



NEVER A DULL MOMENT—especially at the end of the tax year. The latter part of December and early January are always busy for Judy DiGennaro, right, and Mary Hillis, gift processing clerks for the MIT Alumni Fund, but a deluge of mail—due chiefly to Challenge 77 and Leadership Campaign—has made this year's load unusually heavy. Ms. DiGennaro and Ms. Hillis are involved in all aspects of alumni gifts processing, from opening the mail to preparing reports and sending acknowledgements.

## Alumni Challenge Performs 'Beyond All Expectations'

By CATHRYN M. CHADWICK  
Staff Writer

MIT Challenge 77—a \$500,000 matching pool to encourage alumni to make or increase their gifts to the MIT Alumni Fund—has resulted in an all-time record performance for the 1976-77 Fund year to date, according to Frederick G. Lehmann, director of the Fund.

Approximately \$1.8 million, a 30 percent increase over the dollar amount of this time last year, has been received. About two-thirds of the alumni contributors have increased their gifts for the 1976-77 Fund year, about half qualifying for challenge funds, and the number of contributors has increased by about 16 percent over last year at this time.

"Challenge 77 has performed be-

yond all our expectations," Mr. Lehmann said. "The overall objective in the challenge gift program—a major increase in both alumni donors and contributions during MIT's on-going \$225 million Leadership Campaign—has elicited an incredibly positive response," he said.

The \$500,000 pool established by an anonymous MIT alumnus in September, 1976, will match dollar-for-dollar all new gifts or increases in gifts from \$25 to \$1,000 during the 1976-77 Fund year. Challenge funds will also match the designated purpose specified by the donor. For example if the donor earmarks his or her contribution for scholarships, and increases the amount by \$25, the added \$25 will

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## Sloan School Called Best In MBA Magazine Article

A financial expert writing in *MBA* magazine has rated MIT's Alfred P. Sloan School of Management one of the two best in the world.

Joel Stern, president of Chase Financial Policy, a division of Chase Manhattan Bank, believes that microeconomics—the study of price formation—should be the basis for all graduate programs at schools of management, rather than case study.

"Price theory is the key to security analysis, portfolio selection, capital budgeting and capital structure planning," he wrote in a recent issue of the magazine. "It is also the basis

for managerial accounting, marketing and even statistics and management science."

The strongest schools, he believes, are those which offer microeconomics and where the faculty "is dominated by path-breaking theorists and empiricists trained in econometric testing procedures." He contrasts these with schools which emphasize case study and where the faculty is dominated by "intuitionists."

Based on these criteria, he said, "I believe that the competition for the title of best business school is a virtual tie between the University of

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## IAP Party

You're all invited—students, employees, and faculty—to an IAP party from 3 to 4pm on Thursday, January 20, in the lobby of the Vannevar Bush Building (Bldg. 13). President Jerome B. Wiesner and Chancellor Paul E. Gray are the hosts. Musical entertainment and refreshments will be provided.

## Teuber Remembrance Planned Today

A gathering to remember MIT Professor Hans-Lukas Teuber will be held today (Wednesday, Jan. 19) at 4pm in Kresge Auditorium.

Professor Teuber, founder and head of the Department of Psychology and widely-known for his research into the relationship between the brain and behavior, died Jan. 4, of apparent heart failure, while swimming off Virgin Gorda in the British Virgin Islands. He was 60.

MIT President Jerome B. Wiesner and Professor Teuber's older son, Andreas W. Teuber, will be among the speakers at the service.

Others from MIT will include Dr. Richard Held, acting head of the Department of Psychology and professor of experimental psychology; Dr. Walle J.H. Nauta, Institute Professor and professor of neuroanatomy; Francis O. Schmitt, Institute Professor Emeritus, professor of biology emeritus and founder of the Neurosciences Research Program; Stephan L. Chorover, professor of psychology; Gerald E. Schneider, associate professor of psychology; Ann M. Graybiel, associate professor of psychology; Suzanne H. Corkin, research associate in the Department of Psychology and

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## Working Group Plans Seminar

Are performance evaluation, classification systems, grievance procedures, benefits, training, and work environment, issues of importance to you?

Then come to the Office/Clerical Working Group Forum from 12 noon to 2pm on Friday, January 21, in the Bush Room (Rm 10-105). Working Group members will discuss issues they've been examining for the past two years. Those present will have an opportunity to ask questions and offer suggestions.

All members of the MIT community are invited to attend, with secretaries and clerical workers and their supervisors, especially welcome. If you're interested in attending, please call Lori Miola, Ext. 3-4077.

# MIT Tuition Increase Announced for 1977-78

Tuition at MIT for the 1977-78 academic year beginning July 1 will be increased by \$350 in the Institute's continuing effort to meet the rising costs of education.

The new tuition will be \$4,350 for the academic year. The academic year consists of two terms—the Fall Term which begins in September and the Spring Term starting in February. The new tuition will be applied pro rata to this year's Summer Session.

The additional \$350 for the year represents an 8.75 percent increase over the \$4,000 tuition charged for this academic year. MIT has been forced to increase tuition every year for the past eight years. A year ago the increase was \$300.

Chancellor Paul E. Gray, in announcing the increase, expressed MIT's concern that the trend in annual tuition increases must be con-

tinued this year at the level over 8 percent.

"All of us understand and are sympathetic with the problems of financial hardship that higher tuition inevitably places upon our students and their families," he said. "It is a necessity we cannot avoid despite our efforts to increase endowment and the annual flow of gifts and other sources of income."

About 55 percent of MIT's 4,470 undergraduate students are on financial aid and an even greater percentage of the 3,770 graduate students receive some form of assistance.

Even with tuition increases, Chancellor Gray said, MIT continues to experience a gap between operating income and operating expenses. The operating gap this

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## Symposium to Review SAS-3 Achievements

By WILLIAM T. STRUBLE  
Staff Writer

How do you weigh a neutron star? What are the sources of the rapidly repetitive bursts of X-rays seen by MIT's orbiting X-ray observatory? And, from both operational and scientific considerations, how do you run such a satellite observatory on a round-the-clock schedule?

These are a few of the topics of a special symposium Jan. 26 that will review the achievements and discoveries of the Small Astronomy Satellite (SAS-3), which is one of the most productive astrophysical satellites of its kind now in orbit.

When the symposium convenes at 2 pm on that day, with introductory remarks by MIT Provost Dr. Walter A. Rosenblith, SAS-3 will be in its 9608th orbit, having traveled about 258,000,000 miles and yielded data that have both excited and puzzled scientists involved in the "new astronomy"—the study of exploding

galaxies and quasars, black holes, binary star systems, high-energy particles and magnetic fields, and events suggesting gravitational collapse.

The symposium, entitled "The X-ray Universe: SAS-3, An MIT Observatory in Orbit," will be held this year as an afternoon of Karl Taylor Compton Lectures, which are open to the public, and will take place in Room 9-105 at MIT. At the conclusion of the symposium, members of the audience will have an opportunity to visit the SAS-3 Control Room, Room 37-402, where data are gathered and analyzed and commands issued to the satellite.

Two Institute Professors at MIT will be among the speakers at the symposium. Dr. Bruno B. Rossi, a pioneer in space research who initiated the project that led to the discovery of cosmic X-rays, will discuss the origins of the new science

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## MIT to Aid Cairo University In Egypt Development Plans

MIT and Cairo University in Egypt have entered into an agreement under which MIT's Technology Adaptation Program will assist Cairo University in preparing and implementing technical programs which will contribute to achieving Egypt's development goals.

The U.S. Agency for International Development (AID) has provided \$1.5 million for the initial phase of the project.

The agreement was signed in Cairo Sunday, Jan. 16, by Provost

Walter A. Rosenblith of MIT and by Cairo University President Soufi Abo Taleb.

Faculty members and graduate students of both Cairo University and MIT will collaborate with various Egyptian government agencies in developing research projects in several areas, initially in water resources, transportation, housing and building materials, industrialization, economics and demography.

MIT faculty members from the

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# Hearing Set Friday on Cambridge DNA Ordinance

The Ordinance Committee of the Cambridge City Council, as required by law, will hold a public hearing at 6pm Friday (Jan. 21) at Cambridge City Hall on an ordinance proposed by Council member David Clem permitting recombinant DNA research to proceed in Cambridge provided it is carried out under a set of conditions recommended by the Cambridge Experimentation Review Board.

The same proposed ordinance would also establish formally a

Cambridge Biohazards Committee, appointed by the city, for the purpose of overseeing all recombinant DNA experimentation conducted in the city and to advise the city's Commissioner of Health and Hospitals.

The proposed ordinance was introduced by Mr. Clem at a Council meeting Monday (Jan. 17). The Council referred the proposed ordinance to its Ordinance Committee, of which Mr. Clem is the chairman.

Under law, any proposed ordinance must be given a public hearing

before being acted upon by the Council. Council custom requires that at least two days elapse between introduction of a proposed ordinance and the public hearing.

Mr. Clem said that by holding a public hearing Friday, the Council itself will be able to take up the proposal at its meeting next Monday night (Jan. 24).

Earlier in last Monday's meeting, the Council rejected by a vote of 4-to-3 with two absent, an ordinance proposed by Mayor Alfred Vellucci

that would have forbidden recombinant DNA research at the P3 and P4 levels in Cambridge for all time.

nine members of the Council was absent from the Monday meeting.

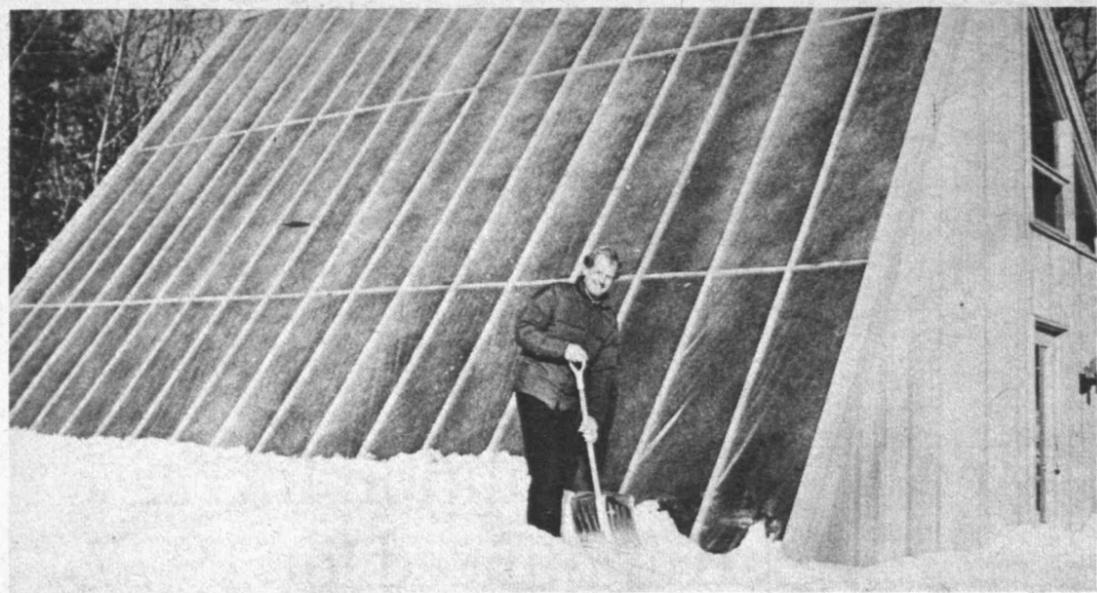
Also last Monday, the Council approved six orders and one resolution—all introduced jointly by Mr. Clem and by Council member Barbara Ackermann—having to do with recombinant DNA and preparations for acting on the proposed ordinance later.

The resolution extended Council

appreciation to the scientists at Harvard and MIT for their cooperation and concluded that "whereas there is and has been an inevitable period of time during which the Council must consider all of these important and complex matters, the Council nevertheless determines to move forward with all deliberate speed."

One order instructed the City Manager to instruct the City Solicitor to prepare a memorandum for

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**SHOVELING SNOW TO LET THE SUN'S RAYS IN**—Professor Richard D. Thornton of the Department of Electrical Engineering and Computer Science stands in front of the solar collector at his Concord home. Professor Thornton will speak on the advantages and disadvantages of living in and build-

ing a house which uses solar energy on Sunday, January 23, at 3pm in Rm 9-150. "Building a Solar House" is the second in a series of lectures, geared toward a younger audience (approximately 10 years and older), to benefit the Technology Children's Center, Inc. A \$1 donation is requested.

## LIS Announces Spring Courses

The Lowell Institute School, which offers inexpensive evening courses to technician-level students, has added one new course to its spring term schedule, beginning Monday, February 7.

Dr. Bruce D. Wedlock, director of LIS, said deadline for applications is Wednesday, January 26.

New to the School's curriculum—which emphasizes practical exercises and shop and laboratory work—is a course in *Projects in High Speed Photography* for which the prerequisite is LIS's course in *High Speed Photography*.

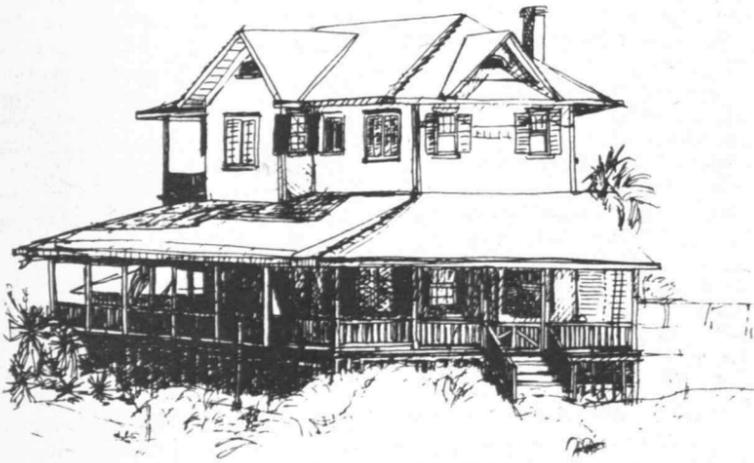
In addition, 18 other subjects will be offered including *Applied Mathematics for Electronics*, *Technical Writing Lab*, *Improving Oral Communication*, *Advanced Scientific Glassblowing*, *Basic Mechanical Drafting*, *Advanced Mechanical Drafting*, *Applied Geometric Dimensioning & Tolerancing*, *Creative Photography*, *Introduction to Elec-*

*tronics-II*, *Op-Amp Applications*, *Introduction to Digital Electronics*, *Advanced Digital Electronics*, *Introduction to Microprocessors*, *TV-II*, *TV Signal Processing & Measurements* and *Machine Tool Fundamentals*. The courses in *Principles of Metal Joining* and *Basic Scientific Glassblowing* are already filled to capacity. Courses meet weekly from 6:30 to 9:30pm.

LIS was established in 1903 to provide low-cost evening instruction in technical subjects. Tuition is \$30 per credit hour. There is also a \$5 registration fee. Laboratory subjects have additional fees. Generous scholarship aid is available for students whose employers do not provide tuition assistance. (MIT employees are eligible for MIT Tuition Assistance.)

Additional information and applications are available in the LIS office, Rm 1-118, x3-4895.

## Davison Prints At Faculty Club



**ETCHING** representative of those in exhibit of Nancy Davison's work at MIT Faculty Club through January 28.

Etchings and woodcuts by Pittsburgh artist Nancy R. Davison are on view at the MIT Faculty Club through Friday, January 28.

Pictures in the exhibition—of summer cottages, the beach, the New England coast, kitchens—reflect Ms. Davison's travels in New England, the West, and the Midwest.

"I like to work outside," the artist said, "drawing impressions of oceans, houses, and people directly on the etching plate or woodblock. I also do interiors and occasionally work from photographs—my own and images from the 19th century."

"Historically, etchings and woodcuts have circulated widely and functioned as sources of pictorial information, as well as sources of pleasure," she said.

Ms. Davison received the BA degree in art at Smith College where she studied printmaking with Leonard Baskin. Her work has appeared in several national juried shows and in several regional shows. She has had six one-woman shows and recently shared a two-person traveling exhibition circulated by the Museum Without Walls in Maryland.

She has received jurors' awards in Pittsburgh Print Group shows and in 1976, the Jurors' Recognition Award for Graphics in the Three Rivers Arts Festival Juried Fine Arts Show in Pittsburgh.

Her work is included in permanent collections in Massachusetts and Pennsylvania.

## CABLE TV SCHEDULE X3-3625

January 19-25

Channel 8

Wednesday, Jan. 19  
12 noon-1pm

4pm

**FACING THE CONSEQUENCES** and **THE YOUNG SCIENTISTS**. From the ABC-TV Series, "What About Tomorrow?"  
**HAZARDS OF GENE TRANSPLANTATION** by Professor Jonathan King. LIVE from 66-100.

Thursday, Jan. 20  
8pm

Friday, Jan. 21  
4 p m

Monday, Jan. 24  
10-11am

12-1pm

3-4pm

Tuesday, Jan. 25  
10-11am

12-1pm

2-3pm

children ages 5-10. Senior Life Saving or WSI required. Hours: W3-4, 5-6, Th 3-4. \$3.50/hour. Contact Ann Hayden, 227-5838. For information on other student jobs, visit the Student Employment Office, Room 5-122.

## New Subjects

**Humanities Subject 21.970**—Change in title and course description. New title: *Intellectual Innovations and Their Contexts: Examples from Literature, Psychology, and Physics*. Tues & Thurs, 3-4:30pm, Professors L. Marx, K. Keniston, G. Holton. For details contact Prof Marx's Office, Rm 20D-201, x3-4056.

## New UROP Listings

For more detailed information on UROP opportunities listed, MIT undergraduates should call or visit the Undergraduate Research Opportunities Program Office, Room 20B-141, Ext. 3-5049 or 3-4849 unless otherwise specified in the listing. Undergraduates are also urged to check with the UROP bulletin board in the main corridor of the Institute.

### Risk Analysis of Open-Pit Mine Slopes

An opportunity is available for an undergraduate to assist in developing probabilistic models and computer programs for risk analyses of large mining excavations. Continuing research will use these models together with decision analysis to study the effect of geological exploration on risk reduction. Student in computer science or a related field with programming and mathematical background and an interest in probability theory preferred. Approximately 10 hours a week, pay available. Contact: Prof Einstein, x3-3598, Rm 1-330, or Prof Baecher, 3-7111, Rm 1-376.

### Bolt, Beranek & Newman

Cambridge  
Using several PDP-10's and other computers, the Computer Systems Division has several large R&D programs underway on the forefront of computer science and technology. A number of projects are available: 1) Packet Switching Technology, 2) Computer Applications in Life Sciences, 3) Multiprocessor Computer Applications, 4) Computer Applications in Signal Processing. Pay or credit available. Students are invited to begin immediately. These and long-term projects encouraged.

### Dial-A-Ride: Rochester Project

Two students are invited to join the Dial-A-Ride project to assist in a technical study of the future role of demand responsive transportation systems in Rochester. A comparison of fixed route ridership systems and Dial-A-Ride will be made. A threshold analysis on the viability of demand responsive systems, a study of union labor and peak and off-peak labor costs, and an analysis of demographic variables will be done. Students with technical backgrounds and interests in regional policy and economics are encouraged to apply. Pay available. Contact: Julie Moore Ede, Rm 1-133, x3-1977.

### Radiation Control Program—Mass. Department of Public Health

A student is invited to work with the Radiation Control Program as an assistant to the director in two main areas—Cancer Management and policy formation with regard to the placement of radiological facilities (both diagnostic and therapeutic) throughout the state. The job includes doing research, attending meetings, working on grant proposals and visiting hospitals in reference to these two areas.

### Law Related Projects

A number of public and non-profit organizations involved in law and law related work would like students to work with them. Possible UROP projects can be arranged with groups such as Common Cause, Mass Crime and Justice Foundation, the Governor's Legal Office, and the Mass Mental Health Legal Advisors. Contact: Stan Hudson, UROP Office.

### Oral History Program

Research opportunities for students with their own project ideas exist in the Oral History Program. Students should have a desire to do historical research, and have a foundation in one or more fields of science or engineering. Experience in historical research would be very helpful, but it is not necessary. Students should be prepared to design and execute their own project. Contact: Marc Miller, x3-4067, Rm 20D-224.

## Club Notes

**Association for Women Students\*\***—Planning meeting, Wed, Jan 19, 5pm, Cheney Rm (3-310). Come share ideas for spring program.

Men & Women welcome. Refreshments.

**MIT Badminton Club\*\***—Join the MIT Team in MBA Division III League matches, MBA Tournaments or come just for fun. Meetings Fri, 7-10pm, Sun, 10am-1pm, du Pont Gym. Info: E. To, Ext. 3-6780, 5-9671 Dorm.

**MIT Bridge Club\***—ACBL Open pairs duplicate bridge. Thurs, 7pm, Stu Ctr Rm 407.

**MIT/DL Bridge Club\*\***—ACBL Duplicate Bridge. Tues, 6pm, Stu Ctr Rm 407.

**MIT Figure Skating Club\*\***—Meetings Sat, 9-11am, Sun, 11:30am-1pm, MIT Ice Rink, Free. For anyone interested in developing figure skating ability. Participants must be able to skate backwards.

**Gays at MIT\***—(formerly SHL) Coffee-house/meeting, first Sunday each month, 5pm, Gay Lng (Walker Rm 50-306). Everyone welcome. For info or just an ear to listen call x3-5440, or come to Gay Lng for lunch.

**Hobby Shop\*\***—Mon-Fri, 10am-6pm, Rm W31-031. Fees: \$10/term for students, \$15/term for community. Info: x3-4343.

**MIT Juggling Club\***—Meetings Sun, 12n-2pm, Stu Ctr Rm 473. (Note new time & place.)

**MIT Shotokan Karate Club\*\***—Rigorous training for intercollegiate competition & self-defense, given by 6th degree black belt. Thurs, 8pm; Fri, 6pm; Sun, 10am, du Pont T Club Lng. Info. x3-7220.

**MIT Soaring Association**—Monthly meeting, Thurs, Jan 20, 8:45pm, Stu Ctr Mezzanine Lng. Showing of "Dawn Flight," soaring movie nominated for Academy Award. Anyone interested in learning to fly gliders is urged to attend. Refreshments.

**Tae Kwon Do Club\***—Workouts on Tues, T-Club Lng (W31-125), & Thurs, W31-225, 6-7pm. Info: Jim Cole, x3-3283.

**Tech Model Railroad Club**—Meetings, Sat, 4pm; Operating Sessions, Fri nights; Rm 20E-214, x3-3269.

**White Water Club\*\***—Pool sessions alternate Tues, 8-10pm, Alumni Pool. Next session Feb 1.

## Religious Activities

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

**MIT Buddhist Association\***—Meditation session & informal discussion Thurs, 5:30pm, Rm 8-205. New members always welcome.

**Hillel Services\***—Orthodox: Fri, sundown, Rm 50-005; Sat, 8:30am, Rm 10-105. Traditional/Egalitarian: Sat, 10am, 312 Memorial Dr (Religious Counselors Bldg). Reform: Fri, 7:30pm, Chapel.

**Protestant Worship Service\***—Worship, prayer, praise & teaching. Sun, 10:45am, Chapel. Coffee, donuts & fellowship following.

**Tech Catholic Community**—Roman Catholic Liturgies will be offered as follows: Sun, 9:15am, 12:15 & 5:15pm; Tues, Thurs, 5:05pm; Fri, 12:05pm.

## Echoes

January 15-January 21

### 50 Years Ago

At his Popular Science Lecture, physics instructor Dr. Donald C. Stockbarger showed that sound could be transmitted over a beam of invisible light. This week's public demonstration is believed to be the first in history.

### 40 Years Ago

Before the legislature is a bill providing for the abolishment of compulsory military training in Massachusetts schools. The bill further states that no student can be deprived of his degree for failing to take military drill.

### 25 Years Ago

Charles W. MacGregor of the Dept. of Mechanical Engineering at MIT was appointed vice-president of the University of Pennsylvania where he will be in charge of engineering and scientific studies.

**TECH TALK**  
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January 19, 1977

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## College Bowl Finalists



**PRACTICING CHINESE CALLIGRAPHY** is Anni Brucker, a junior from Boston, who enrolled in IAP activity, "Art of Chinese Calligraphy," sponsored by the Chinese Students Club.

—Photo by Calvin Campbell

By Mary Enterline  
Editor, IAP Guide

Competing in the finals of the MIT College Bowl at 8pm on Thursday, January 20, in Kresge will be the four teams who compiled the highest scores on the semi-final examination last week.

The half-hour exam of 100 questions was taken by 232 students. When scores for the 56 qualifying four-student teams were tallied, the winning teams and their members were:

**Neo-Classics Plus One**—Charles Steindell, a graduate student in economics from Georgia; Steven Martin, a graduate student in economics from Massachusetts; Tom Breuer, a graduate student in nuclear engineering from Georgia; and Roger Kaufman, a graduate student in economics from Connecticut;

**Random**—Brian Clouse, a freshman in mechanical engineering from Ohio; Richard Leitermann, a sophomore in mechanical engineering from Wisconsin; Chris Unger, a freshman from New Jersey whose major is undecided; and Wes Robbins, a sophomore in architecture from New York;

**Mudshark**—Reed Sturtevant, a sophomore from Maryland whose major is undecided; David Abrams, a graduate student in electrical engineering from Washington, D.C.; Tom Ginden, a senior in physics from New Jersey; and Arlene Orzell, a sophomore from New York, whose major is undecided;

**Hillel**—Bob Schloss, a junior in electrical engineering from Michigan; Ernie Davis, a junior in mathematics from Rhode Island; Jeremy Nussbaum, a senior in nuclear engineering from New York, and Michael Striefel, a graduate student in nuclear engineering from New York.

David Lewallen, coordinator of IAP activities for the MIT Libraries which are sponsoring the College Bowl, said the highest individual score was 1,265 points of a possible 1,750, and the highest team score was 3,900 of 7,000 points. He also pointed out that one of the winning teams, Neo-Classics Plus One, is composed of graduate students while another, Random, is made up of freshmen and sophomores.

Tomorrow night's finals will be broadcast over MIT Cable TV. Master of ceremonies will be David Baltimore, Nobel Laureate and American Cancer Society Professor of Microbiology.

All questions are provided by the College Bowl Company, producer of the television series. Included in the semi-finals were questions like these:

1. Identify the early American statesman who wrote, "The rapid progress true science now makes occasions my regretting sometimes that I was born so soon."
2. Of what order of Greek architecture is the Parthenon a good example?
3. Name the actors who won Oscars for each of the following movies: a) "A Double Life," b) "On the Waterfront," c) "The Lost Weekend," d) "Stalag 17," and e) "The Philadelphia Story."

The answers? 1. Benjamin Franklin; 2. Doric; 3. a) Ronald Colman; b) Marlon Brando c) Ray Milland d) William Holden and e) James Stewart.

Once calligraphy was so important in Chinese culture that it ranked with reading, music, archery, and chariot riding among the arts every gentleman had to master. Although its practical importance has been reduced by the advent of the ballpoint pen, calligraphy is still studied and admired as an art form.

Members of the MIT community will have a chance to see examples of this ancient Eastern art at an exhibition next Wednesday, January 26. On display will be works by Mrs. Lydia Chang, a Chinese calligrapher and landscape artist, and ten MIT students who have been taking daily lessons from her during IAP. The exhibit will be held in the West Lounge of the Student Center from 10am to 8pm and will feature a lecture demonstration by Mrs. Chang at 1:30 pm.

Mrs. Chang came from New York City to share her knowledge of Chinese culture with MIT at the suggestion of her son Victor, a junior in chemical engineering. Victor, who is president of the Chinese Students' Club, which is sponsoring the course, worked with Professor Nathan Sivin, of the Technology Studies Program, in making all the necessary arrangements. The exhibition will be co-sponsored by the Humanities Department.

Victor Chang explained that Chinese calligraphy is "Much more a visual experience" than Western calligraphy. "In the West, the alphabet is a small number of purely phonetic symbols. You look at a word and see how it sounds," he said.

"I can talk about Chinese calligraphy in terms of abstract art, in which you compose a character within a space. Chinese figures originated as pictograms, drawings of natural objects, and their combinations to make ideographs. Over the years they were adapted to many writing media and lines and dots. How you draw them is important; they must seem alive and give an interesting pattern."

In her demonstration, as she has done in her course, Mrs. Chang will emphasize the different brush strokes used in calligraphy and their application to landscape painting. Mrs. Chang, who learned calligraphy as a child in Shanghai, has taught it at Hunter College, Columbia University, and the Riverside Church in New York. Her work has been shown at the UN Art Club Exhibition annually since 1956 and at the RAA Art Gallery in New York, the Aspen Institute in Colorado, and the Wustum Museum of Fine Arts in Wisconsin.

## Teuber Service

(Continued from page 1)

Clinical Research Center, and Bjorn Merker and Shirley Stockmeyer, graduate students in the department.

Also speaking will be Morris B. Bender of Mt. Sinai Hospital, New York, David H. Hubel of the Harvard Medical School, Brenda Milner of the Montreal Neurological Institute, Leo M. Hurvich of the University of Pennsylvania, Daniel J. Robins of the National Health and Welfare Retirement Association, Fred L. Whipple of Harvard University's Smithsonian Astrophysical Observatory and Michael Bookman of the Harvard Medical School.

In addition to his son, Andreas, a faculty member on leave from the University of Washington in Seattle, Professor Teuber is survived by his wife, Marianne; a son, Christopher L. Teuber of Los Angeles, and a brother, Ulrich Teuber, of Copenhagen, Denmark.

A Hans-Lukas Teuber Memorial Fund has been established. Contributions can be sent to the fund in care of MIT, Rm. 4-113.

## Draper Takes Alumni Position

The appointment of Martha Stark Draper as alumni regional director for the southeastern states has been announced by James A. Champy, executive vice president of the MIT Alumni Association.

Ms. Draper will assume responsibility for all Alumni Association activities in her area and will provide staff support for the Alumni Fund, club activities and alumni relations. She will also serve as liaison between alumni in the southeast area and the MIT faculty and administration. The appointment is effective February 1.

A native of Newton, Mass., Ms. Draper received the BA degree in history from the University of the Pacific, Stockton, Calif., in 1964, spending her junior year, 1962-63, abroad at the Institute of European Studies, Vienna, Austria. She received the master's degree in European history from Boston University in 1965.

Before coming to MIT in 1969 as administrative assistant to the director of the Laboratory for Computer Science (formerly Project MAC), Ms. Draper was an administrative assistant with COMSAT in Washington, DC, and Geneva, Switzerland.



Ms. Draper

She joined the Laboratory's research staff in 1971. From 1972-74 Ms. Draper served as associate director for the Undergraduate Research Opportunities Program (UROP), an Institute program designed to foster and support project-based collaboration between faculty members and undergraduates.

Since 1974, Ms. Draper has been program coordinator for MIT's joint program with the Detroit Institute of Technology, the MIT-DIT Association, created at MIT in 1970 to assist DIT in the development of its academic program. She is a graduate of MIT's Administrative Development Program (ADP), receiving her certificate in 1975.

Ms. Draper is a resident of Brookline, Mass.

## Smith on Panels

Professor Cyril S. Smith was a panelist at discussions on "Technology and Art," "Modular Art," and "Multi-dimensional Geometry" at Woods/Gerry Gallery of the Rhode Island School of Design in Providence on January 15 and 16.

Professor Smith is Institute Professor, Emeritus, professor of metallurgy, emeritus, and professor of the history of technology and science, emeritus.

## MIT Senior Wins Rhodes Scholarship

By CHARLES H. BALL  
Staff Writer

An MIT senior has won a Rhodes scholarship—in a field of study that sets him apart from previous MIT winners.

James E. Adams Jr., of Prairie Village, Kansas, is the first Rhodes scholar to come out of the Institute's Department of Humanities.

Adams came to MIT in 1973 to study mathematics, but shifted to humanities—majoring in literature—in his sophomore year when he discovered that literature "was much more engaging. I wasn't leaving it behind me in class, but constantly thinking about it and being challenged by what I read."

"It was not a radical transformation," he added. "I had always been interested in literature."

He realizes, however, that his achievement in winning a Rhodes scholarship in literature, which will enable him to study at Oxford University in England for two years starting next fall, is something of a radical departure for MIT.

"People at MIT tend to regard literature majors as failed scientists," he said. "I hope that by winning I have struck a blow for the Department of Humanities as a whole."

The same note was sounded by one of Adams' teachers, Travis R. Merritt, associate professor of literature and director of the major in humanities (Course 21).

"Jim Adams' quality is well known to those of us in Course 21 and the literature faculty who have worked closely with him as teachers and advisors, so we can't pretend to be astonished that he has received this honor. He is simply first-rate," Professor Merritt said.

"Still," he continued, "the winning of Rhodes scholarships and other prestigious awards of that sort is unusual, and I think especially difficult, for MIT undergraduates, even though we have plenty of distinguished students, including many majoring in humane studies, who are worthy of serious consideration. Maybe Jim Adams will have started a trend."

Even before Adams had switched to literature as a major, he had established his credentials in the field.

In one of his English classes in his sophomore year, his professor asked Adams to enter the first paper he wrote in a contest. As a result, he won the I. Austin Kelley III Prize for Excellence in Humanistic Scholarship.

## Drawings by Sculptors In Hayden Corridor Exhibit

Works on paper and other media by sculptors represented in the MIT Permanent Collection will be exhibited in MIT's Hayden Corridor Gallery from January 13 to February 26 as part of the Committee on the Visual Arts' IAP project, "Art in Public Spaces at MIT."

The six sculptors, Theodore Roszak, Henry Moore, Louise Nevelson, Larry Bell, Dimitri Hadzi, and Beverly Pepper, are each an integral part of what is considered to be the most important public collection of modern sculpture at an academic institution in the area.

The first large-scale public sculpture at MIT was Theodore Roszak's 45-foot aluminum bell-tower installed on top of the MIT Chapel in 1955. One of America's foremost sculptors working in welded metal, Roszak and architect Eero Saarinen collaborated on what has been called the most successful wedding of the two disciplines in the country. The exhibit includes many small sketches for the three-pronged spire and a large pastel study for its surface, encrusted with dozens of small individually cast sculptures.

Monumental works by Calder, Rodin, Bourdelle, Picasso, Jacques Lipchitz, Lyman Kipp, and Takis, as well as works by others, have enriched MIT's environment in recent years.



Jim Adams—off to Oxford.

Adams, whose father is a retired accountant, was a member of the varsity cross-country team at MIT and is on the staff of *Rune*, the Institute's journal of arts and letters.

Adams' journey to Oxford, to study English literature, will be his first trip out of the country. He said he hopes to travel extensively in Europe, continue his education when he returns to this country and eventually teach literature on the university level.

Adams was one of 32 United States college students to win Rhodes scholarships this year. According to the Rhodes Scholarship Trust, the most recent MIT winner, in 1966, was Richard W. Tsien. He received an SB and SM from MIT in electrical engineering and a PhD from Oxford in bio-physics. He is presently an associate professor at the Yale University School of Medicine.

*Elmo-MIT*, by Dimitri Hadzi, is represented in sketches and detailed drawings.

The other works on paper, while not directly related to the artists' three-dimensional pieces in the collection, show their sculptural motivation. The geometry and metallic quality of the Beverly Pepper etching are reminiscent of *Dunes I* sited in Compton Court. Louise Nevelson's sensibility for combining organic shapes and an implicit geometry is as evident in her paper collages as in *Transparent Horizon*. The forms in Henry Moore's earlier figure drawings are echoed in MIT's *Three-Piece Reclining Figure—Draped*, installed this past summer in Killian Court.

Larry Bell's color studies on mylar for *The Iceberg and Its Shadow* simulate the iridescent surface of the work's metallic-inconel coated glass segments. *The Iceberg and Its Shadow* is on extended loan to the Institute from the Albert and Vera List Family Collection and on exhibition in Hayden Gallery during this same period.

# THE INSTITUTE CALENDAR X3-3270

January 19 through January 30

## Events of Special Interest

**Building a Solar House\*** — Richard D. Thornton, electrical engineering. Young People's Lecture sponsored by Technology Children's Center, Inc. Sun, Jan 23, 3pm, Rm 9-150. Donations: \$1. Information: Child Care office, x3-1592.

**LSC Lecture\*** — Lecture by Mel Blanc, the voice of Bugs Bunny and other Warner Brothers characters. Mon, Jan 24, 8pm, Kresge. Tickets \$1, sold at all LSC movies, LSC office, Bldg 10 Lobby, and at door.

## Seminars and Lectures

### Wednesday, January 19

**Human Pineal Gland\*** — Michael Moskowitz, MD, nutrition & food science, MIT; neurology, Harvard Medical School. Nutrition & Food Science Seminar. 9am, Rm E18-408.

**Undergraduate Opportunities in Transportation\* (57a)** — Nigel Wilson, civil engineering, Transportation Systems Division. 10-11am, Rm 1-150.

**The Secrets of Karate, Unlocked in a Flash\*** — Steve Wilk, G. Strobe Lab Lecture Series. 12n, Rm 4-402.

**Maternal and Infant Behavior Having an Effect over the Infant's Growth\*** — Ernesto Pollitt, growth and development. Research in Nutrition and Food Science (153a). 12n, Rm 16-310.

**What is a Personnel Officer? (463)** — Virginia Bishop, Kenneth Hewitt, Michael Parr, personnel officers. 12n-2pm, Rm 10-105.

**IAP Introductory Lectures: Nutrition and Heart Disease** — Arteriosclerosis Center: Medical Research (228). 12:30pm, Rm E17-421.

**Anti-Trust and Trade Practice\*** — Gordon F. Bloom, management. A Brief Introduction to Law (201). 1-3pm, Rm E52-143.

**The Effect of Energy Development on Western Water Resources (422)** — John Gerstle & David Hamilton, graduate students. 1-3pm, Rm 48-316. Audience participation.

**Medical Literature Searching: A Slide-Tape Introduction and On-line Demonstration of the MEDLARS/MEDLINE Information System (269a)** — Susan Woodford, Mary Pensyl, NASIC Search Staff, MIT Libraries. 2pm, Rm 14S-100.

**Current Issues in Flight Control Systems\*** — W. Vander Velde, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**The Mathematics of the Electoral College (104)** — Sam Gutmann, G. 3pm, Rm 2-135.

**From Liquid 3He to Neutron Stars - When is a Superfluid Magnetic?\*** — Bruce Patton, physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**The Graduate Program in Transportation at MIT (53c)\*** — A. F. Friedlaender, civil engineering and economics, Transportation Systems Division. 4pm, Rm 1-150.

### Thursday, January 20

**Undergraduate Opportunities in Transportation (57a)** — Nigel Wilson, civil engineering. 10-11am, Rm 1-150.

**Superheroes: Who are Superman, Spiderman and Howard the Duck?\*** — Paul Hoffman, discussion leader. Comic books (360). 11am, Rm 5-134.

**High Speed Movies and Elapsed-Time Movies\*** — Harold Edgerton, Institute Professor and professor of electrical measurements, emeritus. Strobe Lab Lecture Series. 12n, Rm 4-402.

**Transport Barriers of the Arterial Wall — The Endothelium\*** — Medical Research (228). 12:30pm, Rm E17-415.

**Patent Law\*** — Jeffrey A. Meldman, management science. A Brief Introduction to Law (201). 1-3pm, Rm E52-143.

**Materials and Microelectronics\*** — K. Jones, Draper Lab., & Prof. H. L. Tuller, materials science. Materials and Microelectronics. 2-4pm, Rm 13-2101.

**Energy from Wind and Space\*** — Rene Miller, H. N. Slater Professor of Flight Transportation, head of aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**Careers in Engineering\*** — Association for Women Students Seminar. 3-4:30pm, Rm 3-310. Men & women welcome.

**The Kinetics and Thermodynamics of Human Erythrocyte Freeze-Thaw Damage at Sub-optimal Cooling Rates\*** — John McGrath, G. Mechanical Engineering Doctoral Seminar. 3pm, Rm 37-212.

**Opportunities for Operations Research in Developing Countries\*** — Philip M. Morse director emeritus, Operations Research Center. Topics in Operations Research (277b). 3pm, Rm 24-121.

**High Temperature Superconductors\*** — Judith Bostock, physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**A Continuous Fermentation of Trichoderma Viride on Cellulose\*** — N. Peitersen, Natick Development Center. Nutrition & Food Science Seminar. 4pm, Rm 16-134. To arrange consultation: C. L. Cooney, x3-3108.

**The Completion of the Industrial Structure of the American Economy, 1900-1917** — Alfred Chandler, Harvard Business School. History of Industrial Society Workshop. 4pm, Rm E52-461.

**Alternative Transportation\*** — David Gordon Wilson, mechanical engineering, Bob Williams, Urban Bikeway Design Collaborative. Ecology Action Activities (440a). 7pm, Rm 66-110.

### Friday, January 21

**Undergraduate Opportunities in Transportation (57a)** — Nigel Wilson, civil engineering. 10-11am, Rm 1-150.

**A Chemist's View of the Viking Mission\*** — Klaus Biemann, chemistry. Chemistry (41). 11am, Rm 6-120.

**Color Schlieren and its Applications\*** — J. K. Vandiver, ocean engineering, Henry L. Doherty Professor in Ocean Utilization. Strobe Lab Lecture Series. 12n, Rm 4-402.

**Office Clerical Working Group Forum (460)** — Members of the Working Group will discuss issues they've been examining for the past two years, and respond to questions and suggestions of those attending. 12n-2pm, Rm 10-105.

**Regulatory Law\*** — J. D. Nyhart, management, co-ordinator of law-related studies. A Brief Introduction to Law (201). 1-3pm, Rm E52-143.

**Introductory Talk and Tour of Haystack Observatory\*** — Philip Myers, physics. Tour of Haystack Observatory (183). Talk 1pm, Rm 13-5101; tour 1:30pm, meet Vassar St. entrance to Bldg 39.

**Magneto-Hydrodynamic Power Generation\*** — M. Martinez, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**Magnetochemistry I\*** — Edward Solomon, chemistry. Magnetochemistry (45a). 2-4pm, Rm 6-433.

**The Life of Indians in the U.S.\*** — Steve Charleston, editor of *The Circle*, an Indian newspaper. Meet Americans: Discussions for Foreigners (440d). 3pm, Rm 14N-225.

**Physics of Jello, Coffee Pots, and Random Magnets\*** — Robert Birgeneau, physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**Cost Functions for Class II Railroads\*** — Alberta Charney, University of Illinois. Issues in Transportation Planning (54). 3:30pm, Rm 1-150.

**Temperature and Storage Modification of Serum Lipoprotein\*** — Gordon L. Jensen, University of New Hampshire, Durham. Arteriosclerosis Center Seminar. 4pm, Rm E17-421.

### Monday, January 24

**Brain and Language Workshop** — Coordinated by Suzanne Corkin, psychology, chaired by Merrill Garrett, psychology. Participants: Sheila Blumstein, linguistics, Brown University; Paula Menyuk, applied psycholinguistics, BU; Paula Tallal, John F. Kennedy Institute, Johns Hopkins University; Dr. Bryan Woods, neurology, McLean Hospital, Belmont; Dr. Edgar Zurif, psychology, V.A. Hospital, Boston. Psychology Seminar. 10am-12n & 2-5pm, Rm E10-013.

**A Recipe for Hadrons: Exotic Dishes\*** — Robert Jaffe, physics. Lectures on Physics (177). 10:30am, Rm 6-120.

**IAP Introductory Lectures: Some Aspects of the Treatment of Atherosclerosis\*** — Arteriosclerosis Center: Medical Research (228). 12:30pm, Rm E17-421.

**The Control of Inflation: Alternatives to Unemployment (661)** — Lester Thurow, economics & management; Robert Solow, Institute Professor, economics, and Franco Modigliani, Institute Professor, economics & finance. 1-4pm, Rm E52-394.

**Corporate Law\*** — Arthur Z. Gray. A Brief Introduction to Law (201). 1-3pm, Rm E52-143.

**Magnetic Levitation\*** — C. W. Haldeman, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**On the Importance of Magnetic Fields in Astrophysics\*** — Stanislaw Olbert, physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**Films About Photographers\*** — Lee Parks, photographer. Photo Sessions (art courses and lectures) (300). 7:30-10pm, Stu Ctr Rm 429.

### Tuesday, January 25

**Engines: Real and Imagined\*** — Bernard Burke, physics. Lectures on Physics (177). 10:30am, Rm 6-120.

**The Future of the World Economic Order (67a)** — Jagdish Bhagwati & Rodiger Dornbusch, economics; Paul Samuelson, Institute Professor, economics; chaired by Franco Modigliani, Institute Professor, economics & finance. 1-4pm, Rm E52-394.

**Aeronautics and Astronautics (4)** — Jack L. Kerrebrock, Richard Cockburn MacLaurin Professor in Aeronautics and Astronautics. 2pm, Rm 33-206.

**Conics are Tangent to 5 Others? (108)** — Steven Kleiman, mathematics. 2-3:30pm, Rm 2-139.

**Careers in Medicine\*** — Association for Women Students Seminar. 3-4:30pm, Rm 3-310.

**Resettling America: Recent Shifts in Population and Employment and the Facts Behind Them (223b)** — David Birch, JCUS; Peter Allaman & Elizabeth Martin. 3-5pm, Rm 7-102.

**Winds from the Stars\*** — John Belcher, physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**Secretion and Membrane Localization of Proteins in E Coli\*** — Jonathan Beckwith, MD, Harvard Medical School. Biology Colloquium. 4:30pm, Rm 6-120. Coffee 4pm, Bldg 56, 5th fl vestibule.

**An Aggregate Cost Function for the Norwegian Industrial Fisheries: Its Implications for Public Policy with Respect to the Purse Seiner Fleet\*** — Terje Hansen, Visiting Professor, Sloan School. Applications of Operations Research (277a). 4pm, Rm 24-121.

**Local Alternative Technology Research and Design Organizations\*** — Speakers from Boston Wind and other local study groups. Ecology Action Activities (440a). 7pm, Rm 66-110.

### Wednesday, January 26

**What is Happening in Cambridge, Lowell, New Bedford, Quincy & Waltham Under CETA? (208)\*** — Charles Myers, Sloan Fellows Professor of Management & director of Industrial relations sectn; Thomas Barocci, industrial relations. 10-11:30am, Rm E52-542.

**Strobes for Bird Photography\*** — Harold Edgerton, Institute Professor and professor of electrical measurements, emeritus. Strobe Lab Lecture Series. 12n, Rm 4-402.

**How to Prevent Food Poisoning\*** — Anthony Sinskey, applied microbiology. Research in Nutrition and Food Science (153a). 12n, Rm 16-134.

**IAP Introductory Lectures: Open Session for Questions about the Arteriosclerosis Center** — Arteriosclerosis Center: Medical Research (228). 12:30pm, Rm E17-421.

**Interstellar Gas Clouds — Their Weight and Fate\*** — Philip Myers, physics. Lectures on Physics (177). 1pm, Rm 4-231.

**X-Ray Bursters, Pulsars, Binaries and Galaxies: A Special Symposium on the Results from the MIT X-Ray Observatory on the Third Small Astronomy Satellite (SAS-3) (234a, 185)\*** — Bruno Rossi, Institute Professor emeritus, physics, et. al. 2pm, Rm 9-150.

**Mirrors\*** — Ned Block, philosophy. Why do Mirrors Reverse Right/Left But Not Up/Down? (169). 2pm, Rm 66-168.

**The State of the International Air-Transport Industry\*** — N. K. Taneja, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**Women in a "Man's" Profession in the U.S.A.\*** — Vera Kistiakowsky, physics. Meet Americans: Discussions for Foreigners (440d). 2:30pm, Rm 14N-221.

**Geodetic and Geologic Evidence for Contemporary Doming of the Adirondack Mountains\*** — Y. W. Isachsen, New York State Geological Survey, Albany, NY. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-425. Tea 3:30pm, Rm 54-923.

**Exhibition and Demonstration of Chinese Calligraphy\*** — Demonstration by Lydia Chang, well-known calligrapher & artist, with exhibition including works done by students during IAP course (The Art of Chinese Calligraphy, 330a). Sponsored by MIT Chinese Students Club. Exhibit 10am-8pm, demonstration 7pm, Stu Ctr West Lng.

**Ken Rogoff and the Biel Interzonal (335b)** — Ken Rogoff, chess master. 8pm, Stu Ctr Mezz Lng.

### Thursday, January 27

**Women in Management (207)\*** — Harold Kellner, PhD, in Psychology & Edith Whitfield Seashore, MA in Psych & Pres., NTL Institute for Applied Behavioral Science, Consultant. 10am-12n, Rm E52-143.

**Neutron Molecular Spectroscopy (143)\*** — C. V. Berney & D. H. Johnson, nuclear engineering. 10am-1:30pm, Rm 24-115.

**Probing the Nucleus with Real and Virtual Photons\*** — June Matthews, physics. Lectures on Physics (177). 10:30am, Rm 6-120.

**Theory of Molecule Surface Interactions\*** — Robert Silbey, chemistry. Symposium On Catalysis (46). 11am, Rm 4-231.

**Comic Book Prices: Who Determines Value? (380)\*** — Paul Hoffman, discussion leader. 11am, Rm 5-134.

**Beyond Feminism: Enlarging the Creativity Range** — Virginia Gunter. Art Courses and Lectures (300). 12n-2pm, Stu Ctr Rm 429.

**The Radiation Entry Barrier\*** — J. R. Baron, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**Medical Engineering and Medical Physics: A New Doctoral Program** — Panel discussion: H. F. Bowman, executive/administrative officer, HST; J. F. Burke, MD, Helen Andrus Benedict Professor of Surgery, Harvard Medical School, chief of staff, Shriners Burn Institute; R. J. Kitz, MD, MGH, Henry Isaiah Dorr Professor of anesthesiology, HMS; R. G. Mark, MD, Matushita Professor of Electrical Engineering in Medicine; E. G. Cravalho, Matushita Professor of Mechanical Engineering in Medicine; L. R. Young, aero/astro. Chaired by Irving M. London, MD, director of Harvard-MIT Program in Health Sciences & Technology, biology. HST Seminar Series (240b). 4-5:30pm, Rm 9-150.

**Materials and Microelectronics\*** — K. Jones, Draper Lab., & H. L. Tuller, materials science. Materials and Microstructures. 12-4pm, Rm 13-2102.

**Conics are Tangent to 5 Others? (108)\*** — Steven Kleiman, mathematics. 2-3:30pm, Rm 2-139.

**Mathematics\*** — N. Kerzman mathematics. Fourier Series Applied To Arithmetic (101). 2-3:30pm, Rm to be announced.

**Careers in Social Science, Planning, Architecture and the Humanities\*** — Association for Women Students Seminar. 3-4:30pm, Rm 3-310.

**Climbing Mt. Everest\*** — Arlene Blum, Wellesley College. Chemistry IAP Special Event. 3pm, Rm 6-120.

**Absolute Motion?\*** — Philip Morrison, Institute Professor, Physics. Lectures on Physics (177). 3:30pm, Rm 4-231.

**Cloud and Weather Photographs\*** — Kerry Emanuel, graduate student, meteorology. Cloud Photo Show (121). 4pm, Rm 54-100.

**Current Solar Energy Research at MIT** — R. Thorton & G. Pratt, electrical engineering & computer science. Ecology Action Activities (440a). 7pm, Rm 66-110.

**Lecture on Dimitri Hadzi's public sculpture** — Dimitri Hadzi. Sculpture Projects (236). 7:30pm, Rm 54-100.

### Friday, January 28

**Women in Management (207)\*** — Three women in corporate positions in NY & Boston firms. 1-3pm, Rm E52-143.

**Topics in Number Theory (Analytic) (107)\*** — Dorian Goldfeld, mathematics. 2pm, Rm 2-135.

**Intelligence** — Ned Block, philosophy. Why Should Anyone Care Whether Intelligence is Inheritable? (170). 2pm, Rm 66-168.

**Airports — Where They Are, Where They are Going\*** — A. Odoni, aero/astro. Aeronautics and Astronautics Highlights (4). 2pm, Rm 33-206.

**Hadrons as Strings\*** — Charles Thorn, physics. Lectures on Physics (117). 3:30pm, Rm 4-231.

**Culture of Vascular Endothelium\*** — Dr. Michael A. Gimbrone, Jr., assistant professor of pathology, Harvard Medical School and Peter Bent Brigham Hospital. Arteriosclerosis Center Seminar. 4pm, Rm E17-421.

## Community Meetings

**Day Trip to Habitat** — Ecology Action Activities (440a) trip to Belmont's environmental studies center. Wed, Jan 19, 9am, meet in Bldg 7 Lobby. Explore 26 acres of woodland or browse thru the area's most extensive environmental library.

**Rosh Chodesh Marathon in Honor of Women and the Moon\*** — An evening of lecture-discussion, Midrash, poetry, music and food and woman-moon symbolism in the Jewish tradition sponsored by MIT Hillel. Speakers: Arlene Agus, leader of Jewish feminist movement & author of *New Feminist Ritual*; Rabbi Everett Gendler; Danny Siegel, poet, author of *Soul Stoned & God Braided Eve's Hair*; Rabbi Dan Shevitz, MIT Jewish chaplain; Debbie Weisman, national director of programming for Young Judaea. Wed, Jan 19, 7pm, The Brookline Bayit, 161 Naples Rd, Bkline. Admission: 75c.

**Book Collection Contest** — Judging for contest will be Thurs, Jan 20, Rm 14S-100. Awards: \$170 worth of prizes. Info: Marlene Manoff, x3-5683.

**Plant Cutting Exchange (271)\*** — NASIC Search Staff, MIT libraries. Mon, Jan 24, 2pm, Rm 14S-100.

**Women's Forum\*\*** — Marjorie Glassman, advisor of services for the elderly, Family Service Association of Greater Boston, will speak on the myths of aging. Tues, Jan 25, 12n, Rm 10-105.

**MIT Prenatal and Parent Education Meetings\*\*** — Barbara Berger, La Leche League, will show a film, "Talking About Breast Feeding," and lead discussion. Tues, Jan 25, 12n-1:30pm, MIT Infirmary 3rd fl conference rm. Limited babysitting, call x3-1316.

**MIT Employees Federal Credit Union\*\*\*** — Annual business meeting Tues, Jan 25, 5:30pm, Rm 10-105.

**Low Back Problem Exercise Class\*** — Thurs, 1-2:30pm, Stu Ctr West Lng. Bring 3 pillows and an OK from your doctor. \$15/ea class. Info: x3-4138, Mon, 9am-5pm.

**Wive's Group\*\*** — Group leaders: Charlotte Schwartz, sociologist & Myra Rodrigues, social worker, both from Medical Dept; Carol Hulsizer, faculty spouse in residence, Ashdown Hse. Wed, 2-4pm, Stu Ctr West Lng. Babysitting Stu Ctr Rm 473. Cheryl, x4-4911. **Jan 19:** Meet in bowling alley in basement of Stu Ctr. Cost: 45¢/game.

## Social Events

**Faculty Club Special Dinners\*\*\*** — **Wed, Jan 19:** Italian Night: minestrone soup, spaghetti & meatballs, tossed salad, glass of wine. Cost: \$3.85 + tax. **Fri, Jan 28:** Fish Fry: chowder, seafood platter. Cost: \$4.95 + tax. RSVP, x3-4895.

**Forty Salads, Forty Salads\*** — Gays at MIT (formerly SHL) are sponsoring a pot luck supper for MIT gay community and its friends Sun, Jan 23, 5pm, Gay Lng, Rm 50-306. Free. Info: x3-5440.

**MIT Hillel Bagels and Lox Brunch\*** — Theme: bees, women and the Jewish tradition. Rabbi Richard Israel, director of Greater Metropolitan Boston B'nai Brith Hillel Fdn, will speak. Elderly Jewish communities of Mattapan & Georgetown will join MIT Hillel. Sun, Jan 23, 11am, Rm 10-105. Admission \$1.50, \$1.25 Hillel members.

**JAP Strat's Rat** — Sponsored by Student Center Committee. Fri, 8:30pm-2am, 2nd fl Stu Ctr. Beer & Wine sold, requests and other good dancing music played by DJ. Free with college ID.

## Movies

**Ecology Action Film Series (440a)** — Wed, Jan 19, 11:30am-1pm, Stu Ctr West Lng.

**Silent Running\*\*** — LSC. Wed, Jan 19, 7 & 9:30pm, Rm 10-250. Admission 75¢, MIT or Wellesley ID required.

**Marriage and Family: Couples Who Share Responsibilities; We Do We do; Crocus; The Family: Lifestyles of the Future** — Sex Role Films (444a). Wed, Jan 19, 7pm, Rm 1-390. Optional 50¢.

**Two Films Discussing the SL-1 Disaster** — Nuclear Films (140). Wed, Jan 19, 7:30pm, Rm 9-150.

**Undersea World of Cousteau — The Humpback Whales and Greenpeace V** — Sea Life Exhibit and Film Series (272). Thurs, Jan 20, 3pm, Stu Ctr Rm 500.

**Loneliness: Marty** — Sex Role Films (444a). Thurs, Jan 20, 7pm, Rm 1-390. Optional 50¢.

**Henry Moore at the Tate Gallery** — Sculpture Projects (236). Thurs, Jan 20, 7:30pm, Rm 54-100.

**Louis Nevelson** — Sculpture Projects (236). Thurs, Jan 20, 7:50pm, Rm 54-100.

**Installation of Calder's The Big Sail** — Sculpture Projects (236). Thurs, Jan 20, 8:25pm, Rm 54-100.

**Ecology Action Film Series (440a)** — Fri, Jan 21, 11:30am-1pm, Stu Ctr West Lng.

**Regular Homotopies in the Plane** — Math Films (103a). Fri, Jan 21, 12n, Rm 2-390.

**The Groove Tube\*\*** — LSC. Fri, Jan 21, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**The Seventh Seal (Bergman)\*** — MIT Film Society. Fri, Jan 21, 7:30 & 9:30pm, Rm 6-120. Admission \$1.25.

**Goldfinger\*\*** — LSC. Sat, Jan 22, 7 & 9:30pm, Kresge. Admission 75¢, MIT or Wellesley ID required.

**Exodus\*\*** — LSC. Sun, Jan 23, 7:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Ecology Action Film Series (440a)** — Mon Jan 24, 11:30am-1pm, Stu Ctr West Lng.

**Battle of Algiers** — Political Films (190). Mon, Jan 24, 7:30 & 9:30pm, Rm 6-120.

**Childrearing: Sugar & Spice; Daycare: People's Liberation; I is for Important: Sex Role Stereotyping in Social and Emotional Events** — Sex Role Films (444a). Tues, Jan 25, 7pm, Rm 1-390. Optional 50¢.

**Ecology Action Film Series (440a)** — Wed, Jan 26, 11:30am-1pm, Stu Ctr West Lng.

**Invaders From Mars\*\*** — LSC. Wed, Jan 26, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Contraception, Pregnancy and Abortion: How About You: A Film on Birth Control and Sexuality; Young, Single and Pregnant; It Happens to Us; The First Days of Life** — Sex Role Films (444a). Wed, Jan 26, 7pm, Rm 1-390. Optional 50¢.

**The First Twenty Five Years** — Nuclear Films (140). Wed, Jan 26, 7:30pm, Rm 9-150.

**The Life Around Us: Should Oceans Meet** — Sea Life Exhibit and Film Series (272). Thurs, Jan 27, 3pm, Stu Ctr Rm 500.

**Class, Race, Age, Preference: Women Emerging: Comparing Cultural Expectations; Crystal Lee Jordan; I Am Somebody; Yudie; Continuous Woman** — Sex Role Films (444a). Thurs, Jan 27, 7pm, Rm 1-390. Optional 50¢.

**Ecology Action Film Series (440a)** — Fri, Jan 28, 11:30am-1pm, Stu Ctr West Lng.

**His Girl Friday\*\*** — LSC. Fri, Jan 28, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Wild Strawberries (Bergman)\*** — MIT Film Society. Fri, Jan 28, 7:30 & 9:30pm, Rm 6-120. Admission \$1.25.

**You Only Live Twice\*\*** — LSC. Sat, Jan 29, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**The Wizard of Oz\*\*** — LSC. Sun, Jan 30, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

## Lobby 7 Events

**Chess Simultaneous Exhibition (335b)** — Ken Rogoff, chess master, will play 30 players simultaneously Tues, Jan 25, 12:15pm, Bldg 7 Lobby.

**Folk Dance Club\*** — Will be dancing Fri afternoons in Lobby 7 throughout the winter months. Come and join in! Fri, 12n-2pm Bldg 7 Lobby. Free.

## Music

**Concert of Flemish Music of 1500\*** — Fri, Jan 28, 5pm, Bldg 13 Lobby. Sponsored by Music Section. Free.

## Theater and Shows

**Jacques Brel is Alive and Well and Living in Paris\*** — MIT Musical Theatre Guild production. Fri & Sat, Jan 21-22 and Jan 28-29, 9pm, Stu Ctr Lobdell. Tickets \$3.50, \$2.50 with MIT ID. Group rates & info: x3-6294.

## Dance

**Hatha Yoga\*** — New classes starting. First meetings: intermediate, Mon, Jan 17, 5:45pm; beginner, Mon, Jan 17, 7:05pm; beginner/intermediate, Tues, Jan 18, 5:45pm; over 40 years, Thurs, Jan 20, 9:45am; all Rm 10-340. Info: Ei Turchinetz, 862-2613.

**MIT Folk Dance Club — International: Sun, 7:30-11pm, Sala. Balkan: Tues, 7:30-11pm, Stu Ctr Rm 491. Informal: Fri, 12n-2pm, Kresge Oval (Bldg 7 Lobby in bad weather). Israeli: Thurs, 7:30-11pm, Sala.**

**Renaissance Dance\*** — Sponsored by MIT SCA. Beginners welcome. Wed, 8pm, Burton dining hall. Info: Bath Parkhurst, 964-1840.

## Exhibition

**Lofts: How Artists Solve their Space Problems\*** — A multi-media display. Mon, Jan 3-Fri, Jan 28, Rm 7-304. Rotch Library Exhibit. Open daily.

**MIT Faculty Club Exhibit\*** — Etchings and woodcuts by Nancy R. Davison. Thru Fri, Jan 28, Faculty Club.

**Works on Paper by Sculptors\*** — From the MIT Collection. Thurs, Jan 13-Sat, Feb 26, Hayden Corridor Gallery. Open daily.

**The Iceberg and Its Shadow: Two Views\*** — Monumental glass structure environment by Calif artist Larry Bell. Exhibit Sat, Jan 15-Sat, Feb 26, Hayden Gallery. Hours: Mon-Sat, 10am-4pm. Configuration of *Iceberg* will be changed by Bell Feb 7-9, during viewing hours.

**Strobe Alley\*** — High speed photographs by Harold E. Edgerton, Institute Professor and Professor of Electrical Measurement, Emeritus. Bldg 4, 4th fl.

**Hart Nautical Museum\*** — Permanent exhibit of rigged merchant and naval ship models of yachts and engine models. Bicentennial exhibit: "1776-1976" — a frigate, 2 schooners, a gondola, and the Durham boat of the American Revolution. Open daily in Bldg 55, 1st floor.

**MIT Historical Collections\*** — Permanent exhibition Mon-Fri, 9am-5pm, Bldg N52, 2nd floor. **Bicentennial Exhibits:** Katharine Dexter McCormick, '04; Vannevar Bush, '16; Karl Taylor Compton; and Norbert Wiener, 1876 exhibit, Bldg 4 corridor. **The New Technology Exhibit and Energy Exhibit:** 2nd floor balcony.

**Facsimiles of Composers' Manuscripts\*** — Including Bach, Haydn and Beethoven. Music Library, Rm 14E.

## Athletics

**Wednesday, January 19 — W & M JV Fencing.** Concord/Carlisle, 7pm, duPont fencing rm. **Friday, January 21 — W V Basketball.** Holy Cross, 7:30pm, Rockwell Cage. **V Squash.** Franklin & Marshall, 7pm, duPont squash courts. **Saturday, January 22 — M JV, V Basketball.** Bowdoin, 6:15 & 8:15pm, Rockwell Cage. **JV Hockey.** Grahm Jr College, 2pm, ice rink. **V Squash.** Stonybrook, 2pm, duPont squash courts. **Track.** Tufts & Lowell, 1pm, Rockwell Cage. **Monday, January 24 — W V Basketball.** SMU, 7:30pm, Rockwell Cage. **Tuesday, January 25 — V Hockey.** Fitchburg State, 7pm, ice rink. **Wednesday, January 26 — JV Hockey.** Thayer Academy, 3pm, ice rink. **M V Swimming.** Tufts, 6pm, Alumni Pool. **Friday & Saturday, January 28 & 29 — V Wrestling.** Central Conn, NY Maritime, Penn. Fri 11am & 2:30pm, Sat 1:30pm, duPont wrestling rm. **Saturday, January 29 — JV Hockey.** Lawrence Academy, 2pm, ice rink. **V Squash.** Fordham, 10am, duPont squash courts. **JV, V Squash.** Amherst, 2pm, duPont squash courts. **M Swimming.** WPI Lowell, 2pm, Alumni Pool.

**Maggie's Self-Designed Fitness Class** — Classes 12n-1pm, duPont fencing & wrestling rms. PE credit course, but all are welcome.

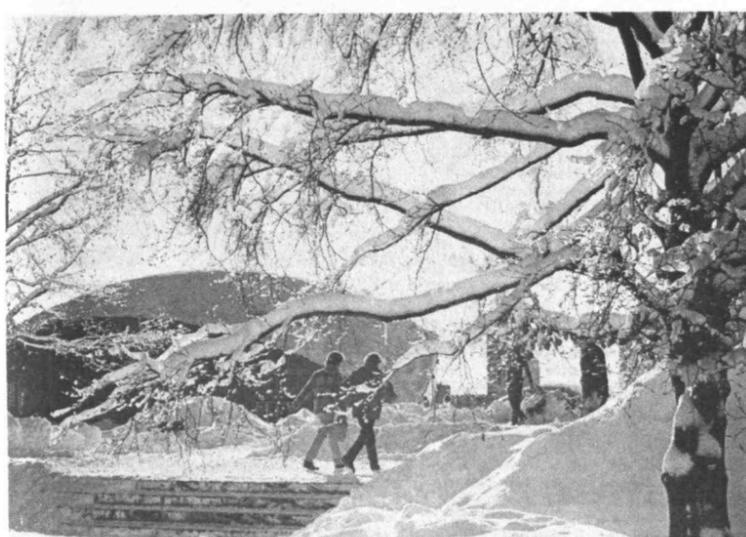
**MIT Scuba Locker\*\*** — Scuba gear may be rented at Alumni Pool by appointment only during winter months. Call 492-8322.

**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.**

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

Send notices for Jan 26 through Feb 6 to the Calendar Editor, Room 5-111, Ext. 3-3270, before noon Friday, Jan 21.

## In Case of Snow



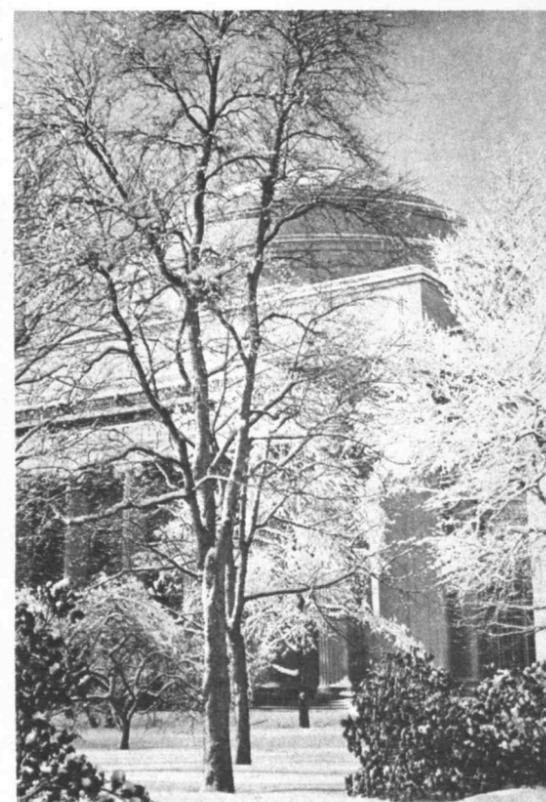
*The North wind doth blow and we shall have snow...  
And snow... And snow. Or so it seems.*

Since there is a very good chance there will be still more storms, here are instructions on how to find out whether or not MIT is operating normally.

The quickest means of finding out is by calling 253-SNOW (253-7669), which plays a continuous recording from Campus Patrol. The recording goes all the time and is updated as necessary.

Believe what you hear on SNOW. It is the official word on whether or not the Institute is open. During the recent storms, a number of MIT people have sought to verify information they received via the SNOW line. People are asked not to call offices such as Campus Patrol, Telecommunications and the Information Center. Rely on 253-SNOW.

MIT also uses radio station WHDH (85 on the AM dial) for closing announcements. WHDH is the only station carrying MIT closing announcements.



Photos by Calvin Campbell

Unfortunately, 253-SNOW, a regular Telephone Company-provided recording line, wasn't functioning on Wednesday, Dec. 29, the day of the first big storm. It was repaired, however, and has operated normally for both of the succeeding storms.

As a means of 'self-insurance,' the MIT Telecommunications Office is in the process of designing and building its own recording device, according to Morton Berlan, superintendent of telecommunications. It is expected that the new device will be operational before the end of the winter.



# CLASSIFIED ADS X3-3270

Ads are limited to one person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the *Tech Talk* office, Room 5-111. Please submit all ads before noon, Friday, Jan. 21. They will be printed on a first come, first served basis as space permits.

## For Sale, Etc.

Mpl 6 pc LR set, gd cond, \$100; 2 stuffed chrs, exc cond, \$40/pr. Rick, x5845 Linc, lve msg.

Photograph enlarger for beginner, \$15; old refrig, \$20; gas log for boiler conversion, etc, 210,000 BTU. Skip, x146 Linc.

German-made viola, exc cond, strong tone, incl case & newly repaired bow, ask \$250. Abigail, x5778 Linc.

Lady Shick deluxe hair roller set, prac nw, \$15 or best; set 6 wht porcelain custard cups, \$4. Chuck, x3-7902.

RCA 24" color TV, old, works fine, \$58; GE 9" b&w TV, \$30; sew mach, \$25; GE AC \$25; wndw fan, \$15; twin bed, \$15; sofa w/throw, \$15; vac cldr, \$10. Makoto, x3-5562.

HP-25; sz 7 hcky skates; 10 spd bike. David, 924-7667, aft 5.

Stenoprint mach, court reporter mdl, \$90. Sheila, x3-5705.

Hoover deluxe little washer, \$45; rnd wd tbl w/4 chrs, \$45; K chrs, \$3/ea; dishes, pots & pans, var prices. Call 661-2454, aft 6.

Physics #1, Resnick-Halliday, \$4.95; Remington manual typwrtr, \$25; girl 26" bike, \$25; sm lamps, \$3/ea; vanity, \$5; dresser, \$20; blue chr, \$12; oil drum & std, \$10. Call 643-4283, aft 5:30.

Pr Burt "retractable" ski bndgs, exc cond, easily mtd any skis, \$60. x5-6672 Dorm.

Rolleiflex TRL 75 f3.5 lens w/ spd grip, light mtr, 2 range auto strobe, about 30 rolls color & b&w film, \$200, nego. Rich Compeau, x3-5260.

TV, 16" b&w, \$40; Craftsman spreader seeder, \$10; 19.1 cu ft frostless s by s refrig, \$250. Abraham, x5846 Linc.

Sm dining tbl, \$10; sofabed, \$45. Sam, x3-6748.

Scandinavian Design teak platform qn sz bed w/side tbls, \$350 or best; mtching 3 drwr dresser, \$90 or best. Prof Fernstrom, x3-3853.

Kenmore dishwasher, bronze, nw motor, gd cond, x3-5205.

Elec snow-thrower, 115 v, 10 amps, \$45. Erik, x8-3339 Draper.

Rossignol Stratoflex 205 cm skis, nvr used, \$65. Bob, x3-3248.

Used tubeless radial snows, 165 SR 15, \$30/pr. x3-4195.

GE 12" b&w port TV, best. Bruce, x3-3957.

Mittersill ski area discount tckt, \$5.50. Harry, x7446 Linc.

Sz 8/9 long slvr & wht dress, made in Greece, exc cond, \$25; sz 6 1/2 leath workboots, rubber soles, gd cond, \$15. Linda, x3-4484.

HP-45 calculator w/charger. Call 494-8379, evgs.

Give away b&w TV, all tubes, some nw, works some but no image. Andre, x3-5947.

Sony TC-55 min tape rcrdr w/batt pack, AC adapter, 6 tapes, \$85; hand made holly hobby dolls, \$17. J. May, x8-2843 Draper.

Norge AC, 10,000 BTU, \$100; f 5 spd bike, gd cond, \$50; m bike & chn, \$25; qn sz matt, exc cond, \$50. Teleman, x3-7566.

Amfm clock radio w/hi intensity lamp, exc cond, \$30. Mark, 494-8888.

Yamaha guitar, FG-75, \$50. Fernando, x3-6802.

Castro Conv ottoman (hassock-fold up bed) w/red cover, lk nw, \$50; Kelyt pack & frame, nvr used, sz sm, \$20; folding 3 spd bike, \$50. Susan Moskowitz, x3-1356.

Rollei SL 83 super 8 movie camera, powerful zoom lens, instant slow motion, case, \$150. Rob, x3-7053.

Army coat w/detachable wool lining, x3-6550.

Hide-a-bed sofa, \$25. Eli Gai, x8-1548 Draper.

F sm down parka, b nw, too sm, coffee brn, fur trimmed hood, belted, \$25. x8-1584 Draper.

Zenith amfm digital clock radio, yr old, exc cond, \$35; ADC VLM stereo phono crtrdr, \$20; Dynaco 40 W mono pwr amp, nw tubes, \$40. John, x7837 Linc.

Tires: pr G78x14 w/ '72 Ford Torino rims; (1) F70x-14 w/rim for same; (1) G78x14 w/no rim; all exc cond, \$125/all. Angelo, x5437 Linc.

Nikkormat EL, 50 mm f2.0, \$275; 24 mm f2.8 Nikkor, \$135; 43-86 mm f3.5 Nikkor, \$135; all exc w/lens hoods, skylight fltrs. R. Taylor, x3-5142.

## Vehicles

'65 Corvair, runs v well, recent tires, etc, \$175. x3-7538.

'70 Saab 96 sed, 4 nw tires, 53 K, gd cond, \$300 or best, x8-1457 Draper.

'71 VW superbeetle, 38 K, gd tires, nw mtd snows, ask \$1,700. Butch, 256-0655.

'71 Datsun 510, 50 K, 4 dr, amfm, gd cond, \$1,400. x3-3713.

'74 Fiat 128 wgn, exc cond, amfm stereo cassette, 26 K, nw tires, nw muff, grnty, \$2,000. Magid, 489-0504, x4327.

'75 Vega Htchbk, auto, amfm stereo, radials, mint cond, must see, \$2,150. Dan, x8-4616 Draper.

'76 Ford Granada, 4 dr, p st, disc brakes, 350 CID eng, lo mileage, exc cond, best reas. x3-2772.

## Housing

Bos, S End, studio apt, furn or un, nr T, pkg on str, \$160 incl ht, util. Dr. Clark, 267-4389.

Bri, unfurnpt inf 2 fam hse, 7 rms, avail immed. Helen, x8-2471 Draper.

Camb, 3 BR apt, conv to MIT, avail 2/1, qt street, \$245 incl util. x3-7176.

Camb, nr Porter Sq, nr bus, 2 BR apt, ww, dish & disp, AC, \$295 incl ht. Call 491-3709.

Concord Ctr, 4 BR cape, TV off K, frpl, 1 1/2 B, 2 car garage, v conv loc, exc resale potential, \$54,900. Call 369-2773.

Lex, solid brick cape, 2-3 BR, DR, frpl in LR, eat-in K, garage, lg priv yard, \$49,900. Call 862-8538.

Som, nr Camb line, 2 BR, avail 3/1, \$255 incl ht. x3-3105.

## Animals

Frdly, free gerbils. x5-8242 Dorm.

Moving, must sell 13 wk old m Irish setter pup, AKC reg, great grandson of Big Red, exc temperment, shots & wormed, \$150, nego. Joan, 498-7464, aft 5.

Homes desperately nded for unwanted old Eng shepdogs. Helen, x3-1880.

Samoyed pups, m & f, affectionate, 8 wks, ready for good homes. x5854 Linc.

Adorable 8 wk old blk f part Persian kitten looking for home. Lynn, x3-3140.

## Lost and Found

Lost: M gold watch w/Elmore timepce, at duPont or on Mass Ave, Jan 10, \$30 reward, no questions. Mindy, x3-6327.

## Wanted

Dynaco PAS-2 or PAS-3x, nw or used. David, x5-6325 Dorm.

Baby carriage. Kurt, x3-7197.

Want to rent hse accomodating about 15, Vt or NH, nr skiing, for wknd in Feb. x3-6408.

Hsitters Feb 11-26, suburban home, 3 BR, 5 min to H Sq bus, no rent, care for plants & animals. x3-2916.

Amer Flyer mdl toy trains & access. Earl, x8-1130 Draper.

Undergrad w/plumbing experience to work w/steam sculptor, hrs TBA, lve name & nmbr at CAVS, x3-4415.

Gd used furn, esp sofabed, lamps, sm dinette, chrs, tbls. Betty, x3-7008.

Wanted to sub apt for visiting scientist & fam, 2 BR, LR, DR, B, beg 3/1, 3/20 or 4/1 thru Aug. June, x3-1980.

Visit research assoc looking for 2 BR apt, relatively nr MIT, beg nr 1/25, rent to \$350. x3-7118.

Moving in, nd sofas, desks, tbls, chrs, shlvs, reas prices. Claude, x5-9768 Dorm.

## Roommates

N Camb, rmmates for 6 BR furn apt in 2 1/2 fam hse, ww, mod B & K, lg parlor, \$35/wk incl util. John, x3-4489.

F wanted to share lg coed apt, Bkline on trolley line, avail 3/1, util extra but cheap, \$86 htd. Donna, x3-1708.

Camb, 2 BR avail in 4 rm apt, K, LR, B, \$44/rm + ht, elec. Weng, x3-4186.

Rmmate (26-32) to share lg space Bkline apt w/grad stu & employee, own rm, apt mostly furn. Paul Black, x3-2360.

F for 2 BR apt, mod K, well equip, free Indry facil, recently painted, furn except for 2nd BR but some pces avail, Feb-June, 2 blks K Sq, qt, secure bldg, \$140 incl util. Nikki, 498-7464.

Rm avail immed, Tang Hall apt 11B, K & LR furn, qt, view, \$127. Gippi, 494-9084.

Rmmate for 5 BR hse, share w/4 prns, exc loc, 1/2 blk Porter Sq shp ctr, nr T, Indry, \$97.50 + util. x3-5040.

## Miscellaneous

Flute & guitar lessons given by music grad, all levels, reas rates. Sue, x3-1702.

Wl type theses, manu, tech, fast & accurate, IBM Correct Selec. Debbie, x3-1848.

Typing, theses, manu, reports. Carol, x3-4152.

Typing, fast, accurate & reliable, theses, term papers, manu, letters & rpts. Barbara, x3-7582.

Typing, fast, accurate & reliable. Jean, 628-8271.

Accurate thesis typing, reports, reas rates. x3-3694.

**POSITIONS AVAILABLE**

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted on the Women's Kiosk in Building 7, outside the offices of the Special Assistants for Women and Work (10-215) and Minority Affairs (10-211), and in the Personnel Office (E19-239). Personnel Interviewers will refer any qualified applicants on all biweekly jobs as soon as possible after their receipt in Personnel.

Persons who are NOT MIT employees should call the Personnel Office on extension 3-4251.

Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel they qualify.

Dick Higham 3-4278  
Pat Williams 3-1594  
Carolyn Scheer 3-1596  
(Secretary — Ann Perkins)

Virginia Bishop 3-1591  
Mike Parr 3-4266  
Ken Hewitt 3-4267  
(Secretary — Paulette Chiles)

Sally Hansen 3-4275  
Lewis Redding 3-2928

Richard Cerrato 3-4269  
(Secretary — Jenni Leibman)

NOTE: Effective with jobs opened 1/1/77, Sponsored Research Staff positions will be identified by an "R" prefix. (Sponsored Research Staff positions opened prior to that date are identified by a "D" prefix.)

Sponsored Research Staff, in Mechanical Engineering to develop hardware and software for a computer controlled ultrasonic system for Cancer treatment and have primary responsibility for overall system integration. A Master's degree in Electrical Engineering (or equivalent), several years laboratory or industrial experience in digital circuit design and software development required. Analog circuits experience preferred. R77-9 (1/19).

Sponsored Research Staff in Earth and Planetary Sciences to analyze trace elements in seawater samples which are pre-concentrated chemically in the laboratory and processed through several stages before analysis. Measurements are made using Perkin-Elmer flameless atomic absorption. Extensive laboratory experience in manipulation and analysis, knowledge of related chemical and physical processes and ability to take detailed measurements required. Master's degree in Biology or Chemistry preferred. D76-245 (1/12).

Sponsored Research Staff, Manager of System Programming and Development in the Laboratory for Nuclear Science to maintain and expand OS MFT/HASP system on IBM 360/65 and install a remote job entry system to computers at other sites; direct activities of 3 systems programmers and train new programmers as necessary. Will also participate in analyzing Lab's computational requirements and in long-range planning. Bachelor's degree, or equivalent, in Computer Science, Physics or Mathematics, extensive experience in operating systems and telecommunications required. Knowledge of IBM HASP, OS, Assembly Language, Fortran and PL/1 also necessary. D76-231 (1/12).

Sponsored Research Staff, Energy Systems Analyst, to assist in developing and applying energy system models for technology choice for the national economy. Responsibilities include critical analysis of existing energy system models; formulation of more comprehensive models which integrate economic and process engineering representation of energy supply with the demand for energy services. Ph.D. in engineering or applied math, experience in energy system modeling required. R77-5 (1/12).

Sponsored Research Staff, Staff Scientist, in the Arteriosclerosis Center to direct a busy lipid and lipoprotein research laboratory involved in qualitative and quantitative lipid separations, lipoprotein biochemistry and immunology as well as whole-animal and human arteriosclerosis research studies. Position includes supervision of several technicians. Ph.D. in Biochemistry, experience with lipid chemistry, physiology and lipoprotein studies required. Supervisory experience desirable. R77-6 (1/12).

Exempt, Supervisor, in the Center for Cancer Research Animal Laboratory to transplant tumors; maintain mouse breeding colonies; maintain complex transplant, immunization, breeding records; collect data on newly arrived laboratory animals; schedule use of and maintain facilities in operating room. Ability to collect and record precise information required. 1-2 years in a college level biology program or related laboratory experience required. E77-2 (1/19).

Exempt, Mechanical Shop Supervisor, in Physical Plant to supervise the maintenance and operations activities of Physical Plant Mechanical Shops; direct and coordinate supervisory and other employees in performance of their duties. Prepare work schedules, monitor performance of tasks; coordinate work with other shops and be fully responsible for the maintenance and operation of all building mechanical systems assigned to mechanical shops. Extensive experience in maintenance and operation of large commercial and/or institutional building mechanical systems; five years in a supervisory position and demonstrated leadership qualities and ability to supervise building mechanical maintenance operations required. Applicants must also have oral and written communication skills. E77-3 (1/19).

Area Food Service Supervisor to coordinate afternoon and evening meal preparation; supervise employees; assist in daily inventory; arrange special functions; be responsible for customer service and dining area sanitation. A degree and/or professional experience in food services and familiarity with menu planning required. 40 hr./wk. 10:30am-7:30pm including weekends. E77-1 (1/12).

Tech. Asst. IV, part-time, temporary, in Architecture Department to work on Federal research project investigating social behavior of elderly in residential environments. Duties include interviewing and behavior observation research. Related research experience and photography skills required. 10-15 hr./wk. temporary through May, 1977. B77-7 (1/12).

Tech. Asst. IV, part-time, temporary, in Architecture Department will handle on-line computer executions plus disc and tape storage for a research project investigating environmental needs of elderly in residential settings. Will use existing data base to test hypotheses. Familiarity with major statistical methods in behavioral sciences, experience in SPSS language required. 10-15 hrs./wk., temporary through May, 1977. B77-8 (1/12).

Tech. Asst. IV, part-time, temporary, in Architecture will be involved in proposal and research related to residential clustering; review and analyze national data on neighborhood resources; assist in preparation of analytic models for predicting resource use. Familiarity with urban land use planning, knowledge of site selection issues within urban service delivery required. 10-15 hr./wk. Temp. thru May, 1977. B77-9 (1/12).

Secretary IV in the Counseling section of the Dean for Student Affairs Office to perform varied secretarial duties relating to student counseling functions, special student programs, seminars; handle accounts; assist students in counseling and procedures matters. Opportunities exist for writing assignments. Excellent typing and machine transcription skills, familiarity with office procedures required. Candidates should be able to set priorities, to guide others, and to deal sensitively with people and confidential information. B77-4 (1/12).

Administrative Assistant V to coordinate Chemical Engineering Department national project related to development of modular system of continuing education; coordinate work of authors, editors; arrange conferences, meetings; prepare report and correspondence drafts; respond to requests for information about the project; monitor budget; maintain files and records. Will also type project-related correspondence and reports. A Bachelor's degree, or equivalent, excellent communication and organization skills required. Applicants must also be able to handle budget-related duties. Familiarity with MIT procedures desirable. B77-10 (1/19).

Secretary IV, temporary, to two faculty members in the School of Humanities and Social Science, Educational Programs section to handle general secretarial duties including transcription of machine dictation. Excellent typing skill required. Temp. for 3-6 weeks. B77-13 (1/19).

Secretary IV in the Information Center to handle secretarial duties for Director of Center and Assistant for International Visitors. Answer inquires (through phone, direct contact and mailing of printed materials) concerning MIT programs, activities and facilities. Handle related clerical and secretarial duties. Excellent typing, ability to handle detailed work, desire and skill to assist a wide variety of people required. Applicants should also have secretarial school training or equivalent ex-

# Melaragno Named Pistol Coach

Ross H. Smith, MIT Director of Athletics, announced the appointment of Pasquale E. "Pat" Melaragno to the position of varsity pistol coach, rangemaster and instructor of physical education.

Melaragno succeeds the late Thomas P. McLennan who died last August after a brief illness.

Mr. Melaragno, 46, is a native of Providence, Rhode Island. He served with the Rhode Island National Guard from 1946-55, including active duty with the U.S. Army during the Korean War from 1950-52. Upon returning to civilian life, Mr. Melaragno joined the Providence Police Department and eventually worked in the Bureau of Criminal Investigation section. During his tenure with the Providence Police Department, he



experience. Familiarity with MIT desirable. B77-14 (1/19).

Secretary IV in the Athletics Department will act as Facilities Secretary as well as secretary to Director of Women's Athletics and Supervisor of Intramural Athletics. Duties include maintenance of records of facilities use, reservations; correspondence typing; mimeographing; handling arrangements for coverage payments of game officials. Excellent secretarial skills, ability to work effectively with a wide range of people and to set and follow priorities required. B77-6 (1/12).

Secretary IV in the Division for Study and Research in Education: type manuscripts which include specialized terminology, coordinate report preparation; answer phones for several individuals; arrange appointments; handle other secretarial duties as necessary. Excellent typing, ability to transcribe machine dictation, organization skill, secretarial experience required. Shorthand preferred. B77-5 (1/12).

Secretary III-IV, in Mechanical Engineering. Will independently answer routine inquires; monitor accounts; arrange conferences and social meetings; prepare course materials, correspondence, reports including some technical material; maintain student and faculty groups. Secretarial school training or equivalent experience, shorthand and machine dictation skill required, as well as ability to type technical material. B77-15 (1/19).

Secretary III-IV in Resource Development to handle general secretarial duties: arrange travel; type correspondence; answer phones; transcribe machine dictation. Excellent typing, ability to type letter-perfect copy, on occasion, and to exercise initiative and judgement required. Secretarial school training and/or secretarial experience required. B77-16 (1/19).

Secretary III in the National Magnet Laboratory to assist the secretary to the Director with typing, filing, xeroxing and answering phones. Must be flexible and able to work well under pressure. Typing skill, ability to type technical material (or willingness to learn) required. Associate's degree plus 2 years secretarial experience preferred. B76-660 (1/12).

Accounting Clerk/Secretary III In the Student Accounts Office to assist in the preparation of degree list candidates; assist in the review of students' financial status, perform typing of letters, filing, maintain office supplies, petty cash; answer general questions. Ability to deal with students in a very busy atmosphere required. B77-18 (1/19).

Sr. Clerk III-IV, part-time, in the Office of the Dean for Student Affairs will handle various duties related to operation of Talbot House: coordinate reservations; order supplies; process invoices for payment and handle other accounting procedures. Will also provide clerical assistance in Preprofessional Advising and Education Office: answer routine inquires; maintain file of catalogues. Familiarity with accounting procedures, typing skill required. Non-smoking office. 17 1/2 hr./wk. B76-661 (1/12).

Clerk III in the Division of Laboratory Animal Medicine will handle general clerical duties; maintain purchasing and billing records; file; answer phones; type varied material. Typing skill, facility with figures required. B77-11 (1/19).

Waiter/Waitress, hourly, part-time in Faculty Club to set tables, take orders, serve food and beverages on banquet trays, clean and reset tables; dust chairs; wipe tables. Experience helpful but not necessary. Applicants must be able to read and speak English. 20 hr./wk. 11am-3pm, Mon.-Fri., including some possible evening work, H77-3 (1/12). 5pm-9pm, Mon.-Fri., H77-4 (1/12). Both positions include possible weekend work.

Technician B (Electronic), hourly, in the Laboratory for Nuclear Science (Bates Linear Accelerator, Middleton, Ma.) to service and operate high power radio frequency transmitters. Graduation from a 2 year day technical school (or its equivalent) is required. Experience on high power radio systems and knowledge of integrated circuits desirable. Position includes work with transformer oil, and rotation in evening and night shifts. H76-134 (1/12).

Senior Technician (Electronic), hourly, in the Laboratory for Nuclear Science to assist in laboratory research and analytical work. Will test, troubleshoot, debug and service fast nuclear instrument modules. Applicants must be graduates of 2 year day technical school (or its equivalent), and should have at least 5 years applicable experience. Familiarity with TTL and ECL, ability to test and service digital electronics desirable. H76-132 (1/12).

The following positions were still available at *Tech Talk* deadline. The date following each position is the date of the most recent *Tech Talk* issue in which the position was described.

- ADMINISTRATIVE STAFF:  
A75-71, Documentation Manager, Admin. Info. Systems (7/14)  
A76-44, Applications Programmer, Off. of Admin. Info. Syst. (12/1)  
A76-45, Special Assistant, Off. of the Chairman (11/3)  
A76-46, District Officer, Resource Devel. (11/10)  
A76-48, Investment Real Estate Off., Treasurer's Off. (11/17)  
A76-51, Applications Programmer, Off. of Admin. Info. Syst. (12/1)  
A76-52, Applications Programmer, Off. of Admin. Info. Syst. (12/1)  
A76-53, Systems Analyst, Off. of Admin. Info. Syst. (12/1)  
A76-58, Asst. Dir., MIT Assoc. Prog. (1/12)  
A76-59, Asst. Dir., MIT Assoc. Prog. (1/12)

attended Northeastern University, studying criminology from 1962-68.

His professional affiliations include the Providence Revolver Club, National Rifle Association, Angle Tree Stone Rod & Gun Club and the Reserve Officers Association of America.

Mr. Melaragno is married, has four children and resides in Providence.

## Pistol Course

A course in basic pistol marksmanship will be conducted by the MIT Pistol & Rifle Club on five consecutive Thursdays at 6:30 pm beginning January 27.

The instruction is aimed at those with no previous shooting experience who wish to learn safe firearms handling and shooting technique. The charge for the course is \$20, payable at the first class.

Since enrollment is limited, prospective students are asked to preregister by calling Bruce D. Wedlock, x3-4895.

- BIWEEKLY:  
B76-334, Sec. III, Sloan School (8/25)  
B76-511, Asst. Computer Oper. III, Office of Admin. Info. Syst. (10/27)  
B76-539, Clerk IV, Physical Plant (1/5)  
B76-592, Sec. III-IV, Mechanical Eng. (11/24)  
B76-605, Sec./Recept. IV, Medical Dept. (12/1)  
B76-610, Sec. IV, Physical Plant (12/1)  
B76-613, Sec. IV, Ctr. for Policy Alternatives (12/1)  
B76-617, Sec. III-IV, Chemical Eng. (1/5)  
B76-626, Sec. IV, Physical Plant (1/5)  
B76-633, Admin. Asst. V, Chemical Eng. (1/5)  
B76-634, Sec. IV, Res. Lab. of Elec. (1/5)  
B76-635, Tech. Asst. IV, Psychology (1/12)  
B76-636, Sec. IV-V, Health Sci. & Tech. (1/12)  
B76-637, Sec. IV, Medical Dept. (1/12)  
B76-638, Sec. IV, Medical Dept. (1/12)  
B76-639, Sec. IV, MIT Educ. Council (1/12)  
B76-640, Sr. Clerk IV, MIT Press (1/12)  
B76-644, Sr. Clerk III, Admissions Office (1/12)  
B76-645, Tech. Asst. V, Div. of Lab. Animal Medicine (1/12)  
B76-646, Sec. IV, Secondary Tech. Educ. Proj. (1/12)  
B76-647, Computer Oper. III, Lab. for Nuclear Sci. (1/12)  
B76-648, Sec. III, Energy Lab. (1/12)  
B76-653, Sec. III, Student Financial Aid Off. (1/12)  
B76-654, Sec./Clk. III, Energy Lab. (1/12)  
B76-656, Sr. Clerk IV, Summer Sessions Office (1/12)  
B76-658, Sec. IV, Physics Dept. (1/12)  
B76-659, Sec. IV, Nutrition & Food Sci. (1/12)

- ACADEMIC STAFF:  
C76-6, Microbi

# Tuition Increase Announced

(Continued from page 1)

year—1976-77—is expected to be about \$6 million, he said, approximately the same as last year's level.

Chancellor Gray said that, discounting inflation, MIT tuition has actually remained unchanged from 1972 to 1976.

MIT's academic and general expenditures amounted to \$93.1 million in 1975-76. They will reach \$96 million this year, 1976-77. A year ago, 1975-76, tuition income contributed \$29.3 million toward educational and general expenses and this year, 1976-77, the tuition contribution will be about \$3 million higher.

The \$6 million operating gap in this and last year, Chancellor Gray said, represents an improvement over previous years. In 1973-74, the operating gap was \$9.5 million; in 1974-75, \$9 million. The financial problems of recent years were the result of a combination of circumstances, Dr. Gray said, including the divestment of Draper Laboratory, inflation, and the extraordinary rise in energy costs.

Chancellor Gray attributed the current improvement to rigid controls and cost reductions. Pay raises have been restrained for several years, he said. Budgets—particularly those for administrative and support services—have been cut and cut again. Several programs and services have been seriously curtailed. In addition, the size of the student body has been permitted to increase by about 10 percent, in order to increase tuition income without excessive increases in the tuition rate.

Chancellor Gray said that MIT has been able to meet the annual gaps between operating expenses and operating revenues in several ways.

For one thing, the Institute for several years has applied its annual flow of unrestricted gifts and grants, certain facilities use fees and patent royalties—monies that in ordinary times are earmarked for addition to endowment—to reducing the operating gap. Additional funds needed to meet the residual deficit have been drawn from endowment funds and from reserves which already function as endowment.

But the use of funds intended for endowment—or the endowment itself—to meet regular operating costs, Chancellor Gray said, reduces investment earnings which could be used to cover current and

future years' expenses.

MIT's total endowment is about \$350 million at market values, of which about \$110 million is unrestricted as to use. In the past four years, a total of about \$12 million of reserves and other funds functioning as endowment, were drawn down to meet the gaps between operating expenses and operating income. The amount of endowment income which is available for academic and general purposes has held steady, at between \$10 million and \$11 million per year, in part because the endowment has not been growing fast enough and in part because of the adverse market conditions until recently.

Chancellor Gray underscored the importance of MIT, its alumni and its friends carrying to a successful conclusion the Institute's current five-year \$225 million Leadership Campaign. That campaign will add to the Insti-

tute's endowment resources and to other needs for programs and facilities. Now in its second year, the campaign already has reached \$97 million in gifts and pledges from individuals, foundations and business concerns.

Chancellor Gray explained that monies MIT receives for sponsored research should not be confused with monies needed for educational and general expenses.

"A large and vigorous research program is essential in maintaining the quality of MIT's educational environment," he said. "Research and education are inseparable companions. Research contracts include payments for administrative and support services, in the form of reimbursement for the indirect costs of research. But research income cannot be used for non-research purposes."

## Symposium to Review SAS-3 Achievements

(Continued from page 1)

represented by SAS-3. In the 1930s Dr. Rossi's investigations of cosmic rays and their interactions with matter helped lay the foundations of high-energy particle physics. Dr. Rossi is Institute Professor, emeritus, and professor of physics, emeritus.

Dr. Philip Morrison, a versatile theoretical physicist who has made important contributions to the understanding of modern astronomy, will present a summary of new knowledge of the high-energy universe at the conclusion of the first part of the symposium. Dr. Morrison is Institute Professor and professor of physics at MIT.

The development of SAS-3 and its first 20 months of flight will be described by Professor George W. Clark of the MIT Department of Physics and Center for Space Research, principal investigator among the group of scientists and engineers who have designed, built and operated the observatory.

Launched in May, 1975, from Kenya, Africa, by the National Aeronautics and Space Administration, SAS-3 carries a variety of X-ray detectors. Principal features of the satellite are its ability to point at selected objects in order to make extended detailed studies of their

properties, and its capability to determine accurate positions of X-ray sources.

How MIT scientists weigh neutron stars—objects heavier than the sun but only 10 kilometers across—will be described by Dr. Saul A. Rappaport, associate professor of physics and member of the SAS-3 team. The results of this study provide new tests of theories about the behavior of matter at extremely high densities.

Dr. Hale V. Bradt, professor of physics, will discuss the transient X-ray sources, in particular the brightest X-ray nova ever seen, called Nova Monocerotis or A0620+00. The SAS-3 measurement of the position of this star led to the discovery of its optical counterpart by astronomers at the McGraw Hill Observatory.

The intense bursts of X-rays detected by the satellite and studied by the SAS-3 group will be discussed by Professor Walter H.G. Lewin, professor of physics and member of the Center for Space Research. One of the most unusual bursters discovered with the SAS-3 satellite emits these giant bursts as often as once a minute.

Dr. Herbert Schnopper, formerly at MIT and now at the Harvard-Smithsonian Center for Astrophysics, will speak on the largest and most luminous X-ray sources in the sky—the X-ray galaxies and clusters of galaxies.

After an intermission, Dr. William F. Mayer and Dr. John Richardson will explain how observations are planned and how the observatory is operated.

As background for undergraduates, Professor Bradt, Dr. Jeffrey McClintock, and Dr. Mayer will conduct an IAP seminar "How to Build and Operate an X-ray Astronomy Satellite," from 10am to noon Jan. 24 and 26 in Room 37-312.

## McCarthy to Debate At Cambridge Forum

The affirmative argument in a debate titled "Should We Build the B-1 Bomber?" will be presented by John F. McCarthy, Jr., professor of aeronautics and astronautics at MIT, in the Jan. 26 Cambridge Forum.

Professor McCarthy, who is director of MIT's Center for Space Research, will debate this question with Richard L. Garwin, a Fellow at IBM's Thomas J. Watson Research Center. The debate will be moderated by Professor Roger Fisher, Harvard Law School, who created "The Advocates" program for public TV.

The Cambridge Forum meets Wednesdays at 8pm at 3 Church Street in Harvard Square. The public is invited without charge.

## Employment Q&A

By Donna J. Taylor and Lewis A. Redding

**Q: I understand there has been a change in Institute benefits for mental and nervous conditions. As a Bi-weekly employee, how does that change affect me?**

**A:** Effective 9/1/76, the out-patient coverage for mental health care has been increased to \$500 per covered member per calendar year. Benefits include the services of a participating physician or psychologist in a participating general hospital, cooperating mental hospital or physician's office. In addition, benefits are provided in the outpatient department of a participating general hospital or cooperating mental hospital, or in a participating community mental health center, ambulatory mental health clinic, day care center, or detoxification facility. Benefits for a participating psychologist's services are limited to consultations and diagnostic and treatment sessions.

The term "participating" in the above paragraphs refers to a registered physician or psychologist who has entered into an agreement with Blue Shield of Massachusetts to furnish services to its members.

For further information, contact Kathy Overskei, Benefits Office, x3-4271.

**Q: What is the Institute's policy on absence from work for religious observances?**

**A:** If you wish to take time off from work for religious observances you must request permission from your supervisor at least ten days in advance of the time you plan to be absent. You may use vacation time or take a leave without pay for such absence. Where practicable, and with the agreement of your supervisor, it may also be feasible to make up an equivalent amount of time within the same pay period.

**Q: How does the process for Administrative and Sponsored Research Staff performance evaluation reviews differ from the process used for bi-weekly performance reviews?**

**A:** The philosophy behind employee performance evaluation is the same for all employees. Simply put, it is that all Institute employees should have a regular opportunity to discuss work-related matters—current job responsibilities, performance of assigned duties, problems that may have arisen on the job, advancement possibilities, and other pertinent topics—with their supervisors. There is, however, no formal performance evaluation process prescribed for Administrative and Sponsored Research Staff. The Institute strongly encourages discussion between supervisors and employees but has developed no formal process to ensure that such discussion takes place. The formal procedure for bi-weekly personnel was initiated in response to a need articulated by the Working Group on Office/Clerical Issues in 1974 on the basis of feedback that had been received from bi-weekly employees.

**Q: What effect will the recent Supreme Court decision concerning sick pay for maternity leave have on MIT's maternity leave policy?**

**A:** The recent ruling will not have any effect on MIT's maternity leave policy. The current MIT policy is to treat illness or disability arising from pregnancy and childbirth as any other temporary disability. For employees with one or more years of continuous service, sick leave would continue to be paid for such disabilities as long as the person had accumulated sick leave available. For specific information about the maternity leave policy, contact the Personnel Officer assigned to your department or area.

## DNA Ordinance Hearing Set Friday

(Continued from page 1)

the Council listing advantages and disadvantages of regulating recombinant DNA experiments through either a health regulation or a city ordinance.

A second order had to do with legal drafting of the Clem proposal in formal ordinance language.

A third order instructed the City Manager to request from Harvard and MIT formal response to the earlier CERB report, recommendations from which were incorporated into the Clem ordinance proposal.

Still a fourth order instructed the City Manager to prepare for Council action a petition to the National Institutes of Health that NIH provide money that can be used by the city for carrying out DNA safety regulations.

A fifth order, also directed to the City Manager, instructed him to prepare a list of all state, congressional and federal committees concerned with recombinant DNA and include in the report a list of laboratories in the US where recombinant DNA experiments are being performed at either the P3 or P4 levels of physical containment.

The final order instructed the City Manager to submit to the Council within two weeks his plan for implementing the recommendations of the CERB.

The CERB recommendations, incorporated into the proposed ordinance, included the basic requirement that all recombinant DNA experimentation performed in Cambridge be carried out according to guidelines set forth by NIH regardless of who sponsors the research or who performs it—universities, industries or others. The NIH guidelines originally were meant to regulate just those projects sponsored by NIH.

In addition, the CERB added five conditions that also would have force of law if the proposed ordinance is adopted.

1. Organizations conducting recombinant DNA experiments must first prepare manuals containing all procedures at all levels of containment and must make training mandatory for all laboratory personnel concerned with the experiments.

2. That organizational biohazard committees—NIH guidelines require grant recipients to have such committees of their own—include representatives from the organization's bio-technicians' staff and from the public, the latter appointee subject to city approval.

3. That all P3 experiments "shall require an NIH certified host-vector system of at least EK2 level of biological containment."

4. That institutions perform adequate screening to insure purity of strain of host organisms and test the organisms that result from experiments for resistance to commonly used antibiotics.

5. That institutions make every effort to monitor survival and escape of the host organism, including whatever means are available to monitor intestinal flora of laboratory workers.

The proposed ordinance also would require that all cases of unusual illness occurring among workers associated with recombinant DNA research in Cambridge be fully investigated and reported to the Commissioner of Health and Hospitals, a provision recommended by Acting Commissioner Dr. Francis L. Comunale to whom the CERB report was directed.



**SILENT MARCH** across Massachusetts Ave. from Lobby 7 to Kresge Auditorium began a memorial observance of the birthday of the late Dr. Martin Luther King, Jr., at MIT on Thursday, January 13. Muriel S. Snowden gave the keynote address at the observance planned by the Minority Interest Group in collaboration with the Office of the Special Assistant to the President and Chancellor for Minority Affairs.

—Photo by Calvin Campbell

## Sloan School Called Best

(Continued from page 1)

School of Engineering, the School of Architecture and Planning and the Departments of Economics and Political Science will participate.

"The successful achievement of this goal will facilitate the establishment of an Institute of Technological Planning at Cairo University which will develop a body of technical, economic and social science expertise in the general area of technological development," the agreement said.

The Technology Adaptation Program, initiated five years ago under a grant from AID's Office of Science and Technology, seeks to develop an understanding of the characteristics of technologies appropriate to developing countries and to identify

criteria for technological choices.

The TAP Steering Committee is drawn from the School of Engineering, the School of Humanities and Social Sciences and the Sloan School of Management.

A special Executive Committee of Professor Nazli Choucri of the Department of Political Science, Professor Richard S. Eckaus of the Department of Economics and Professor Fred Moavenzadeh of the Department of Civil Engineering will administer the MIT-Cairo University Technological Planning Program.

Additional information can be obtained from either Professor Moavenzadeh, director of TAP, or from Jeanne De Pass, TAP administrative assistant in Room 1-173.

# MIT Is Sea Grant College



**MIT BECOMES SEA GRANT COLLEGE**—From the left are Dean A. Horn, Director of the MIT Sea Grant Program; Dr. Jerome B. Wiesner, MIT president; Edward O. Vetter, Undersecretary of Commerce, and Robert M. White, administrator of the National Oceanic and Atmospheric Administration (NOAA), which administers the national Sea Grant Program. —Photo by Calvin Campbell

MIT was officially designated Sea Grant College Wednesday, Jan. 12, at luncheon ceremonies attended by Undersecretary of Commerce Edward O. Vetter and Robert M. White, administrator of the National Oceanic and Atmospheric Administration (NOAA).

MIT is the first private university in the nation to win Sea Grant College status. Eleven other universities are so designated.

Dr. Jerome B. Wiesner, MIT president, said the Institute "welcomes the designation and accepts the challenge" to press forward with research and education and advisory services in the marine field. The designation was announced by Commerce Secretary Elliot L. Richardson in Washington Dec. 30.

The Office of Sea Grant, a division of NOAA, provided nearly \$1 million in support to the MIT Sea Grant Program during the 1975-76 academic year. Funding from other sources, including MIT, the Henry L. and Grace Doherty Charitable Foundation, Tue, the University of Massachusetts, the New England River Basins Commission, the state Division of Marine Fisheries, the state Energy Policy Office, the National

## MTG Plans

### 'Jacques Brel' Production

The MIT Musical Theatre Guild will present *Jacques Brel is Alive and Well and Living in Paris* on Friday and Saturday, January 21 and 22, 28 and 29.

The musical, to be presented at 9pm in Lobdell in the Student Center, is an anthology of songs by French songwriter Jacques Brel. The songs reflect Brel's view of life and describe a variety of people and range of emotions. Beer and wine will be sold during productions, creating a cabaret-type atmosphere.

The cast includes Susan Morgello, a junior in biology-nutrition from the Bronx, NY; Sharon Lowenheim, a sophomore in economics from Rego Park, NY; Robert P. Greer, a graduate student in aeronautics and astronautics from Cambridge, and Thomas M. Tomasovic, MIT '74. Mr. Greer is also director.

Tickets are \$3.50; \$2.50 with an MIT ID. They will be sold in Lobby 10 from 10am to 2:30pm from Monday, January 17, through performance dates. For reservations, group rates, and further information, call Ext. 3-6294.

## Wogan Named

Dr. Gerald N. Wogan, professor of toxicology in the MIT Department of Nutrition and Food Science, is one of 30 members of the Clearinghouse on Environmental Carcinogens recently established by the National Cancer Institute (NCI) to provide advice and recommendations in the NCI carcinogen bioassay program.

Fisheries Institute, Boston Edison Co. and the Welding Research Council added an additional \$632,101.

"Designation as a Sea Grant College is an indication of the quality, permanence and depth of MIT's involvement in education, research and advisory programs related to the oceans," said Dean A. Horn, director of the program at MIT. Sea Grant College status is the highest level an institution can attain in the Sea Grant Program.

MIT's link to the program began in 1968 when it became the first university to receive Sea Grant support for a research project. The Institute achieved "coherent area" status in 1970. Two years later NOAA designated the MIT Sea Grant Program an "institutional program" meaning that the program had become institute-wide and a major part of the MIT organizational structure. Designation as a Sea Grant College is made no sooner than three years after institutional status is achieved and follows a careful evaluation of the program by NOAA and selection by the Secretary of Commerce.

Others speaking at the luncheon were Howard W. Johnson, chairman of the MIT Corporation; Walter A. Rosenblith, MIT provost and S. Russell Sylva, Massachusetts assistant secretary of environmental affairs and acting director of the Massachusetts Office of Coastal Zone Management.

Other Sea Grant Colleges are: North Carolina State University, University of Delaware, University of Rhode Island, Texas A&M, University of Hawaii, University of Washington, State University System-University of Florida, University of Wisconsin, University of California-San Diego, Oregon State University and State University of New York-Cornell.

## Quebec Program Lists Changes

The locations and times have been changed for several seminars and films exploring the subject, *Québec, Québécois*, since publication of the final *Guide to IAP*.

Gérald Godin, poet, editor, and recently elected Member of Parliament for the *Parti Québécois*, will discuss cultural life of Québec at a seminar, "The Aspects of the Culture Québécoise," from 2-4pm on Wednesday, January 19, in Rm 9-150. At 7:30pm that evening in Rm 6-120, Michel Brault will present and discuss three short films on the survival of French songs in America, *Québec, Acadie, and Louisiane*.

Marcel Rioux, a sociologist at the University of Montreal, will discuss socio-cultural developments of the *Québécois* at a seminar, *Ethnographic Portrait of the Québécois*, from 2-4pm on Thursday, January 20, in Rm 9-150. At 7:30pm that evening in Rm 10-250 Mr. Brault will present and discuss his Cannes Festival prize film, *Les Ordres*.

All events are sponsored by the Division for Study and Research in Education for IAP.

# The Tech Elects Board for Volume 97

New officers of the editorial board for Volume 97 of *The Tech*, the Institute's oldest student newspaper published continuously since 1881, have been announced.

Twice-weekly publication of Volume 97 begins with the start of the second term in February and runs through January 1978.

New chairperson for Volume 97 is Lynn T. Yamada, a junior in civil engineering from Fort Lee, N.J., and editor-in-chief is William Lasser, a junior in chemistry from Buffalo, N.Y.

Rebecca L. Waring, a sophomore in civil engineering from New York, N.Y., has been elected managing editor and William H. Harper, a sophomore in management from Rockport, Mass., has been elected business manager.

News editors are Mark H. James, a junior in biology from Oneonta, N.Y., and Nivin Pei, a sophomore in biology from New York, N.Y. Three were elected night editors: Steven F. Frann, a freshman from Salem, Mass.; Patrick M. Thompson, a freshman from Beaverton, Ore., and Kevin A. Wiggers, a sophomore in electrical engineering from New Rochelle, N.Y.

Photography editors are Gordon R. Haff, a sophomore in mechanical engineering from Malvern, Penna., and Leroy A. Lindquist, a sophomore in mechanical engineering from Middlefield, Conn.

Kathryn E. Gropp, a freshman from Miami, Fla., is arts editor for the new volume and David H.

Thompson, a junior in computer science and engineering from St. Louis, Mo., is advertising manager. Sports editors are Gary S. Engelson, a freshman from Franklin Square, N.Y., and Thomas A. Curtis, a freshman from Greenwood, S.C.

Contributing editors were also elected. They are: Glenn R. Brownstein, a senior in management from Hackensack, N.J.; Thomas F. Klimowicz, a senior in materials science and engineering

from Hazlett, N.J.; Julia A. Malakie, a senior in economics from Newton, Mass.; Mark J. Munkacsy, a junior in physics from Cherry Hill, N.J.; Gerald M. Radack, a senior in mathematics from Silver Spring, Md.; John M. Sallay, a junior in economics from Cincinnati, Ohio; David A. Schaller, junior in mechanical engineering from Edwards, Calif., and Leonard H. Tower, '71, from Boston, Mass.

## Tire Production Wastewater Not Sufficiently Tested

The method currently used by most tire manufacturers to test production wastewater for the presence of pollutants is not detecting many potentially toxic materials, research conducted by a team from MIT has shown.

More than 50 compounds—most of them harmless but some potentially toxic in high concentrations—were discovered by the MIT researchers in the wastewater of two tire plants which cooperated in the study. The study was reported in an article written by Dr. Ronald A. Hites, associate professor of chemical engineering, and Gregory A. Jungclaus and Larry M. Games, research associates in the Department of Chemical Engineering. The article appeared in the November issue of *Analytical Chemistry*.

Dr. Hites, who has been a pioneer in focusing research on the identification and analysis of organic pollutants in the aqueous environment—water and its associated sediment—will chair a symposium Feb. 15 at MIT on toxic chemicals in the environment.

The wastewater of one tire plant, Dr. Hites said, contained several chemicals carried on the Department of Health, Education and Welfare's Toxic Substance List. The plant discharges 400,000 gallons of wastewater daily into a holding lagoon where many of the chemicals are removed.

The researchers reported that the lagoon was "quite smelly and covered with an oily scum." It empties into a river.

The other plant discharges 2.4 million gallons of wastewater daily into a holding lagoon and then into a creek which flows into a river. The second plant's holding lagoon was clean and is used for recreation, Dr. Hites said. Researchers found that the plant recycled what is known as an anti-tack solution which prevents sheet rubber from sticking before it enters the tire molds. The recycling is the reason for the clean lagoon, the researchers said.

Despite the recycling, 60 to 90 percent of one potentially toxic compound found in the wastewater at the plant was still present several miles from where the wastewater entered the river.

"In both cases," Dr. Hites said, "the chemicals would not have been detected by the testing methods usually employed."

The detection techniques used by the MIT research team relies on gas chromatography to separate the substances in the wastewater. Once separated, the chemicals in the wastewater are identified as to their molecular structure by mass spectrometry.

Since there are hundreds of chemicals in each wastewater, a computer helps to arrive at the molecular structure of each chemical. Dr. Hites says the technique is very sensitive and accurate when compared with methods now used by most tire plants to analyze their wastewater.

Tire plants and other industries presently test for pollutants by measuring the amount of oxygen consumed by bacteria in the wastewater pool or lagoon, Dr. Hites said.

If pollutants are present the bacteria consumes more oxygen in biodegrading the pollutants. Therefore, the lower the oxygen level in the water the higher the level of pollutants.

But some chemicals, Dr. Hites pointed out, are not biodegradable and are not consumed by bacteria. They could be present in wastewater that has a high oxygen level. And to add to the problem, some of the non-biodegradable chemicals are potentially the most toxic to life.

## Bugs Bunny et al To Speak Here

Bugs Bunny and other well-known Warner Brothers cartoon characters will visit MIT in the person of Mel Blanc, their creator, on Monday, Jan. 24. The lecture, sponsored by LSC, will be held in Kresge Auditorium at 8pm.

Mr. Blanc is the voice of many Warner Brothers characters, including Bugs Bunny, Porky Pig, Daffy Duck, the Roadrunner and Elmer Fudd. During part of his lecture he will tell listeners where some of the inspirations for his characters came from.

Tickets for the lecture, which is open to the public, cost \$1. They may be purchased at any LSC sponsored movie, the LSC office (Student Center rm. 457), in the lobby of Building 10 anytime this week, or at the door.

are the best places to study now. Others offer fine programs, but beware of overvalued programs that fail their students' capabilities."

## Thurrow Mazlish In Radio Interview

Recorded interviews with Dr. Lester Thurrow, professor of management and economics at MIT, and Dr. Bruce Mazlish, professor of history and head of the MIT Department of Humanities, will be included in a special inauguration day Pantechnion program over radio station WGBH (89.7 FM) starting at 6:30pm Thursday (Jan.20).

## Alumni Challenge Performs 'Beyond All Expectations'

be matched in challenge funds and the additional \$50 total will be designated for scholarship funds.

A unique factor in the challenge gift program has been an increase in the contribution of unrestricted funds. These are increasingly important as they give the President and Chancellor increased flexibility to encourage new educational programs that help the Institute maintain leadership and vitality—the main goal of the Leadership Campaign.

"The Challenge, by design, is aimed at the small to moderate contributor," Mr. Lehmann said, "and these are the people who tend traditionally to give unrestricted gifts."

In order to meet its pledge to the

five-year \$225 million Leadership Campaign, the Alumni Fund has committed itself to a growth rate of 15 percent per year for the next five years. This includes a 10 percent increase per year in the number of alumni contributors and will double the dollar amount of the Fund by 1980.

"The challenge gift program has thus far given us the impetus to greatly exceed our projected goal," Mr. Lehmann said.

Just over the half-way mark for the 1976-77 fund year and only four months into the challenge gift program, the Alumni Fund has earned \$350,000 in challenge funds. As these are computed separately from alumni contributions, the overall gift of the Alumni Fund to date is \$1.8 million plus \$350,000 in challenge funds.

## MIT to Aid Cairo University

Chicago and the Massachusetts Institute of Technology's Sloan School of Management." He continued:

"Chicago has a slight edge in the quality and depth of faculty, while the Sloan School has slightly better students, on average.

"At MIT, theoreticians Fischer Black (professor of finance) and Robert Merton (professor of finance) are among the five best in the world. Black, a former consultant with A.D. Little, is well known for his penetrating contributions on dividend policy, investors' perceptions of risk-reward trade-offs, and monetary economics. He and Merton have been pioneers in the important area of option pricing, which has broad implications for loan pricing. Franco Modigliani (Institute Professor and professor of finance and economics), a leading econometrician, has offered crucial ideas in valuation and cost of capital theory and empirical tests of monetary economics, and Stewart Myers (pro-

fessor of finance) is an expert on corporate finance who has specialized in public regulation."

Stern's list of top schools, after MIT and Chicago, included the University of California at Berkeley, third; the University of Rochester, fourth; Stanford University, fifth; the Wharton School at the University of Pennsylvania, sixth; the University of California at Los Angeles, seventh; the Amos Tuck School at Dartmouth, eighth; the London Graduate School of Business Studies, ninth, and Harvard, the Hebrew University and the University of Tel Aviv, in a tie for tenth.

In summary, Stern said: "If a student learns microeconomics early in his MBA program and applies its principles in the fundamental disciplines under the guidance of a leading faculty, his market value will be great, his intellectual needs satisfied, and his inner happiness maximized. MIT, Chicago, Berkeley, Rochester and Stanford