



Tayhas Palmore, G, surprises students at Cambridge Rindge and Latin High School with a demonstration on polymers. Ms. Palmore is one of 20 graduate students in the Department of Chemistry involved in the MIT Chemistry Outreach Program, a road show designed to get high school students interested in chemistry.

Photo by Donna Coveney

POPS AND BANGS

Chemistry Show Excites HS Students

■ By Elizabeth A. Thomson
News Office

The mixture in the beaker looked a little like oil and vinegar, but when Tayhas Palmore reached in with a pair of tongs and pulled at the interface between the two layers, out came a continuous strand of pink, taffy-like nylon.

"The nylon used for stockings, backpacks and other products is made using the same chemistry," Ms. Palmore told Mr. McGillicuddy's 11th grade chemistry class at Cambridge Rindge and Latin High School as she continued to pull at the strand, all the while winding it around the tongs.

Ms. Palmore is one of 20 graduate students in the Department of Chemistry involved in the MIT Chemistry Outreach Program, a scientific road show designed to get high school stu-

dents excited about chemistry. This year the program will travel to more than 50 high schools around New England.

The "nylon" experiment is typical of the demonstrations presented by the program. All are highly visual, and often produce various pops and bangs. "That's really what captured a lot of us—that initial exposure to the sights, smells, and sounds of chemistry," Ms. Palmore said.

Each 50-minute show is presented by two graduate students. One does the actual experiments while the other explains what is happening. "It's not a magic show," stressed Ms. Palmore. "We try to expose the kids to the fundamental chemical principles behind all of this."

They also try to relate each experiment to products or phenomena the kids are already familiar with. In addition to the nylon demonstration, for example, Outreach teachers might illustrate the principles of oxidation and reduction by creating a mirror of metallic silver on the walls of a flask, or show how common household liquids like vinegar, milk, Sprite and milk of mag-

nesia have different pH values.

"The point of all this is to let them know that chemistry is in their lives all the time," Ms. Palmore said. "It's not just this difficult subject in some obscure building at MIT."

Now in its third year, the program was developed by James Nowick and Ronald Brisbois (then graduate students in the department) to get young people interested in science. "We wanted to give something more than is available in high school chemistry classes," said Mr. Brisbois, who will receive his doctorate this June. "And who could be better people to present chemistry to students than chemists—particularly chemists that are closer to their own age?" said Dr. Nowick, currently a postdoctoral research fellow in the department.

So in 1987 the two sent information packets about the free program to 30 high schools in the Boston area. Nine responded, and that first year Ron and James reached 500 kids.

Since then the program's grown from two graduate students to 20 and

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'GREEN' COLLOQUIUM

Energy Gurus List Ways to Help

■ By Eugene F. Mallove
News Office

Admonishing the audience "not just to raise awareness but to take actions in our everyday lives," Ted Flanigan, Energy Program Director at the Rocky Mountain Institute in Colorado, opened "Green: A Colloquium on the Planet," held in Kresge Auditorium last week. He spoke against what he termed the "growth ethic," which he said is "causing us to pave 'Paradise.'"

Opening with an assault on nuclear power, he said, "We need to not look for simple solutions to complex problems....our national energy experts in the 1950s—if we can call them that—

slid into a dangerous pattern that I appeal to each and every one of us not to fall into.

"Fundamentally, we are looking at a shift from what we always thought was our destiny—a growth of the use of resources, to a fundamentally different approach, one based on sustainability." He said, "Our focus has been on materialism. We have lost the notion of sustainability. We've lost the notion that happiness on the planet...is the spiritual notion of community, of ecological sustainability....Growth can no longer be a growth based on materialism, it's got to be a growth based on spiritualism."

Then proposing simple solutions of

APARTHEID TARGETED

Investment Policy Discussion Continues

■ By Kenneth D. Campbell
and Charles H. Ball
News Office

President Paul E. Gray has invited members of the Executive Committee of the MIT Corporation and members of the Coalition Against Apartheid to have a discussion about divestment on May 3, and the Undergraduate Association has tentatively scheduled a colloquium on apartheid for May 2.

These proposed meetings, which had not been finally confirmed as of Tuesday noon, are the latest developments in the ongoing discussions about the university's divestment policy and how the university is governed. The Undergraduate Association has also scheduled a survey of student opinion to be taken on May 7 and 8 in Lobby 10 regarding divestment, protest and dis-

sent, and ROTC.

(Dr. Gray's background statement to the faculty on the history of demonstrations against apartheid appears on page 8.)

The questions of divestment and dissent have been discussed actively on campus since early February, and sparked demonstrations held on March 2, April 6, April 9 and April 10. The April 10 demonstration was held without incident and without the presence of uniformed police.

The issues aroused considerable debate during last Wednesday's faculty meeting.

Following a 24-23 vote defeating a motion to postpone discussion until May due to insufficient notification regarding the resolution, the faculty voted 25-13 to urge the administration "to take all feasible steps" to have

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Institute Ball Is This Weekend

It's almost here! Just three days remain to the gala Institute Ball on Saturday evening honoring Paul and Priscilla Gray for their 10 years of leadership as president and first lady of MIT.

The dance, beginning at 8:30pm in the Johnson Athletics Center, will feature music, dancing and dessert. Dress is "festive" and black tie is appropriate, although not required.

Tickets are \$10 for students and \$15 for other community members. Students get a special price of \$8 for a group of 10 or more.

Tickets are on sale at the Graduate Student Council Office (Rm 50-222), Information Center (Rm 7-121), Quarter Century Club Office (Rm 20A-023), and at the ticket booths in the lobby of the Student Center and Lobby 10.

They can also be purchased at the door. Anyone with questions can call the Information Center at x3-1475.

Professor Henry D. Jacoby, chairman of the faculty, comments: "This is a time for everyone in the community to come together for dancing, fun and undoubtedly a few surprises."

LETTER ON ROTC

Deutch Urges End To Homosexual Bias

Provost John M. Deutch has urged US Secretary of Defense Richard Cheney to reconsider the policy to bar homosexuals from participating in the Reserve Officers Training Corps (ROTC) and to require avowed homo-

sexuals to disenroll and pay back scholarship funds.

"I believe that the DOD (Department of Defense) should reverse this discriminatory policy just as it has reversed prior discriminatory policies against blacks and women," Professor Deutch wrote in an April 10 letter. The MIT News Office released the full text April 18 after reports about the letter appeared in the media.

Professor Deutch said that, under the present policy, "significant latitude should be given to local ROTC units to determine if repayment of scholarship funds should be required. In several cases, including that of USN Cadet Robert L. Bettiker here at MIT, the recommendation of the local unit not to require repayment was not followed at higher echelons. Such action... can be expected to increase friction in an already difficult situation." He said he supported ROTC on university campuses and pointed out "the risk that this policy poses for the continuation of ROTC on the campuses of many of the leading US colleges and universities." He said he viewed the matter as "potentially quite serious."

"I believe that the DOD should reverse this discriminatory policy just as it has reversed prior discriminatory policies against blacks and women."

(continued on page 12)

IN BRIEF

RACE POSTPONED

The Annual Community Service Fund Road Race, which usually takes place in early May, will be postponed until Saturday, Oct. 13. Reconstruction of the Harvard Bridge poses potential hazards to the runners and will be completed by fall.

In other CSF news, plans are underway for the annual Commencement flower sale to be held immediately following the ceremony in Killian Court on Monday, June 4.

POTTERY SALE

The Student Art Association will hold its spring ceramics sale in Lobby 10 on Wednesday and Thursday, April 25 and 26. Hundreds of items will be available at bargain prices.

Student Notices

MIT Campus Crusade for Christ*—Fridays, 7:17pm, Marlborough 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.

MIT Vedanta Society*—Meditation and discourse on the Bhagavad Gita, Swami Sarvagatananda, religious counselor, classes held Fridays 5:15pm, MIT chapel.

■ OPPORTUNITIES

The Laya W. Wiesner Award—Established by the MIT Women's League in cooperation with women faculty members to honor Mrs Wiesner upon her retirement as first lady of MIT, will again be given this year at the Awards Convocation on Mon, May 14, 3:30pm, Rm 10-250. Nominations for the award, to be given to an undergraduate women student who has most enhanced MIT community life, are being accepted. A brief letter describing the candidate's qualifications should be sent to Dorothy Adler, Rm 12-092, as soon as possible. Info: Mrs Adler x3-8212.

■ INTERNATIONAL

International Students who are June degree candidates with MIT loans must contact Eleanor Wolcott at x8-5663 in the Bursar's Office/Alumni Services to arrange an appointment for an exit interview. An exit interview is required prior to graduation.

MIT-Japan Program. A unique opportunity for MIT science, technology and management students to spend a year in Japan 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. **May 7:** Program Orientation, 5-7pm, 20 Chimneys, Student Center. For further information, call Patricia Gercik, x3-3142, Ctr for International Studies, MIT-Japan Program, Rm E38-754.

■ STUDENT JOBS

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

The Brain and Cognitive Science Department seeks students to act as subjects for psychology (language and vision) experiments. Subjects will work on an on-call basis. Hours: up to 10 hrs/wk. Salary: \$6.25/hr and up. Contact: Anita, E10-218, x5-9335.

Student needed for summer to assist Property Inventory Auditor. Assist in physical inventory of existing items of equipment accountable to MIT. Will be required to perform related duties as needed. Must be able to deal with large amounts of data accurately. Knowledge of scientific equipment is desirable. Must be dependable. Hours: 9am - 5pm, M-F. Salary will be discussed. Contact: Mr. William T. Copley, Assistant Director, Property Office, E19-429, x3-0919.

Programmer needed to write support for existing programs. Will be working under senior programming engineer. Must know C; experience in Mac Toolbox is helpful, but not necessary. Opportunity for advancement. Job located in Coolidge Corner, accessible by T. Starts as soon as possible. Hours: part-time through term, full-time through summer. Salary depends on experience. Contact: Ed Friedman, 311 Harvard St., Brookline, MA. Phone: 734-9700.

Somerville Community Schools Day Camp is looking to fill two positions. Camp Director qualifications are 2 yrs. experience in camp or day care setting, excellent organizational and communication skills, and the ability to supervise senior and junior staff. Senior Counselor qualifications are experience in camp or day care setting, ability to manage groups and supervise teenage junior counselors, and ability to lead group activities. Orientation is June 27-29, program is July 9-August 24. Hours: 8am-4pm, M-TH and 9am-1pm, F (staff training). Salary: Camp Director: \$9,000/hr, Senior Counselor: \$6.50-\$8.00/hr. Contact: Vikki Ginsberg, Somerville Community Schools, 167 Holland St, Somerville, MA 02144. Phone: 625-6600, x6970.

Winthrop Community Access Television seeks a community minded, hard working and self-directed person with hands-on experience in TV production. Responsibilities include supervising and assisting volunteer producers in studio productions, editing, live remote productions. Accessible by T. Hours: 25/wk, must be able to fill in for full time employees. Salary is negotiable. Contact: Winthrop Community Access Television, 165 Winthrop St., Winthrop, MA 02152. Phone: 846-3400.

■ VOLUNTEERS

Walk for Hunger. Join the MIT Hunger Action Group and 250,000 other walkers on May 6 in the nation's largest walkathon. Get your walking papers (and T-shirts!) at the booth in Lobby 10 April 23-May 4. Contact David x5-6433.

United Cerebral Palsy Phonathon. Help raise funds; phonathon dates are Apr 30, May 2, 3, 7, 9, and 10, 164 Main St, Watertown. Contact: Miriam Engelson or Brian Tremblay, 926-5480.

■ UROP

MIT and Wellesley students are invited to join with faculty members in pursuit of research project of mutual fascination. New IAP and Spring term projects are now posted on the bulletin boards in the main corridor and in the UEO. Faculty supervisors wishing to have projects listed should send project descriptions to the UEO. Questions? Contact UEO at x3-7909, 20B-141.

UROP T-Shirts are now on sale for \$6.00 in the UEO. Come by and pick one up.

Deadlines for Summer Funding. For summer, 1990, UROP is introducing two deadlines for students seeking summer funding. Most funding will go to proposals which met an April 23 deadline. A second deadline, Monday, May 21, is to accommodate plans which cannot be made sooner. Funding guidelines remain the same: faculty enthusiasm for the student, unusual projects with no other sources of funding, new faculty in need of support, and (in most cases) sixty percent of funds to come from faculty supervisors and forty percent from UROP. Questions: call the Undergraduate Education Office, x3-7909.

Preparation of High Temperature Superconducting Films. One student is needed in Ceramics Processing Laboratories to participate in a project preparing materials for high temperature superconducting films and powders. Researcher will prepare and characterize chemical precursors and convert them to high T_c oxides films. Films will be evaluated for film quality and superconducting properties. Student should be familiar with basic chemical procedures and techniques. Faculty supervisor: Prof Michael Cima; contact: Mary Rose Scozzafava, 12-002, x3-6330.

Polymer Devices for Organ Regeneration. Opportunity exists for a junior/senior chemist, chemical engineer, or material scientist in the area of biomedical engineering. The goal of the project is to achieve in vivo replacement or regeneration of organs by transplanting cells attached to novel bioresorbable polymers. The project involves the polymer processing aspect of the research: to make and characterize porous polymer matrices in the form of films by new casting techniques. Faculty supervisor: Prof R S Langer; contact: Dr Tony Mikos, x3-3443, E25-342; or Dr Linda Cima, x3-3125.

Options Pricing Analysis & Massively Parallel Supercomputing. Various theories will be applied to derive and analyze algorithms on massively parallel supercomputers for approximating solutions to the partial differential equations that arise in the pricing of options. Faculty supervisor: Prof Iris Mack, E53-394, x3-2673.

Mortgage Prepayments Models. This research project involves the utilization of options theory, mortgage-backed securities (MBS) analysis, and PDEs theory to derive mortgage prepayment models that are utilized in the valuation of MBS. Faculty supervisor: Prof Iris Mack, E53-394, x3-2673.

Capital Budgeting Analysis. Student needed for a project on the application of options theory to capital budgeting decisions that may arise in industrial and manufacturing firms. Faculty supervisor: Prof Iris Mack, E53-394, x3-2673.

Interior Point Methods and Massively Parallel Supercomputing. UROP available involving the application of sparse matrix analysis, graph theory, linear and nonlinear programming of solving interior point methods on massively parallel supercomputers. Faculty supervisor: Prof Iris Mack, E53-394, x3-2673.

Management Flight Simulator. Student needed to work on computer-based case studies. The project would involve development and testing of a computer-based management flight simulator. The simulator will be implemented on the Macintosh, and Mac experience, particularly HyperCard, is desirable, as would be system dynamics or other modeling experience. Faculty supervisor: Prof John Sterman, E52-562, x3-1951.

Transportation Decision Support System. Position available to work on the development of decision support systems for truck routing and scheduling using Windows on a PC. Preference will be given to freshmen and sophomores. Knowledge of C is required as well as the desire to learn Windows programming. Faculty supervisor: Yossi Sheffi, x3-5316, 1-163.

Macintosh C Programming. One student is needed to write C code for analysis and display of data representing automobile design professions. The project involves programming interactive numerical and graphical routines. Experience with Lightspeed C and Macintosh graphics is required. Faculty supervisor: Prof Steven Eppinger, E53-347, x3-0468.

Building an Interactive Model to Predict Market Response. The focus of this project is on understanding, explaining and predicting the effect of marketing mix variables on sales and market share performance. Students will work with a structural modelling technique called partial least squares to build a market response model. The ideal candidate would have a good understanding of statistics and regression analysis, computer programming

Sports at MIT

SWIMMING

Four men swimmers have received honorable mention All America recognition for their performances in the recently completed NCAA Division III National Swimming Championships held at Brown Deer, Wisc. The 800 freestyle relay team of seniors Max Ochoa of Bridgeman, Mich., and Andrew Knoedler from Seabrook, Texas, and freshmen Jim Bandy of Altomonte Springs, Fla. and Alexandria, Va., native Robert Rockwell placed 15th in the competition. Bandy also received honorable mention for his 11th place performance in the 1,650-yard freestyle.

SAILING

The sailing team recently captured the Owen Trophy on the Charles River by defeating 12 other teams. The Engineers also have a fourth place finish of 14 teams in the MIT/Boston College Invitational and a fifth in the prestigious Admiral Moore Regatta at New York Maritime. In the Admiral Moore, junior Kyle Welch of Groton skipped the MIT "B" Division entry to first place. Miki Morizano, a freshman from Minneapolis, Minn., crewed for Welch.

CREW

The lightweight and women's crews kicked off the season on the Charles River recently with the lightweight varsity defeating two University of Rhode Island boats, and crews from Connecticut College and SUNY Albany. The women's varsity eight and varsity four with cox also were victorious. The eight defeated Albany by 12 seconds, and the four defeated Connecticut College and URI by 15 seconds in a race shortened to 1,100 meters because of wind conditions and sailing competition on the river.

SPRING TRIPS

Several athletic teams have recently returned from their spring training trips. Florida played host to the baseball, softball and track squads. The golf team visited South Carolina, while the lacrosse team set up camp in California. In addition to the men's rugby club touring Japan, wrestlers John Sell and Rob Christensen are also in Japan with the Boston Police Athletic League wrestling program. Sell is a junior from Scarsdale, N.Y., while Christensen is a senior from Houston, Texas.

GRACE TO SPEAK

Athletic trainer Paul Grace will be a featured speaker at the 1990 MacGregor Sports Education Basketball Coaches Clinic to be held April 27-29 at Boston Marriott Newton. Among others speaking will be University of Connecticut basketball coach Jim Calhoun, Holy Cross coach George Blaney, former Boston College coach Gary Williams, and Bob Foley, Providence College women's coach.

Roger F. Crosley

skills, and can work independently. Faculty supervisor: Prof William Qualls, x3-0495, E53-410.

Liquid Jet Cooling and Splatter. Position available for a Mechanical Engineering student. Research involves running experiments on jet cooling and splattering from plane and axisymmetric heaters, as well as assisting with pressure vessel construction for a related study. More info with faculty supervisor: Prof Lienhard, Rm. 3-164.

Tennis Racket. Work involving dynamics of tennis rackets. Tests and measurements. Familiarity with dynamics and interest in tennis desirable but not essential. Contact: Prof R V Ramnath, x3-0021 or 862-4826.

Analog Board Design and Sensor Testing. The work involves the design and implementation of an analog/digital sensor system. The system is to be specially tailored to a custom VLSI sensor chip which will be fabricated at MIT. Prerequisites are 6.004, 6.012 and preferably 6.111. Faculty supervisor: Prof Hae-Seung Lee; contact: Joseph Kung, x3-0718, x5-9754; or e-mail jtkung@caf.mit.edu.

Projects in Human Psychology. Students will participate in projects on reading, memory, sentence comprehension and picture processing. Freshmen welcome. Some computer experience preferred. Faculty supervisor: Prof Mary Potter; contact: Anita Moryadas, E10-218, x3-5756.

■ CABLE

MIT Cable Television serves the MIT campus. For connection and programming information, call x3-7431. This schedule is subject to change. For up-to-date information, call Randy Winchester at above number.

WEDNESDAY, APRIL 25

Channel 8: 11am-12noon—Live coverage of the MIT Optics and Quantum Electronics Seminar.

SUNDAY NIGHT, APRIL 29

Channel 36: Midnight-1am—MIT Live! Viewers may call in at 253-TV36.

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

programs). We are now accepting requests via e-mail. Announcements are shown on MIT Cable Channel 12, which is displayed on the receivers in Lobbies 7 and 10. Announcements should be of interest to the general MIT community. Classified ad type messages will not be accepted. Messages should include: date, title of event, speaker or sponsor, time and location. MIT Cable reserves the right to edit your message to fit the screen. Include your MIT phone number. E-mail your announcements to: tv-messages@athena.mit.edu. Messages will usually be posted within 24 hours of their receipt.

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9-YEAR TENURE

Wilson Announces Intent to Resign

Gerald L. Wilson, dean of the School of Engineering since 1981, will resign that post effective September 1, he has announced.

During Professor Wilson's time as dean, the School of Engineering has played a key role in several developments with Institute-wide implications—Project Athena, the School of Engineering Commission on Undergraduate Education, the Leaders for Manufacturing Program, and the preliminary exploration that led to the appointment by President Paul E. Gray of the MIT Commission on Industrial Productivity.

Dean Wilson, the Vannevar Bush Professor, also has spoken clearly and frequently on the need to make fundamental changes in the education of the nation's engineers. Among his recommendations: requiring five years of study for a professional degree in engineering.

In 1988, delivering MIT's annual Robert Bruce Wallace Lecture, Dean Wilson called for the abandonment of "the delusion" that four years of undergraduate education can prepare a student to undertake a professional engineering career. He urged engineering educators to address social and economic factors in their curricula, saying that engineers are not meant to be merely analyzers working in isolation but should be prepared through their edu-



Professor Wilson

cation to lead multidisciplinary teams that can address the needs of society across a broad front.

He stressed, however, that he was not saying that students should not be required to acquire knowledge of one engineering discipline in depth. "What I am advocating is that we stop calling that kind of knowledge 'enough.' It is not enough," he said in the Wallace Lecture, sponsored by the Department of Ocean Engineering.

Dean Wilson informed the School of Engineering faculty of his decision to resign in a letter dated April 5. He

praised the 350 faculty members in the school for their cooperation and commitment to the key initiatives undertaken by the School of Engineering during the 1980s.

"This school and this faculty are truly outstanding by every substantive measure," he wrote. "I urge you to continue to seek the path to the future that is consistent with your convictions. Do not allow simplistic labels to deter you from following your conscience. I am convinced more than ever that you will continue to lead in directions for others to follow."

Dean Wilson, who will be 51 on April 29, is a native of Holyoke and holds three degrees from MIT—the SB (1961) and the SM (1963) in electrical engineering and the ScD (1965) in mechanical engineering. A faculty member since 1965, he was head of the Department of Electrical Engineering and Computer Science for three years before becoming dean of engineering. He also holds an academic appointment in the Department of Mechanical Engineering. During his career at MIT he has made major contributions to the development and operation of electric power systems and to the development of superconducting generators.

He and his wife, Marian Saunders Wilson, live in Wayland, Mass. Their children are Daniel, 27; Karen, 26; Marjorie, 23, and David, 20.

GENETIC BREAKTHROUGH

Biologists Produce Altered Mice

No mice have ever been born like those created by a Whitehead Institute for Biomedical Research/MIT team. The group used a powerful and revolutionary technique to produce mice having a very precisely altered gene that is important to the immune system.

In a recent week's issue of *Nature*, they report their seminal work, which may have far-reaching consequences for understanding the immune system, for cancer research, and even for organ transplantation.

Scientists in the laboratories of Professor Rudolf Jaenisch (Whitehead Institute) and Professor David Raulet (MIT Center for Cancer Research) introduced an intentionally altered, and as a result non-functioning, gene into mouse embryo cells in tissue culture. [Along with Professors Jaenisch and Raulet, other co-authors of the *Nature* paper are Maarten Zijlstra (Whitehead), Marx Bix (Center for Cancer Research), Neil E. Simister (Whitehead), and Janet M. Loring (Whitehead).]

The altered gene sought out and replaced its normal working counterpart (in some of these cultured cells) in a process called "homologous recombination." The transformed cells, then introduced into very early mouse embryos or blastocysts, developed into the genetically altered mice.

Some of the blastocysts developed into mice containing cells derived from both the original embryo and the altered embryonic cells. Through mating experiments, the researchers were able to produce mice that carry two copies of the altered gene; as expected, they do not make any detectable protein (beta2-microglobulin), whose production is specified by the normal gene.

Professor Jaenisch said that the new gene replacement technique "will revolutionize the pace at which mammalian genetics will develop. You can target the gene you are interested in and introduce a piece of mutated DNA."

But the particular gene replacement carried out in this work offers dramatic new insights into the working of immune systems. The scientists were excited to find that their transgenic mice lacked cell-killing T-cells, which work with other components of the immune system to destroy virus-infected cells and some tumor cells.

Because the knocked out beta2-microglobulin protein is required for processing a major class of proteins in the immune system (MHC class I pro-

teins), the scientists were very surprised to find that the mice appeared normal in all other respects. The MHC class I proteins play a central role in the immune system and in the ability of immune cells to distinguish self from non-self.

The MHC class I proteins were also thought to play a major role in embryonic development. But the altered mice, incapable of making the protein beta2-microglobulin controlling the MHC class I molecules—are indistinguishable from their normal littermates. When they are protected from infection, they are normal in all observed respects. They breed normally and produce normal sized litters.

The research has thus put into question widely held beliefs about the role of the ubiquitous beta₂-microglobulin protein in embryonic development.

In future work, the researchers will focus in greater detail on the animals' immune responses. The researchers have speculated that the absence of MHC class I proteins in all the cells of the transgenic mice may make them ideal donors and recipients for tissue transplantation experiments.

In creating mutant or transgenic mice, biologists have in recent years usually relied on a "shotgun" approach to seeding genes into embryonic mammalian cells that later grow into genetically altered animals. However, the technique used by the Whitehead/MIT group allows precise placement of genes into intended sites on DNA.

The basic technique was developed by researchers Mario Capecchi at the University of Utah, Oliver Smithies at the University of North Carolina, and others. The Whitehead/MIT team has achieved the ultimate goal of these earlier pioneers: to produce mice capable of passing on a specific defect to their offspring.

Quoted in the *New York Times*, Caltech molecular biologist Dr. Leroy Hood said of this kind of work: "This is one of the most exciting technologies in biology developed in the last ten years. It's really an absolutely uniquely powerful technique for understanding the role of genes that are essential to life."



Professor Marvin Minsky delivers the Killian lecture. Photo by Donna Coveney

KILLIAN LECTURE

Minsky Tours the Mind

Bushing aside the criticism of those who say that machines will never become as "smart" as people, Professor Marvin L. Minsky last week delivered the 1990 Killian Award Lecture on the decades-long pursuit of artificial intelligence. Dr. Minsky, Toshiba Professor of Media Arts and Sciences, has long been a central figure in the field.

"Can machines think?" Minsky asked rhetorically. "Of course they can, because you are one!" Human beings, he said, have not been given the "gift" of mind, rather this faculty of which we are most proud has come at the expense of countless quadrillions of individual deaths. He said, "There is a grandeur and pride of having come from three and one-half billion years of evolution."

It is Minsky's view that hundreds of specialized "computers" make up the human brain—or any other large brain for that matter. Many of these are at work cooperatively and unconsciously. He has elaborated this theme in his best-selling 1987 book, *The Society of Mind*.

Attacking what is to him the ill-defined concept of "consciousness," Professor Minsky said that there are some tens of phenomena that seem to be attached to that word. "First of all," he said, "you're not self-aware." Our words come out without us knowing how they got there—no conscious insight is involved. The same can be said of walking, Minsky remarked. "People are not conscious, contrary to common belief," he said.

Most of the important work in the field of artificial intelligence has been done at MIT, he noted, as he stepped anecdotally through many of AI's accomplishments dating back to the 1950s. In 1959 John McCarthy and Marvin Minsky initiated the MIT Artificial Intelligence project, which grew into what is now the Artificial Intelligence Laboratory.

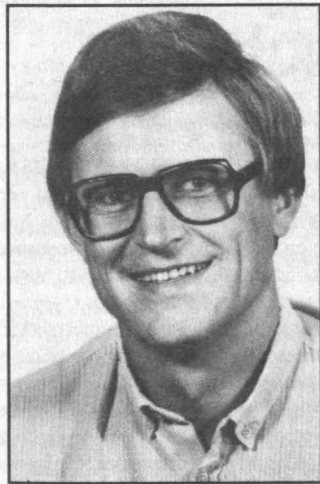
Minsky gave some insight into his thinking about what AI really is, when he quoted Frank Lloyd Wright saying, "An expert is someone who doesn't have to think."

Machines will eventually be as smart as or smarter than people, Minsky believes. Yet even in the face of brilliant chess computers that may well in a few years surpass all human players, people have great difficulty coming to grips with the idea of super-smart computers. The hang up, Minsky believes, is that we have just never experienced a machine with literally billions of integrated subunits—a society of mind.

To capture the spirit of Professor Minsky's lecture, a quote from one of the letters that recommended him for the Killian Faculty Achievement Award comes to mind: "... A half hour's conversation with Marvin was like watching a hundred bright balloons set free. And the ideas, the surprising associations, the physical metaphors for mathematical ideas, were good. A thesis topic a minute. Even the jokes had amazing depths."

EUGENE F. MALLOVE

Errata



This is Professor Henrik Schmidt whose appointment as a Doherty Professor in ocean engineering was announced in the last issue. By mistake Tech Talk ran the photograph of Professor Martin Schmidt with the announcement.

—Last week's story on the Friday, April 6 protest reported erroneously, due to confusion about names, that 23 of the 26 persons arrested were students. All 26 were MIT students. A graduate student who reportedly was charged only with trespass after notice also was charged, like the other 25, with both trespassing after notice and disturbing the peace.

—The name of Lionel Lynch of Dorchester, a member of the Housing and Food Service staff, was inadvertently omitted from the list of new members of the Quarter Century Club published in the last issue.

LARGEST CLASS

58 Are Named Sloan Fellows

Fifty-eight mid-career executives from the United States and abroad have been selected for the 1990-91 Sloan Fellows Program at the School of Management.

The 52 men and six women, who were nominated by their organizations, will make up the largest class in the history of the program. They will follow a 12-month course of study leading to a master of science degree in management.

Sixty percent of the new class will come from US industry, according to Alan F. White, associate dean for executive education and director of the program. The others represent a wide range of activities in the private and public sectors in such fields as health care and government.

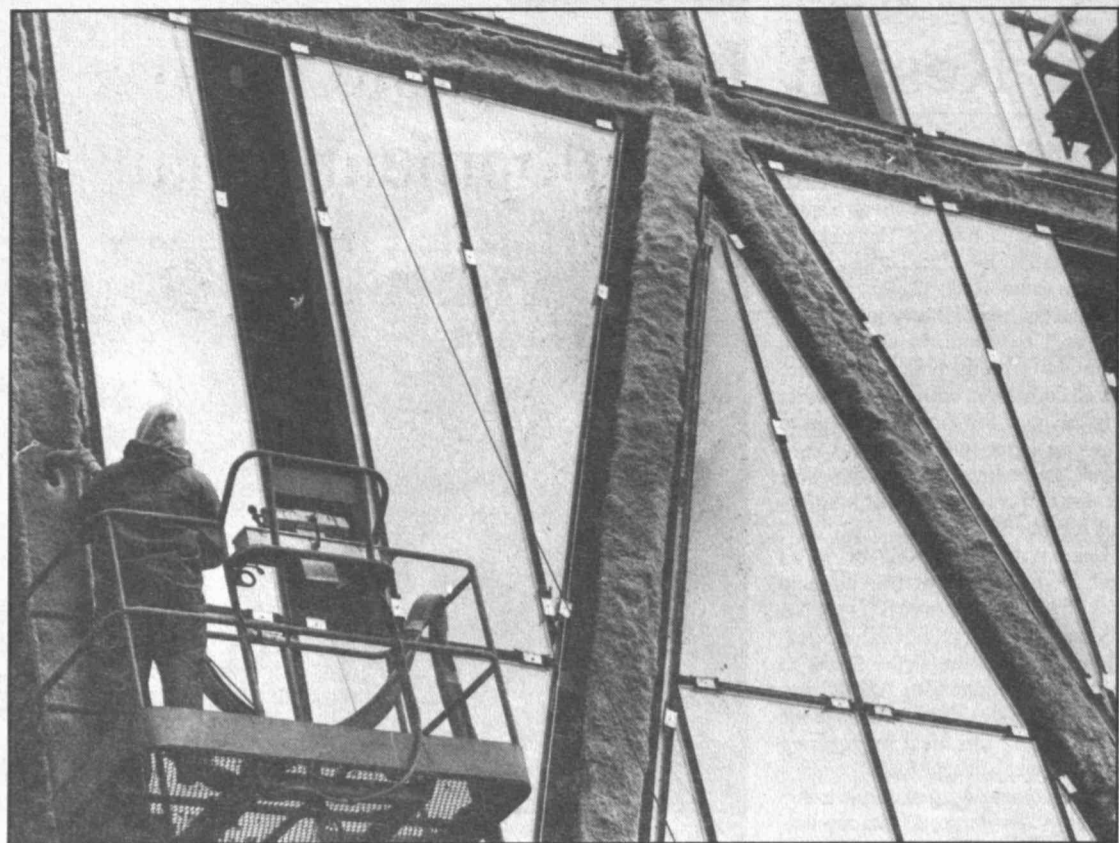
This will be the 59th year of the program, the first executive education

program in the world. It now has more than 1,800 alumni.

"The original concept of broadening typically specialized managers for general management positions still guides the direction of the program," Dean White said. "Graduates of the program have risen to significant leadership positions in their organizations throughout the world."

It's a Fact

Renowned architect I.M. Pei was graduated from MIT in 1940 and has designed four buildings for his alma mater. Pei buildings house the Departments of Chemistry; Chemical Engineering; Earth, Atmospheric and Planetary Sciences, and the Art/Media Technology Laboratory.



THE ICING ON THE CAKE—A workman does glazing work on the new addition to the Rotch Library.

Photo by Donna Coveney

Energy Gurus List Ways to Help

(continued from page 1)

and the use of biomass in the Midwest. Furthermore, he said, we all need to "eat lower on the food chain." He termed this a "grossly unpopular concept" but that this radical change "need not be as painful as many of us think."

Next to speak was William McKibben, whose book *The End of Nature* has become a best seller in five countries. The work treats the components of the environmental "crisis" and what is preventing humanity from dealing with them effectively.

"What I want to talk about this afternoon is considerably less rational [than the preceding energy efficiency discussion] and there are many possible objections," he said. I believe we face not just a sort of technical problem but a deep philosophical problem as well. We are on the edge of a new era in our relationship with nature, a kind of sad and empty era."

"I think we're in danger of losing the wildness of the world. I think that it is getting harder and harder to find a place where men and women aren't. I think that our idea of nature as something separate from human beings—at least in some sense—is dying away."

"We face a new level of environmental disruption. Not local, not regional, but global. I'm well aware that there is still plenty of uncertainty surrounding the greenhouse effect or the depletion of the ozone layer, and that there are a few scientists even at this university who think that their impacts have been overstated. But it is not overstatement, I think, that for the first time in human history we've managed to fundamentally alter the entirety of our environment. If the consensus estimates are right, we'll see an average temperature increase of something like four degrees Fahrenheit by the middle of the next century."

"We have in some very large sense over-mastered nature—not controlled it, but altered it. Every time you walk



William McKibben, author of *The End of Nature*, and Ted Flanigan, director of the Rocky Mountain Institute in Colorado, speak at "Green: A Colloquium on the Planet" last week.

Photo by Donna Coveney

outdoors you are standing in what in some sense is a heated room. Forget about Fenway Park. We're talking about the Houston astrodome.

"That's what I mean by the end of nature—not that the end of the world is approaching, but an end of a powerful way of looking at the world."

"As I see it, we have two choices. The first is to push ahead, to welcome the changes we've made in the world, to embrace control as our destiny, to figure out ways to extend our reach ever further.... The other is to learn to limit our numbers and to limit our appetites... We have enough comforts, enough possessions... It is literally impossible to imagine all five or six

billion people on this planet living like Americans."

"Technology in this process is a good thing, but it's worth remembering—as long as we're at the institute of technology—that there's lots of technology already out there. A hydrogen powered car is a neat idea, but then so is the bicycle. It may well be—all things considered—that the bicycle should be our primary means of transportation. Not just for our sake, but for the rest of creation."

"We're not mere mechanically advanced beavers. We have the ability to see what we are doing to the world, and to limit ourselves."

'INTERESTING MOLECULES'

Buchwald Receives Edgerton Award

Professor Stephen L. Buchwald, an innovative and creative organometallic chemist with an international reputation, has received the 1990 Harold E. Edgerton Award.

The announcement was made at the April faculty meeting by Professor Isabelle de Courtivron, a former winner of the award and a member of the faculty committee who selected Dr. Buchwald. The other committee members were Professors Sylvia T. Ceyer, Rudiger W. Dornbusch and Ira Dyer.

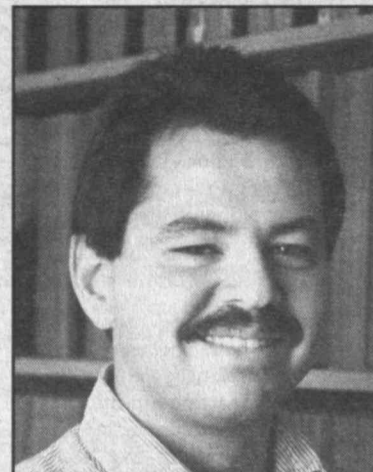
The award, which carries an honorarium of \$5,000, was established in 1983 with contributions made by the faculty in honor of Professor Harold E. (Doc) Edgerton. It recognizes young faculty members for outstanding achievement in research, scholarship and teaching.

The award committee's citation said that Dr. Buchwald, the Firmenich Associate Professor in the Department of Chemistry, "has demonstrated a commitment to excellence in each of these dimensions."

Professor Buchwald, 34, was born in Bloomington, Ind. He received a bachelor of science degree from Brown University in 1977 and PhD in chemistry from Harvard University in 1982. He was a Bantrell fellow at the California Institute of Technology from 1982 to 1984 before joining the MIT faculty.

The citation said his research "is at the heart of chemistry: making new molecular substances, proving their structure, and establishing their properties."

It continued: "He has synthesized extraordinarily interesting molecules such as benzyne and cyclopentene complexes which he fully characterized... With the new complexes, Buchwald has developed efficient synthesis



Professor Buchwald

of pharmaceutically important compounds... His research conducted at MIT and presented in 22 research papers is significant, original and definitive."

Professor Buchwald's work has been recognized by numerous awards, including two Union Carbide Innovative Recognition Awards, an Eli Lilly Award and an American Cancer Society Junior Faculty Award, an A.P. Sloan Fellowship and a Camille and Henry Dreyfus New Faculty Award.

In addition, the citation said, he is "intensely interested in and dedicated to educating his students." He has trained eight undergraduate UROP students, all of whom have gone on to seek PhDs; under his own supervision, seven students have received PhDs and nine more are pursuing them at MIT.

His contributions to teaching have been recognized by his receipt of the Camille and Henry Dreyfus Teacher-Scholar Award in 1989.

WELCOMING INTERNS

Japanese Outreach Began at Lunch

Kimie Shirasaki knows what it's like to be homesick and a little lonely in a country far from home.

As a result, when she and her husband, who was a visiting scientist here at MIT, returned to Tokyo about two years ago she founded the MIT Japanese Wives' Alumnae Association, an organization devoted to softening the blows of culture shock for American interns placed in Japanese laboratories by the MIT Japan Program.

The Alumnae Association grew out of the MIT Japanese Lunch Table, a weekly brown-bag gathering that brings Japanese visiting scientists and their wives together with MIT students who are studying Japanese. Many of these students are Japan Program interns who go on to spend a year in a Japanese corporate, university or government

laboratory.

Over the years, the Lunch Table has resulted in many friendships and contacts. Japanese wives, in particular, have proven to be an unexpected resource. Mrs. Shirasaki, for example, was a former Lunch Table regular.

Since Mrs. Shirasaki began the MIT Japanese Wives' Alumnae Association the group has sponsored a number of activities in Japan, including a barbecue attended by 15 Japanese families and five MIT students, a Christmas party, and a picnic with 13 Japanese families and seven interns.

Several days after the picnic, Mrs. Shirasaki wrote the Japan Program to say: "The picnic was really wonderful. All the Japanese wives, husbands and children enjoyed talking with the MIT students. I believe that this kind of party is one of the best ways for cultural exchange, forming new friendships and creating good understanding."

The Japanese Wives' Alumnae Association is now more than 50 women strong and growing rapidly. The group meets regularly to develop new ways to help interns adjust. One result of these meetings is a pamphlet on Japanese life, which the Shirasakis and some of the interns are planning to publish soon.

It's a Fact

Technicolor was developed in 1921 by an MIT alumnus, Herbert T. Kalmus, '03, who named the process in honor of his alma mater. MIT was often called Tech by its early graduates.

THREE LECTURES

CMS Visiting Scholar to Discuss Polymers

Dr. Helmut Ringsdorf, an internationally recognized expert in polymer science, will give three lectures next week as the first Distinguished Visiting Scholar at the Center for Materials Science and Engineering.

Dr. Ringsdorf's lectures will address polymer science as an interface between materials science and life science: the molecular engineering of functional supramolecular systems. The lectures will

be held in Rm 9-150 at 3pm on the following schedule:

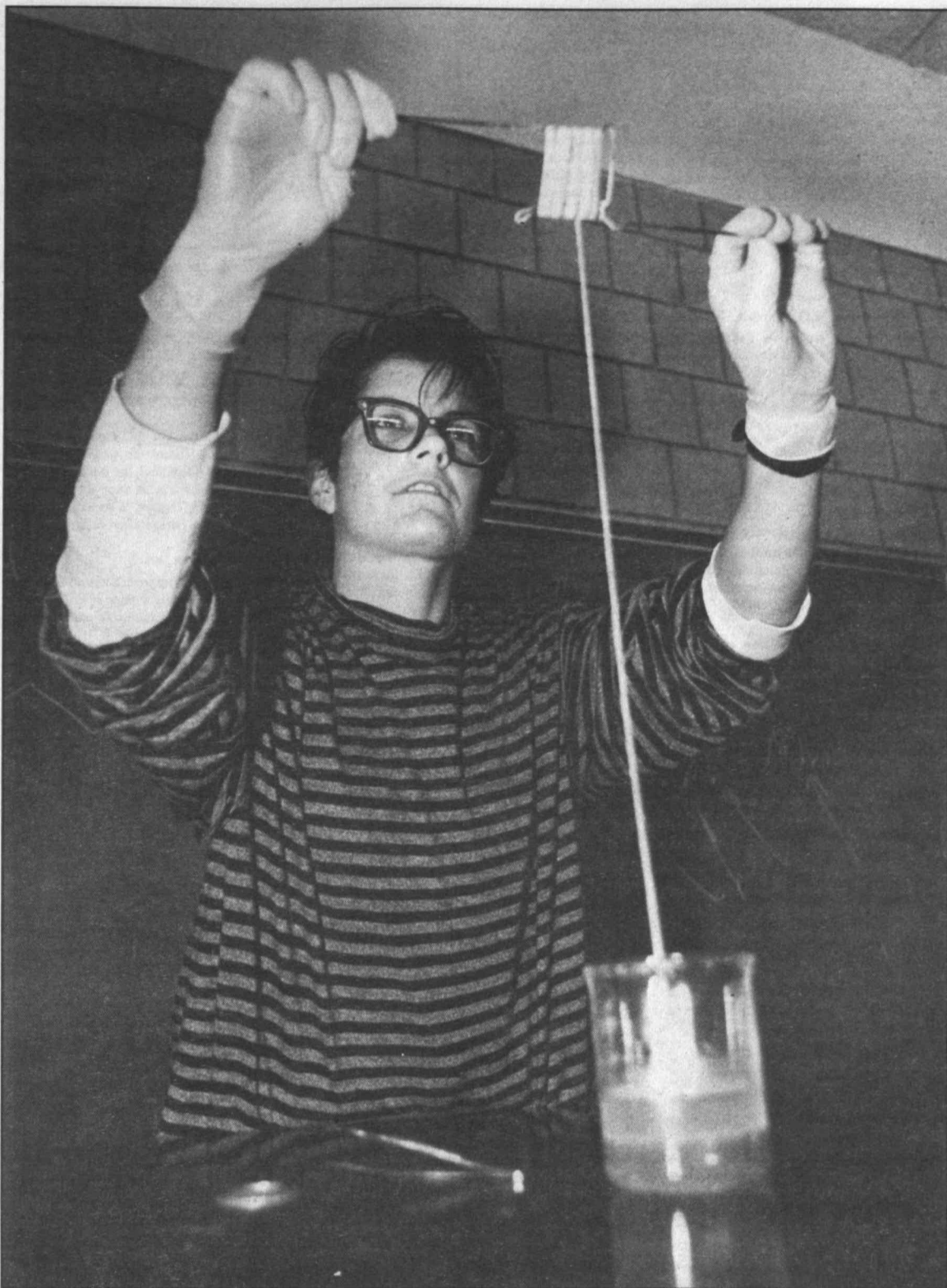
Wednesday, May 2—Molecular Architecture of Liquid Crystalline Polymers: Calamatic, Discotic and Sanidic Systems: Phase Induction and Photofunctionalization.

Thursday, May 3—Attempts to Mimic Biomembrane Processes: Structure and properties of multilayers and liposomes from Monomeric and Poly-

meric Amphiphiles.

Friday, May 4—Enzymes Caught in Action: Specific Recognition, 2D-Crystallization and Function of Proteins at Monolayers.

The May 3 lecture will be followed by a reception for Dr. Ringsdorf in the Chipman Room (8-314). Those wishing to schedule an appointment with Prof. Ringsdorf may do so by calling Susan Rosevear of CMSE at x8-6477.



Tayhas Palmore shows Cambridge Rindge and Latin students how nylon is made during a recent Chemistry Outreach demonstration at the high school.
Photo by Donna Coveney

Chemistry Show Excites HS Students

(continued from page 1)

from nine high schools to 50. Furthermore, in 1989 undergraduates in the department started a similar program to reach out to elementary schools. This spring 15 undergraduates—including one freshman—will bring half-hour presentations to 10 local schools.

"We try to pack as many experiments as we can into that half hour without losing the explanations of what's going on," said Robert Rich, a senior in the program.

Both the graduate and undergraduate programs have received enthusiastic reviews from teachers and kids alike. Said Mr. Rich: "The comment I love to hear from teachers is 'the kids haven't been exposed to [chemistry demonstrations] like this before and it's wonderful that you're doing this. We can't, due to equipment, time or budget constraints.'"

Students in both programs stress the support of Professor Mark Wrighton, head of the department. "He was really the key player in getting [the graduate program] going that first year," Mr. Brisbois said. From the beginning the department has covered all expenses for both programs—which average about \$200 per one-hour presentation—and Professor Wrighton has arranged meetings between Outreach students and local teachers "to find out what would be most helpful to them," Mr. Rich said.

Last fall Professor Wrighton officially endorsed the programs by appointing Professor Peter Lansbury faculty advisor. "James and I were very, very happy to see the department sort of institutionalize the program by making Professor Lansbury advisor," Mr. Brisbois said. "There's always a

four-year turnover of students, and Professor Lansbury will ensure a smooth transition from year to year."

The department is also establishing graduate fellowships for students interested in outreach. "Mark Wrighton has made the decision that reaching out to the schools is a useful part of a graduate student's education, and so should be encouraged," Professor Lansbury said. "It's an alternative way of making a living here other than teaching undergraduates."

This year Julia Hendrix became the first Chemistry Outreach fellow. And thanks to fund-raising efforts by Professor Wrighton, the program hopes to support another five students by spring 1991.

The Department of Chemistry has given high priority to its students' outreach programs, including substantial funding, but James Nowick stresses that a basic outreach effort doesn't have to be expensive. After all, that first year the program cost \$500 to produce, the equivalent of \$1 per kid. "The cost of doing something like this is so small and the payoffs so large," Dr. Nowick concluded.

Perhaps the following note from a student at Quincy High School who saw the program best summarizes those payoffs: "I never realized how interesting chemistry could be. After your demonstrations I am seriously considering a career in the chemical field."

50 Programs Reach Out

The students, faculty and staff involved in the MIT Chemistry Outreach Program have worked hard to bring a slice of science to high school and elementary kids around New England.

They are not alone.

According to a survey of the campus conducted by the News Office, there are at least 50 other programs around the Institute designed to reach out to children from infancy through high school. They run the gamut from day-long tours of research labs to presentations at schools on robots and how a clock works to mentoring programs that pair MIT students with high school juniors and seniors.

Most of these programs focus on science education and are run by vol-

unteers—MIT faculty, graduate and undergraduate students, administrators and support staff who care about scientific illiteracy and are doing something about it. Others, however, teach toddlers how to swim, match student volunteers with nonprofit organizations, or even bring Shakespeare skits to the classroom. All reach out to the community outside MIT.

In summary, outreach programs are available through 17 MIT departments, schools or programs; 12 centers and laboratories; 17 administrative organizations, and five student organizations.

For more information on these programs, contact Elizabeth Thomson at the News Office, 258-5402.

NEW FACULTY

Flik To Hold Course 2 Development Chair

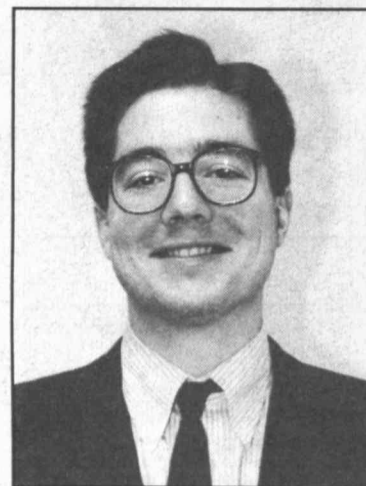
Markus I. Flik, an assistant professor in the Department of Mechanical Engineering, has been named the holder of the Lynde and Harry Bradley Foundation Career Development Chair.

The announcement was made by the office of the Dean of the School of Engineering.

The Bradley Foundation grant supports four career development professorships in engineering and a number of other programs at MIT. The foundation, from its Wisconsin headquarters, administers a national program which funds higher education and public policy research.

Professor Flik, a native of Stuttgart, West Germany, holds the diploma with distinction from the Swiss Federal Institute of Technology, ETH Zurich (1985), the MS from the University of California, Berkeley (1987) and the PhD, also from UC Berkeley (1989), all in mechanical engineering.

His research interests are thermal stability of superconducting electronic devices, thermal radiation properties of high-temperature superconducting films, and heat transfer in the processing of thin-film semiconductors and superconductors. It is Professor Flik's primary goal to combine the engineering methods of heat transfer and thermodynamics with basic results from solid-state physics and electrostatics.



Professor Flik

His awards include the Silver Medal from the Swiss Federal Institute of Technology for an outstanding diploma thesis, 1986; an Overseas Fellowship of the German National Scholarship Foundation, 1986/87 and a fellowship from the German National Scholarship Foundation, 1983-87.

Professor Flik joined the MIT faculty last October. Before that he was a research assistant at UC Berkeley in mechanical engineering for three years, and a postdoctoral researcher at the Tokyo Institute of Technology in the summer of 1989.

Campaign Update

This column, a new Tech Talk feature, will report from time to time on aspects of the Campaign for the future. The campaign was formally launched in October 1987, and will conclude in June 1992.



Dean of Science Gene Brown, Dean for Undergraduate Education Margaret MacVicar, and President Gray stand outside the newly named Boynton Lecture Hall (6-120). The hall was renovated last year with a bequest from the estate of Kenneth K. Boynton, '15. Classroom renovation is among the priorities of the Campaign for the future.
Photo by Donna Coveney

In other campaign news, Fellowships have been set up to support MIT undergraduates who want to expand their volunteer efforts. Inspired by an article on student volunteers in *Spectrum*, the campaign newsletter, an anonymous alumni donor launched a new fellowship fund. It supports the Priscilla King Gray Fellowships in Public Service, which honor Mrs. Gray's long-time commitment to volunteerism. Starting in 1991, the fund will provide \$4,000 each to selected students who wish to spend their summers doing volunteer work. The donor of the initial contribution has pledged to help raise an ultimate total of \$500,000. MIT's Public Service Cen-

ter will administer the fund. The center had previously received a substantial Boston Foundation grant to support fellowships for undergraduates doing volunteer work during the most recent Independent Activities Period or this coming summer.

* * *

As of the start of this month donors had given \$69.2 million for endowed professorships. A total of 36 chairs have been created for full professors. There are also 24 new, endowed career development chairs, which are awarded on a shorter term basis to assistant and associate professors.

Institute Calendar

April 25 - May 6

■ SPECIAL INTEREST

Pottery Sale*—Apr 25, 26. The Student Art Association will hold its spring ceramics sale in Lobby 10, hundreds of items available at bargain prices.

The Institute Ball**—Apr 28: In honor of Paul and Priscilla Gray. Put on your black tie or festive dress, and come solo, in pairs or with a group! 8:30pm-1am, Johnson Athletics Center. Tickets \$15, students \$10, available in Lobby 10, Quarter Century Club Office, Information Center, Graduate Student Council Office, and Student Center Lobby ticket booth.

MIT Community Summer Softball 1990 Organizational Meeting—May 2: Season runs from May 29 to Aug 17 (co-ed). 5:30pm, Twenty Chimneys, 3rd fl, Student Ctr. Further info: Marino Tavarez, Commissioner, 625-4368 (h) or 262-9032 (w).

■ SEMINARS & LECTURES

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

MONDAY, APRIL 25

A New Vision for Electro-Optic Sensors**—P Sutton, Admiralty Research Establishment, England, EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B.

Is Japan a One-Party State? The Role of Opposition in Japanese Politics*—Robert Immerman, US Dept of State. Sponsored by the MIT Japan Program, 12-2pm, E38-714. Brown bags welcome.

Subthermocline Equatorial Dynamics*—Dr Lew Rothstein, University of Rhode Island, Oceanography Seminar, 12:10pm, Rm 54-915.

Development and Experimental Demonstration of Robust Control Techniques for Automated Startup of Spacecraft Reactors**—Kwan Kwok, Nuclear Engineering Dept Reactor Engineering Section Doctoral Seminars, 3pm, Rm 24-115.

Guidance Control and Estimation of Aerospace Systems*—Dr Jason L. Speyer, Minta Martin Lecture, Dept of Aeronautics and Astronautics and the New England Section of the American Institute of Aeronautics and Astronautics, 4pm, Rm 9-150.

Macroeconomic Adjustment in Very Poor Countries: Can There be a 'Human Face'?*—Prof Gerald Helleiner, U of Toronto. The MacArthur Seminar on Institutional Perspectives on Third World Developments, 4-6pm, Rm E38-714. Refreshments.

The World Bank in the 1990s*—Ibrahim Shehata, The World Bank. The Workshop on Reconstruction in the Middle East, 4-6pm, Rm E53-482.

Contractivity of Runge-Kutta Methods**—Hans Kraaijevanger, MIT and University of Leiden. Numerical Analysis Seminar, 4pm, Rm 4-163. Refreshments, 3:30pm in Rm 2-349.

Shipping Finance: Recent Trends*—Dirk Langeveld. Sponsored by the MIT International Shipping Club, 4:15pm, Rm E52-321.

The State of the Massachusetts Economy*—Rep Steven D Pierce, Mass House Minority Leader, Republican Gubernatorial Nominee. Sponsored by the MIT Republican Club, 5:15pm, Rm 6-120.

Democratization and Political Liberalization in Hungary**—Speaker TBA. Harvard-MIT Joint Seminar on Political Development, 5:30pm, MIT Faculty Club. By invitation only.

Ecole's Teaching Methods: Intentions, Implications and Consequences*—Jean Paul Carlbhan, FAIA, principal, Shepley, Bulfinch, Richardson and Abbott Architects. 7pm, MIT Museum Bldg.

THURSDAY, APRIL 26

A Potential Based Panel Method for the Analysis of Cavitating Hydrofoils**—Neal E Fine, MIT. Hydrofoil and Propeller Seminar, sponsored by the Dept of Ocean Engineering, 12-1pm, Rm 5-314. Bring your lunch, coffee provided.

Muscle Modeling: Parameter Estimation & Computer Simulation**—Karen Palmer, RA, Mechanical Engineering Dept. Newman Biomechanics Laboratory Seminar, 1pm, Rm 1-114.

The Air Strategy for a Changing World**—Col John A Warden, III, USAF. Defense and Arms Control Studies Program Seminar Series, 3-5pm, Rm E38-714.

Continuous Thermodynamics for Fluid-Phase Equilibria*—Prof John M Prausnitz, visiting MIT from the Univ of California, Berkeley. Sponsored by the Dept of Chemical Engineering and the Energy Laboratory, 3:30-5pm, Rm 66-110.

Brownian Model of Queuing Networks*—J. Micheal Harrison, Graduate School of Business, Stanford University, Operations Research Center, 4pm, Rm E40-298. Refreshments to follow seminar.

Heard Any Good Stories Lately? Narratives in Communications, Cognition and Society*—Spkrs: W. Russell Neuman, MIT; Shawn O'Donnell, MIT; David Thornburn, MIT; Marion Just, Wellesley College; Glorianna Davenport, MIT; Hayward R. Alker, Jr., MIT, MIT Communications Forum, 4-6pm, Rm E15-070.

Preferential DNA Repair in Expressed Genes*—Prof Philip Hanawalt, Dept of Biological Sciences, Stanford. Sponsored by Whitaker College of Health Sciences and Technology, 4pm, Rm E25-111. Refreshments, 3:30pm.

State Power and Social Organization in China: From Revolution to Reform*—Prof Vivienne Shue, Cornell. Asian Council Seminar Series on Political Reform & Social Change, 4-6pm, Rm E38-615.

Modelling Engine Warm-up Process to Predict Component Temperatures**—Jordan Kaplan G. Sloan Automotive Laboratory Seminar, 4pm, Rm 37-212. Refreshments.

Production of Z⁰ Bosons in e⁺e⁻ Annihilation*—Prof Gregor Herten. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

Playboy: Strategies for Global Expansion**—Christie Hefner, Chairman and Chief Executive Officer, Playboy Enterprises, Inc. Sloan School Distinguished Speakers Series, 4:30pm, Rm E51-329. Reception to follow.

Anna de Noailles ou Voix et Visages d'une Epoque (1876-1933)**—Elisabeth Higonet-Dugua. A lecture in French, sponsored by Foreign Languages & Literatures at MIT, 7pm, Rm 14E-304.

FRIDAY, APRIL 27

A Pharmaceutical Perspective to Protein Purification**—Dr Stewart Builder, Genentech, Inc. Sponsored by the Chemical Engineering Dept, 3pm, Rm 66-110.

'Difference' as a Feminist Political Strategy*—Prof Jane Mansbridge, Northwestern Univ. Women and Politics Seminar, sponsored by the MIT Dept of Political Science, the Center for International Studies, and the MIT Program in Women's Studies, 3-5pm, Rm E38-615.

Simulation of Traveling -Wave Amplifiers*—Dr Norman Dione, Raytheon Corp, Plasma Fusion Center Seminar, 4pm, Rm NW17-218.

The Geochemical Consequences of Fluid Immiscibility on Ore Deposition**—Dr Theresa Bowers, MIT. Sponsored by the Dept of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915.

MONDAY, APRIL 30

Biological and Molecular Functions of myb**—Tom Gonda, Ludwig Institute for Cancer Research. Whitehead Institute Seminar, 12pm, Whitehead Institute Auditorium.

Evaluating Day Care Centers for Infants, Toddlers, and Preschoolers*—Kathy Simons, Administrator, Child Care Office. 12:130pm, Rm 6-233.

Spacecraft Materials**—Darryll Tenney, NASA Langley RC, Material, Structures and Aeroelasticity Seminar Series, 3pm, Rm 33-206.

Intranasal Drug Delivery to the Central Nervous System**—M Yvette Madrid. Sponsored by the Chemical Engineering Dept, 3pm, Rm 66-110.

Design of Intergrated Electronic Controls for Modern Aircraft*—Prof Marc Pelegrin, ONERA/CERT/ENSAE. Aeronautics and Astronautics, 3pm, Rm 35-500. Refreshments served.

Hazard Analysis and Assessment of Chemical Operations**—Christopher Nagel. Sponsored by the Chemical Engineering Dept, 3:30pm, Rm 66-110.

Micro-Motors**—Jeff Lang, MIT, MIT-EECS Colloquium Series, 4-5pm, Rm 34-101. Refreshments, 3:30pm.

Fluid-Structural Interactions in High Performance Turbomachines**—Prof Belgacem

Jery, MIT, Dept of Aeronautical and Astronautical Engineering. Fluid Mechanics Seminar Series, 4-5pm, Rm 5-234.

The Total Chemical Synthesis of Proteins**—Stephen B H Kent, Bond University, Queensland, Australia. Whitehead Institute Seminar, 4pm, Whitehead Auditorium.

Linear Controller Design via Convex Optimization**—Prof Steve Boyd, Stanford, MIT/Draper Joint Seminar Series in Dynamics, Guidance and Control, 4:15pm, Draper 1409B.

TUESDAY, MAY 1

Photo-initiated H + N₂O Reaction: Effects of Orientation on Reaction Pathway**—Yongqin Chen, University of Southern California. Seminar on Modern Optics and Spectroscopy, sponsored by George R Harrison Spectroscopy Laboratory, Research Laboratory of Electronics, Schools of Science and Engineering, Plasma Fusion Center and Industrial Liaison Program, MIT, 11am-12pm, Rm 37-252 (Marlar Lounge). Refreshments following.

Afghan Refugees in Pakistan*—Richard English, Development Alternatives. Inter-University Seminar on International Migration and the Workshop on Reconstruction in the Middle East, 4-6pm, Rm E38-714.

Electroosmotic Decontamination of Hazardous Waste Sites**—Andrew Shapiro, MIT. Special Thermal & Fluid Sciences Seminar, 4-5pm, Rm 3-133.

Coordination and Feedback as Tools for Development*—Gerald W Blakeley, Jr, President, Blakeley Investment Co. Richard L Mullin Lecture, sponsored by the Center for Construction Research and Education, 4pm, Rm 2-190.

VaAs VLSI Challenges and Realization**—Jim Mikkelsen, Vitesse Semiconductor. VLSI Seminar, 4pm, Rm 34-101. Reception, 3:30pm.

Development of the GE-90 High Bypass Turbofan Engine*—Mr C C Koch, General Electric Aircraft Engine Group. Gus Turbine Laboratory Seminar, 4:15pm, Rm 31-161. Refreshments, 4pm.

The Expanding tRNA Promoter**—Karen Sprague, U of Oregon. Host: Uttam Rajbhondary. Biology Colloquium, 4:15pm, Rm 10-250. Coffee, 3:45pm, outside Rm 10-250.

Cosmic Background and Isotropy*—Prof Stephan Meyer, MIT. Astrophysics Colloquium, sponsored by the Center for Space Research, 4:15pm, Rm 37-252. Refreshments, 3:45pm.

Zen and the Art of Photochemotherapy**—Alan Oseroff, Roswell Park Memorial Institute. Seminar on Lasers in Biomedical Research, sponsored by MIT Laser Biomedical Research Center, MGH Wellman Laboratory, MIT Industrial Liaison Program, and Harvard-MIT Division of Health Sciences and Technology, 5-6pm, Rm E25-117/119. Coffee 4:30pm, buffet dinner and discussion following lecture.

WEDNESDAY, MAY 2

Far-Infrared Spectroscopy of High Temperature Superconductors with Terahertz Electrical Pulses**—M Nuss, AT&T Bell Laboratories, EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B.

Molecular Architecture of Liquid Crystalline Polymers**—Prof H Ringsdorf, CMSE Distinguished Visiting Scholar, U of Mainz, West Germany. Center for Materials Science and Engineering Colloquium Series, 3pm, Rm 9-150.

MHTGR RCCS System Design Analysis**—Gang Fu, Nuclear Engineering Dept Reactor Engineering Section Doctoral Seminars, 3pm, Rm 24-115.

The Case Against One Thing at a Time: A Critique of the Theory of Unbalanced Growth*—Albert O Hirschman, Institute for Advanced Study. The MacArthur Seminar on Institutional Perspectives on Third World Development, 4-6pm, Rm E38-714.

Modernity and Sediton in the Muslim World: Architecture as an Intellectual Statement*—Ismail Serageldin, Architect and Planner, The World Bank. Sponsored by the Aga Khan program for Islamic Architecture at Harvard & MIT, 7:30pm, Rm 6-321.

THURSDAY, MAY 3

Afro-Brazilian Women and Community-Based Cultural Organization*—Joselina da Silva, Third World Women's Project, Institute for Policy Studies, Washington, DC. Sponsored by the MIT Women's Studies Program, the Center for International Studies, and Women in International Development, 12-2pm, Rm E38-714.

An Experimental/Theoretical Investigation of Parallel Inhomogeneities in Respiratory Flows*—Thomas Wolf. Doctoral Thesis Defense, 2pm, Rm 5-134.

Attempts to Mimic Biomembrane Processes**—Prof H Ringsdorf, CMSE Distin-

guished Visiting Scholar, U of Mainz, West Germany. Center for Materials Science and Engineering Colloquium Series, 3pm, Rm 9-150.

A Probabilistic Model for Predicting Software Reliability*—Noushin Ashrafi, Dept of Management Science, University of Massachusetts at Boston, Operations Research Center, 4pm, Rm E40-298. Refreshments served after seminar.

The Telecommunication Policy of the Bush Administration*—Spkrs: William Maher, National Telecommunications and Information Adm, US Commerce Dept; Kenneth Bleakley, Bureau of International Communications and Information Policy, US State Dept; Lee McKnight, MIT, MIT Communications Forum, 4-6pm, Rm E15-070.

Ethnic Identity, Nationalist Aspirations, and the Future of the Soviet Union*—Prof Igor S Kon, USSR Academy of Science. Peoples and States: Ethnic Identity and Struggle, co-sponsored by the MIT History Faculty and the MIT Anthropology/Archaeology Program, 4-6pm, Rm E38-714.

Nearly Stationary States of the Barotropic Vorticity Equation*—Jeffrey L Anderson, Geophysical Fluid Dynamics Laboratory, Princeton. Center for Meteorology and Physical Oceanography Quasi-Biweekly Seminar Series, 4pm, Rm 54-915.

Was Einstein Right?*—Prof Clifford Will, Washington University. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45, Rm 26-110.

Women Who Kill: The Case of the Papin Sisters*—Prof Nicole Ward Jouve, University of York, England. Sponsored by the Women's Studies Program, 4:30-6pm, 14E-304.

FRIDAY, MAY 4

Biomedical Imaging and Image Processing*—Prof Derek Rowell, MIT, Dept of Mechanical Engineering. The DenHartog Memorial Lecture, 3pm, Rm 3-370.

Enzymes Caught in Action**—Prof H Ringsdorf, CMSE Distinguished Visiting Scholar, U of Mainz, West Germany. Center for Materials Science and Engineering Colloquium Series, 3pm, Rm 9-150.

Self-Organization in Geologic Systems: Order Through Chaos**—Prof Peter Ortoleva, Indiana University. Sponsored by the Dept of Earth, Atmospheric and Planetary Sciences, 4pm, Rm 54-915.

■ COMMUNITY MEETINGS

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

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

German Lunch Table**—Come to lunch and speak German, every Tues 1:15-2pm, Walker dining hall. Look for the German flag, all levels welcome. Sponsored by the Foreign Languages & Literatures Section.

Graduate Student and Postdoc Parents Support Group*—Co-leaders: Dawn Metcalf, Social Worker, MIT Medical Dept; Rae Goodell, Coordinator of Parent Programs, MIT Child Care Office. Info: x3-1592 or x3-4911.

Honorary Matrons of MIT**—See "Successful Aging" lecture under Health Education, below. Apr 26: Honorary Matrons Luncheon. Sherry will be served at the President's House from 11:45am-12:45pm, followed by a luncheon at the Faculty Club at 1pm. Former President Howard W Johnson will speak on "Presidential Searches I Have Known." For parking passes for West Garage call x3-3656.

Informal Embroidery Group*—MIT Women's League Group meets May 2 & 16, June 6, 10:30am-1:30pm, Rm 10-340.

Japanese Lunch Table**—Every Tues, 1pm, Walker Rm 220. Bring bag lunch and speak Japanese with native speakers. All levels welcome. Further info x3-8095.

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

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

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

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.

Wives' Group**—All women in MIT community welcome. *Afternoon Group:* meetings 3-4:45pm, Rm 491, Student Center; babysitting, Rm 407. *Apr 25:* "A Demonstration of Quilting." Carolyn Wixted, Member of the MIT Women's League. *May 2:* "How Americans Picnic." Gwen Connelley, Beth Hill, and Kindra Jacoby, Wives' Group Members. Further info: x3-1614.

■ HEALTH EDUCATION

Successful Aging*—Apr 26: Mobility and the Orthopedic Adventure. Co-sponsored by the MIT Medical Dept and the MIT Honorary Matrons with Catherine N Stratton. Both 9:30-11:30am, Bartos Theater, Wiesner Bldg. Audience question period after both seminars, coffee served 9am.

Nursing Mothers' Support Group**—Pregnant and breastfeeding women at MIT meet to gain confidence and share info and practical tips. First Tues of each month, 10-11am and third Weds of each month, 4-5pm, Rm E23-297. Babies welcome. Info: Connie Bean, x3-1316.

Working Mothers Support Group**—An ongoing support group that meets to discuss parenting-related issues in a casual atmosphere. Meets every other Wednesday, 12-1:30pm (drop in anytime), Rm E23-364. Next meeting: **May 2**. Info: Janette Hyde x3-4290.

■ MITAC

Tickets may be purchased at the MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm Monday-Friday. Tickets are also sold in Lobbies 10 and E18 on Fridays, 12-1:15pm. Lincoln Lab sales in Rm A263, 1-2pm Tuesday-Friday. Further details on events are included in MITAC's monthly flyer. To avoid disappointment, make reservations and purchase tickets early. Because MITAC is nonprofit, refunds are not available.

MITAC, the MIT Activities Committee, offers discount movie tickets for General Cinema (\$3.75/ea) and Showcase (\$4.25/ea). Tickets are good 7 days a week, any performance.

Museum of Fine Arts—The Council for the Arts has 10 passes employees may borrow for free admission (not including the Monet exhibit). Call the MIT Libraries, x3-5651, for availability. At Lincoln Lab, MFA passes are available in A-150.

City Books are here! \$1/ea (reg. \$7.50/ea) Discounts on dining, car washes, limo service, haircuts, etc in the Boston area.

Theatre District Murders!—**May 10:** An evening of murder, mystery, and mayhem at Nick's Comedy Shop Building, 8pm. Tkts \$9.00/ea (reg. \$14.00/ea), must be purchased by Apr 26.

Day Trip to Sandwich, MA—**May 20:** Reservations must be made by Apr 20, \$29/pp.

Tech Night at The Pops—**June 7:** Sponsored by the Alumni Association as part of the Technology Day Festivities. 8pm. Tkts: \$21/pp, 1st balcony; or \$6/pp, 2nd balcony (please specify when purchasing tkts). Tkts. must be purch'd by May 24.

Whitewater Rafting in Calumet, Quebec—**Jun 22-24:** Incl round-trip transportation, 2 breakfasts/lunches/dinners, & campsite. Only \$145/pp. Bus leaves West Garage Fri, Jun 22, 12 noon; & returns approx. 12 midnight Jun 24.

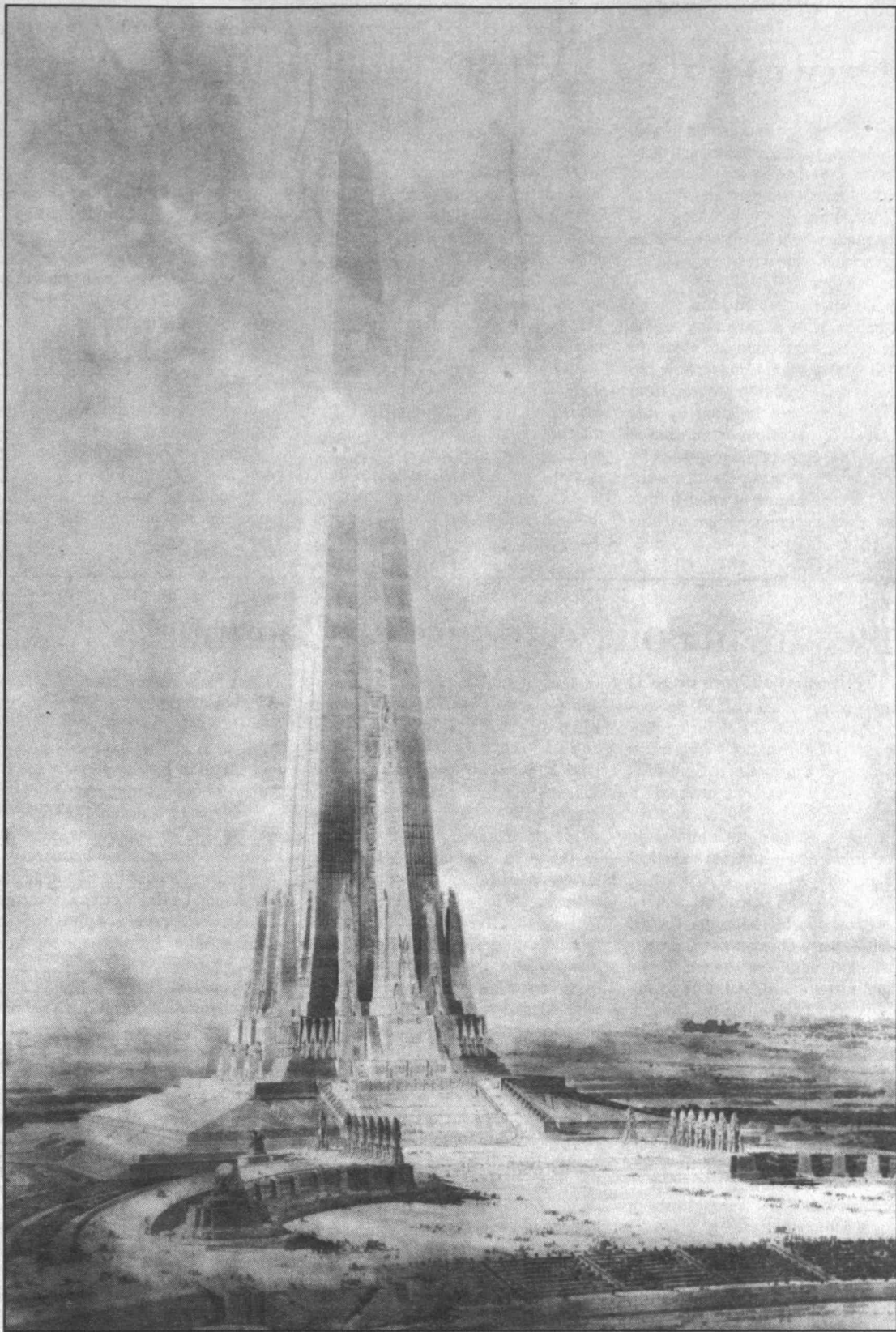
Summer Weekend Escapes at Talbot House in Vermont—**Jul 6-8, Jul 13-15, Aug 3-5, Aug 10-12:** South Pomfret, VT. Dorm style accommodations in a cooperative living environment. Room sizes for 4, 5, or 6 people/room, & reservations must be made by the room. \$58.50/pp/wknd, meals included. You provide your own transportation. One room per customer. Reserve by Jun 29.

Summer in Montreal: Labor Day Weekend—**Aug 31-Sep 3:** Bus leaves West Garage Aug 31, 7am; & returns Sept. 3, approx 7pm. Cost: \$165/pp/dbl. occ (incl. transp, 4 days in Montreal, & 3 nights' lodging at Journey's End Hotel). Reserve by Jul 31.

■ MOVIES

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

The Wizard of Oz, Apr 27, 7:30pm, Rm 10-250. **The Witches of Eastwick**, Apr 28, 7 & 10pm, Rm 26-100. **Ben-Hur**, Apr 29, 7pm, Rm 26-100. **Steel Magnolias**, May 4, 7 & 10pm, Rm 26-100. **Psycho**, May 4, 7:30pm, Rm 10-250. **Dirty Dancing**, May 5, 7 & 9:30pm, Rm 26-100. **Time Bandits**, May 6, 6:30 & 9:30pm, Rm 26-100.



Beacon of Progress, circa 1899, a plan by Desire Despradelle, who had arrived in the US from Paris six years earlier to become the Rotch Professor of Architectural Design at MIT when it was still located in Boston. An exhibition of works by the famous teacher is now on view at the MIT Museum. President Richard Maclaren said of Despradelle: "I have been told by dozens of students that he would rather spend weeks and months in training and encouraging a young man to find himself than quickly to turn him into some way that was not naturally his own. Now that capacity, that power, simple though it is when you talk about it, is one of the rarest things you will find on earth." For other events, see the Arts Page, page 11.

MUSIC

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

Advanced Music Performance*—Apr 25: Una Hwang (G), piano. Debussy Preludes Bk II. Apr 27: Joyce Wong, G, cello., Brahms. Letitia Hom '92 (Wellesley), violin, Brahms. May 4: Chung Pei Ma '90, violin student of Masuko Ushioda. 12:05pm, Killian Hall.

Thursday Noon Chapel Concert*—Apr 26: Jean Danton, soprano, and Thomas Stumpf, organ and harpsichord. Works of J S Bach, Purcell, Handel, and A Scarlatti. May 3: "Singing Brass...From Madrigals to Manhattan Transfer" with the Chamber Brass of Boston. 12:05pm, MIT Chapel.

MIT Chamber Chorus Concert*—Apr 26: John Oliver, director. Schubert, Britten. 8pm, Killian Hall.

Affiliated Artist Concert*—Apr 27: Lawrence Isaacson, trombone; Deborah Emery, piano. 8pm, Killian Hall.

MIT Faculty Concert*—Apr 27: Pianist David Deveau. Works by Haydn, Schumann, Cornell, Liszt. May 6: Preview performance of John Harbison's "Words from Paterson" by the NJ Chamber Music Society. 8pm, Kresge Auditorium.

MIT Chorallaries Concert*—Apr 27: The "Spring Sing" of MIT's coed a capella singing group. 7:30pm, Huntington Hall (Rm 10-250).

Student Recital*—Apr 30: Greg Warren, horn (student of Jean Rife). 12:05pm, Killian Hall.

MIT Jazz Bands Spring Concert*—May 4: Everett Longstretch and Jamshied Sharifi, directors. 8:15pm, Kresge Auditorium. \$1 at door.

MIT Concert Band Concert*—May 5: John Corley, director. 8pm, Kresge Auditorium.

New Jersey Chamber Music Society*—May 6: Boston debut featuring pre-premiere preview performance of John Harbison's "Words from Paterson." 8pm, Kresge Auditorium.

Senior Recital*—May 6: Anne Law '90, soprano. 4pm, Killian Hall.

READINGS

Poetry at the Media Lab*—Apr 26: Adrienne Rich. 7:30pm, Bartos Theatre, Wiesner Bldg.

THEATER

Anything Goes*—Apr 26-28: MIT Musical Theater Guild, 8pm, Sala de Puerto Rico, Student Center, \$7/general, \$6/MIT faculty & staff, \$5/students & seniors, \$4/MIT students.

The Playwrights' Workshop*—Apr 26-28: Three original student-written one-act plays. "Into Boheme" by Sande Chen '92, "Shiloh" (adapted from short story by Bobbie Ann Mason) by Peter Parnassa '90, "What Simply Wouldn't Do" by Austin Sloat '92. Sponsored by the MIT Music & Theatre Arts Section, 8pm, Rehearsal Room B, Kresge Auditorium downstairs.

Iolanthe*—Apr 27-29, 8pm. Apr 29, 2pm. MIT Gilbert and Sullivan Players, MIT Green Bldg (Rm 54-100), \$8/general, \$7/MIT faculty & staff, \$6/students & seniors, \$5/MIT students.

An Evening of Student Written One-Act Plays*—May 3-5: MIT Dramashop student-directed plays. 8pm, Kresge Little Theatre. Free.

DANCE

Spring Dance Concert*—May 3-5: Presented by the MIT Dance Workshop, 8pm, Sala de Puerto Rico, Student Ctr.

MIT Ballroom Dance Club Workshops*—Apr 29: Hustle 1, 1-2pm; Quickstep 2, 2-3:30pm; Paso Doble 3, 4:30-5:30pm. May 5: Party, 8pm-midnight. May 6: Int'l Rumba 1, 1-2pm; Hustle 2, 2-3:30pm; Quickstep 4, 4:30-5:30pm. General dancing from 4:30-5:30pm, free. Costs: Level 1: 50¢ member, 75¢ non-member; Level 2: 75¢ member, \$1 non-member; Level 3: \$2 member, \$3 non-member; Level 4: \$3 member, \$4 non-member. Party: \$2 member, \$3 non-member. Location (unless otherwise noted): Morss Hall, Walker Memorial. No partner necessary, info x8-6554.

Gy-Nekua*—May 1-5: Poetry/dance performance by environmental artist Panos Kouros and choreographer Mary Tsouti. 9pm, MIT Chapel and Center for Advanced Visual Studies, call for reservations 227-4332 by Apr 30-10pm.

MIT Folk Dance Club*—weekly dancing-Sun, Beginning International Dancing, 7pm, Student Ctr Sala de Puerto Rico (except Dec 24, 31); Tues, Advanced Balkan and Western European Dancing, 8pm, Student Ctr Rm 407; Wed, Israeli Folk Dancing, 7pm, Lobby 13 (subject to change). Info: x3-3655.

Aerobics Classes*—Sponsored by the MIT Dance Club. Every Mon, Wed, Fri, 6-7pm, Bldg W31 Dance Studio, \$3/per class. Info: Julia, 492-1369.

Aerobics/Workout Class*—Open to activity card users/MIT Health Plan. Sponsored by the Phys Ed Dept. Tues & Thurs, 1:10-2pm, Swimming Pool, Racket Court Rm #1.

SERVICE NOTED

Doelling is Promoted at Sea Grant

Norman Doelling, executive officer of the MIT Sea Grant College Program, has also been named Assistant Director for Education and Advisory Services to acknowledge his contributions in these two areas.

"We have long recognized Mr. Doelling's contribution to Sea Grant," said Sea Grant Director Chrys Chrysostomidis. "We look forward to his continued leadership."

In his new capacity, Mr. Doelling will continue to help forge links among researchers interested in the marine environment, coordinate Sea Grant's research efforts and manage the Advisory Services staff.

MIT Sea Grant's Advisory Services express the program's commitment to public service and technology transfer. Under Mr. Doelling's leadership the MIT Sea Grant Marine Industry Collegium was established in 1975, becoming the first industrial collegium on campus.

In addition, through his activities, Sea Grant has become one of the largest direct supporters of the Undergraduate Research Opportunities Program on campus, bringing numerous MIT students into marine research and attract-



Mr. Doelling

ing support for student research from off-campus sources. For instance, Mr. Doelling was instrumental in obtaining funding for UROP research from the US Rowing Association and the US Olympic Sports Equipment and Technology Committee.

The promotion also recognizes Mr. Doelling's efforts to involve faculty and graduate students in Sea Grant's advisory outreach projects.

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

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.

MIT Dance Workshop Classes*—An activity of the Theatre Arts program taught by members of the Beth Soll & Co, MIT's resident dance company. Beginning Modern Technique, M,W, 3:30-5pm, T-Club Lounge, Dupont Ctr; Intermediate Modern Technique, Tu,Th, 5:30-7pm, Walker-201; Discussion, Tu 4-5pm, Rm 4-148; Composition/Improvisation, Tu 11-12:30, Walker-201; Technique/Repertory/Improvisation, Tu 11-12:30, Walker-201. Info: x3-2877.

EXHIBITS

THE MIT MUSEUM

MIT Museum Bldg (N52)—From the Ecole to Tech: Desire Despradelle, His Colleagues, and Students. Drawings from the museum's extensive architectural collections will be featured in discussing the nationwide influence of the Ecole des Beaux Arts trained architect Despradelle. Through June 10. Gallery Talks: Apr 25, see Calendar Lectures. **Richard Bertman: Architect and Sculptor.** Drawings, sculpture, and architectural plans by the eminent Boston architect. Through July 29. **Math in 3D: Geometric Sculptures by Morton C. Bradley, Jr.** Revolving sculptures based on mathematical formulae. Form and color relations lend these works a unique visual appeal, ongoing. **Holography: Types and Applications.** Changing 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. **Marcia Oakes Woodbury.** Oils, watercolors and drawings by celebrated turn-of-the-century artist, ongoing. Hours: Tues-Fri 9am-5pm. MIT Museum closed to the public on Mondays; Open 12-4pm Sat-Sun.

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.

CORRIDOR EXHIBITS

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

COMPTON GALLERY

Microscopes. Color photographs by AT&T photographer Charles Lewis. Microprocessor chips, glass fibers, crystals, magnetic bubbles shot at speeds up to 1/720,000th of a second and magnified as much as a billion times. Ongoing. 77 Massachusetts Ave. Hours: Mon-Fri 9-5, Sat 12-4.

OTHER EXHIBITS

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

SPORTS

HOME EVENTS: Apr 25: Baseball vs Harvard, 3:30pm. **Apr 27:** M's V Tennis vs Skidmore, 3pm. **Apr 28:** M's V Sailing vs CGA Alumni Bowl/NE Dinghy Champs, 11am; W's Crew vs BU & Northeastern; Baseball vs WPI (2), 1pm. **Apr 29:** M's V Sailing vs CGA Alumni Bowl/NE Dinghy Champs, 11am; V Golf vs Carnegie Mellon, 1:15pm. **Apr 30:** Baseball vs BU, 3:30pm; V Golf vs Engineers Cup. **May 1:** Softball vs SMU, 3:30pm; Baseball vs Wentworth Institute, 4pm. **May 2:** Baseball vs Curry College, 3:30pm; W's Lacrosse vs Harvard JV, 4pm. **May 5:** Baseball vs Brandeis, 1pm; Golf vs Harvard, 1:15pm; M's V Lacrosse vs Roger Williams, 2pm. **May 6:** M's V Sailing Invitational, 9:30am.

WELLESLEY EVENTS

Jewett Arts Center*—The Wellesley Method: Work by collaborative artists Kate Ericson and Mel Ziegler. Eye glasses are the central image for this project, which refers to the role of the museum as an interpreter of the object. Through Jun 11. **Arcadia in America: Mt Washington from the Valley of Conway by John Frederick Kensett:** Reunites Frederick Church's *New England Scenery*, Jaspers Cropsey's *America Harvesting*, and John F. Kensett's *Mount Washington from the Valley of Conway* for the first time since their initial showing in 1851. Through Jun 11. **Recent Acquisitions and Alumnae Gifts:** Additions to the permanent collection, including a rare calotype by 19th-century photographer Eugene Cuvelier and a watercolor by American painter John LaFarge. Through Jun 11. Museum hours: 10-5 MThFSat, 10-9 TuW, 2-5 Sun. **Gallery Talks—Apr 27:** "Gardens of the Impressionists," John Dixon Hunt, Director of Harvard's Research and Studies Program in Landscape Architecture, Dumbarton Oaks, 11:15am. "Kensett's Mount Washington: A View of Paradise Lost," Carol Troyen, Museum of Fine Arts, Boston, 3:30pm. **Apr 28:** "A Forum: Wellesley College Alumnae in the Arts," 10am. Ongoing gallery talks, Sundays, 2:30pm.

Send notices for Wednesday, May 2, through Sunday, May 13, 1990, to Calendar Editor Rm 5-111, before 12 noon Friday, April 27.

BACKGROUND ON DISSENT

President Gray Discusses 1986, 1990 Demonstrations

President Paul E. Gray at the April 18 faculty meeting discussed developments regarding divestment from the first week of February through April 13. During that period, he had an impromptu meeting with student representatives on February 19 and held formal meetings with students on April 10 and April 13.

Dr. Gray then described to the faculty meeting the background of the divestment demonstrations and constructions of shanties in 1986 and 1990. Below are his remarks.

"Let me turn to some comments ordered in a sense by the motion that is before you. The resolution regrets the arrests and the injuries and I echo that sentiment. I too regret that there was this confrontation, that there were arrests and certainly that there were injuries, injuries sustained both by members of the Campus Police and by demonstrators. I must tell you that the decision not to let the unauthorized shanty stand in place was mine. It was a decision taken in the light of the history that relates to the events of March 1986 and, in particular, the Faculty Meeting of April 3, 1986.

"I want to remind you just a bit about the history of the shanties on Kresge Oval in March of 1986. They stood there for about 12 days. There were a number of problems associated with their presence. . . over that 12 day period. There was on the 8th of March 1986, a close call early in the morning, when several carloads of individuals, presumably MIT students, drove up, and threatened to take the shanties down right there on the spot. There were Campus Police present and that confrontation was avoided. There was a need throughout the 12 days for continuous police presence, in part to deal with that possibility, the one I just spoke of. There were individuals sleeping in the structures, there was an accumulation of flammable material, indeed the structures themselves were flammable and flammable material was accumulating in them. There were other uses of the Oval coming up in the next weeks and there was generally a climate during that period of time of near-confrontation, near-incidents associated with the presence of the shanties. At the end of the 12 days they were removed by the Physical Plant with oversight from the Campus Police and it was their removal which led to the arrests.

"I read a paragraph written by a member of the Office of the Dean for Student Affairs at that time, speaking about that period, and I quote, 'Many students from diverse areas of the campus expressed to different members of the administration over the past two weeks their serious displeasure with the fact that MIT decided to tolerate shanties in the middle of the campus. Some communicated threats which consistently were met with the response that MIT would not tolerate harassment, destruction of property or physical abuse under any circumstances. More often, however, instead of threats, students would simply share their prediction "that the shanties would almost certainly be removed by students unless they were removed by the Coalition or by MIT.'"

"MIT's consistent request was to have patience and tolerance until March 13th, 1986, the date on which they were eventually removed. There had been discussions prior to the establishment of the shanties about their being put up in an authorized manner. Part of the authorization involved a limited period of time and I think the end of that limited period of time was the 13th. In the end, there was no agreement on the conditions that went with that authorization and the shanties were put up in 1986 in an unauthorized manner as the shanty last Friday, a week ago, was put up in an unauthorized manner.

"Finally, let me note that there was considerable experience accumulating that spring with shanties on campuses elsewhere. In a number of cases, there had been physical confrontations, where shanties had been set fire to, and where

there had been shanties removed by students with considerable risk to all participants.

"It was that sense of history of what happened in 1986 that led me to conclude that the shanty put up on Friday, the 6th of April (1990) should not remain. I would note that there was significant faculty presence there on that Friday, as there was faculty presence at the Faculty Club on March 2nd and as there was significant faculty presence on the following Monday, April 9th.

"The motion urges termination of prosecution, reimbursement of court costs and legal expenses. I must tell you that it is my view that both actions would be inappropriate. The April 6th arrests of 26 individuals came following ample warning. Those 26 persons made a choice and that choice has consequences. Those individuals were presented with an opportunity for having those arrests dealt with by the courts in a manner which will lead eventually to dismissal, that is, an agreement to a continuance with the eventual dismissal and no court record. Some five or six people took that choice. The others will have that opportunity presumably presented to them again.

"My reason for this position, saying it seems to me that the actions proposed in the resolution are inappropriate, relates to my reluctance, indeed my unwillingness, to tinker or to appear to be tinkering with the judicial system. In that regard also, I want to relate an aspect of the April 1986 experience, which coincidentally involved the same judge before whom the individuals arrested on April 6 appeared. At that time, before the faculty met on the 3rd of April, I, in fact, wrote to our attorney at Palmer and Dodge and asked him to endeavor to have those cases dismissed by the judge. And some days after the Faculty Meeting, our attorney did appear, with counsel for the defendants, before the judge and argued for dismissal of the cases. The judge did not dismiss those cases, although he did treat all the cases in a manner which amounted to a continuance and an eventual dismissal.

"I want to read to you a paragraph from the letter written to me, following the appearance in court by our attorney in which he speaks of the conference with the judge about our request for dismissal and I quote, 'Much of the time of the conference was devoted to the judge's explanation of the reasons why he would not agree to an immediate dismissal. He believes that a decision to invoke the criminal process by making an arrest carries with it an obligation to proceed with the court process. He feels that the integrity of the court and of that process is at stake once criminal proceedings are begun. He is also concerned that the credibility of the criminal process would be damaged and deterrents or the legal behavior in the future diminished if arrests were followed by immediate dismissal of the charges that resulted from the arrests. The judge therefore urges that universities only invoke the criminal process with the full recognition of the consequences of such a decision, including the requirement that the proceedings be followed through to their conclusion.'

"The motion before you requests the appointment of a standing advisory panel on demonstrations and suggests that that panel could be consulted in times of crisis. That indeed would be desirable if in fact the nature of the crisis permits that consultation. I don't think one can make representations in advance that all situations would permit such consultation. That proposed panel would also be involved in monitoring the involvement of all participants, demonstrators and Campus Police, in such activities. I submit that that monitoring in fact occurred, although in a somewhat informal way, in these events of the last month.

"There remains, it seems to me, a need to address a question which I raised here four years ago about these

matters. Let me speak about it today in the same language I spoke about it then. I referred to it then as the dilemma of disputed decisions, particularly in a place like a university. Before a decision is made which has wide impact or that generates wide interest, it is appropriate that there be broad consultation. That consultation is both desirable and is a hallmark of a university as the home of free expression and ideas.

"After a decision is made, how can advice and consultation proceed from those who are not satisfied by that decision? What options do they have? What are the appropriate responses by those who have made the decision? And what are the limits at which further pressure may become coercive and how

does the institution deal with those situations?

"It seems to me that the matter which in some senses provoked everything that is before us today, this set of demonstrations and the responses to them, that the roots of that lie in the fact that the Coalition Against Apartheid disagrees strongly, fundamentally with MIT policy as it relates to investments in South Africa.

"The issue is not, it seems to me, that they have not had a chance to express their view on those matters, or may not in the future have other opportunities to express their view. The issue is that the individuals at the Institute who have the responsibility for making this [investment] decision—and that is, under the by-laws of the Corporation,

the Executive Committee of the Board of Trustees—have made a decision some years in the past and from time-to-time have reiterated that decision, which does not conform to the desires of the Coalition. The Coalition, in some sense being dissatisfied with that outcome, is endeavoring to coerce, I think I can use that word, to coerce the institution into changing its policy. It seems to me that that issue, the question of the line at which disagreement with a decision becomes unacceptable coercion, is one on which the faculty would wish to have something to say.

"There's a big difference between being heard and having one's way. In some sense, the issue before us now hinges right there," Dr. Gray concluded.

Investment Policy Discussion Continues

(continued from page 1)

charges dropped against 32 persons arrested on April 6 and 9 during protests against the Institute's investment in companies having ties to South Africa. The Campus Police arrested 29 students on April 6 and 9, and the Metropolitan District Commission police arrested two students and a lecturer on April 9.

The faculty, by voice vote, agreed to postpone consideration of a second part of the resolution offered by the eight faculty members, which called on the administration to establish a Standing Advisory Committee on Demonstrations that would include administration, faculty and student representatives.

The purpose of the committee, the resolution said, would be "to participate in setting policies regarding demonstrations, to be consulted in times of crisis, and to monitor police action or other participants' involvement in major political demonstrations on campus."

The 25-13 vote was on a resolution signed by Professors Susan Carey, Isabelle de Courtivron, Maurice S. Fox, David M. Halperin, Jean E. Jackson, Frank S. Jones, John Parsons and Ruth Perry. The resolution also urged the administration "to reimburse the students for the court costs and legal expenses incurred in these cases."

Professor Paul L. Penfield, Jr., sought to have the vote on the resolution postponed to the May faculty meeting on the grounds that there had been insufficient notification that the resolution would be on the agenda. He also noted that the resolution had been distributed at the meeting and was not included in the call to the meeting. His motion was defeated by a single vote, 24-23.

The 25-13 vote came after lengthy discussion.

Professor Henry D. Jacoby, chair of the faculty, gave the faculty a partial chronology of events of the demonstrations on March 2, April 6, 9 and 10, and extensive discussions in which he participated, as chair of the faculty, on March 15, 20, 22, April 5, 9, 10 and 13. He also noted the meeting April 11 of the Advisory Committee on Shareholder Responsibility (see separate story, page 9).

On April 13, he related, President Gray met for the second time that week with the students and Associate Provost Samuel Jay Keyser, Professor Jacoby, Executive Assistant to the President Kathryn Lombardi and Associate Dean of Student Affairs James Tewhey. Professor Peter Temin also joined in that two-hour discussion.

Dr. Gray, in remarks at the faculty meeting, said the discussions instituted after the second demonstration have been useful. Referring to Winston Churchill's comment that "jaw, jaw is better than war, war," President Gray said, "We're going to keep on jawing as long as . . . there is a chance to talk without the need of bullhorns."

The section of the resolution expressing regret at the arrests of the

students and calling on the administration to seek dismissal of the charges was nearly identical to a faculty resolution passed four years ago, on April 3, 1986, following the arrests of eight students during the dismantling of a shanty on the Kresge oval in circumstances similar to this year's arrests.

President Gray noted that Institute lawyers had been unsuccessful in 1986 in seeking to have the charges dropped then. He said five or six of the students arrested on April 6 already had availed themselves of the opportunity to have the arrests dealt with in a manner that would leave no record, through continuance and eventual dismissal.

Professor Perry, in her remarks concerning the April 9 demonstration, which began on the Student Center lawn and spilled over to Memorial Drive and Wadsworth Street, said the police action "appalled me and my colleagues," adding, "In the future, force ought to be absolutely the last resort, not one of the earliest ones."

Professor Parsons said the administration's prior decision not to allow a shanty "prevented meaningful dialogue." He said it was "time to learn not to bring police into action immediately."

President Gray, in response, noted that the Metropolitan District Commission (MDC) Police involved themselves in the events on Memorial Drive, "acting in response to what they felt was necessary. I agree with Professor Parsons that the latter half of that business (the arrest of the student photographer who was in a tree) was really quite unnecessary."

Other faculty speakers included Professor Stephan L. Chorover, who said the Campus Police "should have means of invoking order without the need for arrests."

On the subject of divestment, he said the world had come "to regard this as a fundamental moral issue" and he urged MIT to join other institutions that have changed their policies.

Graduate student Steven D. Penn, vice president of the Graduate Student Council and one of those arrested at the April 6 demonstration, said students feel "it is not someone's right to give them permission to protest. While there may be a lot of opportunity to talk," he said, there is "no opportunity to vote or be involved in decisions that affect us."

The president of the Graduate Student Council, Mike Warwick, presented a GSC resolution opposing the administration's response to the April 6 and 9 protests.

"Specifically," it said, "we condemn the unilateral, autocratic decision to arrest the CAA protestors instead of adopting a negotiated solution," [and] "the harsh and violent actions enacted on MIT students by the campus police." The GSC resolution recommended that the administration drop all charges against the protestors, pay all fines and court costs and apologize to the community.

Supporting the idea of a committee of faculty, students and staff to facilitate communication and help formulate policy, Professor John M. Deutch and other speakers said they believed that the responsibilities of any committee convened in this regard ought to be defined somewhat differently to take into account the wider issues raised by dissent on campus and to consider policies and procedures for dealing with it. The matter is to come before the May meeting of the faculty.

While stressing the need for a university to tolerate dissent and differences of opinion, Provost Deutch said the situation changes when dissent becomes confrontation. He said he did not think it was possible to substitute a committee for the judgment, right or wrong, of the responsible university officials.

Professor of Psychiatry Benson R. Snyder said the essential problem is how the university deals with dissent. It needs multiple, complex communication channels, he said.

Faculty Extends Exam Periods

The faculty voted 41-6 at its meeting Wednesday, April 18, to increase the final exam period in both terms to five days. Currently there are four in the fall and three in the spring.

The motion, which was discussed at the March faculty meeting, provides an added day in the fall term by eliminating one of the four days in the reading period immediately before the exam period. In the spring term, it adds two exam days and a reading day by eliminating the two-day vacation period that follows the Independent Activities Period and cutting back the Presidents Day vacation from two days to one.

The ad hoc faculty committee that proposed changes said they were made necessary to create more breathing space between exams and reduce the number of conflicts, which require

makeup exams.

The changes voted by the faculty are for a three-year period, during which a systematic review of the calendar is planned.

On another matter, the faculty discussed a motion, to be voted upon formally in May, to provide faculty membership for Athletic Department faculty. The motion would amend the faculty membership rule (Rule 1) to include as faculty members those holding the rank of assistant professor/coach, associate professor/coach and associate professor/senior coach.

The Athletic Department will create a career ladder which will provide a departmental promotion review and a measure of job protection which will exclude tenure, except for those who have already received tenure.



During the recent ACSR meeting D. Reid Weedon, '41, Chairman of the MIT Corporation, spoke with, left to right, Samuel Assefa, a graduate student in urban studies and planning; Christine Coffey, a freshman, and at far right Christina Alvord, a graduate student in mechanical engineering and member of the Advisory Committee on Shareholder Responsibility.

Photo by Donna Coveney

OPEN MEETING

ACSR Hears Calls for Divestment

MIT's Advisory Committee on Shareholder Responsibility heard from 22 people, all of whom favored divestment, at an April 11 meeting called to hear opinions on MIT's investments in companies who do business in South Africa.

The meeting, announced in the April 4 issue of Tech Talk, was attended by about 85 people, many of them members of the Coalition Against Apartheid, which had conducted rallies April 6, April 9 and April 10. Thirty-two people were arrested at the first two rallies. The coalition wants MIT to sell its stock in companies doing business in South Africa.

Committee chairman D. Reid Weedon of the MIT Corporation said the group would consider the opinions voiced at the meeting and he would make an oral report to the Executive Committee of the Corporation later in the spring.

Among those presenting assertions to the committee were: Christine M. Coffey, student: "Apartheid is a blatant violation" of MIT's policy of nondiscrimination. Apartheid laws provide a large pool of cheap labor which is exploited by the private sector.

Gillian Hart, senior lecturer, urban studies and planning, an economist who grew up in South Africa: Divestment has little if any direct economic impact and should not be thought about in those terms, but it is a statement of disassociation from a system that denies basic human rights on the basis of race and is very effective because it "has the potential for contributing to a negotiated settlement of the crisis in South Africa."

The Rev. Scott Paradise, Episcopal chaplain at MIT: Ignoring the moral side of the issue sends a message to students and the world "that money is all that matters." When the black leaders of South Africa say our "investments give aid and comfort to the South African government I'm inclined to believe them. . . Not changing MIT's investment policy may serve "as an endorsement of the status quo. . . I'm very troubled when I think what side MIT is on."

Steven Penn, G: Profit is the reason MIT continues to invest in companies that do business in South Africa and it

is the reason that apartheid has persisted despite universal condemnation. American corporations have helped South Africa weather periods when, because of opposition to apartheid, there was a flight of capital from the country. He cited Chase Manhattan Bank and Citicorp. "Why? Because there are a lot of US corporations that do business in South Africa and they know what cheap materials and a cheap labor force bring them. They bring them profits." The Sullivan principles were an effort by corporations to "come up with some sort of public appeal so that people wouldn't think that businesses in South Africa were somehow immoral. . . When the Sullivan Principles were instituted the people of South Africa, the ANC and the PAC, both pointed out that the Sullivan Principles were meaningless and Leon Sullivan could not speak for what was best for South Africa. And yet US corporations disregarded that voice as they continued to disregard that voice in any sort of justification for their investments. Leon Sullivan has a little more history. He was involved with the Urban Institute which was a group set up to talk about how to dissipate the urban violence that was going on in this country in 1967 along with people from the Rand Corp., which is a typically very conservative group, and other advisers to the US government. So he does not even hold a record of making policies which are considered racially beneficial and yet he is held up as some kind of moralist and able to speak for the people of South Africa. . . . When we continue to invest in South Africa, when we do not take a stand of divestment, we are once again judging that profit will go above the rights and freedom and the peace of people in this world."

Katherine Ware, administrative assistant, earth, atmospheric and planetary sciences: The reasons given in President Gray's open letter for not divesting are wanting. "Great evidence" has been given against the Sullivan Principles. Not divesting because some other entity will invest in MIT's place ignores the point that MIT's disinvestment would provide an example to others not to invest. Finally, divesting would be a step toward peaceful resolution. To avoid divestment because it is

not viewed as being in the best monetary interests of MIT ignores the possibility that MIT "will lose our entire investment in a revolution of South Africa that will be violent and bloody and we will lose all."

Mark Smith, graduate student: Commenting on "how decisions are made at MIT," he said that the first thing he noticed at the meeting was that "this is an all-white committee. . ." The people who decide what companies MIT invests in are people with connections to the corporations, and that constitutes a conflict of interest. On the question of divestment, he asked: "Who are you going to believe, Paul Gray or Desmond Tutu?"

Richard Cowan '87: Not all of the information provided by the Coalition Against Apartheid has reached the full Corporation. "The Corporation is never going to have any chance of hearing anything unless it comes from somebody other than Paul Gray."

In addition to Mr. Weedon, other members of the Advisory Committee on Shareholder Responsibility at the meeting were Glenn P. Strehle, MIT vice president and treasurer; Christina M. Alvord, mechanical engineering graduate student; Professor Donald R. Lessard of the Sloan School, and Walter L. Milne, assistant to the president and to the chairman, who is the committee's secretary.

VideoTerminal Talk Scheduled

"Are Video Terminals Hazardous to your Health" will be the featured talk for the next session of Women's Health Issues on Monday, April 30, noon-1:30pm in Rm 10-340.

Don Haes, assistant radiation protection officer in the Medical Department, will present the talk, which is sponsored by the Women's League.

Women's Health Issues presents monthly talks by medical experts from the MIT community and the greater Boston area. Sessions are free and open to all members of the MIT community.

Awards & Honors

■ EECS Professor Emeritus Joseph C.R. Licklider is a recipient of one of six 1990 Common Wealth Awards of Distinguished Service for outstanding achievement. Professor Licklider, recipient of the \$20,000 award in the invention category, was recognized for "his work in improving the human-computer dialogue" and for his role "in developing such concepts as time sharing, virtual memory and resource sharing."

Professor Licklider's work established the institution of large-scale experimental computer science research. Project MAC (now the Lab for Computer Science), which Professor Licklider directed from 1968-70, was the first university computer science lab. The Common Wealth Trust was established in the will of Ralph Hayes, an executive of the Coca-Cola Co. for 35 years.

■ The MIT Space Grant Program has announced the following awards: seven NASA Space Grant UROP awards to students to work in the departments of aeronautics and astronautics, physics and nuclear engineering and at the Plasma Fusion Center and Draper Laboratory; four NASA Space Grant UROP awards to Project Olympus to design a hybrid rocket; two Raytheon Space Grant UROP awards to work in the Department of Aeronautics and Astronautics, and three MIT Lincoln Space Grant UROP Awards to work at Lincoln Laboratory.

■ James G. Fujimoto, associate professor of electrical engineering and computer science, is among 15 scholars who will be cited this month by the National Academy of Sciences for outstanding contributions. Dr. Fujimoto, who shares the award with Wayne H. Knox of AT&T Bell Laboratories, is recognized for innovations that are likely to lead to new capabilities for human benefit.

■ At the recent annual meeting of the American Mathematical Society, Professor Kenneth M. Hoffman was one of two honored for contributions to the field. Professor Hoffman was cited for "outstanding leadership in establishing channels of communication between the mathematical community and makers of public policy."

■ Professor Gary T. Marx, urban studies and planning, has received the Outstanding Book Award from the Academy of Criminal Justice Sciences for his recent book, *Undercover: Police Surveillance in America*.

Professor Marx, recently named to a panel on confidentiality and data access appointed by the National Academy of Sciences and the Social Science Research Council, has been widely interviewed about his research and has written op-ed articles for the Washington Post, Newsday and the Los Angeles Times. He has received a grant from the Whiting Foundation for the comparative study of privacy and technology issues and will be a fellow at the Rockefeller Foundation, Bellagio Study Center, during August.

■ Anne B. Baddour, a research pilot for the Lincoln Laboratory Flight Facility, has been awarded aviation's prestigious Harmon Trophy for setting 11 world and national records in December, 1988, on a flight between Boston and Reykjavik, Iceland.

Ms. Baddour, a lecturer on aviation and the winner of numerous air races, among her many aeronautical achievements, made the flight—unrelated to her work at Lincoln—in difficult weather conditions in a

Beechcraft Baron 58 twin-engine aircraft.

Harmon Trophies also have been awarded to two of the pilots on MIT's human-powered aircraft team.

Kanellos Kanellopoulos of Athens, Greece, piloted and powered the Daedalus 88 from Crete to Santorini on April 23, 1988. The flight over the Aegean Sea covered 72.4 miles, more than tripling the existing record for human-powered flight.

Lois McCallin of Belmont flew and pedaled a prototype plane, the MIT Light Eagle, for 10 miles above the dry lake bed at Edwards Air Force Base on Jan. 21, 1987. This established four national and world records, including both distance and endurance for human-powered flight by a woman.

■ Claude W. Brenner of Lexington '47, who has served as president of the MIT Alumni Association and on the MIT Corporation, has been elected president of the board of directors of MIT Hillel Foundation, Inc.

■ Dr. Peter R. Saulson, principal research scientist in the Department of Physics, is one of 11 scientists from the US and abroad granted visiting fellowships for 1990-91 by the Joint Institute for Laboratory Astrophysics of the National Institute of Standards and Technology and the University of Colorado. His area of research is the development of interferometric detectors for gravitational waves.

■ Dr. Jill Ker Conway, visiting professor in the School of Humanities and Social Science and former president of Smith College, will receive an honorary doctor of laws degree at the University of Notre Dame's commencement in May. In addition to her scholarly works, Professor Conway is the author of *The Road to Coorain*, an autobiography of her early years in the Australian Outback.

■ Francis X. Masse, radiation protection officer both on campus and at the Bates Linear Accelerator Center and director of the MIT Radiation Protection Program, has been elected to the presidency of the Health Physics Society, a 6,500-member professional association for radiation protection. He is a Fellow of the society and is completing a three-year term as treasurer. He becomes president-elect this June and president in June, 1991.

He is the second of the society's 36 presidents to hail from MIT. Robley D. Evans, professor emeritus of physics and retired director of the MIT Radioactivity Center, served as president in 1971-73. Mr. Masse has been a member of the Medical Department, Environmental Medical Service, Radiation Protection Office staff since 1959. He also is a senior lecturer in the Department of Nuclear Engineering and coordinator of the department's graduate subspecialty program in health physics.

■ Dr. Edward N. Lorenz, professor emeritus of meteorology, has been elected to honorary membership in the American Meteorological Society. Honorary membership, the highest class of membership in the society, is reserved for persons of "acknowledged preeminence in the atmospheric or related oceanic or hydrological sciences." Dr. Lorenz was cited for his "seminal research on the entire subject of atmospheric predictability" and "other contributions profoundly influencing the way we think about the atmosphere and model its behavior."

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 Friday before publication.

FOR SALE

Table, solid pine w/benches, \$40 or bst. James x3-0264 or 254-4840.

Dk pine trestle table w/2 extensions; 6 matching chairs, all in exc cond, \$600; brass plated headboard w/full sz frame, \$75. Irene x7870 Linc.

2 teak bookcases, shelves w/doors, sectionals, 35"x74"x16.5", \$85 ea or bst; Persian Meshkin oriental, 14"x10", \$850; K2, 170 w/Tyrol bindings, \$25; misc boots, \$5-\$75. Call x3-3175 or 332-8251.

4 heddle Putney Mt loom, all maple, perf cond, \$550; Cybernet FM tuner, \$50; KLH amp/trnbl, \$35 (both for \$75); Yamaha K-500 cass deck w/Dolby C, \$250. Thomas x3-9676 or 864-4440.

NAD 3020A amp, Alpine AL-51 deck, Celestion spkrs, Realistic trnbl, \$450; Canon AV-1, \$70; Nishiki 12 spd, \$150; RCA 3000b videotex data trnbl, \$50. J.R.W. Michael Picard 787-4767.

Living room set, sofabed & oversized chairs, needs upholstery, \$100 or bst. Audrey x3-0805 or 926-2577.

Panasonic microwave: 700 watt, 1.1 c.f., rotates, 1 yr old, only used 2x, \$165; twin bed (matt, bxsprng, frame), \$75. Janine x3-3437.

New, unopened softwr: Farallon Screen Recorder for Mac, \$60; Softkey Formdesigner for IBM, \$40; PC GLOBE 3.0 for IBM, \$20. Wanted: broken CD player for disassembly, will cons trade. C.Y. x5-8488 dorm.

PC games: Sierra's KQ3, KQ4, SQ2, SQ3, LSL1, LSL2, \$20/ea; Ultima5, \$25. Oliver x3-1746 or x5-9764 dorm.

Panasonic dot matrix prntr KX-P1592, used less than 5x, exc cond, \$400 or bst. Omar x8-5597 or 924-0809.

Nike Air Jordan, M's basketball shoe, sz 11 1/2, exc cond, \$50. Bruce x8-5428 or 354-4217.

Aluminum truck cap, 5' x 7 1/2', gd cond, \$75. Natasha x3-2656.

External 80 megabyte SCSI hard drive for Mac, exc cond, \$550 or bst; Scott AM/FM amp/recvr, \$30. Richard x5-8132 dorm.

Q-sz sleep sofa, \$200; microwave cart, \$35; Kenmore dishwasher, \$150; upright freezer, \$150. Call Tony x3-3922.

Persian cat, 3 yr old purebred, pewter gray, de-clawed, free to gd home, needs to be only cat in hshld. Hatch x3-4884.

New WordPerfect 5.1, 3.5", for IBM, \$110. Atsuko x3-3345.

Yamaha DD digital drums, \$60. Call 891-3842.

Moving sale: GE refrigerator, \$75; Kenmore washer 4-cycle, \$100; both fine cond. Call x3-2354 or 861-6381.

Moving sale: new apt furniture: hide-a-bed 6' sofa, \$450; table & chrs, \$100; glass/wood coffee table, \$100; beaut lamps, \$30 ea; in Burlington, take everything for \$600. Kim x7370 Linc or 272-3614.

Antique mahog bkcase by Paines, circa 1900, sliding glass drs, exc cond, \$600; mahog drop lf tbl, \$300; mahog end tbl w/lots of detail, \$50; 2 solid Baldwin brass lamps, \$125/set. Kim x3-1740 or 483-7355 eves.

Lawn mower: Sears Craftsman 4hp, self-prop, 22" cut w/ grass catcher, used 2 seasons, exc cond, orig \$450, sell for \$225. Call x2855 Linc or 617-932-9216 eves.

Technics SL-D2 direct drive turntable, incl cartridge & Discwasher record care kit (record cleaner, stylus cleaner, antistatic gun), \$75 or bst. Ray x3-6079 or 497-5533.

Moving sale: must go before end of April: 19" color TV (remote, stereo), \$200; dual cass compact stereo sys, \$100; chests, oak finished, 3 drwrs, \$60 ea; 2 desks w/chrs, \$100 & \$130; much more! Philippe or Pascal 629-2035.

VEHICLES

1974 Dodge Dart, V8, under 69K orig mi, AM/FM/cass, a/c, nw brks/batt/muff, gd shp, \$500/ bst. Hamid x3-3432 or 868-7138.

1974 Chevy Nova, auto, 85K, nw rear springs/brk job/hoses/belts, \$500 or bst. Lynne R. x3-4721 or 643-8343.

1979 Honda Civic CVCC, 82K, 4-spd, runs well, from Calif (little rust, will always pass emissions tests), AM/FM/cass, nds nw brks, \$200 or bst. Maryellen x3-8609.

1980 VW Rabbit, 4-dr htchbk, auto, red, 53K, runs well, \$800. Richard x3-7930 or 964-5961.

1980 VW Diesel Rabbit, 2-dr, 4-spd, a/c, 90K, gd mech cond, many new & recent parts, liberal rust to deter thieves, a commuter special, \$850. Pete Roberts x8-2750 Draper or 617-332-5082.

1980 Datsun 510 htchbk, auto, a/c, AM/FM/cass, only 78K, nw exh/brks/radials, lovingly maint, runs great, no probs, \$1500. Call x3-4642 or 666-3666.

1981 Honda Accord, 92K, 4-dr, 5-spd, AM/FM, exc cond, really smooth ride, \$1300 or bst. Sue x3-8095 or 508-358-2954.

1982 Mercury Sports Coupe, 38K, white, 5-spd manual, a/c, sunfr, AM/FM stereo cass, askg \$1100. Peggy x3-4605.

1983 Toyota Camry 5-spd, tan, 1 owner, AM/FM/cass, moon roof, well-maint, 69K, \$2400. Joe x3-3223 or 646-6225 eves.

1983 Mitsubishi Tredia 4-dr, front wheel drive, recent clutch, new muff, \$900. Tom x2240 Linc.

1985 Renault Alliance, standard transm, nw brks/exh, AM/FM/cass, 55K, exc cond, \$1500 or bst. Sheila x7164 Linc or 508-458-2136.

1985 VW Vanagon GL, 92K, metallic bronze, cloth int w/weekender package (r seat folds into Q-sz bed), 4-spd, ps, pb, AM/FM dig cass, recent muff/brks/shocks/batt/tuneup, \$4400. Mark 495-5346 1-5pm or 863-8629 bef 10pm.

1986 Pontiac Fiero, red, showroom cond, grt sound sys, 1 meticulous ownr, many new parts, \$4500 or bst. Merlene x8-5875.

1986 Chevrolet Nova CL, 4-dr, auto, a/c, ps, pb, AM/FM/cass stereo, top-of-the-line model, fully equipped, made by Toyota, exc cond, \$4750. Demetri x3-3908.

1986 Toyota Tercel wgn, beaut cond inside & out, v well maint, 45.5K, askg \$4200. Linda 646-8454.

1986 Honda Accord LXI htchbk, immaculate, pwr window, a/c, AM/FM/cass, alarm, nw muff/brks, cruise, \$6000. Call x3-7095.

1986 Pontiac 6000, 4-dr, 4-cyl, pb, ps, a/c, AM/FM stereo, pw, def, 3 nw trs, nw muff sys, 53K, \$5000 or bst. Bill x4493 Linc of 508-667-2187.

1986 Dodge D150 (bought 4/87), 57K hwy, 5.2L V8, 4-spd, ps, pb, AM/FM/cass, bed liner, sliding window, fr stabilizer, oil ch every 3K, exc cond, \$6400. Call x8-2684 Draper.

1987 Chevy Celebrity in mint cond in & out, auto w/ps, pb, a/c, dig stereo, will sell for NADA book value, \$5250, or bst. Mario Passanisi x8-4715 or 324-3516 after 5pm.

1987 Dodge Aires, 4-dr, blue, ps, pb, cc, a/c, bucket seats, AM/FM stereo, exc cond, \$5200 or bst. Karla 508-256-1501.

1987 Chev Sprint tudor htchbk, red, low mi, exc cond, askg \$2800. Call x3-4884 ask for Stu.

1987 Toyota Corolla FX16, purchased in CA, only 1 winter in MA, a/c, auto w/overdrive, ps, 115 hp, 16 valves, metallic grey, stereo, alarm, exc cond, 60K mi, \$4900. Pascal x3-3276 or 629-2035.

HOUSING

Acton/Littleton: 4BR, 2/5 bath, colonial on 1+ acre, landscaping, 2-car gar, deck, brick walk & patio, conv to Rt 2, only 3 yrs old, \$259,000. Call 508-264-4706.

Arlington: 2BR apt w/swimming pool, v quiet & safe nrhd, ideal for family, 1 block from Mass Ave, avail 5/28, \$875 incl ht & wtr. Anne 617-648-6920.

Arlington Ctr: 1BR, comp furn condo, all utils, linen, prkng, sec, view of Boston skyline &

Spy Pond, avail 6/1; yr rental, \$950/mo; shorter term, \$1000/mo. Bill x3-6249.

Back Bay: betw Hereford & Mass Ave, facing MIT, bright, 2BR duplex w/prkng, 2 frplc, hdwd flr, 14' ceiling, prof mgmt, \$237,000. Call x3-7558 or 262-2819.

Back Bay: sm 1BR across bridge from MIT, avail 5/1, 3rd flr, w/laundry in bsmnt, nr bus & T, roof deck on 1th flr, \$695/mo incl ht. Greg x8-3869 Draper or 492-1319.

Berkeley, CA: July sublet, 1BR, nr public transp, \$440/mo, rent and dates negot. Call 415-548-3732.

Bethel, ME: nw 2BR carriage hse condo in town ctr, furn, Pleasant Mt & Sunday Rvr skiing, lakes nrby, appraised \$107K, askg \$94K, also avail for rent. Call x3-5618.

Brookline, Cleveland Circle: beaut furn 1BR apt w/balcony & piano, \$800/mo. Christie x3-2629 or 789-3685.

Burlington: 8-rm hse for rent, 3BR, LR, fam rm, game rm, 1 3/4 bath, sunrm, deck, 1-car gar, carport, priv lot, easy access to Rts 62, 128, & 3, w/d, d/w, avail 8/1/90, \$1500/mo + util. Call x4919 Linc or 273-3798.

Cambridge: May sublet, 1BR, comp furn, 10 min walk to Kendall Sq, laundry, yard, prkng, \$725. Call 864-7725.

Cambridge, Hvd Sq: lg new studio apt 6/1-9/1, \$550/mo incl all utils. Call x3-2916 or 354-8067.

Cambridge: sublet 6/1-9/1, 2BR, porches, off-st prkng, walking dist from MIT & Hvd, \$935/mo (dates/rent negot). Lisa x3-7270 or 575-0978.

Cambridge, Kendall Sq: contemp 2BR + balc, study, 1 1/2 baths, d/w, w/d, wd stove, deck, prkng, \$1300. Call 491-4258 or 873-0703, 876-0461 eves.

Cambridge, Kendall Sq: walk to Red & Green lines, nw 3-flr twnhse, 3BR, central a/c, 2 full baths, gar, yd, microwave, d/w, disp, w/d, no pets, avail 6/1, \$1500/mo w/lease. Call 617-491-0992.

Cambridge, W: 1004 s.f. condo in 2-fam hse w/yd, nw kitchen, updated systems, bay windows, beaut flrs, winter sun, summer shade, \$159K. Bill Stanley x3-1684 or 491-6132 eves.

Cape Cod vacation: Bass River, 4BR mod home, 3 blcks to ocean beach on Nantucket Sound, avail 6/1-10/1, \$675/wk. Stanley x3-4288 or 643-0771.

Chappaquiddick, Martha's Vineyard: 1BR Cape w/loft, slps 6, 1 mi from beach, avail 6/30-7/7 & 7/28-8/4, \$600/wk, ferry tkts avail. John x8-2815 Draper.

Edgartown, Martha's Vineyard: vacation accommodation 6/9-6/16, balcony rm at Harborside Inn on harbor w/panoramic view, priv bath, fridge, cable, cont breakfast, boats for guests, \$105/day. Call 868-6856.

Falmouth-Mashpee line: 3BR, 2b, deck, water view, mooring avail, quiet, short drive to S Cape Beach, all amenities, well-furn hse, 2-wk min, \$600/wk July/Aug. Nick x3-1664.

Glencoe, NS: vac retreat, v priv, 12 acre site overlkng E River Valley, 2BR, 1/2 loft, swim nrby waterfall pools, relax, hike, birdwatch, rock hunt, \$275/wk. Call x3678 Linc or 508-369-3973.

Hudson: 2BR mod twnhse condo for rent to non-smkng prof, gar, 1.5 bath, d/w, disposal, deck, skylights, a/c, gas ht & hw, storage, sm complex, no pets, \$900. Jack x4028 Linc or 508-568-0482.

Jamaica Plain: Summer sublet 6/1-9/1, 5 lrg rms, back porch, yd, hdwd flrs, nr Forest Hills T (35 mins by T to MIT), gd for fam, \$875/mo + utils (negot). Call x3-0141.

Lake Ossipee, NH: Fully furn 2BR cottage w/priv beach & dock. Arthur x3-2720 or 372-1152.

Mason, NH: Gambrel log home for rent, 3BR, 1 1/2 bath, LR, DR, ktchn, FHA, wdstv in LR, avail 7/1/90, \$900/mo. Paul x0511 Linc (Haystack).

Mt Desert Island, ME: fully-furn 2BR cabin overlkng Frenchman Bay, avail 6/16-7/14, \$1500 (will consider 2-wk rental). Call x3-5757.

Needham: 3BR for sale, 1.5 baths, 2-car gar, finished attic & bsmnt, fam rm, screened porch, nw ktchn, walk to train, 1 mi to Rt 128, \$315,000. Call x3-8539 or 449-7886.

Sebago Lake, ME: 2 cottages, fully equipped, steps to nice sandy beach, swim, fish, hike, 2.5 hrs from Boston, \$315-\$450/wk. Steve x8-3383 Draper or 508-745-6511 eves.

Somerville: 1BR apt, 1st fl, ownr-occ, 3-fam hse, e-i k w/refg, oven, new bath, hdwd flrs redone, sm LR, fr & rear entry, sunny, quiet, on T, unfurn, gas ht, \$600/mo. Toli 628-4146.

Tang Hall: Summer sublet, apt 8D, 2 M rmtts, river view, non-smkng, big LR, ktchn, bath, avail 6/1-9/1, \$360. Joe x3-4476 or 494-0997 or joe@ai.mit.edu.

21 AWARDS

Whitaker Fund Lists Grants

The Whitaker Health Sciences Fund has announced an award of \$700,000 for doctoral fellowships in the life sciences and medical engineering for the academic year 1990-91.

Dean Irwin W. Sizer, president of the Fund, said these awards will provide support for 21 Whitaker Fellows, 10 new and 11 renewals, while they are completing doctoral thesis research. This total includes five students who are simultaneously enrolled for the MD at Harvard Medical School and the PhD at MIT. The faculty awards committee consisted of Professors Richard J. Cohen (chairman), Herman N. Eisen, Alan J. Grodzinsky and Robert D. Rosenberg.

Those awarded new grants, their departments and thesis projects are: Gustavo E. Grampp, chemical engineering, "The Characterization and Use of Regulated Secretion in Mammalian Cell Culture"; Julia C. Hendrix, chemistry, "Synthesis and Conformational Studies of Peptide Models"; Erica S. Johnson, biology, "The Role of Ubiquitin: Ubiquitin-Dependent Protein Degradation"; Paul D. Kaufman, biology, "Biochemical Analysis of Drosophila P Element Transposase"; Saechin Kim, biology, "Genetic and Molecular Analysis of Two Genes, lin-24 and lin-23, Which When Mutated Can Cause Abnormal Cell Death"; Jennifer R. Melcher, electrical engineering and computer science, "The Generators of Brainstem Auditory Evoked Potentials"; Johannes Rudolph, chemistry, "Kinetic and Genetic Evidence for the Existence of Substrate Channeling"; Terence D. Sanger, electrical engineering and computer science, "Network Learning Algorithms for Motor Control"; Hugh E. Secker-Walker, electrical engineering and computer science,

"Temporal Representation of Acoustic Parameters for Perception"; Zhihao Yin, physics, "Finite Element Model of Cardiac Electrical Conduction."

Renewals:
Steven F. Bellon, chemistry, "DNA Structural Changes Induced by Platinum Anticancer Agents and their Recognition by a Potential Mammalian Repair Protein"; Joseph M. Bollinger, chemistry, "Mechanism of the In Vitro Reconstitution of the B2 Subunit of *E. Coli* Ribonucleotide Reductase"; Robert M. Bracewell, brain and cognitive sciences, "Investigation of the Role of the Primate Posterior Parietal Cortex in Spatial Vision and Motor Control"; Michael D. Buschmann, medical engineering/medical physics, "De Novo Synthesis of a Mechanically Functional Cartilage-Like Tissue In Vitro"; Alice W. Flaherty, brain and cognitive sciences, "Interaction Between Cerebral Cortical Activity and Striatal Gene Expression"; Margaret M. Keane, brain and cognitive sciences, "The Cognitive and Neural Basis of Dissociable Memory Systems"; Robert A. Marciniak, biology, "Regulation of HIV-1 Gene Expression: Studies of TAT Transactivation"; Anna W. Roe, brain and cognitive sciences, "Visual Processing in an Experimentally Induced Visual Pathway through Auditory Thalamus and Cortex in Ferrets"; Donald Russell, mechanical engineering, "An Analysis of Constrained Motions"; Ian Shand-Kovach, physics, "Thermodynamic Properties of Protein Solutions"; Derin A. Sherman, physics, "Antibody-Antigen-Induced Colloidal Aggregation."

Wellfleet: walk to hist ctr, easy access to Natl Seashore, converted barn on secluded site, mod bath & kitchen, priv outdr space, 2BR+ & 1BR+ avail. Ruth 643-0009.

1BR apt for rent, fully furn, completely renov, walk to MIT or rent prkng, avail June-Aug or for 1 semester or 1 academic yr. Kathy or Bill 497-5525.

\$1500 reward for 2BR rent-cont apt in mid-Camb (W of Prospect & N of Mass Ave) on 2nd fl or higher. Call 864-0239 lv msg.

Furnished hse or apt wanted for returning prof for Fall semester 1990. Call Susan (secretary) x8-9131.

WANTED

Need inexpensive hi-chair & toddler bike. Call x3-1294 (morning) or 494-8209 (aft).

Full-sz or Q-sz futon w/frame. Donna x5-9380 lv msg.

Stereo sys or components, Dolby, high-bias, aux compatible, no trnbl, also CD player, stereo VCR & 20" TV. Petra x3-1823 or 666-5793.

Wanted: Apt in Rome for 1 person, 9/90-12/90 (flex). Will exchange for 1BR furn charming apt in Camb in 2-fam hse next to Hvd Sq (also avail as rental, \$1000/mo). Call 492-3140.

1BR apt wanted by mature quiet PhD student, must be nr T, Camb area pref, willing to renovate or repair, plan to be in area at least 4 more yrs. Andy x3-4935.

Rent me your roof! Tim 617-945-6635 (toll-free).

Does anybody want to sell a recent edition of Oppenheim & Schafer's DSP text? James Anderson x3-7661.

ROOMMATES

Arlington Hts: F non-smkr for 2BR, porches, fplc, wd flrs, Mass Ave bus at corner, \$362.50 + utils. Sandy x3-0411 or 641-4753.

Cambridge: 2M grad students sk non-smkr to shr 3BR apt, new w/w, d/w, refrig, free off-st prkng, 10 min walk to MIT, Kendall & Central Sqs, avail immed, \$350/mo + 1/3 utils. Russ x3-6474 or 547-4369.

Somerville: 1 non-smkng F w/cats sks person to shr nice 2BR apt, nw stove, w/d, prkng, conv to

Orange & Green lines, no rent inc till 9/90, \$362.50 + 1/2 utils. Michele x3-6143 or 623-3565.

Waltham: 1 person to shr 2BR twnhse w/prof M, a/c, prkng, free shuttle to Alewife, beaut vw, \$490 incl ht. Paul x3995 Linc or 893-2841.

LOST AND FOUND

Lost: gold earring, elongated triangle shape, Apr 12 between DuPont & 77 Mass Ave. Donna x8-6429.

Found: Wristwatch at E Campus tennis courts on Apr 14. Owner pls call x3-0436.

MISCELLANEOUS

Thesis expert! Prof typing, editing, word processing, 10 yrs MIT exp. Marie x3-3490 or 547-1311 eves & wknds (on campus).

Editing/typing done on Macintosh or IBM word processor, exp writer/typist. Paula x3-8376 or 547-7647.

SURPLUS PROPERTY

The Property Office has this excess MIT equipment for transfer within the Institute. Unless noted, items are at the Equipment Exchange, 224 Albany St, x3-5611, open Tues & Thurs 11am-3pm. After 30 days, items are sold to individuals. The Institute reserves the right to reject any or all bids.


Transfer of Funds Required:

Case 2738: (minor transfer of funds) 4 Apple disk drives, 7 Apple kybds, 1 Digital VT100 drive w/screen & kybd, 2 Digital or Rascal VADIL modem w/phone, 1 Digital DEC Writer III prntr, 1 Xerox PC/mntr, dual floppies, kybd, 1 Apple Lisa mntr w/kybd. To inspect call Nan Lux x3-1574.

Case 2776: 3 Maxtor disk drives, 1 DEC TK70-AA tape drive. To inspect see Mike McCarthy at Equip Exchange or call x3-5611 11am-3pm.

Case 2770: 1 Wang computer sys w/prntrs & sheet fdrs, 2 monochrome mntrs, 64K Telecomm network, 55G-2 work station (CISR). To inspect call Pat White x3-0582 (morning) or x3-6669 (aft).

Case 2789: Better Built Model 3000 washer. To inspect call Ward DeHaro x3-6419.



The Arts

THE ARTS OF APRIL EXIT LIKE A LION

EDITORS NOTE: April's arts leave like a lion as 17 events occur in the last six days of the month. Today's page is not comprehensive. It's an attempt to celebrate the style and personality of these days with photos and just a few of the highlights. Please check TechTalk's Calendar for complete listings, and remember the Arts Hotline: 253-ARTS, the concerts line: 253-9800, the MIT Museum: 253-4444 and a new theater hotline, introduced below.

SCULPTURE MEETING

In the continuing research phase of the sculpture project proposed for the central stairwell of the Stratton Student Center, the re-scheduled meeting between Associate Provost for the Arts **Ellen Harris** and interested students will take place Monday, April 30, at 6:30pm on the third floor of the Student Center.

THEATER

It's the first weekend for this spring's original plays written by students --See photo right--and the second weekend for two musicals: the Musical Theater Guild's *Anything Goes*, in the Sala de Puerto Rico (253-6294 for ticket information) and *Iolanthe* by MIT's Gilbert and Sullivan, in the Green Building, Rm 100 (395-0154). A new 24-hour recorded information phone has been established by MIT's Theater and Dance Office: 253-4720.

DANCE

No experience is necessary for an African Dance class, with expert instruction and live drumming, 5-6:30pm tonight, April 25, middle section, Dupont Gym. This is partially in preparation for an African dance event--with participation open to all--scheduled for 4:30pm Friday, April 27, as part of the annual International Fair on Kresge Oval.

POETRY

Celebrated poet **Adrienne Rich** appears, free of admission, in the Media Lab's Reading Series, Thursday, April 26, 7:30pm, Bartos Theater of the Wiesner Building. 253-7368 or 239-9912. Also Thursday, a lecture/slide presentation in French, about the life of beloved poet **Anna de Noailles** (1876-1933) by the author of a new biography, including readings from de Noailles's correspondence with major literary figures such as Proust, Colette, Gide and Cocteau. 7pm, Rm 14E-304. 253-9776.

MUSIC

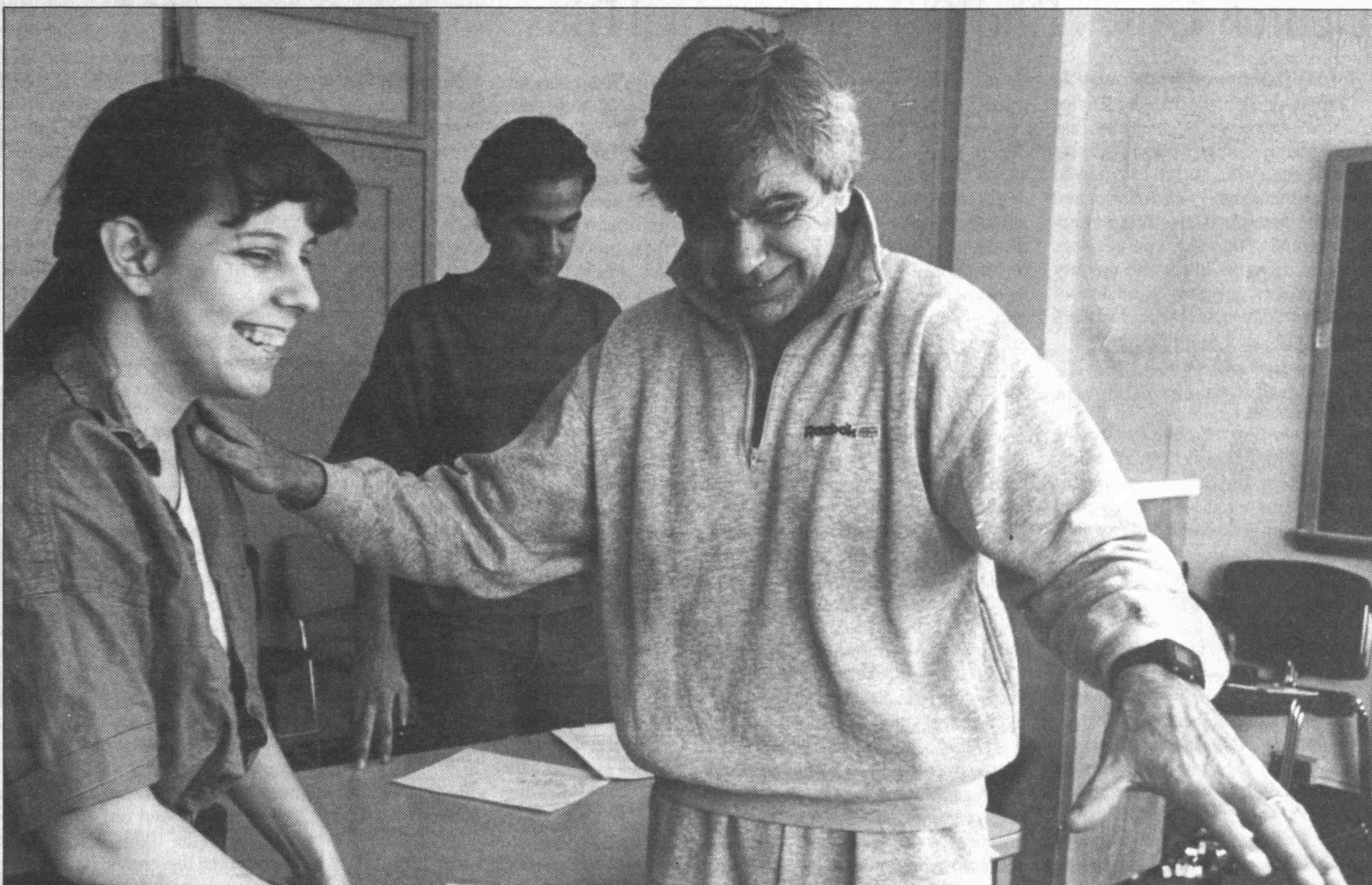
Pianist David Deveau--recently favorably reviewed for an appearance with the Boston Symphony--performs a Faculty Series concert including the premiere of a new work by MIT composer **Richard Cornell**, Friday, April 27, 8pm, in Kresge. That same evening, MIT's new affiliated artist **Lawrence Issacson**, trombone, makes his campus debut, 8pm, Killian Hall. On Sunday, April 29, **Kevin Fallon '78**, presents his second MIT piano concert, 3pm, Killian Hall. --China Altman, Office of the Arts



FRIDAY--Joyce Wong



Friday--Letitia Hom



THURS-SAT--Plays written by students

Photos by Robert Newman

ACTORS AND MUSICIANS PREPARE TO GO ON STAGE

CENTER PHOTO ABOVE, Professor Alan Brody rehearses with Jennifer Duncan '91 and Chris Coon '90 for *Shiloh* written by Peter Parnassa '90. Brody, who is Director of Theater Arts, is directing *Shiloh* and two other one-acts written by students in The Playwrights Workshop: *What Simply Wouldn't Do* by Austin Sloat '92 and *Into Boheme*, by Sande Chen '92. These are being performed free of admission Thurs-Sat, April 26-28, 8pm, in Kresge Rehearsal Room B. More student-written one-acts will be staged in May. TOP PHOTOS, two recitalists in the Advanced Music Performance Program (AMP) prepare for a joint

concert--graduate student Joyce Wong, left, cello student of David Finch, and Letitia Hom (Wellesley '92), right, violin student of Roman Totenberg, with accompanist Shizue Sano--scheduled Friday, April 27, 12:05pm, in Killian Hall. Ms. Wong plans a Bach sonata for viola da gamba and Brahms's *Sonata for cello and piano*; Ms. Hom plays Brahms's *Sonata No. 2, Opus 100*. OPPOSITE RIGHT, graduate student Una Hwang, piano student of Wha Kyung Byun, prepares for her AMP concert--Debussy's *Preludes Bk II*--today, Wednesday, April 25, at 12:05 in Killian Hall.



Wednesday--Una Hwang

LETTER REACTION

Bettiker Happy, Halperin Proud

The campus reaction to the provost's letter on ROTC—from the former NROTC cadet, the NROTC commanding officer, and the professor who organized the group, Defeat Discrimination at MIT—was strongly positive.

"My first reaction was, Wow!" said MIT senior Robert L. Bettiker, referring to the letter Provost John M. Deutch wrote to US Defense Secretary Richard Cheney. "I was really happy that he wrote it, and felt that it was a good letter," said Mr. Bettiker in a telephone interview. "It really got to the heart of the problem."

His former commanding officer, US Navy Captain Robert W. Sherer, commented that the provost's letter "is an appropriate letter addressed to exactly the right level. There has been so much going on in this past year, addressed to the individual ROTC units, which have no power to change the policy. Finally, a senior official has gone to the top where the policy can be changed. I'm pleased to see it."

Professor David M. Halperin, a leader of the Defeat Discrimination at

MIT group, said the letter was "a strong and unambiguous statement of principle. . .

"Because of his close relations with the DOD, Deutch has enabled MIT to take a leadership role in doing something about ROTC policy. And that makes me proud to be part of MIT."

Mr. Bettiker, who publicly announced the controversy with a March 5 article in *The Thistle*, said he "was surprised at how fast things were moving."

He said that he was taken off his ROTC scholarship on November 8, the day after he informed the Navy that he was gay, and he had to pay from November 8 on. The MIT Financial Aid Office, he added, was very helpful in quickly developing a financial aid package for him.

He said it wasn't precisely true that he had refused to pay the Navy the \$38,000 he received in NROTC scholarship funds. The Navy had asked him to say that he owed the Navy the scholarship money and "I didn't acknowledge that I owed the money."

Mr. Bettiker said he was formally discharged on January 31, receiving a certificate of "honorable discharge for the convenience of the government."

The ROTC issue continued to be widely discussed at MIT. Professor Margaret L.A. MacVicar, dean for undergraduate education and the senior officer in charge of ROTC at MIT, said that the ROTC Committee, a standing committee chaired by Professor Alvin W. Drake, has been meeting weekly. In recent weeks, she said, the Committee on the Undergraduate Program has talked about the issue three times, inviting the Navy, Army and Air Force ROTC commanders to discuss it.

Dean MacVicar said she has briefed the Academic Council and the President's Executive Staff Group. It has also been discussed by the Faculty Policy Committee.

The Undergraduate Association Council on April 5 passed a resolution asking the president and the provost to explain and justify the discrimination against homosexuals in ROTC.

KENNETH D. CAMPBELL

Deutch Urges End To Homosexual Bias

(continued from page 1)

Professor Deutch, the Karl Taylor Compton Professor of chemistry, has been a member of the Defense Science Board since 1975. He has also served the Reagan, Carter, Ford, Johnson and Kennedy administrations in a variety of administrative, staff, and advisory posts regarding scientific and military policy. He is currently a trustee of Wellesley College, the Boston Museum of Fine Arts, and five corporations.

The text of the Deutch letter follows:

"Dear Dick,

"I am writing to you to express the concern of MIT about the ROTC policy not to accept gay or lesbian students into its programs and to require avowed homosexuals to disenroll and pay back scholarship funds.

"This policy discriminates against students on the basis of sexual orientation, in contradiction to the policy of MIT and many other universities. I believe the ROTC policy to be wrong and shortsighted. Individuals should be accepted into the military service without regard to sexual preference, subject only to the same expectation of responsible personal conduct that applies to heterosexual individuals. I believe that the DOD should reverse this discriminatory policy just as it has reversed prior discriminatory policies against blacks and women.

"However, my main purpose in writing to you is to point out the risk that this policy poses for the continuation of ROTC on the campuses of many of the leading US colleges and universities. The contradiction between the university's principle of nondiscrimination against individuals on the basis of sexual orientation, and the presence of an ROTC that does discriminate, cannot exist on the campuses indefinitely. Many universities will withdraw from the ROTC program.

"In my judgment, ROTC should remain on university campuses for three reasons. First, it provides an important source of financial support for students. For example, at MIT we currently have 220 MIT students enrolled in Air Force, Navy and Army ROTC units. These students receive, in aggregate, \$3.3 million annually to support their studies. If these students did not receive support from ROTC, it would be necessary for both MIT and the student to find alternative sources of support—not an easy matter. There are an additional 177 students from Harvard, Tufts, and Wellesley enrolled in the MIT program who receive a comparable level of support. Second, I believe universities should continue ROTC for those

students who wish to pursue a military career; this is not an insignificant number of MIT undergraduate students. Finally, and perhaps most importantly, the ROTC program provides a continuing source of educated and motivated officers for the nation's defense establishment.

"I believe that most faculty members are not opposed to ROTC. But a faculty member cannot be expected to support an activity on campus that is in direct contradiction to the principles of the university. It is particularly unfortunate that the minority of students and faculty who oppose any connection between the university and the DOD can use this issue to advance a generally anti-military position. Thus, one unfortunate consequence of this policy is to increase hostility to the DOD on university campuses.

"What might be done? First, I urge you to reconsider the policy barring homosexuals from participating in ROTC. Second, I believe that the present policy can be administered in a manner that minimizes potential friction. For example, if a cadet is dismissed from ROTC for being an avowed homosexual, significant latitude should be given to local ROTC units to determine if repayment of scholarship funds should be required. In several cases, including that of USN Cadet Robert L. Bettiker here at MIT, the recommendation of the local unit not to require repayment was not followed at higher echelons. Such action, which I understand has occurred in other ROTC cases elsewhere, can be expected to increase friction in an already difficult situation.

"Beyond the question of principle,

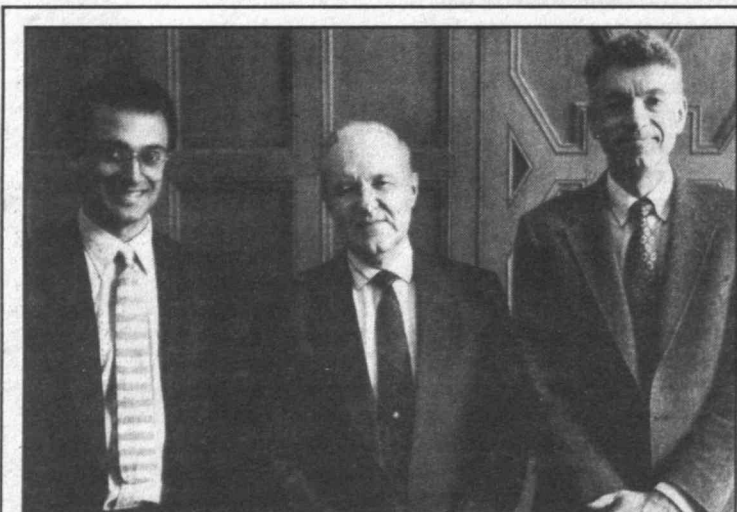
you should also be concerned that the issue of homosexual participation in the ROTC and the military generally will become a vehicle for those who are dedicated critics of the nation's defense establishment and of the historical relationship between the DOD and the nation's leading universities. I hope that you will devote some consideration to this matter, which I view as potentially quite serious. Of course, I am prepared to assist you in any way you might find useful.

"Best regards,
"John M. Deutch"

GRAY: 'ROTC POLICY SHOULD CHANGE'

MIT President Paul E. Gray, in a separate letter of April 13, responded to the president of the Undergraduate Association, Manish Bapna, and recent concerns expressed by the UA. Dr. Gray said, "Both the Provost and I are troubled by the contradiction between MIT's policy of non-discrimination and the ROTC policy of discrimination on the basis of sexual preference, and we believe that this ROTC policy should change."

Referring to the Deutch letter, Dr. Gray said, "I believe that the military services not only should, but will, change their policies regarding sexual preference and ROTC programs, because the continuation of ROTC programs at leading colleges and universities will be greatly influenced by this question. Clearly, this will not happen overnight, but we will continue to work on this issue, and I think we will see a change."



Professor Ali Nadim, left, of the Department of Mathematics, and Professor John B. Southard, right, of the Department of Earth, Atmospheric and Planetary Sciences, will share the 1989-90 Science Council Prize of Excellence in Teaching Undergraduates. Dean Gene M. Brown, center, of the School of Science, presented the prizes, which recognize the importance the Science Council places on undergraduate teaching.

Photo by Donna Coveney

Here & There

In 1952, it was a senator from Alabama; in 1956, it was a senator from Tennessee. For 15 points each, name Adlai Stevenson's two running mates. (Answer below.)

It's been called the "varsity sport of the mind." Officially, it's known as the College Bowl Competition.

And the news today is that the current MIT team, which finished first in a regional tournament this month in Connecticut, will compete in the national championships in Minneapolis, Minn. this weekend.

The MIT team—four regulars and an alternate, two of whom can be graduate students—was chosen from among the competitors in an MIT College Bowl competition held during IAP.

The members are **Larry W. "Chip" Hunter**, a graduate student at the Sloan School of Management; **James W. Bales**, a graduate student in physics working at Lincoln Laboratory; **Jane J. Yu**, a sophomore in aeronautics and astronautics; **James P. Sarvis**, a freshman; and the alternate, **Henry E. Chung**, a freshman.

The regional competition was held as part of the Association of College Unions International Recreation Tournament. In it, the MIT team made a dramatic comeback after having been beaten by the Brown University team in the double-elimination tournament. It then beat Brown twice, and also won a nail-biter against Brandeis, to gain first place.

College Bowl questions cover a range of topics, including politics, science, current events and sports. Someone described it as "like Jeopardy [the television game show], with very intense questions." (The question at the top of this column is typical.)

The last MIT team to go to the finals, two years ago in Chicago, finished eighth in the nation. Jim Bales also was a member of that team.

Answer: John Sparkman and Estes Kefauver.

The recreational tournament, which focuses on intramural-type competition, also produced MIT winners in men's table tennis and in table soccer.

The table tennis competition was won by **Chisun Chui**, an MIT freshman who last year was ranked 11th in the country and reportedly may compete in the 1994 Olympics. As the regional tournament winner, he goes on to participate in the national finals in Colorado Springs, Col., also this weekend.

In table soccer, in the singles division, **Chi M. Nguyen**, a sophomore in electrical engineering and computer science, took first place and **Robert J. Nunez**, a junior in the same department, finished third. The two also teamed up to take second place in the doubles division.

This note was received from **E. Eugene Larrabee**, professor emeritus in the Department of Aeronautics and Astronautics:

"Aeronautics lost one of its most fervent devotees on March 1 when **Walter Mooney '50 AA** died at his desk at GD-Convair in San Diego.

"He was a founding member of the Tech Model Aircrafters in 1947, and he built model airplanes continuously, especially free-flying scale model airplanes limited to a wing span of 13 inches called 'Peanut Scale.'

"His association with man-carrying aircraft began in 1950 at the Helio Aircraft Corp. in Norwood, Mass., where he participated in the development of Professor [Otto Karl] Koppen's Helioplane Courier.

"An accomplished aviator, he

flew everything from sailplanes to kit-built airplanes such as the Volksplane. He owned a Piper Vagabond, which might be characterized as an immense model airplane in which the balsa sticks have been replaced by steel tubes. He held the unofficial record for consecutive loops in the Mooney (no relation) Mite airplane.

"Finally he named his children after airplanes—Curtiss Ryan, Douglas Martin, and his daughter Chrislea Bea, the last after an obscure English lightplane.

"Hundreds of aeronautical enthusiasts the world over who have built peanut scale models from the many plans he published will miss him most."

Professor Larrabee, by the way, also was a founding member of the Tech Model Aircrafters.

Better Late Than Never Department: Back in October, about 30 members of Kappa Sigma, organized by **Woo Yong Chung**, helped clean up after a charity event, the Cystic Fibrosis Foundation Sports Challenge on Boston Common.

A letter from Julia Dorfman, coordinator for the event, which was forwarded hither and yon and finally came to rest on this desk, praises the group.

"Very often we are alerted about the poor behavior of students in Boston," she writes. "Although this may be justified, it is also important that those who display a sense of community awareness and caring be recognized for their efforts... This group of students came to the Common ready and excited to help. They waited for instructions from the event chairman, and followed them not only without comment, but with good humor and eagerness. Each and every member of the Sports Challenge committee commented to me on their diligence and effectiveness."

CLIPS AND QUOTES:

—MetroNorth Magazine's winter issue has an article, "Stalking Woburn's Mystery Killer," on the work being done by two MIT professors—**Harold F. Hemond** and **William G. Thilly**—in seeking to track down the reason for a childhood leukemia rate in Woburn four times what would be expected for a community of its size.

Professor Thilly, director of the Center for Environmental Health Sciences, and Professor Hemond of the Department of Civil Engineering are both associated with the department's Ralph M. Parsons Laboratory.

As explained by the author of the article, Dan Kennedy: "The MIT study is a two-tiered project. A team of civil engineers, headed by Harold Hemond... will try to determine exactly what chemicals the 50,000 residents of the area may have been exposed to through the air they breathe and the water they drink. Then Thilly... will examine blood samples from residents of the area to learn whether they have suffered mutations associated with the chemicals identified by Hemond."

—Dean **Lester C. Thurow** of the Sloan School of Management, in *Fortune* magazine:

"You and I will worry more about European competition in the 1990s than about Asian. The Common Market of 1992 was supposed to have 12 countries with 320 million people. Now we are talking about maybe 25 countries with 850 million people. If they even get halfway there, they will put together something no one else can match."

CHARLIE BALL