shawsheen Vocational High School in Billerica, qualifying for his diploma through tutoring. He plans to continue his education, Mr. Zarella reports.

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The Department of Civil Engineering's Ralph M. Parsons Laboratory sends along these items:

Professor Donald R.F. Harleman has been elected to honorary membership by the American Society of Civil Engineers Board of Directors.

Dr. Gerhard H. Jirka, professor of civil and environmental engineering at Cornell University, has been chosen for the Arthur Thomas Ippen

Award of the International Association of Hydraulic Research. He is an MIT graduate (SM 1971 and PhD 1973), former lecturer in civil engineering and manager of the Environmental Management Program at MIT until 1977.

Debera Backhus, a graduate student, has won an Environmental Chemistry Graduate Student Award from the American Chemical Society for her research on sorption.

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Peter Santoro, Jr., of Wakefield, son of Peter A. Santoro, a heat and vent mechanic in Physical Plant, has been awarded a \$500 scholarship by the American Institute of Plant Engineers, Boston Chapter 33, for his studies at MIT beginning in September. The scholarships are awarded to individuals entering degree programs in fields that will enhance the profession of plant engineering. The youth, who plans to major in chemical engineering, also has received a \$4,000 scholarship from the Elks lodge in his home community of Wakefield. He was valedictorian this year of the graduating class at Wakefield High School.

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The American Nuclear Society has named Dr. John A. Bernard Jr., director of reactor operations at MIT, as the recipient of the 1989 Young Member Engineering Achievement Award.

Dr. Bernard was recognized for the development of computerized approaches that can safely increase reactor power five to seven orders of magnitude in a few seconds. His work has ramifications both for the research and space reactor community and the commercial power industry. Some of the experiments confirming the research were done at the MIT Research Reactor.

Dr. Bernard was appointed superintendent of the MIT reactor after receiving joint SM and Nuclear Engineer degrees in 1979. He received the PhD in nuclear engineering in 1984 and was appointed director of reactor operations in 1988.

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Thomas J. Provost, a member of the sponsored research technical staff at the Bates Linear Accelerator Center, has been honored by DECUS, the Digital Equipment Corporation's 60,000-member Computer User Society, at its semi-annual symposium in Atlanta, Ga.

Mr. Provost, vice president of DECUS and a member of the board of directors, received the C.W. Goldsmith Award for Excellence, the highest award presented to a member of the US chapter of DECUS. It was presented at a ceremony honoring the top volunteers of the DECUS organization. He has been a DECUS member since 1964.

—Charlie Ball

International Open House is planned

The 17th annual International Open House will be held on Wednesday, September 6, 9:30am-5pm in the Bush Room (10-105) to welcome international newcomers to the Institute.

Sponsored by the Medical Department and the Dean's Office, this informal gathering is designed to help international students, staff, faculty and their families get settled here. Representatives from various campus organizations and helping services also will be on hand to distribute information about their programs. Other members of the MIT community are invited to stop in and answer the many questions new arrivals usually have about the Institute and the Boston area.

A special play area will be set aside for children.

The Annual "Evening with MIT Faculty" is planned for Wednesday, September 6, from 7:30-9pm in the Bush Room (10-105). The panel, chaired by Professor and Associate Provost Samuel J. Keyser, will feature Professors Charles L. Cooney (chemical engineering); Isabelle DeCourvion (foreign languages and literatures); Alvin Drake (electrical engineering and computer science); Frank E. Perkins (civil engineering and dean of the Graduate School), and Frank Solomon (biology).

Newcomers as well as other MIT members are urged to attend and to participate in the discussion. Further information for volunteers can be had by calling the secretary to the International Open House at x3-1614.

CLASSIFIED ADS

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

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

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

Deadline is noon Thursday before publication.

For Sale

Child's eqpmnt: Graco stroller-bed, \$30; Gerry Backpack, \$15; bedguard, \$5; Century swing-open safety gate, \$15; bike child carriers, \$15 ea. Anne, x3-4412 or 527-7993.

Child's swing set, br nw, in cartns, inc climbing gym w/ platform tent & sandbox, slide & 4 swings, \$600. Chuck, x3-7508.

Upr piano, gd cond, mst sell immed, \$125 or bst. Call 646-3964.

Usd upr piano, gd cond, \$200; M's 5-spd bike, \$70. Jane, x3-2290 or 277-8986 eves aftr 9/3.

Misc hwd furn, gd cond: chrs, sm tbls, lvseat, antq oak partnr desk, all cheap, some free; also lmps, irning brd, books, misc kchnware. Kim, x3910 Linc or 648-2824.

Mving sale: 6' walnt bkcase, mahog china cbnt, Fr Provincil 3 seatr couch, lv seat, cffee tbls, chrs, hse plants, vac clnr, irning brd & cvr, BBQ, all exc cond. Sarah, x3-3562, sarah@wheaties or 628-2583 aftr 7pm.

Fridge, 2-dr side-by-side, brwn, \$195; RCA 19" tv, \$70; 15-spd bike, \$65; gas range, 2 ovens, \$165. Call 395-7265.

2 teak sgl beds, can be stackd for dbl deck bed, inc laddr, 2 sets sgl box sprngs & mtrsses, \$50. Polly, x3-8326.

W's sz 5-7 flr-lngth mink coat, purchsd @ Jay Lennad for \$5,500 2 yrs ago, wrn 5X, kpt in cld storage, \$2,500 w/appraisal. Sue, x855-7540 Linc.

Voit Precision rowing mach, usd only a few times, br nw, \$40. Pam, x3-3123.

Gemeinhardt flute, exc cond, \$350 or bst. Terry, x8-5598.

Complt HP cmprtr sys: Vectra 20MB HD; graphcs mntr, keybrd, Laserjet II prntr w/2 tonrs, mnls, sftwr (DOS, File Manager, Set Up, MSWord, Lotus 123, First Choice), all nw, mst sell, bst offer. Call x8-8407 or 322-6464, lv mssg.

Q-sz wtrbed mtrss, linn, padded rails, usd jst 1 mo, \$75 firm. Call x3-2826 9am-2pm.

3 Bridgestone Potenza trs, 195/60 HR 15 RE86, 1 w/less thn 1K, 2 w/15K, \$120 ea nw, askg \$150 or bst. Tim, x3-0793 or 494-9095.

Foot Joy glf shoes, blk sz 8, wh sz 7, br nw, \$30/pr. John, x8-4265 Draper.

Lotus 10-spd bike, w/rear rack & lck, hrdly usd, \$200 or bst. Carol, x3-8299 or 524-1910.

7' sofa, Scand Design, \$75; M's 10-spd bike, \$60; L's 5-spd bike, \$55; office-sz desks, \$95 & \$125; desk chr, \$35; wh rnd kchn tbls, \$65 & \$85; kchn chrs, \$20 ea; rowing mach, \$50; misc tbls & chrs. Call 332-8251.

Seal Compress 110S Photo Dry Mounting Press, \$150. Call 862-1935.

Alumni Recrds Office books for int sale: '89 MIT Alumni/ae Directory, \$38; MIT: A Portrait, by awrd-winning photog Rbt Llewellyn, \$35, disnts avbl for ordrs of 25 or more; Francesca DiMaio, x3-8261, Rm 12-090.

Couch & lv seat, exc cond, bge w/stripes, \$500 or bst. Suzanne, x8-5664 or 277-5701.

GE prtbl dshwshr, exc cond, \$150. Vai, x3-3545

Microsoft Word Version 4.0 (IBM PC format), factory seal'd, bst offer. Roselyn, x 3-9405 or 648-7859.

Excercise bike, almst nw, Sears mdl XC3500, askg \$40. Miguel Velez, x3-5958 or 494-1182.

Fruitwd tripl drssr & mirror, almst nw, \$75; grey formica kchn tbl & 3 chrs, \$25; assrt'd kchnware (dishes, pots), lmps. Diana, x3-5935 or pref 739-0448.

9x12' indr bge rug, 9 mos old, exc cond, approx 1/2" pile, only \$25. Don, x8-5190 Whitehead or 625-6890.

Sm desk, exc cond, \$30; sm fridge, \$30; 20" fan, \$10. Al, x8-5686 or x5-7512 or lv mssg 646-1973.

Classic wden BR set: full-sz mtrss S& bx spr & hd & basebrd, 60x40x16" drssr, lited mirror w/shlvs, 60x30x15" chst of drawers, nite tbl, \$500 or bst or buy sep. Nader, x3-1818.

Crocheted lace tblclth, off-wh, 60x100, exc cond, \$90. Kim, x3-1740 or 483-7355 eves.

Moss green Lazy-boy reclnr, gd cond, \$50; tbl lmp, \$10; cffee tbl & mtching end tbl, glss tops, gd cond, \$100; drssr & nite tbl, \$100. Call x3-8020.

Bl sofa & green lv seat, fair cond, \$35 ea. Call x4608 Linc or 863-1816.

Lvly Q-sz sofa bed, almst nw, dk brwn, \$325. Call 935-3144.

Almst nw elctrc rice cookr, 10 cup cap, usd 1X, \$25. Call 489-3715 eves.

300/1800 baud MultiTech mdm w/orig packing & mnls, exc cond, @ Microcomputer Ctr for \$228, askg \$100; 3.8 c.f countertop-ht fridge, ideal for dorm, exc cond, \$100. Michael, 876-3004 eves.

Vehicles

'53 Plymouth Cranbrook, hy-drv trans, 39K orig, always garagd, nr perf cond, grt deal @ \$5,000. David, x3-7027.

'67 Karmann Ghia hrdtop, blk, 7K, collectr's itm, \$10,000 or bst, serious offr only. Richard, x8-5652 or 244-3926.

'67 Pontiac Tempest, 4-dr, 6 cyl ovhrd cam, nds muff, \$750 nego. Call x8-8419.

'71 BMW 2002, perf eng & suspnsn, Korman, 37K, dual Webers, Stahl headr, factry rebt trans, mch more, garagd wntrs, spare parts, \$4,200. Mitch, x8-1272 Draper or 508-872-5015.

'73 Ford Maverick, grt eng, 62K orig std, ms & handls grt, gd car for travl or armd city, \$600. Call 547-8825.

'76 Toyota Corolla, 5-spd, 51K, v reliable, in gd cond except some rst & dents, \$600 or bst. Call x3-4385 or 625-6046.

'76 Volvo 262GL, 6 cyl, bl, auto, sunfr, lthr int, no rst, ms btflly, 92K orig, Chapman lock, all service rcrds, \$2,500. Ginger, 661-4791.

'77 VW Rabbit, 2-dr, 4-spd, 102K, some rst, ms grt, brms no oil, all rcrds avlbl, \$500 firm. Celia, x3-9719 or 965-4269 eves.

'78 Toyota Corolla wgn, ms but nds wrk, \$250. Ginny, x3-9317 or 508-263-3201, lv mssg, will retrn call aftr 9/2.

'79 AMC Concord sta wgn, 6 cyl, gd trs & spare, gd eng, ms exc, bdy in gd shape, jst inspcd, askg \$200. Tony, x8-3435 Draper or 508-658-8174 aftr 5pm.

'80 Pontiac Catalina, stereo, a/c, only 57K, orig ownr, always garagd, maint rcrds, snw trs inc, \$1,800. Call 964-6164.

'80 Toyota Celica GT, nw wtr pump, batt, rear brks, carb blts & mch more, nds a lttl work or grt parts car. Dave, x3-5716 Millstone.

'80 Buick Century, 4-dr, 79K, auto, pb, ps, a/c, AM/FM/tape stereo. Steve, x7670 Linc or 862-5408.

'80 Audi 5000 Turbo, red, bdy in grt cond, \$350 or bst. Desmond, x5-7261 dorm.

'80 Dodge Colt sdn, blt by Mitsubishi, 97K, 2-dr, auto, AM/FM, \$500. Call 926-0757, lv mssg.

'80 Dodge Colt, 2-dr, auto, 68K, \$750; '83 Dodge Colt, 4-dr, mnl, 90K, \$950. Alfredo, x183-333 Bates.

'81 Malibu, nw frnt brks, exh & tune-up, ms gd, chrome whls, 2-dr, blk, \$995 or bst. Rick, x5099 Linc or 508-658-3959 aftr 5pm.

'81 Mazda 626, a/c, AM/FM, exc cond, nw muff, strtr, trs, \$1,750. Call 577-8822.

'81 Mazda B-200 pick up truck, gd rning cond, cln bdy w/ no serious rst, nw brks, batt & elect sys, step bumper w/hitch, fitted bed cvr, gd trs, 2 snws, NH inspcd, \$550 or bst. Kay, x3-5030.

'81 Dodge Omni, only 51K, 7/89 stckr, v gd int & ext, nw rads, muff, fuel & wtr pumps, exc basic transprt, \$1,500. Jerry, x7530 Linc or 273-1771 before 9pm.

'82 Chevy Malibu Classic, 5-dr wgn, 73K, v gd cond, nw muff, batt & AM/FM/tape stereo, all wthr trs, \$2,600 or bst. Call x3-4612 or 225-2954.

'82 Nissan Stanza, 5-dr htchbck, 59K, 5-spd, exc cond, nw exh, brks, cltch & bearings, \$2,500 or bst. Call x3-5567 or 623-2998.

'83 Honda Nighthawk mtrcyl 550, only 5.6K, exc cond, stored in hid garage, askg \$1,100. Chris, x8-5236 Whitehead or 491-4904.

'84 Chevy Citation, mint cond in & out, no rst, grt 2.5L eng, auto, ps, pb, a/c, NADA book valu \$3,400, sell for \$2,995 or bst. Mario, x8-4715 or 324-3516 aftr 5pm.

'84 Renault Alliance, 57.6K, 4-spd, rcnt brks & rear shcks wrk, askg \$1,700. Miguel, x3-5958 or 494-1182.

'84 Nissan Stanza, 4-dr, 5-spd, a/c, \$3,500 or bst. Call 969-4260.

'85 Olds Cutlass Ciera, 4-dr, a/c, ps, pb, rear wndw defrstr, 4 cyl, AM/FM stereo, tilt steering whl, 30K, exc cond, \$5,300. Keith, 276-6774 or 508-922-0547 eves.

'87 Plymouth Horizon, 24K, auto, a/c, ps, pb, AM/FM, etc, exc cond, \$4,250. Andy, x3-7307.

'88 Toyota 4-whl drv pick-up, 4 cyl w/5-spd trans, 21K, clth seats, full carpet, AM/FM stereo, tint'd glss, chrome grill & bumpers, sport whls, mud flaps & bedlinr, mst sell, \$7,750 or bst. Call 662-5295.

'88 VW Jetta GL, 5-spd, a/c, Alpine AM/FM/cass stereo, metallic maroon, 1 ownr, 23K, askg \$9,000. David, x3539 Linc 12-1pm only.

Housing

Cambridgeport, spacious 2BR multi-lvl twnhse on priv, quiet st, conv to MIT & BU, 1-1/2b, wdstv in LR, fully appliancd kchn, sep DR, deck, sm yrd, grf, bsmnt, nice nbrs, \$189,000. Peggy, x3-7909 or 547-5741 aftr 5pm.

Belmont hse, 3BR Coln, exc cond, in quiet, pleasnt nbrhd, prcd right @ \$289,000. Call 484-5639.

Rms avlbl, daily, wkly or mnthly rates, B&B on Red Line T @ David Sq, John, x8-5326 9-5 or Michael, 625-8847 6-9.

Cambridge, sublt for Sept, 1BR, completely furn, v attractive,

3 are appointed to Sea Grant

The Sea Grant College Program has recently made three new appointments to its staff, Norman Doelling, the program's executive officer, has announced.

Henrik Schmidt, associate professor in the Department of Ocean Engineering, has been named associate director for research. Dr. Schmidt succeeds Marcus Karel, professor emeritus in the Department of Chemical Engineering. Dr. Karel now serves as State of New Jersey Professor of Food Science at Rutgers University.

John Moore will manage the Marine Industry Collegium, a program designed to aid technology transfer of Sea Grant-funded research. Mr. Moore succeeds Mr. Doelling in the post. Karen Hartley also has been appointed communications manager. Ms. Hartley, formerly editor for Sea Grant, succeeds Elizabeth Tayntor Gowell, who has accepted a position at an environmental consulting firm.

Dr. Schmidt received his MSC (1974) and PhD (1978) in experimental mechanics from Technical University of Denmark. His primary technical interests are development of hybrid, analytical-numerical models for seismo-acoustic propagation in the ocean environment; determination of ocean sediment geophysical properties from propagation characteristics of seismic interface waves; beam propagation in stratified media; rough surface scattering of elastic waves; propagation characteristics of low-frequency, surface generated ambient noise in the ocean; and source parameter estimation by matched field processing. Dr. Schmidt has recently been involved in arctic acoustics.

As an associate director, Dr. Schmidt will provide leadership in identifying research needs in his area of expertise. "He will add strength to the program in the area of hydroacoustics," Chrissyostomos Chrissyostomidis, director of Sea Grant, said. "This is an area we consider extremely important in the future direction of Sea Grant's research with underwa-

ter vehicles, and ultimately, in our better understanding of the ocean."

Dr. Schmidt is a Fellow of the Acoustical Society of America and a member of the Society of Exploration Geophysics and the MIT-WHOI Joint Committee on Ocean Engineering Acoustics.

As manager of the Collegium, Mr. Moore will be responsible for establishing and maintaining close communication with the more than 100 member companies and serving as liaison between those companies and the MIT academic community. Mr. Moore will also produce technical publications, develop membership recruitment initiatives and present funding proposals.

Mr. Moore received his BS degree in ocean engineering from Florida Institute of Technology in 1982 and has completed graduate work at State University of New York. Before joining Sea Grant, Mr. Moore worked as a coastal engineer for Massachusetts Coastal Zone Management. Mr. Moore has also held positions as a structural, ocean and coastal engineer.

In her duties, Ms. Hartley will be responsible for disseminating research results and other marine information to academia, industry and public offices, overseeing research reports, journal articles and advisory bulletins, coordinating and writing Sea Grant's biennial reports, newsletters and news releases. She will also coordinate the program's annual symposium and edit the published proceedings.

Ms. Hartley earned her BA degree in journalism from Auburn University in 1982 and her MS in science writing from Boston University in 1987. She has spent four years as reporter, bureau chief and editor for Alabama's capital city newspaper, The Montgomery Advertiser.

She has written for Science News and the Smithsonian News Service in Washington and contributed to The Boston Globe, The San Jose Mercury News and several other publications.

10 min wk to MIT, \$1,000. John, 864-7725.

For mt, Sebago Lake, ME, guest cottage, sleeps 4, fully eqppd, wk to sandy beach, swim, fish, hike, avlbl Sept, \$275/wk. Steve, x8-3383 Draper or 508-745-6511.

Mid-Camb 2BR condo for sale, dramatic renovatn, top flr, 5 skylites, sep studio/wrkshp space, grt for architects/hobbyists. Kathy, 497-5525.

Somerville, apt 4vbl in 4-fmly hse, spacious & sunny, 2 rm, 1BR, T stop in frnt, 5 min to Sullivan Sq Orange line, gas ht, hdwd flrs, fridge & oven, avlbl 9/1, \$550/mo. Connie, 643-3686 or Toli, 628-4146 eves.

Fall foliage in NH, twnhse rntl, sleeps 6-8, all facilities inc pools, tennis, etc. Jack, x3-2772 or 396-4221 eves.

Arlington, 3BR, 1-1/2b, hse nr Dallin Sch, MBTA to Linc Lab & Alewife, hdwd flr, eat-in kchn w/D&D, \$215,000. Marilyn, x5666 Linc.

Medford, mt w/opt to buy, 5 rm condo, 2 prkg spcs, ctrl air, 2 baths, W/D, 6 mi to MIT & Hrvd, 2 mi to Tufts, \$1,200/mo. Call x3-6390 or 396-7704 eves.

Jamaica Plain, 5 rm apt, frnt & back prchs, nr T, cat ok, \$850/mo. Colette, 327-4215.

Bedford, 3BR, 1b, screend prch, full bsmnt, 3+ acres, by ownr, \$195,000. Call 275-0111 eves.

Dorchester, nwly renovatd 3 rm apt, shrt wk to Ashmont Red Line T, \$550 inc utils. John, x3-4434 or 825-4010.

Lvly 1BR for mt, v nr campus. Call 494-1549.

Roslindale, M/F/cpl to shr priv hm w/pro F, 2 cats, sunny, safe, quiet, Indry, sm yrd, prkg avlbl, ez to T, no smkrs, choice of rms, \$300+ or \$600+. Call x3-5049 or 327-5251.

Derry, NH, nw constrctn, cstm design, 4BR, Coln, 2400 s.f., 2-1/2b, cntry kchn, forml DR, frplcd LR, lrg fmly rm, mny xtras, \$227,900. Lee, x8-8473 or 603-434-8606.

Camb, Mass Ave, 2BR, 2b, balcony, prkg, a/c, in hi rise w/E view, 20 min wk to MIT, \$139,000. Pat Mock, x3-7466 or Realtor, 497-1000.

Charming 2BR, 1/2b condec, oak cbnts, wdstv hookup, fmly rm in bright wkout bsmnt, quiet cul-de-sac, on 3-1/4 acres, 1 hr to MIT, lease back optn avlbl, \$110,900.

Lynn, 2BR apt, kchn, LR, stv, fridge, W/D hook-up, plnty closet space, drwway prkg, nr public trnsprt, exc cond, \$695/mo inc ht & h.w. Call 846-1656 aftr 5pm.

VT cottage, lake frnt, in wds, serene, mod int, fully furn, rustic, isolated, grt for foliage, swimming, wkls, fishing, \$400-425/wk. L. Rodwin, x3-1783 or 491-0696.

SW NW prime prop, historic twm, CT River Valley, hse inc 11 acres land, rare barn, ez wk ctr twm, shopping, restrctd devlpmnt. Linda, x3-4579.

Smokehouse Bay Club, Marco Isl, FL, br nw 2BR, 2b condo, screend lanai, W/D, fully eqppd & furn, mt by wk/mo, 2-4 ppl only, no pets. Call x3-4251 or 646-1876.

Wanted

1 or 2BR apt to mt frm 9/1-11/30, furn/semi-furn. John, x3-5807 or 661-7686.

Mature, rsnbl W sks hsesitting position, shrt/lng term, love chldm/pets, writr, exc refs. Eleanor, x3-5763.

Will xchange my West stckr for your Albany. Angela, x3-3823.

Hm chld care for 3 mo infnt, aftrnoons, 3-5 days/wk, Belmont, nr #74 bus. Barton, x3-8695 or Kathy, 489-0406.

Mnls for old HP9820A calcitr. Mark, x3-7805, lv mssg.

Roommates

Mature F, non-smkng in priv hm. Pat, 783-2733.

Quiet F wntd to shr 2BR in Arlington, \$350+ utils, no pets/smkr, prkg. Call 646-0048.

F wntd to shr 2BR apt in 2-fmly hse, Medford nr Tufts, on bus line to T in Davis Sq, no smkrs/pets. Diane, x3-4943.

Rmmate wntd in 4BR, 2b apt, 10 min to MIT, kchn, LR, Indry, \$390/mo inc utils. Call 547-2245.

Mature rmmate wntd to shr huge 9 rm quiet apt, jst off Mass Ave Porter Sq, w/only 2 othrs, 2 blcks to public tennis crts, \$425+ utils. Barbara L, x3-4373.

Miscellaneous

Free: bck issues of *Scientific American*, frm mid-1977, mst yrs complete, mst get rid of soon. Pam, x3-7217 or 643-4076.

Classicl voice lssns by exp'd teachr/pro singr, MM NE Conservatory of Music, all lvls welcome. Call x3-4044, lv mssg.

Pro typing by exp'd sec, v rsnbl rates, prompt service, legible handwriting please. Dinae, MIT Press, x3-5646.

Magnetic boost looms for neural research

(continued from page 1)

useful as these medical tools may be, they are based on the British instrument, where diffuse magnetic fields aren't concentrated enough to target narrowly defined areas of the brain or nervous system; there are many problems in making a stimulator with a very strong field. So the MIT group, in collaboration with physicians at Massachusetts General Hospital, will try to make a stimulator that can concentrate its working field in a spherical volume little more than a centimeter in diameter.

Dr. Cohen says that magnetic stimulation is "the hottest item in neurology—everyone wants it." Still, it has not yet been approved by the FDA for routine use on the brain, though magnetic stimulation can be and is being used without special permission on the peripheral nervous system, that is, on arms and legs. Because of fears of side effects such as inducing epilepsy in other nonstimulated areas of the brain, permission is now required to magnetically stimulate the heads of human subjects. Making a more focused magnetic stimulator will help in overcoming this obstacle.

Dr. Cohen says that the most important clinical use of magnetic stimulation is for noninvasive testing of the central nervous system, generally. A specific example is during spinal surgery, to make sure no nerve damage is occurring. In this test, the patient's brain is magnetically stimulated to elicit a toe twitch; if the twitch is strong, the spinal cord is not in danger due to the surgery. Previous tests were not as clear or simple as this magnetic one.

The research uses of the technique are potentially vast after it is refined in the MIT project. It could map the functional areas of the brain in ways that are now not possible. "There is essentially no pain or shock associated with the magnetic stimulator," says Dr. Cohen, "because large currents are not forced to flow through the skin that overlies the skull—in contrast to stimulation by external electrodes."

Dr. Cohen says that the Bitter Laboratory is one of the very few research centers in the world that has the expertise to design and build this challenging device, a magnetic "transcutaneous neural stimulator." Among the difficult engineering problems are how to produce a large, intermittent current in the electromagnet's coil—the peak current will be about two-million amperes—and how to deal with the large material stresses caused by this current that could prompt the magnet literally to explode.

The project's collaborators from the Massachusetts General Hospital will test the stimulator initially on the ulnar nerve in the human wrist to elicit a thumb twitch.

In a follow-on project, actual human brain stimulation will be performed.

Working on the project with Dr. Cohen at the Bitter Laboratory are: Dr. B. Neil Cuffin, a magnet field theoretician, John E.C. Williams, an expert electromagnet designer, and Kazutomo Yunokuchi, a visiting scientist from Japan. The medical collaborators at the Massachusetts General Hospital and Harvard Medical School are neurologists Dr. Keith H. Chiappa and Dr. Didier P. Cros.

Dr. Chiappa, Director of the EEG (electroencephalogram) and Evoked Potentials

Unit at MGH, says, "I strongly believe that this will be a valuable tool for evoking motor responses in surgery and in diagnosing other brain diseases generally."

Dr. Cros, who is affiliated with Dr. Chiappa, said of the project's objective, "Not only would this be a strong aid in neurosurgery of the spine, it could be used for testing many neurological conditions encompassing malfunction at all levels of the nervous system. It would also be an invaluable neurophysiological tool for testing of children and some adult subjects who do not tolerate well electrical stimulation."



Some of the 17 Cambridge teenagers who have been employed at MIT this summer as part of the TeenWork program of Just-A-Start and the Workforce program of the Cambridge Housing Authority are shown on the steps of MIT. Front row, left to right: Byron Whitfield (Workforce); Mary Nemick, TeenWork program assistant; Karsten J.Y. Cash (TeenWork); center: Ronald Sudoiko (MIT); Fatema Khalifa (TeenWork); Colin Lawson (TeenWork); Kwang-soo Kim (TeenWork), and Chuang-teh Ma (TeenWork). Standing: Liz Mulcahy (MIT); Julie Aronson, Teenwork director; Victor Campbell (TeenWork); Jode Jeune (Workforce), and Walter Milne (MIT).

—Photo by Donna Coveney

New traffic fines announced

(continued from page 1)

Police Chief Anne P. Glavin said the application process for parking permits, revised to reflect input from the community about the forms used for the first time last year, has been going well. Employees, faculty and staff who filled out an application last year will receive a printout for updating. First-time applicants will fill out the entire form.

Fulltime students living in Eastgate, Tang Hall and Westgate must have their apartment leases with them when they apply for parking permits. They should apply at the Campus Police headquarters, Rm W31-215, between 9am and 5pm.

Students in ATO and KS should apply for parking permits at the office of the Interfraternity Conference (IFC), W20-413.

Journal to publish conference papers

The Physicochemical Hydrodynamics Journal, edited by Professors Howard Brenner of chemical engineering and Ronald F. Probst of mechanical engineering, will publish the proceedings of an international conference on physicochemical hydrodynamics held in June at MIT and chaired by Professor Julian Szekely of the Department of Materials Science and Engineering.

The interdisciplinary subject combines physics, chemistry and fluid flow phenomena. It was originally defined by Veniamin Levich of the Soviet Union. An international conference is held every three years to honor Levich and to "facilitate his emigration from the Soviet Union," Professor Szekely said. Previous meetings were held in England, Israel, Spain and New York City.

Commuting students and those living in dormitories can obtain information on procuring parking permits from the Student Activities Office, W20-501.

Also announced was a new all-day parking fee for the lot at 139 Massachusetts Ave. The new charge is \$7 per day, an increase of \$1. Three hours or more is considered all-day parking. The fee of \$1 for each half hour will remain the same.

Davidson named

Professor Ronald C. Davidson of the Department of Physics has been appointed an associate director of the Plasma Fusion Center, effective July 1.

Professor Davidson will focus on research programs outside the scope of magnetic confinement. Examples are space plasmas, laser-plasma interactions and inertial fusion and coherent wave generation.

Professor Ronald R. Parker, director of the center, who announced the appointment, said that these areas "are of increasing importance to the intellectual vitality of the center and we look forward to the dynamic leadership that Ron will provide." Professor Davidson will continue in his roles as head of the center's Applied Physics Research Division and as leader of the Intense Beam Theoretical Research Group.

Dr. D. Bruce Montgomery will continue in his role as an associate director, with emphasis on engineering and projects, including C-MOD fabrication and the center's involvement in national and international programs, Professor Parker said.

Japan Program attracts 43

The MIT Japan Program will send 43 young Institute scientists and engineers to Japanese research laboratories this fall, more than double the number placed last year.

Before their stay in Japan, the students receive two years of training in Japanese culture and language. Once there, they have the hands-on experience of working in a completely Japanese environment and living in a Japanese company dormitory. Most of the interns will stay for a year or more.

The students, through their experiences in corporate, government and university laboratories, represent the first generation of technologically sophisticated Americans with research experience in Japan. Among the host institutions this year are the Electrotechnical Laboratory, Hitachi, Mitsubishi Chemical, Nissan, Sumitomo Trust and the University of Tokyo.

"These students are an avant-garde group at the cutting edge of the changing US-Japan relationship," said Patricia Gericik, assistant director of the MIT Japan Program. "Several are taking advanced degrees in Japan and, before they leave, many will have presented technical papers in Japanese at a Japanese professional meeting."

The MIT Japan Program was founded in 1981 to provide a systematic, programmed study of Japan for American scientists, engineers and industrial managers and to promote closer ties between these people and their Japanese counterparts. It is the largest and most comprehensive center of applied Japanese studies in the United States.

Nominations sought for Kepes Prize

Nominations are being requested for the 1989 Gyorgy Kepes Fellowship Prize, a \$2,000 award given each year to a member of the community at the graduate level or beyond who has demonstrated concern for human values as reflected in the relationship between art and the environment.

Deadline for nominations is Monday, Sept. 25. Letters of nomination need to state clearly how the candidate's work meets the requirements of the award, and must include the address and telephone numbers of both the candidate and the nominator. These letters should be addressed to the Gyorgy Kepes Fellowship Prize, E15-205.

Established in 1982 by members and friends of the Council for the Arts, the Prize seeks to encourage and celebrate individuals at the Institute whose work reflects the goals embodied by Institute Professor Emeritus Kepes, an internationally acclaimed artist who has been associated with MIT for some four decades. He founded the Center for Advanced Visual Studies.

Through his paintings and photographs, his writing and his leadership, Professor Kepes has revealed fundamental relationships between art and science, art and human values, and art and the physical environment in which we live. For more information: Mark Palmgren, the Office of the

Wurtman honored

The 1989 International Prize for Modern Nutrition has been awarded to Professor Richard J. Wurtman, MD, of the Department of Brain and Cognitive Sciences.

The prize, which will be presented to Dr. Wurtman September 14 in Switzerland by the Central Association of Swiss Milk Producers, recognizes his "outstanding work accomplished in the area of the influence of nutrition on human behavior." Dr. Wurtman's research has demonstrated that food constituents can affect brain chemistry, and that changes may be useful in treating brain disorders like depression, obesity, the premenstrual syndrome and hypertension.

Professor Wurtman also has been invited to deliver a lecture on the work for which he is receiving the prize.

Campus bike thefts double in number

The Campus Police have issued a special bulletin alerting the campus to a sharp increase in bike thefts this month.

Some 25 bicycles or parts of bikes have been reported stolen since August 1, more than twice the number reported in the same period last year.

The Crime Prevention Unit offers the following tips to deter thieves:

—Use a high-security U-lock with a T-guard.

—Anchor both wheels and frame to a stationary object.

—Use a case-hardened chain or cable with a case-hardened steel lock.

—Register bicycle with the Campus Police.

—Use Operation Identification to engrave bicycle with an ID or driver's license number.

—Leave bikes in well traveled areas or in the bicycle compound near Building 13.

Information and materials for the last two tips are available from the Crime Prevention Unit, X3-9755 or X3-2996.

Report any unusual or suspicious activity as soon as possible at X3-1212.

Scenes of summer

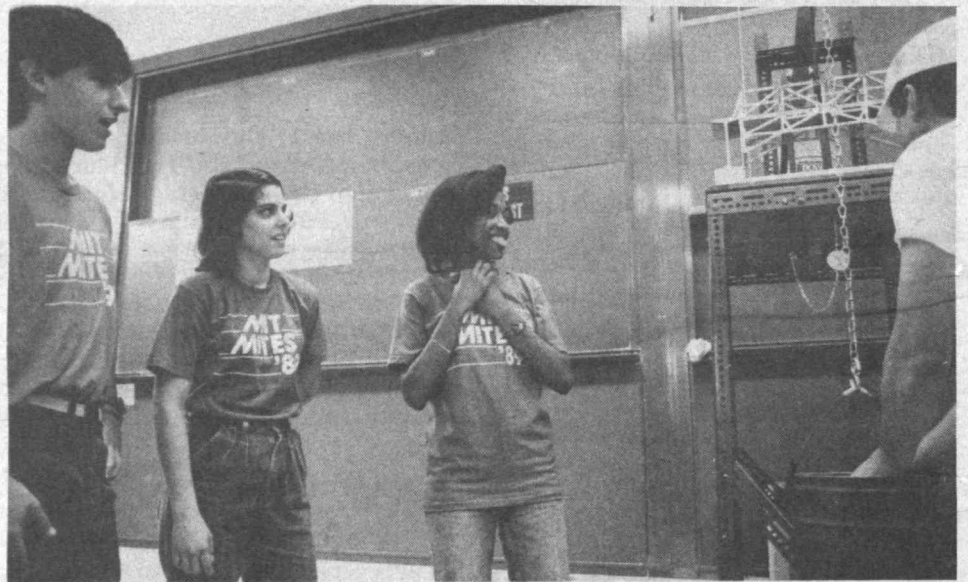


Children attending the MIT Day Camp enjoyed sailing on the Charles.



Not all the visitors on campus were human. The Puppeteers of America held a national festival here in July that brought some 700 artisans and their inanimate companions to the campus. Above, Drew Allison of Grey Seal Puppets demonstrates a polyfoam character.

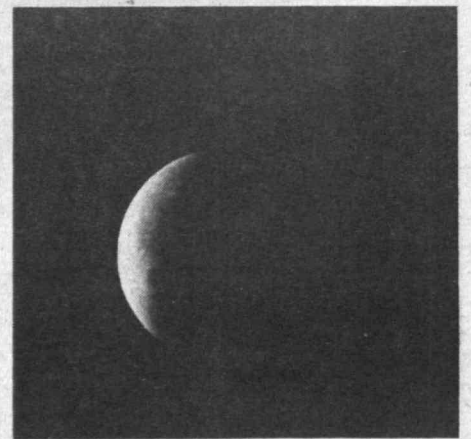
Photos by Donna Coveney



Watching their "Bridge Paradise Lost" being put to the test were, from left, Mark Kozek and Ana La Plaza of Puerto Rico and Angela Lang of Mississippi. They were among 52 high school students who took part in the 15th annual Minority Introduction to Engineering and Science (MITES) program on campus this summer.



Dappled sunlight is filtered through the beech trees at the outdoor annex of Networks, the new restaurant in the renovated Student Center.



The lunar eclipse on August 16.