

## Lincoln Laboratory Observance Marks 25th Anniversary

By ROBERT C. DI IORIO  
Staff Writer

Lincoln Laboratory marked its 25th anniversary Monday in brief but spirited ceremonies that paid tribute to its most precious resource—the hundreds of skilled and dedicated men and women whose work, as MIT Chancellor Paul E. Gray put it, made the quarter-century observance “not only possible but meaningful.”

Dr. Gray presided at the ceremonies at which Secretary of the Air Force Thomas C. Reed presented to MIT and Lincoln Laboratory the Department of Defense Meritorious

Award. Dr. Jerome B. Wiesner, MIT president, accepted the award.

Howard W. Johnson, chairman of the MIT Corporation, and a group that included several MIT deans attended the ceremony.

In the audience were 213 people who have been with the Lincoln Laboratory 24 years or more.

“It is you who are responsible for the accomplishments we cite today,” Dr. Gerald P. Dinneen, Lincoln Laboratory’s director, told them and the other members of the laboratory who were watching on closed-circuit television.

Dr. Dinneen was introduced by

Chancellor Gray who praised him for “his singleminded concern for quality and excellence, his extraordinary personal knowledge of the laboratory’s programs, sponsors and people, and his evident concern for the well-being of all who work here. . .”

Dr. Gray said that although his relationship with the laboratory began less than two years ago, “it has been intensely rewarding and satisfying, for it has provided me with the opportunity to develop a new set of associations and friendships. These relationships have given me some insight into the sources of the strengths of the Laboratory, strengths which have enabled it to make first-order contributions to electronics and communications in the service of the nation, to advance the frontiers of scientific knowledge and engineering practice, and to grow in stature and capacity while not growing in size. It seems to me that the *sine qua non* of that extraordinary strength is people, people who have a deep and abiding loyalty to the Lincoln Laboratory, who have faith in its mission, and who, through their own strivings for personal excellence, make possible the continuing excellence of the Laboratory.

“Thus while we gather today to mark an event, we also salute the people who have made that event not only possible but meaningful.”

Dr. Dinneen acknowledged the presence in the audience of Dr.

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## Rockefeller Grant to Support Environmental Impact Studies

By CHARLES H. BALL  
Staff Writer

MIT has received a \$315,000 grant from the Rockefeller Foundation to study ways of predicting with greater accuracy the environmental impacts of large-scale facilities.

The two-year interdisciplinary project has a dual purpose of enhancing MIT’s programs in the area of environmental studies and engineering while enabling state and regional agencies in New England to improve their environmental impact forecasts.

The study will rely heavily on a series of “action-research” projects in which the MIT researchers will work with agency personnel to develop environmental impact assessments for such facilities as resource recovery plants, sewer systems, oil refineries, nuclear power plants, mass transit systems and highway extensions.

The research will involve faculty and students from four MIT departments in three schools—the Department of Urban Studies and Planning in the School of Architecture and Planning, the Departments of Civil Engineering and Materials Science and Engineering in the School of Engineering and the Department of Economics in the School of Humanities.

Professor Lawrence E. Susskind,

assistant head of the Department of Urban Studies and Planning and principal investigator for the study, said the project represents “a major new thrust for MIT.”

“If we are effective,” he said, “a number of things will happen over the next two years.

“Several departments at MIT will teach about environmental issues with a much better understanding of the practical dilemmas. If new faculty appointments are made in the field of environmental studies, they will reflect a better understanding of how and what to teach in this field. Participating students graduating from MIT will be better equipped to assist agencies with environmental impact assessment responsibilities. Participating MIT departments will attract a growing number of students interested in the application of science, engineering and applied social science to the resolution of environmental problems.”

The participating agencies, Professor Susskind said, “will have an opportunity to hold a mirror up to their own practices and to adjust accordingly.” He said that a number of state and regional agencies with responsibility for environmental im-

(Continued on page 8)

## Seminar Topic: Chinese Marvels

André Wegener Sleeswyk, professor of applied physics at the University of Groningen, The Netherlands, will present a Technology Studies Seminar entitled “On Reconstructing Ancient Chinese Mechanical Marvels,” Thursday Nov. 4.

Professor Sleeswyk’s research interests are in applying engineering principles to historical records of mechanical devices built in the imperial courts of China in order to reconstruct their designs. He is currently collaborating with Professor Nathan Sivin of the Technology Studies Program, professor of the history of science and Chinese culture in the MIT Department of Humanities, on a reconstruction of the famous Chinese seismograph of

Chang Heng (circa 100 AD) which was able to indicate the epicenter of earthquakes some distance away.

As part of the seminar, Professor Sleeswyk will demonstrate a working scale model of the “celestial river” water clock, a seventeenth century time-keeping device. He will show slides of other devices and discuss the physical and engineering principles he uses to match mechanisms to ancient and often corrupt textual descriptions.

The Technology Studies Seminar Series, offered each term by the Technology Studies Program is open to the public, free of charge. Seminars are held in Rm 20D-205 at 4pm, preceded by coffee served in the same room at 3:30pm.

## Sea Grant Book Sale

The MIT Sea Grant Program and the Department of Ocean Engineering will conduct a book sale Wednesday, Nov. 10, from 10am to 4:30pm in Rm 5-331. Books, journal reprints, technical reports and microfiche on many topics will be available. Additional information can be obtained from Barbara Passero, Sea Grant information specialist, at 3-5944.

M. I. T. UNITED WAY  
\$130,000 GOAL



A WOMAN WITH PULL is Susan L. Kayton, a junior from Santa Monica, Cal., and she’s got the bucket, toy shovel and sandpaper to prove it. Confused? See Page 7.

## World Hunger Programme To Be Housed At MIT

The central program office of the World Hunger Programme, a major activity of the recently established United Nations University (UNU), will be located at MIT during its initial, developmental year.

Dr. Nevin S. Scrimshaw, head of the MIT Department of Nutrition and Food Science, is senior adviser to the UNU rector for the World Hunger Programme, which is being operated from its office in Room 20A-224.

Dr. Scrimshaw said the UNU-WHP office will remain at MIT until the

program is in full operation, at which time most of its functions will be transferred to UNU headquarters in Tokyo and to field offices. However, some proportion of the WHP’s activities will continue to be based at MIT, he said.

The World Hunger Programme is one of three priority areas of UNU, a new institution established in 1975 by the United Nations and UNESCO to help pool the intellectual resources of the world for the practical benefit of humanity. The other two areas of concentration of UNU are Human and Social Development, and Management of Natural Resources.

Rector of the United Nations University is Dr. James M. Hester, former president of New York University. The governing council of UNU is made up of 24 academic and civic leaders from 24 countries serving in their individual capacity.

The World Hunger Programme,  
(Continued on page 8)

## TOPS to Hear Dean Pounds

Dr. William F. Pounds, dean of the Sloan School of Management will be the speaker Thursday, Nov. 4, at the TOPS (Tech Organization of Professional Secretaries) Seminar. The meeting will be held in the Blue Room of Pritchett Lounge at noon.

The TOPS seminars were arranged as a means of acquainting secretaries with functions of various offices around MIT. Next speaker in the series will be John M. Wynne, vice president for administration and personnel, on Thursday, Nov. 18.

All secretaries and those interested in the profession are invited to attend.

## Burnham to Speak At Election Forum

Dr. Walter Dean Burnham, professor of political science at MIT, will offer his analysis of the aftermath of the election campaign in a discussion entitled “In the Wake of the ’76 Election: Where Do We Go from Here?” on Tues., Nov. 9, at 12 noon in the Milliken Room (E53-482).

Dr. Burnham, one of the country’s leading political analysts, is author of a wide range of works on political parties including “Critical Elections and the Mainsprings of American Politics.” He is a graduate of Johns Hopkins University and received the PhD from Harvard.

Dr. Burnham’s speech is part of a discussion series sponsored by the MIT Department of Political Science to promote an exchange of ideas on the critical issues facing the US in the election year. Sessions are open to the community and include a question and answer period and group discussions. The series will continue through Independent Activities Period.

## Astrophysics Experiments On Exhibit

Astrophysics experiments shown during the summer at the US Bicentennial Exposition on Science and Technology at the Kennedy Space Center in Florida will be on exhibit in the lobby of Kresge Auditorium at MIT, Wednesday through Friday, Nov. 3-5, 9am-7pm.

The exhibit features experiments built by MIT for the Mariner 10, OSO-7 and SAS-3 interplanetary and satellite programs and three panels depicting the design, launch and use of the SAS-3 orbiting x-ray observatory launched in May 1975 by the National Aeronautics and Space Administration.

A collaborative effort of the MIT Center for Space Research, where the experiments were originally built, and the MIT Historical Collections, the exhibit drew more than half a million viewers in Florida. Its brief appearance in the Kresge Auditorium lobby will be its only local showing.



# INSTITUTE NOTICES

## Announcements

**ASA Activities**—Activities which have not updated their officers' list and checked the constitution on file with ASA since the start of the school year must do so by Mon, Nov 15 or lose ASA recognition. Check with ASA Office, Stu Ctr Rm 401, x3-2696.

**MIT Choral Society**—Members who ordered records of the Brahms *Requiem* can pick them up Thurs, Nov 4, or Mon, Nov 8, 7:30pm, Rm 10-250.

**Faculty Members**—Those interested in teaching undergraduate seminars, spring term '77, contact Undergraduate Seminar Office, Rm 7-105, x3-3621, immediately. Seminar descriptions deadline: first week in Nov.

**An Industrial Tour of HP Medical\***—Wed, Nov 10, sponsored by EECSS Student Faculty Committee. Leave MIT 12:30pm, return 5pm. For reservations call EECSS Undergrad Office, x3-7329, Rm 38-476, Space limited.

**Information Processing Service Seminars & Courses**—Mon, Nov 8, Introduction to Census Data Processing; Mon, Nov 15-Fri, Nov 19, Introduction to TSO. Information & registration: Janette Hyde, Rm 39-427, x3-6320, 10am-3pm.

**Student Furniture Exchange\*\***—To buy and sell used furniture. Tax free letters for donations. Tues & Thurs, 10am-2pm, 25 Winsor St. Info: x3-4293.

**Technology Children's Center**—openings for children ages 2-4 to 5 part- or full-time in day care and nursery programs. Tuition assistance available to MIT employees who qualify. Info: Child Care Office, Rm 4-144, x3-1592.

**Tickets Available at TCA**—Discount tickets for BSO Open Rehearsal, Wed, Nov 10. Boston Ballet performances Thurs, Nov 11-Sun, Nov 14; student discounts with ID. Contact TCA 10am-3pm, Stu Ctr Rm 450, x3-4885.

**UNICEF Christmas Cards**—On sale now at TCA, Stu Ctr Rm 450, x3-4885.

**Veteran's Day Libraries Schedules**—Libraries will be open Thurs, Nov 11, as follows: Humanities, Reserve Book Room & Science, 8am-11pm; Dewey, Lindgren & Music, 8:30am-11pm; Aero/Astro & Rotch Visual Collections, 9am-5pm; Rotch, 9am-10pm; Barker Engineering, 9am-11pm. Archives, Chemistry RR, Microreproduction, Space Center RR & Von Hippel RR will be closed. Student Center Library will be open 24 hours. Fri, Nov 12: regular schedules.

## Club Notes

**Association for Women Students\*\***—Planning meeting, Wed, Nov 10, 5pm, Rm 3-310. Discussion of IAP & plans for Spring. Refreshments.

**MIT Ballroom Dance Club\***—The club will be very active this year, including special workshops for advanced dancers. Beginners always welcome. Info: Fern Crandall, x5-8534 Dorm.

**Beefaroni Chess Club**—An alternative chess club featuring relaxed serious chess. Info: Gary Kaitz, x3-7966.

**MIT Bridge Club\***—ACBL Open pairs duplicate bridge. Club Tournament, Thurs, 7pm, Stu Ctr Rm 473.

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

**MITBSU**—General Meeting: Sun, Nov 14, 3pm, BSU Lng.

**MIT Chess Club\*\***—Chess and speed chess. Meetings Sat, 12n-7pm, Stu Ctr Rm 491. Info: x5-8156 Dorm.

**Ecology Acton\*\***—Meeting, Wed, Nov 3, 7pm, Stu Ctr Rm 002. Discussion of recycling on campus. IAP Environmental Lecture Series, new topics.

**MIT Go Club**—General Meetings Mon, 7pm-12m, Stu Ctr Rm 407. Bring your own set. Info: Lorne Cooper x5-7134.

**MIT Judo Club\*\***—Beginner and experienced. Mon, Wed, Fri, 5:30-7:00pm; Sat, 1:00-3:00pm, du Pont gen exercise rm. Chief instructor: Mr. Yanagi, 6th degree black belt.

**MIT Juggling Club\***—For beginner thru expert. Sun, 1-3pm, outside Stu Ctr.

**MIT Math Club\*\***—Meetings Sun, 4pm, Rm 4-182. New members always welcome. Info: Gail 5-6485.

**MIT Scuba Club\*\***—Scuba locker rental hours: Fri, 4-6pm, pick up; Mon, 9-10am, return; Alumni Pool.

**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.

**MIT Goju Karate Club\*\***—Mon, Wed & Fri, 7-9pm, Stu Ctr Rm 407. Info: Shawn x3-2018.

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

**The National Society for Black Engineers**—General Body meeting, Sun, Nov 7, 3pm, BSU Lng. Discussion of constitution.

**MIT Space Habitat Study Group\***—Interdisciplinary studies on space colonization. Thurs, 7pm, Rm 37-252.

**MIT Table Tennis Club\*\***—Open to all students interested in trying out for the MIT Team. Meetings Thurs, 7-9pm, T Club Lounge, du Pont Gym.

**MIT Tiddlywinks Association\***—Meetings Thurs, 8pm, Stu Ctr Rm 407.

**Unicycle Club\***—Learn to ride or meet other unicyclists. Meet Sun, 1pm, Kresge Oval.

**White Water Club\*\***—Pool sessions alternate Tues, 8-10pm, Alumni Pool. Next session Nov 9.

## Religious Activities

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

**MIT Baha'i Association\***—Gathers informally in Pritchett Thurs, Nov 4, 12:30pm: Justice.

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

**Hillel Services\***—Fri: Traditional, 4:05pm, Rm 50-005; Reform, 7:30pm, Chapel. Sat: Traditional, 9:30am, the Cambridge Shul, 8 Tremont St. Cambridge. Anyone interested in working on Conservative services call Howie Hirsch, x5-6450 or Hillel Office, x3-2982.

**MIT Islamic Society**—Prayers Fri, 12n & 1pm, Kresge Rehearsal Rm B.

**Jesus Christ's Full Gospel Meeting\***—Singing, praise, prayer, Sun, 2:30pm, Stu Ctr Rm 355.

**Prayer Time\*\***—Lunch hour Bible classes led by Miriam R. Eccles. Fri, 1-2pm, Rm 20E-225. All are welcome.

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

**Siddat Shlshih\***—Traditional 3rd Sabbath meal sponsored triweekly on a continuing basis by B'nai Brith Hillel Foundation. Info and reservations: Hillel Office x3-2982.

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

**United Christian Fellowship\***—Meeting with worship, fellowship, prayer & teaching. Tues, 6:30pm, Rm 1-236.

## Placement

The following companies will be interviewing during the time period covered by the current Institute Calendar. Those interested may sign up in the Career Planning and Placement Office, Mon-Fri, 9am-3pm, Rm 10-140, x3-4733.

**Wednesday, November 3**—Allied Chemical Corp; Bell Systems, Bell Labs; Bolt Beranek & Newman, Inc; EG&G Idaho, Inc (formerly Aerojet Nuclear Co); MIT Linc Lab; Microwave Rsrch Corp; Dept of the Navy, CAPSO-N; Olin Corp; Riley Stoker Corp; Schlumberger Ltd; Sperry Rsrch Corp; Standard Oil Co of Calif & Chevron Co. **Thursday November 4**—The Boeing Co; EG&G Idaho, Inc; Eastman Kodak Co; Engelhard Minerals and Chemicals Corp, minerals and chemicals div; General Dynamics Corp, Stromberg-Carlson, Pomona div, Ft Worth div, Convair div, electronics, electric boat div; TRW Defense & Space Sys Grp; Texas Instruments, Inc, BS/MS. **Friday, November 5**—Analytic Services, Inc (ANSER); Bell Sys, Sandia Labs; The Boeing Co; Computer Sciences Corp, system sciences div; Consolidated Rail Corp; The Analytic Sciences Corp; TRW Defense & Space Sys; Texas Instruments, Inc. BS/MS; Schlumberger Well Servs; Watkins-Johnson Co, Calif, Maryland. **Monday November 8**—Bell Telephone Labs, Inc; ESL, Inc; EI Du Pont de Nemours & Co, Inc; GCA, technology div; Union Camp R&D. **Tuesday, November 9**—Bell Telephone Labs,

Inc; EI Du Pont de Nemours & Co, Inc; Aqua-Chem Inc; Commonwealth Edison Co; Fairchild Camera & Instrument Corp; Univ of Notre Dame MBA program; Westinghouse Elec Corp. **Wednesday, November 9**—Westinghouse Elec Corp; Caltech Petroleum Corp (jointly owned by Std Oil Co of Calif & Texas, Inc); Maraven, SA; Univ of Penna, Wharton Graduate Div; The Quaker Oats Co. **Friday, November 12**—Applied Physics Lab of Johns Hopkins Univ; Grad Sch of Bus of Univ of Chicago; Raytheon Co; Grad Sch of Bus, Stanford Univ; Uniroyal Inc, Chemical div.

## Foreign Studies

**Belgian American Educational Foundation**  
The Belgian American Educational Foundation is awarding fellowships for advanced study at one of the Belgian universities or other institutions of higher learning in the coming academic year. MIT has been invited to nominate one candidate for an award. The nominee must be a US citizen under the age of 30, have a speaking and reading knowledge of French or Dutch, and have a master's degree or be working towards a PhD or equivalent degree.  
Contact: Graduate School Office  
Deadline: Jan 3, 1977.

## Graduate Studies

**Andover Teaching Fellowship Program**  
The Andover Teaching Fellowship prepares able college graduates for a career in teaching, particularly in the secondary school. It gives a comprehensive training not only in classroom teaching, under the supervision of experienced teachers, but in all aspects of education in a residential school. Fitness for the full range of boarding school duties is therefore an important criterion. The fields open to Teaching Fellows are English, Mathematics, Classics, French, German, Spanish, Russian, biology, chemistry, physics, history and social studies, music, philosophy and religion. The number of appointments recently has averaged about ten per year. In addition to supervised experience, a Teaching Fellow receives a stipend of \$4500 and is provided living quarters in a school dormitory or house and board in the school dining hall.  
Deadline: Jan 15, 1977. Applicants will be informed of the status of the applications by April 30, 1977.  
Applications available in Preprofessional Advising and Education Office, Rm 10-186, x3-4158.

**The Mary Isabel Sibley Fellowship for Greek Studies**

Phi Beta Kappa has announced the availability of the Mary Isabel Sibley Fellowship for the study of Greek language, literature, history or archaeology. Candidates must be unmarried women between 25 and 35 years of age who have demonstrated their ability to carry on original research. They must hold the doctorate or have fulfilled all the requirements for the doctorate except the dissertation.  
Contact: Graduate School Office, Rm 3-136.  
Deadline: Feb 1, 1977.

**National Science Foundation Graduate Fellowships**

The National Science Foundation awards approximately 500 new graduate fellowships each year for full-time study leading to the masters or doctoral degrees in science, including the social sciences, mathematics, and engineering. The fellowships, which are awarded for a three-year period, provide a stipend of \$325 per month plus a cost-of-education allowance in lieu of tuition and required fees. Preapplication forms are available in the Graduate School Office, Rm 3-136.  
Deadline: Dec 1, 1976.

**The Graduate Research Program For Women**

The Graduate Research Program for Women sponsored by Bell Laboratories provides support for outstanding women students entering doctoral programs in disciplines of

interest to Bell Labs such as physics, chemistry, mathematics, electrical engineering, and computer science. The program consists of two types of awards: A fellowship provides full tuition, books, fees and a stipend of \$525 per month. The grant consists of an award of \$1,000 to be used toward the recipient's professional development in scientific and engineering fields.  
Contact: Jeanne Richard, Rm 3-136, x3-4869.

**NSF National Needs Postdoctoral Fellowships**

The National Science Foundation plans to award approximately 100 fellowships for postdoctoral research and study on scientific problems related to national needs. Awards will be made for appropriate study or research in the mathematical, physical, medical, biological, engineering, and social sciences. Applicants must be citizens or nationals of the US, have earned a doctoral degree by the beginning of their fellowship tenures, may not have held the doctorate for more than 5 years as of Dec 6, 1976, and may not have previously entered on tenure of an NSF Postdoctoral Fellowship.  
Contact: Graduate Student Office, Rm 3-136.  
Deadline: Dec 6, 1976.

## New UROP Listing

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.

**Energy Laboratory**

An undergraduate is invited to participate in a project with the Energy Lab investigating coal supply in the United States. The work involves estimating regionally disaggregated supply curves for coal, to be used in a series of policy analyses. The student would be responsible for computer programming, some statistical estimation and statistics equivalent to 14.04 and 14.30 or 14.31 is desirable. Pay or credit available.  
Contact: Mr. Martin Zimmerman, Rm E40-179, x3-3414.

**Electrical Engineering and Computer Science: Digital Buffer and Interfaces**

This is an opportunity for a student with MIT Digital Lab experience to design, build, and test a digital buffer and interfaces. The equipment will provide for on-line communication between two microprocessors here at MIT as well as serve as a several-thousand character I/O buffer for a peripheral device.  
Contact: Professor Donald Troxel, Rm 36-683, x3-2570.

**Graphic Arts Research Foundation (GARF)**

This project is concerned with literacy levels in different countries. Some of the areas of research include: 1) the definitions of literacy; 2) studies of the possible correlation between literacy level and per capita gross national product; 3) finding studies showing which countries have been most successful in raising substantially their literacy levels; 4) finding dependable data on literacy levels and changes in literacy levels for countries where literacy has been or is less than 60%.

**Roxbury Boy's Club**

A project is available for a student to assist in the development and operation of a Saturday morning science course for members of the Roxbury Boy's Club, grades two through five. The course will alternate with the Saturday morning science presentation at Boston's Museum of Science. The MIT student would work with the Museum staff to coordinate the two experiences and develop curricula for the Roxbury program.

**Development of Pattern and Form Vision Psychology Dept.**

In this project, development of pattern and form vision is examined in animals raised either in normal or in specially designed envi-

ronments. Automation of visual testing is necessary to decrease the time used in data collection. A student is invited to participate in the design, construction and programming of an automated visual discrimination apparatus.

Contact: Dr. Alan Hein, x3-5759, Dr. Rhea Gendzier, x3-5782, or Dr. Mark Schwartz, x3-5782.

**Development and Aging Boston Biomedical Research Institute**

This project would test the development theory of aging which suggests that the biochemical changes associated with aging are similar to those associated with early development. The project will seek to interrupt normal development of the nematode *Caenorhabditis elegans* by inducing nutritional deficiencies or by using metabolic inhibitors. The effect of arresting normal development on the life span will then be studied.

**Peter Bent Brigham Hospital**

Research in this laboratory centers on the physical-chemistry and biophysics of biologically important lipids, particularly understanding the structure and function of lipids of the alimentary tract in both health and disease. Specific interest is in the molecular properties of normal bile, the mechanism of bile formation and bile secretion and the arrangements that occur in gallstones.

**Moleculon Research Corporation**

This project involves research on possible applications for "Poroplastic," an ultra-microporous homogeneous membrane which can be impregnated with many liquids or solutions. Areas of research include: 1) Enzyme immobilization; 2) Polymer morphology; 3) Pore size distribution; 4) Photochemical reactions; 5) Study of phase boundary mobility within poroplastic film. Students interested in physical chemistry, chemical engineering, physics, metallurgy, and mechanical engineering are encouraged to join in this research.

**Formation and Characterization of Compound Gelled Matrices**

Compound formulations of food grade polymers can be gelled to form textured products. In one such system currently under investigation, a thermally stabilized polymer gel is used as the supporting matrix in which a second polymeric species is subsequently cross-linked. A student is invited to study the influence of various parameters on the formation of this compound gelled system, and to evaluate the influence of this parameter on the material's rheological properties.

Contact: Prof James Flink, Rm 56-109, x3-6735.

# Echoes

## 50 Years Ago

Annual Field Day events, including tug-of-war, a relay race, football and a crew race, will take place this week. Rivalry between the classes is high for the privilege of getting their initials on the Field Day Cup. A formal senior dance will end the day's festivities.

## 40 Years Ago

Professor Joseph H. Keenan, Associate Professor of Mechanical Engineering and Frederick G. Keyes, head of the Department of Chemistry have published a new book, *Thermodynamic Properties of Steam*. The book is the most comprehensive work on steam yet published.

## 25 Years Ago

Henry S. Commager, prominent American historian, will lecture on the dangers of "McCarthyism." According to Professor Commager, "... If we establish a standard of safe thinking, we will end up with no thinking at all."

The Boston Stein Club presented a prize fund to Dr. K.T. Compton. Awards from this fund will be given to qualified students. The Stein Club is interested in promoting a spirit of cooperation among faculty, alumni and students.

Prepared by Marcia Conroy, MIT Historical Collections, x3-4444.

## TECH TALK Volume 21, Number 13 November 3, 1976

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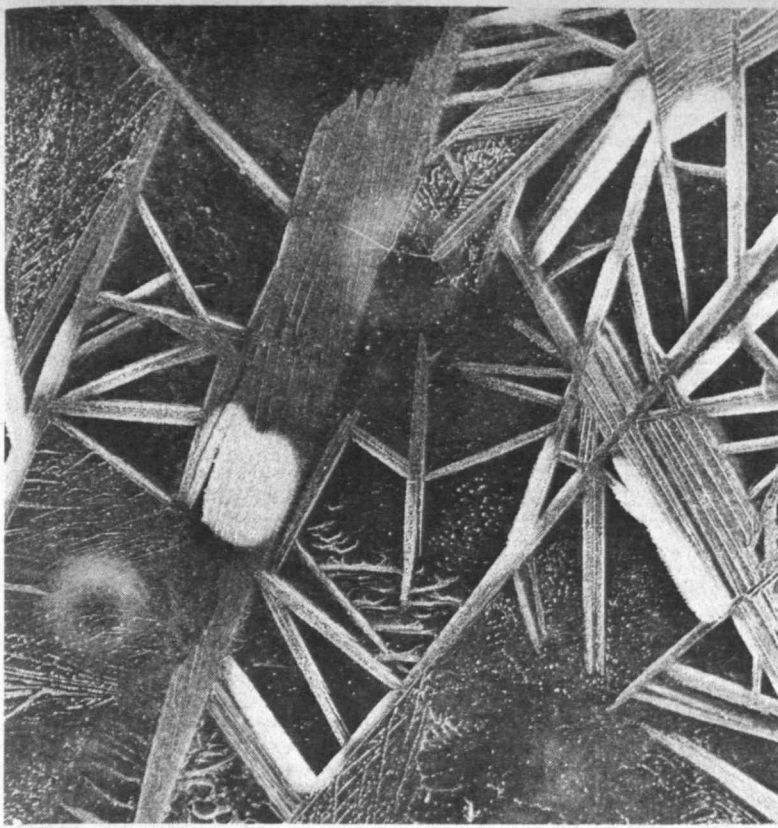
# CABLE TV SCHEDULE

Nov. 3-9

**Channel 8  
Wednesday, Nov. 3**  
12 Noon **YOU ARE THE WAY** a film about the United to 1pm  
Way  
4:30pm **24-30 FPS (R)**  
to 5:30pm  
5:30pm **TUESDAY NOON (R)**  
to 6:30pm  
8:30pm **24-30 FPS (R)**  
to 9:30pm  
**Thursday, Nov. 4**  
12 Noon **AN EYE TO THE PAST** a presentation of the to 1pm  
MIT Historical Collections  
1pm to **24-30 FPS (R)**  
2pm  
6pm to **AN EYE TO THE PAST (R)**  
to 7pm  
**Friday, Nov. 5**  
12 Noon **FRIDAY NIGHT BOMBS AWAY** a live show to 1pm  
with Bob D'Ancona  
5pm to **FRIDAY NIGHT BOMBS AWAY (R)**  
6pm

**Monday, Nov. 8**  
11am to **FRIDAY NIGHT BOMBS AWAY (R)**  
12 Noon  
12 Noon **YOU ARE THE WAY**  
to 1pm  
8pm to **ELECTRO-MAGNETIC FIELDS AND EN-  
ERGY (6.013)**, Prof. J. Melcher, homework  
session. LIVE  
**Tuesday, Nov. 9**  
12 Noon **TUESDAY NOON "All About Cable TV"**  
to 1pm  
LIVE  
5pm to **ELECTRO-MAGNETIC FIELDS AND EN-  
ERGY (R)**  
7pm to **QUIZ REVIEW** for Probability and Systems  
Analysis (6.041) and Applied Probability  
(6.431) with Prof. A. Drake. Live with tele-  
phone feedback.  
8:30pm to **ELECTRO-MAGNETIC FIELDS AND EN-  
9:30pm ERGY (R)**  
9:30pm to **TUESDAY NOON (R)**  
10:30pm  
**Channel 10  
Wednesday, Nov. 3**  
1pm to **MITV NEWS**  
6pm  
**Friday, Nov. 5**  
9am to **LOOKAROUND**  
5pm  
**Monday, Nov. 8**  
1pm to **MITV NEWS**  
6pm **AZIMOV LECTURE LIVE**  
11pm  
**Channel 12  
Tuesday, Nov. 9**  
4pm to **TIME SERIES METHODS IN NON-PARA-  
METRIC THEORY** by Prof. E. Parzen. Pro-  
gram arranged through Prof. H. Chernoff of  
the Math. Dept. Live from Harvard Univer-  
sity.





ICE PHOTO showing layers of surface crystallization of ice on a pond in Norway is representative of Carl Nesjar's photographs now on view in "Mud and Ice Photos" at CAVS.

## Nesjar Photographs at CAVS

"What fascinates me is photographing things people have walked on all their lives and have never seen," Norwegian artist Carl Nesjar said when discussing an exhibit of his photographs, "Mud and Ice Photos," now on view at MIT's Center for Advanced Visual Studies (CAVS).

The exhibit of black and white photographs, hung in the corridor exhibition space, is in two parts: pictures of mud under the influence of frost, and pictures of crystal forms of ice on ponds, lakes, and brooks.

The photographs of mud were taken from November, 1974, to March, 1975, during on-site construction of Picasso's sculpture, *The*

## Richardson Cited

Herbert H. Richardson, professor of mechanical engineering and head of the Department of Mechanical Engineering at MIT, has been elected a Fellow of The American Society of Mechanical Engineers.

The first chief scientist of the US Department of Transportation, Dr. Richardson was cited for his significant contributions to the engineering field, including the major role he played in the formulation of the University Grants Program.

### The IAP Corner

## College Bowl Event Planned

Where is the intellectual might of MIT?

We'll find out when College Bowl, for 17 years a popular television show, comes to MIT during IAP under sponsorship of the MIT Libraries.

"The Libraries have never attempted such a large-scale project before," said David Lewallen, assistant Dewey Librarian and IAP coordinator for the Libraries.

"This year we decided to pool our energies and sponsor a main event that we hope will draw many participants. We'd like to use library resources, such as music and slides, during the final rounds," he said.

All full-time MIT students may compete in the MIT College Bowl as part of four-member teams. Teams may represent a living group, academic department, car pool, athletic team, or group of friends.

Students interested in entering the College Bowl will individually complete a written, preliminary exam on Thursday, January 13. College Bowl Company, producer of the original TV program, is assisting the MIT production and will supply questions for the preliminary exam. The scores of the four individuals on each team will be totaled; the four teams

The Minority Interest Group, composed of students and employees, will hold a meeting Wednesday, Nov. 10, from noon-2pm in Rm 9-150, to discuss plans for programs and projects during IAP.

*Bather*, at a park in Rolling Meadows near Chicago. As work progressed, the site became a sea of mud, and with cold weather, a world of everchanging forms, patterns, and textures appeared underfoot. Frost combined with cement, grease, mud, and oil, led to many ice formations typically found in highly polluted areas.

The photographs of ice, taken in Norway within the past five years, are more pristine. Continual changes in wind, temperature, and air produced a variety of crystal forms on the ice surface of ponds, lakes, and brooks.

Photographs in both series are close to natural size and literally what you would see in front of your nose when looking down at frozen ground beneath your feet.

Nesjar, a Fellow at CAVS since 1973, received his art education in New York City, Oslo, Copenhagen, and Paris. He met Picasso in 1956 and in collaboration with him has executed murals and sculptures in sand-blasted concrete, including *Figure decoupee* sited outside the Hermann Building at MIT. He has also designed and constructed several all-year or ice fountains that turn into ice sculptures in cold weather.

with highest scores will compete in the final play-off on Thursday, January 20, in Kresge Auditorium. All are invited to cheer on the teams who will earn points for answering as quickly as possible a series of questions covering all aspects of knowledge.

A celebrity MC will quiz the teams, following the format used on television: team 1 will match wits with team 2, team 3 with team 4. The two winning teams will play off for the championship. Prizes will be awarded.

Applications will be available on Wednesday, November 10, at the reference desks of divisional libraries. Applications must be in by Friday, January 7.

The Libraries are planning several other, smaller IAP activities. Rotch is scheduling architecture and planning exhibits. Humanities will hold a book collecting contest and display leisure reading. Student Center will sponsor a sea life exhibit and film series. NASIC activities will include an informal lecture/demonstration of energy literature sources at MIT and medical literature searching.

For more information on these and other IAP activities, consult the first IAP Guide due out on Wednesday, November 10.

# Thermic Diode Holds Promise

A novel, cost-reducing way to use the sun's energy to heat buildings has been developed at MIT.

Dr. B. Shawn Buckley, the mechanical engineering professor who directed the development of what is called the thermic diode, said the system is an array of 4-by-8-foot, 10-inch-thick panels. Each panel is a self-contained solar heating module that needs no external power supply—other than the sun's heat.

MIT has applied for patents.

A major part of the system—which Professor Buckley estimates could be 30 to 50 percent cheaper than conventional solar heating systems that require separate pumps and heat storage units—is what he calls the "oil valve."

The valve, a compartment in which a layer of oil floating on water acts as a check valve, gives the panel its diode—or one-way—capability. Just as a turnstile lets people through in only one direction, a thermic diode panel lets heat flow only one way. Heat flows through the panel and into the building when the sun shines, but is prevented from flowing out.

In simple terms, a thermic diode is a panel filled with water. The panel collects heat from the sun on its front side, stores it, and then supplies warmth to the building via the back side.

It is the subtle force of natural convection that pumps heat through the panel by day and would cause a reverse of that action at night. The force is so slight that a normal check valve would not be sensitive enough to detect it and close.

The oil valve was the simple but ingenious answer to the problem, Professor Buckley said. Oil is lighter than water and warm, solar-heated water flowing up through the valve compartment has no trouble tunneling through the oil layer on its way to the back side of the panel. Reverse convection forces, however, are not strong enough to push the lighter oil back down through the water in the valve compartment. The use of the oil valve allows the panel to have no moving parts. Consequently long life with little maintenance is expected.

Professor Buckley said the thermic diode panels promise to be much cheaper than any other system for several reasons.

"They can be installed cheaply, for one reason. Installing a thermic diode panel is no more difficult than installing the collectors alone of a conventional system. With a conventional system, though, the job is only half done: water tanks, plumbing or gravel beds must still be expensively hand-installed on site. With thermic diode panels the job is done," he said. Collectors are the part of a solar energy system which collect the sun's heat. Water tanks or gravel beds are commonly used to store the collected heat for night-time use.

"Another reason the thermic diode panels are less expensive is that material costs are reduced by having the various components do double duty. For example, the insulation doubles as the panel's structural member. The water storage containers also double as heat exchangers and forced-air ductwork," Professor Buckley said.

Another low cost factor is that the panels can replace building elements, he said. For example, the panels could be substituted for the glass or concrete sections in curtain-wall buildings. Curtain-wall refers to

a type of commercial building in which pre-assembled sections—usually concrete, but sometimes glass—are fastened to the skeleton of the building.

A production prototype of Professor Buckley's thermic diode panel has been designed and built by Ron Petrich and Associates of Seal Beach, Calif. Petrich, a designer of motor-homes, has transformed Buckley's laboratory model into a unit which lends itself to high volume manufacturing.

"The structure of the panel is based on a paper honeycomb core. It gives us high strength and excellent insulation qualities," said Petrich. Honeycomb is a material used extensively in the aircraft industry and is noted for its high strength. Honeycomb made from stiff paper—which Petrich first introduced to the motor-home industry several years ago—is now widely used as a structural wall element.

Expensive (and sometimes corrosive) antifreeze is often added to water-based solar systems to prevent freezing damage to the collectors, Professor Buckley said. Thermic diode panels rely on a different technique. "The prototype's collector has a stamped aluminum skin backed by a plastic membrane which forms the water passages. The plastic stretches to allow for freezing of the water," said Petrich. "The panels can be filled with ordinary tap water."

"To make sure the water in the panels doesn't leak, we use adhesive

bonding techniques developed by the motor-home industry," he added.

Panels are being shipped to Arizona State University, Louisiana State University and the University of Georgia for testing, Professor Buckley said. In addition, Pacific Gas and Electric Co.—the country's second largest utility—plans to install sixteen of the panels on a building in San Ramon, Calif., later this year.

"Economic studies performed on a typical house showed the panels to be economically viable with respect to electric heating while providing 75% of the house's heating needs. In some sections of the Southwest they are even viable with respect to oil heating," Professor Buckley said. Half of the dwellings built today are electric heated, the rest use oil or natural gas.

"By viable I mean that the pay-back period to a home-owner would be less than seven years," he added. Payback period is a simple way to compare an initial investment to income from that investment; for a solar system it is the installed cost of the system divided by the yearly fuel savings.

"A modified panel can be used for heating and cooling," he said, "making the system useful year-round." The three-year research program of the system has been sponsored by the National Science Foundation, the Cabot Solar Energy Fund and the Energy Research and Development Administration.

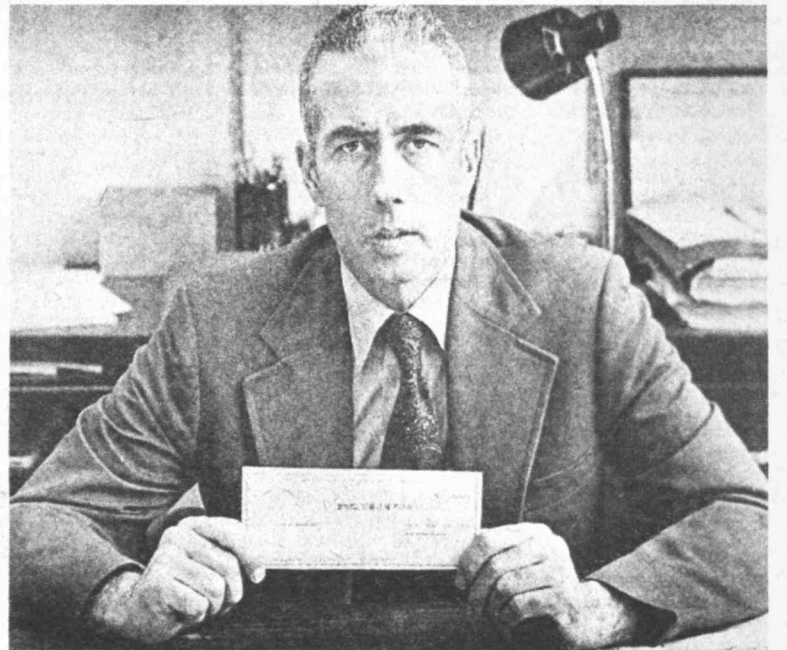
## Pool Appointed Visiting Scholar

Dr. Ithiel de Sola Pool, Arthur and Ruth Sloan Professor of Political Science, has been appointed a Phi Beta Kappa Visiting Scholar for 1976-77 and also a fellow of Churchill College, Cambridge University.

Professor Pool, on sabbatical during the current academic year, is presently at the Research Institute of Telecommunications and Economics at Tokyo.

On his return to this country this

winter, he will travel to seven colleges and universities as a participant in the Phi Beta Kappa Visiting scholar Program. During his two-day stay at each institution, he will meet with students and faculty in formal and informal sessions which usually include classroom discussions, seminars and one public lecture. The program was begun in 1956 to enable undergraduates to meet and talk with established scholars in diverse disciplines.



A CHECK FOR \$534,739.69 for taxes on investment property owned by MIT for July-December 1976, was presented to the City of Cambridge Monday by Kimball Valentine, assistant to the treasurer of MIT. Cambridge also realizes an additional \$336,535.60 in taxes paid directly by the tenants on similar MIT property. Comparable amounts will be paid in the spring for the January-June period, totaling approximately \$1.8 million for the fiscal year. MIT also makes an annual calendar year payment in lieu of taxes for property used for educational purposes. The precise in lieu payment for 1976 has yet to be approved.

## Luria Receives Genetics Foundation Grant

A grant of \$12,000 has been made by the Greater Boston Chapter of the National Genetics Foundation (NGF) to Dr. Salvador E. Luria, Institute Professor and professor of biology at MIT, for a special research project in genetics.

The funds permit MIT researchers to pursue studies, which could not otherwise be undertaken, that seek to determine and understand the "master switches" that control the production and use of energy in a bacterium.

The research is expected to help ultimately in the study of human disease, Dr. Luria said, because it is likely that similar control mechanisms exist in all cells.

Dr. Luria will describe his work and the development of genetics re-

search in a talk to be given at the annual meeting and luncheon of the NGF Boston chapter at 11:30am Thursday, Nov. 4, at the Sidney Hill Country Club, in Newton. About 400 are expected to attend the meeting of the chapter, a volunteer, non-sectarian organization of 3,000 members. Members of the chapter's board of governors are Mrs. Sumner Smith, of Chestnut Hill, Mrs. Charles Rosen, of Brighton, and Mrs. Charles Abramson, of Chestnut Hill.

The research supported by the chapter in the MIT Department of Biology is divided into two projects, Dr. Luria said. One is the study of the genetics of the mysterious process called oxidative phosphorylation—the process by which energy derived from respiration in cells is converted

into usable chemical energy.

The second project, Dr. Luria said, is a study of the "very strange" genetic phenomenon in which a single genetic mutation stops all synthesis of new proteins and also makes cellular proteins unstable at high temperatures.

Dr. Luria said the NGF chapter funds permitted the acquisition of special equipment for separating proteins from mutant cells and for studying the process of oxygen utilization.

Dr. Luria, who received the Nobel Prize in Medicine and Physiology in 1969, is also director of the MIT Center for Cancer Research.



# THE INSTITUTE CALENDAR

November 3  
through  
November 14

## Seminars and Lectures

### Wednesday, November 3

**Calculating the Basic State for Atmospheric Stability Studies\*** — Edwin Schneider, research associate, meteorology. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Bring lunch, coffee available.

**Alternative Strategies for the Control of Vitamin A Deficiency\*** — Michael Latham, international nutrition, Cornell University. International Nutrition Planning Program Seminar. 12n, Rm 66-144. Brown bag.

**The Results of the Kissinger Shuttle\*** — Colin Legum, associate editor, *The Observer*, London, England. Joint Harvard-MIT Africa Luncheon Seminar. 12:30pm, Harvard Center for International Affairs, 6 Divinity Ave, Rm 1.

**Kinetics of Flocculation\*** — J. Th. G. Overbeek, chemical engineering (visiting). Chemical Engineering Seminar. 3:30pm, Rm 66-110. Coffee.

**Offshore Gravity Platforms — Some Aspects of Structural Analysis and Design: Part I\*** — Torgeir Moan, Norwegian Institute of Technology, Trondheim, Norway. Civil Engineering Seminar. 3:30pm, Rm 1-353.

**Issues in the Topological Design of Computer Networks\*** — Mario Gerla, UCLA, Computer Transmission Corp. Control & Communications Seminar. 4pm, Rm 39-500.

**Reliability and Fault Tree Analysis with Modules\*** — J. Olmos, G. Nuclear Engineering Seminar. 4pm, Rm NW12-222.

**Problems in Magnetic Mobilization in Neurosurgical Patients\*** — Herbert L. Cares, MD, MGH. National Magnet Laboratory Seminar. 4pm, Rm NW14-2209. Refreshments 3:45pm.

**The Origin of the Earth's Magnetic Field\*** — Michael Proctor, instructor, mathematics. Society of Physics Students Colloquium. 4:15pm, Rm 4-339. Refreshments.

### Thursday, November 4

**Mass Spectrometer Probing of Flames\*** — D. J. Seery, United Technologies Research Center. Chemical Engineering Seminar. 11am, Rm 66-360.

**Laboratory Experiment on Thermal Blooming Compensation Using a Deformable Mirror System\*** — C. A. Primmerman, Lincoln Laboratory. EECS Optics Seminar. 2pm, Rm 36-428.

**An Energy Conserving Theory of Drift Wave Turbulence\*** — David Tetrault, RLE Plasma Dynamics Group. RLE Plasma Theory Seminar. 2pm, Rm 36-261.

**Applications of Scientific Methodology to Examination and Authentication of Works of Art\*** — W. J. Young, Boston Museum of Fine Arts. Analytical Chemistry Seminar. 4pm, Rm 8-205.

**Five-Second Fast CT Whole Body Scanner\*** — Arthur Chen, General Electric Co R&D Center. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 26-217. Refreshments 3:45pm.

**Boston Air Quality Plan\*** — John McGlennon, regional administrator, Environmental Protection Agency. Energy Assessment Group Seminar. 4pm, Rm 24-121.

**On Reconstructing Ancient Chinese Mechanical Marvels\*** — Andre W. Sleeswyk, applied physics, University of Groningen, The Netherlands. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

**Electrons and Magnons in Structurally Disordered Metals\*** — Laura Roth, SUNY, Albany. Physics Seminar. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

### Friday, November 5

**The European Community Today and Tomorrow\*** — Alexandre Marc, founder of International Center of European Studies, Nice, France. CIS Seminar. 11am, Rm E53-482.

**CO<sub>2</sub> Laser Scattering in the Alcator and ATC Tokamaks\*** — R. E. Slusher, Bell Telephone Laboratories. RLE & Spectroscopy Laboratory Seminar on Modern Optics & Spectroscopy. 11am, Rm 9-150. Coffee 10:30am.

**Report on Ireland: Some of my Best Friends are Terrorists\*** — Ernest Evans, G. CIS Seminar. 1pm, Rm E53-482.

**Inhibition as a Factor in Some Interactions of Microbial Populations\* & Arnold G. Fredrickson**, chemical engineering & materials science, University of Minnesota. Chemical Engineering Seminar. 2pm, Rm 66-110.

**Mechanics of Cutting and Boring in Rock\*** — Malcolm Mellor, Cold Regions Research & Engineering Laboratory. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

**MHD Theory of the Next Generation of Tokamaks\*** — John Greene, Princeton Plasma Physics Laboratory. Plasma Dynamics Seminar. 3:30pm, Rm NW14-2209. Refreshments 3pm.

**Comparison of the Photo-Electron Spectra of Adsorbed and Gas-Phase Molecules\*** — Ward Plummer, University of Pennsylvania. Center for Materials Science & Engineering Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

### Monday, November 8

**Go Between in Migration with Special Reference to Italians and Macedonians\*** — Robert Harney, University of Toronto. CIS Migration & Development Seminar. 12n, Rm E53-482.

**Optical Position Sensing and Tracking\*** — Donald Snyder, Washington University School of Medicine. Control & Communications Seminar. 2:45pm, Rm 26-168.

**Identification and Modeling of Gait Dynamics of the Cat\*** — William Levine, University of Maryland. Control & Communications Seminar. 4pm, Rm 26-214.

**Water Hammer Control of Force Mains\*** — Abul Alam, Metcalf & Eddy, Inc., Boston. Ralph M. Parsons Laboratory Water Resources & Environmental Engineering Seminar. 4pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

**Some Asymptotic Properties of Time Series Regression Estimators\*** — William Dunsmuir, instructor, mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Coffee 3:30pm, Rm 2-349.

**Electrical Inactivation of Herpes Simplex Virus\*** — Mitchell Swartz, PhD/MD candidate, biomedical engineering & medical sciences programs, Harvard-MIT Program in Health Sciences & Technology. Harvard-MIT HST/Interdisciplinary Program in Biomaterials Science Seminar. 4:45pm, Rm 37-252. Coffee 4:30pm.

### Tuesday, November 9

**Stabilization of a Beam Instability by Externally Induced Turbulence\*** — Ady Hershcovitch, G. Nuclear Engineering Doctoral Seminar. 12n, Rm 38-166.

**Noise Research Activity at Boeing\*** — Craig Simcox, Boeing Commercial Airplane Co, aircraft noise staff, Seattle, Wash. Applied Mechanics Seminar. 3pm, Rm 3-270. Coffee after, Rm 1-114.

**Mix Valence Compounds\*** — P. Wachter, ETH, Zurich. Francis Bitter National Magnet Laboratory Seminar. 4pm, Rm NW14-2209. Refreshments 3:45pm.

**The Uncertainty Threshold Principal: Fundamental Limitations of Optimal Decision Making Under Dynamic Uncertainty\*** — Michael Athans, systems science & engineering, director of ESL. Control & Communications Seminar. 4pm, Rm 39-500.

**Reflections on the Concept of Strategic Stability\*** — John Steinbruner, Yale University. CIS Seminar on Technology and International Security. 4pm, Rm E53-482.

**Microstructure Development in Sintered Ceramics\*** — R. Cannon, ceramics. Materials Science & Engineering Seminar. 4pm, Rm 9-150.

**Chemical Applications of Neutron Scattering Spectroscopy\*** — Charles V. Berney, senior research associate, nuclear engineering. Seminar in Physical Chemistry. 4pm, Rm 4-370. Coffee 3:45pm, Rm 6-321.

**Computational Solution of Nonlinear Boundary-Value Problems via Quasilinearization and Orthonormalization\*** — Melvin Scott, Sandia Laboratories. Applied Mathematics Seminar. 4pm, Rm 2-338. Tea 3:30pm, Rm 2-349.

**Reflections on the Concept of Strategic Stability\*** — John D. Steinbruner, organization & management, Yale University. Seminar on Technology & International Security. 4pm, Rm E53-482.

**Processing Wire-Service News by the Dymo/Xylogics Copy-Processing System\*** — Robert B. Polansky, senior systems analysis, Xylogic Systems, Inc. ESL & EECS Newspaper Technology Seminar. 4pm, Rm 10-105.

**Radio Spectro Line Observations of Quasars\*** — Robert Brown, National Radio Astronomy Observatory. Physics Colloquium. 4:15pm, Rm 37-252. Refreshments 3:45pm.

**Biochemical Mapping of Adeno Virus\*** — Raymond Gesteland, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. Biology Colloquium. 4:30pm, Rm 6-120. Coffee 4pm, Bldg 56, 5th fl vestibule.

### Wednesday, November 10

**Current Aspects of Utility Economics\*** — Gordon R. Corey, vice chairman of Commonwealth Edison, Inc. Nuclear Engineering Special Lecture. 10am, Rm NW12-222.

**Water Mass Renewal in the Sub-Antarctic Zone of the Southern Zone and its Impact on the Subtropical Central Water Mass\*** — Michael McCartney, physical oceanography, WHOI. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Bring lunch, coffee available.

**An Astronauts View of the Use of Space for Practical Purposes\*** — Astronaut Russell L. Schweickart. Aero/Astro General Seminar. 3pm, Rm 37-252. Coffee preceding, Rm 33-222.

**Offshore Gravity Platforms — Some Aspects of Structural Analysis and Design: Part II\*** — Torgeir Moan, Norwegian Institute of Technology, Trondheim, Norway. Civil Engineering Seminar. 3:30pm, Rm 1-353.

**The Convergence of Some Recursions\*** — Edward J. Hannan, Australian National University, visiting professor Princeton University. Applied Mathematics & Harvard Statistics Department Seminar. 4pm, Harvard Science Center, lecture hall A. Tea 3:30pm, Science Center 7th fl lounge.

**Electron Band Preamateurs of Hg<sub>1-x</sub>Cd<sub>x</sub>Te and in Sb\*** — Margaret H. Wieler, physics, Francis Bitter National Magnet Laboratory. Francis Bitter National Magnet Laboratory Seminar. 4pm, NW14-2209. Refreshments 3:45pm.

**Scholarly Exchange with China: Recent Experiences\*** — Frank Press, Robert R. Shrock Professor of Earth & Planetary Sciences, head of department. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

**Cooling Tower Drift Eliminator Evaluation\*** — J. Chan, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

### Thursday, November 11

**Management and Regulation of Nuclear Wastes\*** — Richard Lester, G. Energy Assessment Group Seminar. 4pm, Rm 24-121.

### Friday, November 12

**Neutral Currents in Atomic and Nuclear Systems\*** — Herman Feshbach, physics, head of department. RLE & Spectroscopy Laboratory Seminar on Modern Optics and Spectroscopy. 11am, Rm 9-150. Coffee 10:30am.

**Lipids and Platelids\*** — Dr. Gary Nelson, National Heart, Blood & Lung Institute. Arteriosclerosis Center Seminar. 12:30pm, Rm E17-421.

**Ultrafiltration of Protein Solutions\*** — A. J. DiLeo, G. Chemical Engineering Seminar. 2pm, Rm 66-110.

**The Effect of CO/CO<sub>2</sub> and H<sub>2</sub>/H<sub>2</sub>O Ratio on the Bosch Process\*** — A. Sacco, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

**Where am I?\*** — Daniel Dennett, Tufts University. Philosophy Colloquium. 4pm, Rm 37-212.

**Intramolecular Electron Transfer\*** — Henry Taube, Stanford University, Arthur D. Little Visiting Professor. Chemistry Seminar. 4pm, Rm 270.

## Community Meetings

**Wives 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 Lge. Babysitting Stu Ctr Rm 473. Cheryl, x3-4911. Nov 3: Maternity Care in the US — Changing Practices: Connie Bean, health educator, Medical Dept, will speak.

**Women Graduate Students** — "Speaking from Experience — Seeing Yourself as a Professional" Come share experiences and information with Drs. Rochelle & Friedman (medical department) and Professors Shields Widnall (aero astro) & June Matthews (physics). Thurs, Nov 4, 4-6pm, Rm 8-314. Info: Jeanne Richard, Graduate School, x3-4869.

**TOPS\*** — Tech Organization of Professional Secretaries. Meetings Thurs, 12n, Walker Blue Rm. Nov 4: Dean William F. Pounds, Alfred P. Sloan School of Management, will speak.

**Honorary Matron's Luncheon\*\*\*** — Honorary Matron's luncheon and business meeting Thurs, Nov 4, 12n, President's House. Sylvia Griffith & Chamber Music group will perform.

**Preparation for Marriage Weekend** — Sponsored by Tech Catholic Community. Sat, Nov 6, 6-10pm & Sun, Nov 7, 2-5pm. Begins with supper Sat, ends with special marriage liturgy Sun afternoon. Fee: \$10. Preregister as soon as possible: Fr. Basil De Pinto, x3-2981, 312 Memorial Dr.

**MIT Women's Forum\*\*** — Meetings Mon, 12n, Rm 10-105. Nov 8: Mary Potter Rowe, special assistant to the president & chancellor for women and work, will discuss the role she plays at MIT, WAG, grievance procedures, and goals for MIT women.

**Project MUG** — Microprocessors users group will meet Tues, Nov 9, 7:30pm, Rm 16-134. Progress report on Micro-Mind by ECD president Jerry Roberts. Documentation on Micro-Mind expected to be available.

**The Minority Interest Group\*\*** — Meeting Wed, Nov 10, 12n, Rm 9-150. Will discuss plans for IAP programs and projects. Students and employees invited.

**Book Sale\*** — Sponsored by MIT Sea Grant & Dept of Ocean Engineering. Wed, Nov 10, 10am-4:30pm, Rm 5-331. Books, journal reprints, technical reports & microfiche on many topics including fisheries, coastal zone management, naval architecture, marine engineering, pollution, oceanography, etc., on sale at very reasonable prices. Info: Barbara Passero, x3-5944.

**Low Back Problem Exercise Class** — Thurs, 1-2:30pm, Stu Ctr West Lge. Bring 3 pillows and a note from your doctor. Fee to be determined.

**Making a Stained Glass Panel from the Creation of a Design Through the Finished Product\*\*** — Mark Van Note, artist & teacher. Stained Glass Workshop Weekends sponsored by Student Art Association. Weekends of Nov 6-7 and Nov 13-14, 1-4pm, Stu Ctr Rm 429. Admission: \$25 students, \$30 others. Info: x3-7019, 1-5pm.

**TWO Exercise Class\*\*** — An hour of serious exercise taught by Marilyn de Kleer. Mon, until Dec 13, 8pm, duPont Gym exercise rm. Price: 25¢ TWO members, 50¢ non-members.

**Student Art Association Darkroom\*\*** — Non-class related use of darkroom still available. Contact SAA thru Fri, Nov 5, 1-5pm, Stu Ctr Rm 429. Students: \$20, others \$30. Info: x3-7019.

## Social Events

**Alumnae-Student Informal Dinner\*\*** — Sponsored by AWS. Come share cheap meal & meet some women graduates Wed, Nov 3, 6pm. Meet at Zorba's in Central Sq.

**Faculty Club Special Dinners\*\*\*** — Wed, Nov 3 — Rib Nite. Complete dinner \$6.50 + tax. Tues, Nov 9 — Lobster Nite. Baked or boiled, salad bar, dessert cart, \$7.95 + tax. RSVP, x3-4896.

**Strat's Rat** — Fri, Nov 5, 8:30pm, Sala. Light & dark beer sold, (35¢/16 oz glass), plus wine by glass or bottle. Live announcer plays requests. Admission free with college ID.

**Waltz Evening\*** — Sponsored by Wellesley Ballroom Dance Club. Sat, Nov 6, 8:30pm-12:30am, Stone Davis, Wellesley. No formal instruction, but available if needed. Info: Sandra Youa, 235-9673.

**Sunday Pot-Luck Informal Brunch\*\*** — Sponsored by Association for Women Students. Sun, Nov 7, 11am, Rm 3-310. Please bring food or donation. Men & women welcome.

**Semi-Annual Ballroom Dance\*** — Sponsored by MIT Ballroom Dance Club & Ashdown. Sat, Nov 13, 7:30pm-12m, Sala. Semiformal or international costumes. A chance to apply steps & learn new ones, such as waltz, foxtrot, swing, tango, etc. Partner not necessary. Admission \$1.50/person at door. Refreshments. Info: Sharon Pastoriza, x5-8667 Dorm.

**Sunday Bagel and Lox Brunch\*** — Sponsored by Hillel. Sun, Nov 14, 11am, Rm 10-105. Norman Rosenblatt, Dean of the School of Criminal Justice, Northeastern University, will speak on "Practical and Moral Considerations of Capital Punishment." Admission \$1.50, \$1.25/members.

## Movies

**Story of Casper Hauser: Every Man for Himself and God Against All\*** — Humanities Film. Wed, Nov 3, 7pm, Kresge Little Theater. Free.

**Flow Instabilities & Turbulence; An Interview with G. I. Taylor\*** — Fluid Mechanics Film. Thurs, Nov 4, 4pm, Rm 39-500. Free.

**Sleuth\*\*** — LSC. Fri, Nov 5, 7 & 10pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Eclipse (Antonioni)\*** — Film Society. Fri, Nov 5, 7:30 & 9:45pm, Rm 6-120. Admission \$1.

**Prisoner of 2nd Avenue\*\*** — LSC. Sat, Nov 6, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Casablanca\*\*** — MidNite Movie. Sat, Nov 6, 12m, Sala. Free, MIT or Wellesley ID required. Bring blanket.

**Butley\*** — LSC. Sun, Nov 7, 6 & 9:30pm, Rm 26-100. Admission 75¢.

**Secondary Flow\*** — Fluid Mechanics Film. Mon, Nov 8, 4pm, Rm 39-500. Free.

**White Heat; Asphalt Jungle\*\*** — Humanities Films. Tues, Nov 9, 7pm, Rm 4-270. Free.

**A Tale of Two Parks; Paris, Everyday in Winter\*** — MIT Film Section. Tues, Nov 9, 7pm, Rm E21-010. Free.

**The Magic Flute\*\*** — LSC. Fri, Nov 12, 7 & 10pm Rm 26-100. Admission 75¢, MIT or Wellesley ID required.



Desert (Antonioni)\* — Film Society. Fri, Nov 12, 7:30 & 9:30pm, Rm 120. Admission \$1.

Play it Again, Sam\*\* — LSC. Sat, Nov 13, 7 & 9:30pm, Rm 26-100. Admission 75c. MIT or Wellesley ID required.

A Night in Casablanca\*\* — MidNite Movie. Sat, Nov 13, 12m, Sala. Admission free. MIT or Wellesley ID required. Bring blanket.

The Three Sisters\* — LSC. Sun, Nov 14, 6 & 9:30pm, Rm 26-100. Admission 75c.

## Music

Baroque Oboe Recital\* — Recital by Steve Hammer. Thurs, Nov 4, 12n, Chapel. Noon Hour Concert Series. Free.

Musical\*\* — Sponsored by MIT Women's League Sun, Nov 7, 3pm, Presidents House (111 Memorial Drive). Epp-Karika Sonin, soprano, and duopianists Marlys Hughes & Linda Maranis will perform. Free, but space limited. Reservations: Sylvia Griffith, 484-6033, morn or evgs.

MIT Brass Ensemble\* — Bob Pettipaw, conductor. Program includes works by Copland, Purcell, Altemburg, Riegger, Buxtehude, Monteverdi, Prokofiev & Hindemith. Sun, Nov 14, 8pm, Kresge. Free.

Chamber Music Society Concerts\* — Wed, 5:15pm, Music Library. Call 3-3210 for information.

## Theater and Shows

Two Gentlemen of Verona\* — MIT Musical Theatre Guild production. Fri, Nov 5-Sun, Nov 7 & Thurs, Nov 11-Sat, Nov 13, Kresge. All performances 8pm except Sun, Nov 7 (matinee at 2pm). Admission \$3.50, \$2.50 with MIT ID. Reservations & group rates: x3-6294.

## Dance

MIT-Wonderland Ballroom Dancing\* — Wonderland has given MIT Ballroom Dance Club a special discount — \$2 instead of \$2.75 admission, so club trips will be more frequent. Wonderland is open Tues, Fri & Sat, 8pm-12m; instruction offered Tues, 7:30-8:30pm. Info: Sharon, x5-8667 Dorm.

Foxtrot & Waltz Workshop\* — MIT Ballroom Dance Club. No partner needed, beginners welcome. Sun, Nov 7, 2pm, Sala. Info: Sharon Pastoriza, x5-8667 Dorm.

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 (in good weather). Israeli: Thurs, 7:30-11pm, Sala.

Renaissance Dance Group\* — We dance for our own amusement Wed, 8pm, Burton dining rm. Info: Beth Parkhurst, 964-1840.

## Exhibitions

Hayden Corridor Gallery Exhibit\* — Works on Paper by Ralph Coburn. Open daily thru Sat. Nov 6.

Exhibit and Sale of Original Oriental Art by Marsan Gallery\* — Sponsored by Student Art Association. Mon & Tues, Nov 8 & 9, 10am-6pm, Stu Ctr West Lge. Info: x3-7019, 1-5pm.

Mask Projections\* — Three new video installation pieces and selected videotapes by Peter Campus. Fri, Oct 15-Wed, Nov 10, Mon-Sat, 10am-4pm, Hayden Gallery. Public opening Fri, Oct 15, 8-10pm.

Photographs by Joe DeMaio and David Hanson\* — On exhibit in Creative Photography Gallery (Bldg W31) thru Sun, Nov 28. Hours: Mon-Sat, 10am-6pm & Sun, 12n-8pm. Free.

Faculty Club Exhibit\* — Sculptures by Beatrice Paipert. Thru Tues, Nov 30, Faculty Club. Hours: Mon-Fri, 9am-11pm. Free.

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 5, 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

Home Schedule\* — Saturday, November 6 — W Sailing. Coach-Alumni Regatta, Charles River Lower Basin. V Soccer. Coast Guard, 2pm, Briggs Field.

Coed Volleyball Game — Sponsored by MIT & Wellesley Hillels. MIT vs Wellesley volleyball game Wed, Nov 10, 7:30pm, duPont Gym.

Maggie's Self-Designed Fitness Class — Classes 12n-1pm & 1-2pm, du Pont fencing & wrestling rms; 5-6pm, du Pont T Club Lge. PE credit course, but all are welcome.

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 Nov 10 through Nov 21 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, Nov 5.

## United Way Progress Noted, More Participation Needed

As the United Way breakthrough campaign nears its halfway mark, MIT returns to date stand, appropriately, at slightly over 50 percent of the \$130,000 goal, according to Patricia Garrison, assistant equal opportunities employment officer and chairwoman for the MIT drive.

At the time the United Way Campaign began at MIT and the \$130,000 goal, representing a 30 percent increase over last year, was set, Chancellor Gray noted that increased participation would be necessary if the goal were to be met.

With reference to progress to date he said, "The increased dollar amount and the larger average gift that increase reflects are evidence of the generous spirit of the MIT community. However, if we are to meet our responsibilities to all those agencies and persons who depend on the United Way for vital services we must do much better than the present one-in-six participation—better even than last year's one-in-four rate.

"I hope that all who have the opportunity to make a gift to the United Way will respond to the need and the opportunity," Chancellor Gray said.

"The monetary response has been very encouraging so far," Ms. Garrison said. Returns received to date are almost double the amount received by this time last year, she said.

However, she noted, the rate of participation remains very low—only about 16 percent. The total participation rate last year was 24 percent.

"A major aim of this year's campaign at MIT is to raise the rate of participation," Ms. Garrison said. The drive continues for three more weeks, so there is time to improve participation.

"There is reason to be optimistic," she said, "because there is good evidence that chief solicitors have been working harder than ever—and getting results."

Overall goal of the Massachusetts Bay United Way this year is \$18.6 million to support 165 human care agencies serving more than one million people in the area. The \$18.6 million goal is an attempt to break through the \$15 million plateau achieved by the United Way for the past several years.

The breakthrough approach carries over to MIT as a member of the education division. Because of the unusually large number of people engaged in education in the Greater Boston area, the United Way is counting heavily on the education division to increase its rate of participation.

MIT's volunteer solicitors—more than 100 of them—will be redoubling their efforts during the closing weeks of the campaign to encourage broad-based support for the United Way.

Contributions may be made by cash or check or by payroll deduction in whatever amount for whatever period the donor specifies. Many people prefer payroll deductions since a few dollars taken from each paycheck are hardly noticed and will be a big boost toward helping MIT meet its goal.

## Stop Smoking Clinic Returns

A Five-Day Stop Smoking Program will be offered by the MIT Medical Department to students, staff, employees and spouses beginning Monday, Nov. 15, and running through Friday, Nov. 19.

Meetings will be held 1-2pm in the Bush Room (10-105), except for Thursday, Nov. 18, when the meeting will take place in Rm 407 at the Student Center. Fee for the program is \$15, payable the first day.

A combination of education and practical direction for withdrawing from smoking, the program will be conducted by the Reverend Walter Kloss of the New England Memorial Hospital. Rev. Mr. Kloss, a founder of the Five-Day program, is seldom available to teach in person.

He is president of the Massachusetts affiliate of the American Lung Association, has given testimony at legislative hearings and has appeared on radio and television debates with representatives of the Tobacco

Institute. Rev. Mr. Kloss is also author of the forthcoming book *Kick the Habit*.

The program is given for those who would like to try to quit smoking or who have tried one or many times to quit. It is conducted with physicians and Dr. Warren Point of the MIT Medical Department will speak at one of the sessions.

The life expectancy of a young person who smokes two or more packs of cigarettes per day has been found to be reduced eight years, and is reduced four years in light smokers. The incidence of lung cancer in smokers is increased 10-fold over non-smokers.

Recent Massachusetts legislation to protect the rights of non-smokers has focussed additional interest in cigarettes and smoking.

For information and registration, call the Health Information and Education Office of the Medical Department at 253-1316.

## Guild Offers 'Two Gentlemen of Verona'

*Two Gentlemen of Verona*, the rock musical originally produced by Joseph Papp at the Shakespeare Festival in New York City's Central Park, will be staged in Kresge Auditorium by the MIT Musical Theatre Guild during the first two weeks of November.

The musical, an adaptation of Shakespeare's romantic comedy, received Tony Awards for best musical and book for the 1972 Broadway production. It tells, in modern dress, Shakespeare's tale of a pair of young lovers who travel from the country (Verona) to the city (Milan) and through their adventures discover themselves and each other in the world.

Among the leads will be Lanier Leonard (Valentine), a freshman from Brooklyn, NY; Harrison Jones

(Speed), a freshman from New Orleans, La.; Ronald Lyons (Thurio), a sophomore in mechanical engineering from Goshen, NY, and Carolyn Towler (Silvia), a freshman from Carson, Calif.

Steven Hart will direct the play, and Howard Boles, a senior in civil engineering and in humanities and science from Baldwin, NY, will direct the music by Galt MacDermot who also composed music for *Hair*. Producer is David Dreyfuss, a graduate student in aeronautics and astronautics from Akron, Ohio, and set designer is John Peers, '73.

The musical will open with an 8pm production on Friday, November 5. Subsequent 8pm performances will be on November 6, 11, 12, and 13; a 2pm matinee will be held on Sunday, November 7.

## Women's League Plans Musicale

Several members of the MIT Women's League will give a musicale in the President's House at 111 Memorial Drive on Sunday, November 7, at 3pm.

Soprano Epp-Karika Sonin will sing works by Handel, Bach, Vivaldi, and Beethoven. Duopianists Marlys Hughes and Linda Maranis will play works by Brahms, Mozart, Bizet, and Mendelssohn.

A reception with refreshments will follow the program. The concert, an annual event, is presented by the families of MIT's teaching staff under auspices of the Women's League. All are invited free of charge, but reservations are necessary because space is limited. For reservations, call Ext. 3-3656 days or Sylvia Griffith at 484-6033 evenings.



DUOPIANISTS Marlyn Hughes (left) and Linda Maranis (right) will perform at the November 7 musicale at the President's House.

## Art Galleries To Offer Prints

Two Baltimore, Md., art galleries will visit MIT in November to hold exhibitions and sales of original prints under sponsorship of the Student Art Association.

The Marson Galleries will show original Oriental art on Monday and Tuesday, November 8 and 9, in the Student Center West Lounge from 10am to 6pm. The Roten Galleries, whose collection of original prints spans the 700-year history of the art form, will show prints by old masters and leading contemporary graphic artists on Monday and Tuesday, November 22 and 23, also in the West Lounge from 11am to 6pm.

As many as 800 prints will be included in both two-day exhibitions and sales. Most prints will cost less than \$100; some will be available for as little as \$10.

All are invited to just browse, ask questions, and try to spot tomorrow's masters.

The Student Art Association, located in the Student Center, W20-429, provides a variety of art courses for the entire MIT community. To find out about the SAA IAP schedule, call

Ext. 3-7019 from 1-5pm, Monday through Friday.



JAPANESE COLOR WOODCUT done by Toyokuni in the 19th century is an example of the prints included in the collections of two galleries planning to hold exhibits and sales of original prints at MIT in November.

Tickets, costing \$3.50 or \$2.50 with an MIT ID, are available weekdays at a booth in the lobby of Bldg. 10. Reservations and group rates are available by calling Ext. 3-6294.

## Casselman Takes Museum Post

Robert C. Casselman, '39, has been appointed to the new position of associate director of the Museum of Fine Arts in Boston effective Nov. 15, according to Dr. Jan Fontein, director of the Museum.

In his new position Mr. Casselman will be responsible for the overall daily administrative activities of the Museum.

Mr. Casselman received the SB degree in management from MIT and was senior lecturer in marketing at the Alfred P. Sloan School of Management from 1964 to 1967. From 1942 to 1964 he was employed by the Polaroid Corporation, where his responsibilities included domestic and international sales, customer service, distribution, advertising and public relations. He was made vice president for marketing in 1957.

## MIT Press Issues Hayden Book

Dolores Hayden, assistant professor of architecture and history at MIT, is the author of a new book that studies the interplay between ideology and architecture—the social design and physical design—of seven utopian communities.

The book, *Seven American Utopias: The Architecture of Communitarian Socialism, 1790-1975*, is being published this month by The MIT Press.

The author, who is a Fellow of the Radcliffe Institute, includes chapters in which she relates the insights she has derived from her study of the past to the political context of the present. She is particularly interested in the feminist implications of utopian design.

## Weizenbaum Speaks At Cambridge Forum

Joseph Weizenbaum, professor of computer science and engineering in MIT's Department of Electrical Engineering and Computer Science, and William Bossert, Gordon McKay Professor of Applied Mathematics at Harvard University, will speak on the question, "Should We Fear the Computer's Imperial Power?" this evening (Wednesday, Nov. 3) at 8pm at the Cambridge Forum series.

The forum, open to the public without charge, is held every Wednesday at 8pm at 3 Church St., Harvard Square. The series is designed to explore questions of interest to the public.



# CLASSIFIED ADS

Ads are limited to one per 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, and presenting Institute identification. Ads may be telephoned to Ext. 3-3270 or mailed to Room 5-111. **Please submit all ads before noon, Friday, Nov 5. They will be printed on a first come first serve basis as space permits.**

## For Sale, Etc.

Handsome teak DR tbl, 4' diam, opens to 114", \$89; 4 mtch teak chrs, \$20/ea. Dave, x3-5596.

Manual Adler typwrtr, exc cond, lite touch, ask \$75. x5-8386 Dorm.

Telefunken stereo w/spkrs & tape rcdr, best; boys Bauer hcky skates, sz 6, best. Phyllis, x3-3947.

Free old Monroe-matic calculator, nds repair. x3-1582.

Raleigh f bike, 24" whls, 3 spd, can fix up, \$8.50; Soligor lens, f=200 mm, swivel base, made for older camera, \$35. x3-4181.

HP 25, exc cond, incl all access, instr manuals, \$115. Thomas, x5-9689 Dorm, aft 6.

Coop crate substitute for 1/2 price, solid construction. x5-6676 Dorm.

Solid oak 9 pc DR set, \$2,300 value, \$1,500; k sz matt & box spr, 9 mos, \$200. x3-4878.

Sunbeam 3 hp snowblower, \$75. Ed, x8-3463 Draper.

(2) drapery rods, sgl wndws, \$3/ea; long traverse rod w/attach for sheers, \$10; cin & lk nw. Debby, x8-4419 Draper.

Tires: pr 6.45x13 (1) 6.00x13; all ww, gd cond, \$10/ea or \$25/all 3. Paul, x3-3273.

Pr 6.95x14 tires, \$30; sz 7 blk skates, v gd cond, \$7. Mike, x3-4807.

Typwrtr tbl, \$5; 30" foam matt, \$5; 2 Danish chrs w/cshns, \$10 & \$15; lg wint end tbl w/drwr, \$15; 150 lantern 'clodes'; Viking sew mach, \$200. Tim Gawne, 353-0545.

Grn parka w/hood, fits m med-lg, \$10. x3-3665.

K sz waterbed, \$100; 9x12 off-wht rug, \$25. Kathleen, x3-4375.

Remington 99 calc, \$70. Joan, x3-1629.

Pr snows, Delta H70x15, exc cond. Call 484-1804.

Telescope: Questar 3 1/2" Std Cer-vit mirror, all codings, \$975. Rick, x8-1367 Draper.

HP 25 prog calc, nw, unused, full wrnty & access, \$125. Neil or Eric, x5-7316 Dorm.

F blk styled wnt coat, sz 10, lk nw, \$10; chrome bread box & canister set, \$10; other items. Larry, x3-3939.

Sm jazz collection. Don, x269 Linc.

Pioneer RT-10-20L tape deck, 3 motors, 3 heads, 10 1/2" reel. Myron, x3-6810.

(2) girl bikes, 20", \$30/ea. Russ, x5574 Linc.

Elec hot wtr htr, 30 gal, exc cond, \$25; conv baby stroller/carriage, \$15; baby carriage, \$7; baby colonial dressing tbl, \$15; child tbl & 2 chrs, \$12; boy hcky skates sz 13, \$5; '70 red MGB conv, nds work, \$500. Sandi, x8-3470 Draper.

Motorola 6" console stereo, gd cond, 8 trk & r-to-r tape, amfm radio, \$200 or best; Simmons baby crib & matt, \$30; Cosco hchr, \$5. Norma MacKenzie, x3-2629.

Beaut 9x12 royal blu carpet, pd \$150 last yr, \$50 or best. Cindy, x3-6610.

Piano, gd playing cond, nds some frame work, best. U pick up. Bob Asher or Phil, 247-7775.

Mamiya-Sekor camera mdl 1000 DTL, f1.8, dual metering sys, case, hot shoe, \$150 firm. Bruce, x3-7710.

Zenith 12" b&w TV, \$90; vac, \$20; 2 sl toaster, \$8; 4 sl toaster, \$15; 11 cup perc, \$10; 9 cup perc, \$7; Bar-B-Q-Grill, \$10; all nw; 10 spd 27" Free Spirit bike, yr old, \$100; A78x13 snows, yr old, \$10/ea. Call 494-8276, evgs.

Peterson conv stroller, lt blu & grn plaid, exc cond, pd \$55, \$25; yel infant carrier, exc cond, \$2; Sears rotobelt humidifier, 9 gal cpcty, 3 spd, \$35. Call 354-6494.

Courtesy Coffee Maker w/2 cup cpcty, works on waterweight activated brnr so can't boil dry, perf personal use or anything req boiled wtr, incl 2 cups, carafe & brnr, 2 yrs, \$10 or best. Sherry, x3-6261.

Pr A78x13 snows, used 1 sea, \$20; Zenith trntbl w/blt in amp & pr spkrs, was \$130, 1 yr, \$50. Victor, 547-4154.

Snows, C78x14 w/whls, gd cond, \$40/pr or best. Mark, x3-1752.

Color TV, 17", nds work, \$25. Ray, x3-7235.

Pr v comf molded foam rubber chrs, 1 cinnamon color, 1 cranberry, washable covers, \$150 nw, \$40/ea or \$70/pr, firm. x3-3503.

(2) adding mach, \$10/ea or make offer. Ed, x3-5763.

Pr Lange comp ski boots, gd cond, \$40 or best. Joel, 494-0345.

Handmade Holly Hobby dolls, order now for holiday, \$17/ea; knotty pine bar, \$35. J. May, x8-2843 Draper.

Contemp 72" sofa by Rode, blk, wnt & gray stripe Herculon fabric, cstm uphol back. Call 569-0285, aft 4pm.

BF Gdrich az A78x13 ww tires, 2 ply, 4 ply rating, b nw, 2/3 price. Hal, x5809 Linc.

Guitar, \$15 or best; Kastinger ski boots; hcky skates, sz 6 & 11-12; unassembled mdls of M46 motorized Patton tank, USS Enterprise aircraft carrier; Gertch 4D ski bndgs, nw & unassembled; colonial style marching drum. Dolores Mendelson, x3-2030.

Pr rims for 14" tires, fit GM intermed, \$6/ea. Call 862-3952.

Munari Rally 950 ski boots, cstm-flow-fit, m 8 1/2, exc cond, \$45 or best. x5416 Linc.

Sm pipe organ, 1 manual, 4 ranks. Lon Hocker, x3-2007.

Frpl scr & access, nw, \$50; elec log, \$30. Fran, x3-4801.

Pr 7.60x15 Allstate Silent Seas snows, t-less, on rims, \$15. Ted, x3-7811.

Ballantine mdl 310A AC VTVM, 100 microvolts to 100 V, freq to 2 meg cycle, mint cond, \$25. Melvin Alpert, x3-4192.

F 26" bike, 3 spd, exc cond, \$40. Jake, x8-1478 Draper.

Dual 1228 trntbl w/crtrdg, \$135. Call 494-8768.

F 10 spd bike, hdlite, exc cond, rarely used, \$80 firm. Joan, x3-6922, bef 5.

Sturdy Pedigree baby carriage/carbed, \$10; wd playpen, \$10; doll carriage & crib, \$5/ea; stl shelving, 4 units, \$2.50/shlf; stl cart, \$3; bowling ball, \$10; books; bric-a-brac. Call 232-0205.

Pr stud ww snows, G78x14; 8 trk car tape deck w/spkr & tapes; best. Bill, x366 Linc.

Canon FD 100-200 mm f5.6 zoom lens w/case, 10 mos, exc cond, best over \$100. Shankar, 495-2654, lve mag.

Antique copper-btm washboiler, \$10; 25" diam serving tray, \$8; 15" diam dec bowl, \$5; 18 pc ruby glass set; 5 carved wine glasses, \$5; etc. Call 876-4328, evgs.

Mini b&w Sony TV, exc cond, \$60. Anne, x3-5763.

Pr 8.25x14 stud snows, mtd Chevy rims, \$15/pr. Fisher, x3-5571.

Tbl, 36" rmd wnt mica w/heavy chrome pedestal, b nw, perf for any style chrs, \$70. x3-3837.

Vanity tbl & bench, \$15; Neptune lawn edger, \$15; sm handfed mimeo machine, \$15; Pentron lg reel tape rcdr w/mic, \$25; 6' encl panel rack, \$10; red velvet hooded cape, sz sm, \$15. Call 484-6213.

GE elec sunlamp, perf cond, \$8. x3-7138.

Mtl Snow Wings, \$2/ea; Bauer 99 hcky skates, sz 9 1/2, \$35; swim fins, sz 9-10, \$7. Bob, x8-1418 Draper.

Zenith 12" b&w TV, uhf & vhf, \$60. JK, x8-3977 Draper.

Child bike, \$20; dbl matt, \$20; 2 sgl matts, \$10/ea. Ramos, x3-3259.

Tech dinghy, last of old fleet, ready to sail, \$600. x3-4884.

Kenmore wall gas oven st stl, \$50; 36" Kenmore ctr top gas st stl range, \$40; 36" Kenmore duct type st stl range hood, \$30; 6 jalousie storm wndws, 40x38", \$15/ea; wnt alum storm & screen dr, 2'8"x-6'8", \$20. Ron, x3-6353.

Head std skis, 205 cm w/Miller bndgs, Scott poles, Henke sz 9 1/2 boots, \$65. Helen, x8-3501 Draper.

## Vehicles

'51 antique Jaguar XK120, partially restored, w/beaut showpiece. x5-8644 Dorm.

'63 Impala, 67 K, eng exc, body little rusty, exc tires & snows, \$195 or any reas offer. Janos, x5-6689 Dorm.

'63 Linc Cont, wnt sed w/red leath int, AC, p st, radio, \$425 or best. Kathy, x3-3343.

'63 Ply Valiant, 6 cyl, 4 dr, gd run cond, fall sticker, \$200 or best. Subbu, x3-2238.

'65 Dodge Polara, V8, p st & br, nw tires, 4 dr sed, \$500; 5000 BTU Emerson AC, \$60; 12" b&w TV, \$50; full sz bed, \$50; dresser, \$15; crib, \$15; blender, \$10; camping equip, \$30; all almost nw. Call 731-2160.

'65 VW van, gd for parts, any offer. x3-5718, Wed aft 4pm or Th aft, only!

'67 VW sed, red, nds some work, \$250 or best. x3-7121.

'68 Ply wgn, 1 ownr, much nw equip, \$300. Rod, x3-5003.

'68 Chevy pick-up, gd cond, eng ovrlhd & cined 8/76, \$500. Louie, 491-2168.

'68 Chevy conv, gd cond, p st & br, amfm radio, fall sticker. Chris, x3-6478.

'68 Opel Cadet, gd run cond, nw sticker, \$400 or best. Linda, x7809 Linc.

'69 Ford Torino sq wgn, gd cond, \$500. x3-4987.

'70 Volvo 144S, dk blu, xtra lites, gauges, snows, shop manual, gd cond, best. Gerald, x3-6910.

'70 VW bug, body exc shape, nds some eng work, \$650. Judy, x3-1493.

'70 BMW 2002, red, nds eng work, \$350. x3-4434.

'70 VW sqbk, 66K, gd cond, auto, \$450. Jack, x8-2470 Draper.

'70 Simca, 4 dr, 80 K, nw brakes, muff, universal joints, gd mech cond, 2nd ownr, \$350. Robert, x3-2317.

'70 VW, 9 psgr van, v gd cond, rebilt eng & transaxle, \$1,500 nego. David, x3-2336.

'71 Vega Htchbk, std, 4 spd, snows, gd run cond, 20-25 mpg, \$775. Shing, 267-4649.

'71 Dodge Colt, 4 dr, std, 57 K, \$1,000. Peter, x3-3339.

'72 Pont Firebird, 2 dr hdtpr, v gd cond, \$2,200 or best. Diane, 868-7568, aft 5pm.

'72 Chevy Kingwood Estate wgn, exc cond, lo mileage, nw radials & snows, reas. Wm Trosky, x8-1255 Draper.

'72 Dodge Colt hdtpr cpe, nw brakes, shocks, muff, 33 mpg, v cln, \$1,075. Ed Nessman, x181-56-141 Haystack.

'72 Datsun 240Z, red w/wht int, nw paint & radials, amfm, auto, real sharp, 44 K, \$3,400 or best. Rick, x5845 Linc, lve mag.

'73 Dodge Colt, amfm, radials, 56 K, gd cond, 25-30 mpg, orig ownr, std, must sell, \$800 firm. Call 899-0670, aft 7pm or wknds.

'73 VW superbeetle, 40 K, exc cond, \$2,000. Ed, x8-1583 Draper.

## Housing

Bos, furn rm, v sunny, refrig & hotplate, Marlborough St nr Mass Ave, nr T, share B w/2 others, \$95 incl all. x3-7197, 10am-12n.

Bkline, compl furn 8 rm hse, 3-4 BR, 3 B, wash & dry, LR, DR, TV rm, 2 car garage, avail Jan-July '77, ask \$520 + util. x3-4992.

Camb, condo ovrlk river & park, 2 BR, DR, frpl, mirrored LR wall, nw K, tile B, supt & elevator in bldg, str pkg, nr T, ask \$64,000. Sue, x3-1593.

Camb, fully furn BR apt avail 12/1-6/1, exc for visit fac, fantastic view Charles R, 100 Memorial Dr, \$350-\$370. Call 547-1649.

Camb, furn 3 rm apt in priv home, K, LR, BR, B w/shwr, nr Mem Dr & BU Bridge, \$185 + ht. Call 354-6353.

Melrose, ctr entr colonial, 3 BR, 1 1/2 B, frml LR w/frpl, DR, den, bsmt & fam rm, ww, lg mod K, walk to RR & schools, ask \$69,900. Lou, x8-3501 Draper.

Middleboro, hr to Bos, beaut contemp hse for rent, 2 BR, 2 B, 2 frpl, terrace rm, 55 acres, free use of riding horse, avail 12/1, \$425. Call 899-3993, days.

Wrtwn, 2 BR apt avail 1/1/77, DR, LR, garage, \$215 + util. x3-6408.

Barnstead, NH, wnt rental, 3 BR cottage w/frpl, pub, fam rm, 1 1/2 hrs Camb, \$1,200 + util. Liz, x3-7771.

Sugarbush Valley, Vt, 2 BR condo, frpl, dishwash, on mtn, slps 6, \$1,250/season. Call 275-8710.

Lovely Wht Mtn chalet for sale or seas rental, 3 BR, frpl, nr Cannon, Loon & Vt areas. Eva, x3-5742.

Skiers! I rented 3 BR ski chalet on Winnepesaukee, Wht Mtns, 2 1/2 hrs Bos, nd 2 people or 2 cpls to share it, seas rental split 3 ways, own BR all wnt, nr Mad River, Loon Mtn, Waterville V, others, also X-entry, ice fishing, etc. Roy, 547-6093.

## Animals

Tan, blk & wnt tiger f cat, about 6 mos, well behaved & frndly, nds home. x3-5265.

Yng m basenji-beagle stray nds home, cln, qt, hsebrkn, frndly, fine disposition, sound health, exceptional animal. Bill, x3-7573.

Nd home for 2 yr old m cat, v gd natured, accustomed to apt living. x8-4465 Draper.

## Wanted

Want 6.85x15 or C78x15 snows. Don, x3-6328.

Garage space for sgl car, Cambport area nr Allston & Pearl Sts. Larry, x3-5727.

Refrig, pref med sz. Rebecca, x3-1868.

Ride to Hartford any wknd. Elizabeth West, x3-1598.

Used bench vice. Doug, x3-7850.

Sm sofa or loveseat, 62" wide max, old, ovrstuffed or similar, suitable grungy MIT office. Jim, x3-1926.

Wd bkcase, pref someone from Linc. Kathleen, x7484 Linc.

Used color TV, console, not port, gd working cond. x3-4488.

Oiled 1" paper tape; mtl type for letterpress; swiveled armed casted desk chrs; 9' long drapes. Len, x3-1541.

Ride to Durham, NC by Nov 6, w/ share driving & exp, also rtn ride wanted Nov 14. Chip Farley, x3-6050.

(2) f seek 2 BR apt, spac & qt, Camb-Bel or surrounding area, 2 cars. Jamie, x3-3531.

W/ pay 25c/ea for Intl Reply Coupons (IRC's). MIT Radio Society, WIMX, Rm 50-358, x3-3776.

## Roommates

F non-smoker to share 2 BR apt nr Inman Sq w/f & cat, \$78 + util. Edie, x3-5653, 10-2 only.

F rmmate to share Br apt Northeastern campus, \$93 incl ht. Durga, 437-2857.

## Carpools

Ride nded btwn Peterborough, NH & Camb, 1 or both ways, hrs flex. Virginia, x3-4895.

Ride wanted from Waltham area to Linc Lab & back. Dan, x5540 Linc.

## Parking

Note to parking sticker swappers: please remember to inform your supervisor and the Campus Patrol of the exchange you have made so that their records accurately reflect your new parking area.

W/ swap Windsor for West. C.I.C., x3-5672.

## Miscellaneous

W/ type theses, tech or manu, IBM Selec. x3-1713.

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

Navy Reserve Lt's CEC & supply pay billets avail. Dick Laton, x7447 Linc.

MIT stu has friend who does hsekeeping work for wkly fee. Call 494-8888.

Any kind of typing done, reas rates. Donna, x3-1585.

Typing, thesis, manu, reports, IBM self-correct. Debbie, x3-2511.

Chart & graph service for thesis & publication. Joyce Cahill, x3-7019, morns.

Typing, papers, thesis, reports, etc, IBM Correct Selec. x3-7453.

Typing, fast & accurate, thesis, papers, manu, letters, almost anything. x3-4342.

Party for all BHSS grads on Nov 12. Call for details, pls RSVP. Dan ('78) or Jim ('78), 547-7894.

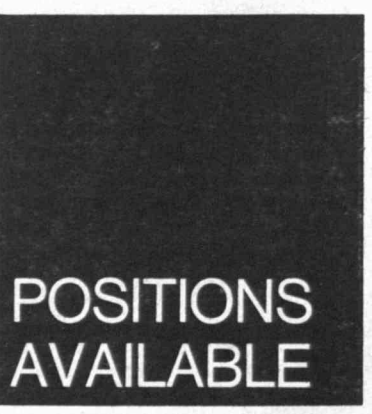
Quality typing, IBM Correct Selec, 8 yrs exp. Call 738-8384.

W/ do tech typing and theses, IBM Correct Selec. Shelly, x3-2686.

## Surplus Property

The following can be seen by contacting W.A. Deroy, Property Officer, x3-2777. Send sealed bids to Property Officer, Rm E19-717. Bids will be opened Wed, Nov 10, 12-10pm, Rm E19-717.

Maytag dishwasher mdl WP-600; Standard duplicator mach mdl ERAD-G, '73, cost \$864.



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 an 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 3-1595  
(Secretary — Ann Perkins)

Virginia Bishop 3-1591  
Mike Parr 3-4266  
Ken Hewitt 3-4267  
(Secretary — Joy Dukowitz)

Sally Hansen 3-4275  
Lewis Redding 3-2928  
Richard Cerrato 3-4269  
(Secretary — Jenni Leibman)

Sponsored Research Staff, Plasma Physicist, in the National Magnet Laboratory. To carry out a study of plasma physics relevant to the operation of a high density, high magnetic field tokamak power reactor. participate in preliminary design of a demonstration power reactor. Ph.D. in plasma physics required. Course work or work experience in the plasma physics of tokamaks desirable. D76-211 (11/3).

Sponsored Research Staff, in the National Magnet Lab. To design magnetic field coils for a tokamak fusion reactor study to give required field configurations. B.S. or M.S. in Electrical Engineering or Physics required. Experience in use of large digital computers to solve engineering problems, experience in calculation of magnetic fields desirable. D76-212 (11/3).

Sponsored Research Staff, Temporary, Reading and Writing Specialist, for the Upward Bound Program (Provost's Office). To develop and implement a reading and writing program for high school students; instruct and supervise tutors; develop individualized program for each student; supervise reading clinics; implement summer program including training and supervision of teachers; coordinate program goals with public schools; counsel students. Program includes 7 weeks in residence (at Wellesley College) during summer. Graduate training in reading education (or related area), or direct experience is required as well as experience working with urban high school students, teachers and staff, and willingness to develop programs consistent with program goals and philosophy. Position is for 1 year, but may be extended. D76-213 (11/3).

Administrative Staff, District Officer, in Resource Development. Position is located in New York City and includes responsibility to coordinate and support work of volunteer solicitors for capital campaign in that area. Will assist in prospect identification, assignment of solicitors; act as liaison with campus headquarters. Bachelor's degree required. A close familiarity with MIT or comparable familiarity with NY leadership community, ability to interact effectively with corporate and financial officers also necessary, as well as excellent oral and written communications skill. Position is for 2 years, but may be extended. A76-46 (11/3).

Academic Staff, Administrative Officer, in the Division for Study and Research in Education to plan and coordinate administrative and support services for the Division. Duties include budget preparation; monitoring of accounts; hiring non-academic personnel; preparation of documentation to support academic appointment process; preparation of material related to academic programs. Will handle other special projects as necessary. Excellent administrative experience and skills, facility with budgets and accounting procedures required. Familiarity with current issues in education and cognitive psychology desirable. MIT experience preferred. C76-13.

Sponsored Research Staff, Radiochemist, in the Nuclear Reactor Laboratory. To use reactor, radiochemistry and nuclear counting facilities to provide a broad and effective trace element capability; perform neutron activation analyses to support existing projects and to develop new projects for participation by other MIT research staff and staff from outside organizations. An advanced degree, preferably a PhD, in chemistry, radiochemistry or related field, current experience and skills in trace element analysis (especially neutron activation analysis) required. Applicants must have broad understanding of application areas of NAA and other trace techniques and also have proven capability to develop and carry out new research projects. D76-210 (10/27).

Sponsored Research Staff, part-time, in Nutrition and Food Science. Will assay metabolites of monamine neurotransmitters in urine and other body fluids; examine effects of drugs on brain polysome profiles. Masters degree in biochemistry or a related field required. Experience in measuring neurotransmitter and metabolites preferred. D76-209 (10/27).

Sponsored Research Staff, Technical Writer, in the Aeronautics/Astronautics Innovation Center. To develop and prepare technical publication, bulletins, manuals on varied electrical and mechanical engineering innovations. Will acquire subject data through interviewing staff and students, observation of experiments, and reference to blueprints, sketches, engineering drawings, etc. Several years technical writing experience as well as a Bachelors degree in electrical or mechanical engineering required. D76-208 (10/27).

Admin. Staff, Special Assistant, Office of the Chairman, to represent MIT in its relations with all segments of the external community including governmental bodies, community agencies and grass roots organizations; act as catalyst for interaction between MIT people and external community, and facilitate the access of outside groups and individuals to the Institute. Administer MIT Community Service Fund including budget management, brochure and proposal writing and conduct of Institute-wide solicitation; provide staff support in the Office of the Chairman. Bachelor's degree and administrative experience required. Well-developed speaking and writing skills essential. A76-45 (10/27).

Admin. Staff, Applications Programmer, in the Office of Administrative Information Systems to write new or modified programs; prepare logic diagrams and data flow; test and debug programs; assist users with program problems. Will also attend instructional classes, seminars, etc., as necessary, to develop and maintain skill. Programming experience in a professional capacity as well as an Associate's degree required. A76-44 (10/27).

Administrative Assistant V, in Comptrollers Accounting, Sponsored Accounting section. Will do internal cost audits on research programs; prepare monthly invoices and fiscal reports; assist in cash flow and forecast functions. Two years of college or business school, plus 2-3 years applied accounting experience required. B76-585 (11/3).

Administrative Assistant V, in Undergraduate Mathematics Office. Will be responsible for administrative aspects of program; maintain related records; assign advisors; review student progress; advise students on procedures and status; coordinate activities with Registrar, Dean's Office and other Institute departments. Excellent organization skills, ability to interact well with students and faculty, and to work under occasional pressure required. Typing skill also necessary. Related MIT experience preferred. Non smoking office. B76-586 (11/3).

Secretary IV, to two Biology faculty members. Will handle general secretarial duties related to contract preparation and maintenance of contract financial records; gather data for inclusion in proposals; monitor expenditures; forecast commitments; type proposals. Additionally, duties will in-

clude composition of correspondence, typing from machine dictation and handwritten draft, preparation of course materials and handling petty cash account. Excellent typing, experience with accounting procedures, command of English language required. Familiarity with MIT accounting procedures helpful. B76-572 (11/3).

Secretary IV, in the Nutrition and Food Science International Nutrition Planning Program. Will work under supervision of senior secretary and perform general secretarial duties; organize and maintain filing systems; transcribe machine dictation; schedule appointments and handle other office procedures as necessary. Excellent typing skill plus extensive secretarial experience required. 40 hr/wk. B76-576 (11/3).

Secretary IV, to Director and two other staff members of the Aeronautics/Astronautics Innovation Center. Will type from written draft, machine or shorthand dictation; arrange travel and meetings; answer phones; maintain files. Ability to type technical material, organizational skill, command of the English language, shorthand skill or ability to transcribe machine dictation required. B76-580 (11/3).

Secretary IV, in the Energy Lab. Will arrange format and type technical manuscripts; edit manuscripts and handle other related duties using a computer (will be trained); maintain supplies and files; organize workshops; compose correspondence from oral instruction. Technical typing skill, ability to handle routine bookkeeping procedures required. 40 hr/wk. B76-578 (11/3).

Secretary IV, to two full time and one part time physicians in the Medical Dept. Transcribe medical reports from machine dictation; schedule appointments; secure patient records prior to appointments. May also chaperone routine medical examinations. Previous secretarial experience, ability to transcribe medical terminology required. Some college training preferred. B76-588 (11/3).

Secretary IV, in Nutrition and Food Science. Will transcribe machine dictation; arrange appointments; maintain files; type reports and manuscripts from handwritten draft and do some related editing. Three-five years secretarial experience required. College training preferred. 20 hr/wk. B76-584 (11/3).

Secretary IV, part-time, in Nutrition and Food Science. To handle general secretarial duties including drafting of routine letters; typing manuscripts and proposals. Command of English language, good typing and general secretarial skills required. 20 hr/wk. B76-582, B76-583 (11/3).

Secretary IV, temporary, part-time, to Meteorology faculty and staff members; type correspondence, manuscripts; maintain a small library; assist in library research; monitor accounts. Ability to work independently, organization, excellent typing required. College training preferred. 20 hr/wk. 1pm-5pm, Mon.-Fri. Temp. for 4 mos. B76-587 (11/3).

Secretary IV, to Civil Engineering Administrative Officer. Will act as liaison with members of the departments, independently answering inquiries as appropriate; prepare payroll reports for several payroll categories; maintain confidential files; handle all other general secretarial duties. Mature judgment, good typing and secretarial skills required. MIT experience helpful. B76-565 (10/27).

Secretary IV, to Head of Engineering Library and professional staff. To handle general secretarial duties (correspondence, files, etc.); record information on book orders; purchase supplies and equipment; monitor financial statements; maintain petty cash; prepare payroll reports. Secretarial experience and knowledge of accounting or bookkeeping procedures required. Secretarial school or college training desirable. B76-567 (10/27).

Secretary IV Part Time, to Professor of the History of Art and Architecture. Type correspondence reports, manuscripts; maintain student records independently answer correspondence and other inquiries; do some library research and editing. Excellent typing, English grammar and writing skills required. Knowledge of French helpful. 17 1/2 hours/week. B76-561 (10/27).

Secretary IV to academic staff member in the Center for Policy Alternatives on projects related to environmental law and policy, occupational health and safety and the Law Related Studies Program. Will handle general secretarial duties: organization of proposals; budget preparation; project coordination; monitoring accounts; arrange travel. Excellent typing, shorthand (or willingness to acquire shorthand) skills are required as well as ability to set priorities and work independently. Interest in subject matter important. B76-283.

Secretary IV to Chemical Engineering Administrative Officer to handle general secretarial duties which include machine and shorthand transcription; maintenance of contract/grant records; assisting visitors to department. Secretarial experience, ability to organize own work load, to deal with representatives of MIT and outside organizations, students and faculty required. Secretarial school training preferred. Position requires occasional overtime. B76-377 (8/11).

Secretary III-IV, in the Treasurer's Office to handle all general secretarial duties including shorthand dictation; compose routine correspondence independently; collect data for special projects. Position includes considerable interaction with Institute personnel and outside organizations. Excellent secretarial skills including shorthand/speedwriting, the ability to handle sensitive information discretely and to interact with people in a professional manner required. Familiarity with legal terminology helpful. B76-562 (10/27).

Secretary III, in the National Magnet Lab. Will assist Director's secretary; type technical papers and reports; maintain files; arrange meetings, travel. Excellent typing skills required. B76-560 (10/27).

Secretary III, part-time, in the Sloan School Placement Office to answer phones; type letters; perform general clerical tasks; assist in special projects as necessary. Excellent typing skill required. Office experience preferred. Normal schedule: 12 hrs/wk (3 days, 8:30am-12:30pm). Position occasionally requires a 5 day week, part-time, and will be full-time, 5 days, during February, 1977. B76-576 (10/27).

Jr. Programmer V, part-time, in the Center for Space Research. Will maintain computer tape library; submit production runs to computer center and monitor production; maintain and update reference data listings; write and debug programs; perform related clerical duties. Some applicable experience as well course work in computer programming required. 20 hrs/wk. B76-563 (10/27).

Cashier III, in Comptrollers Accounting, Cashier's Office. Will receive and disburse cash; prepare receipt slips; log mail receipts; cash personal checks; prepare checks for deposit; prove cash fund. Ability to handle a large volume of cash transactions with accuracy, to work effectively with others, and to use an adding machine required. B76-573 (11/3).

Sr. Clerk III, in the Alumni Association. Will handle varied clerical duties related to maintenance of current alumni records; process additions, changes, gift records. Typing skill, flexibility for changing assignments, legible handwriting required. B76-581 (11/3).

Sr. Clerk III, in the Registrar's Office to handle various duties related to maintenance of undergraduate records; transcribe grades; check computer input/output; enter data into computer; answer inquiries concerning grades and related matters. Excellent typing, accuracy with detail required. Two years college training desirable. B76-564 (10/27).

Sr. Clerk III in the Admissions Office to process applications; maintain records; coordinate procedures with secretaries in MIT academic



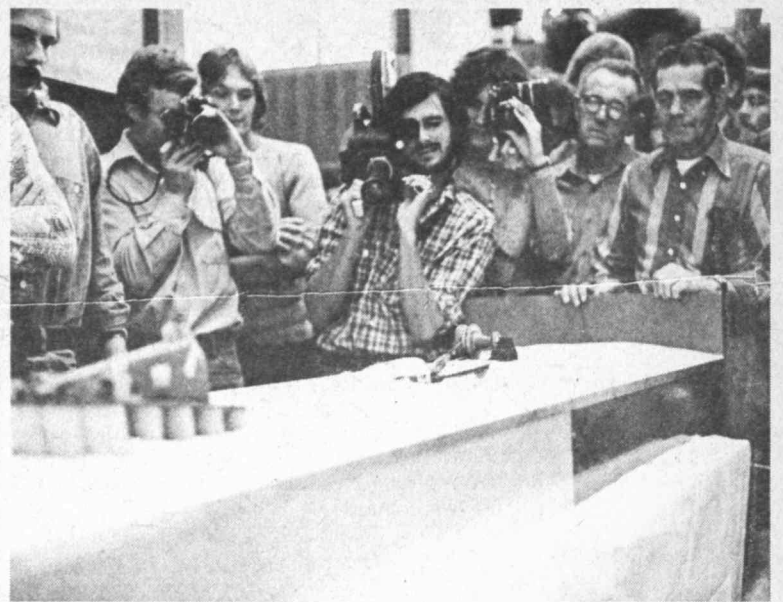
## 2.70 Competition: Organized Chaos



**TOTE BOARD** showing which students remain in competition is corrected by Associate Professor B. Shawn Buckley as Dr. Woodie C. Flowers, Class of 1922 Career Development Associate Professor of Mechanical Engineering, center, and Dr. Robert W. Mann, Whitaker Professor of Biomedical Engineering, right, prepare for another tug of war. All of the professors are involved in teaching Course 2.70. At the left are two of the student judges, Joseph Tavorina of Allston and Reed Sturtevant of Chevy Chase, Md., right. Armed with a giant axe, the judges announced that "all decisions will be final." They were.



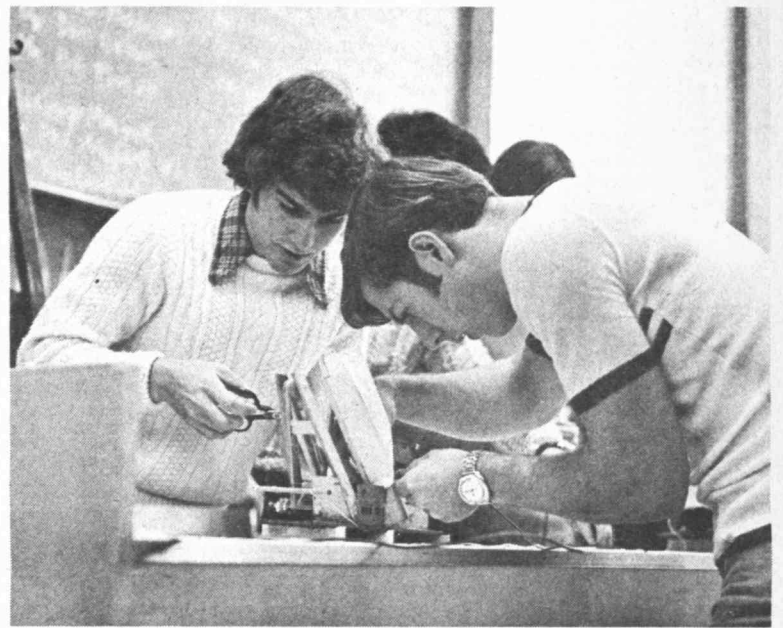
**THE WINNER**—Her T shirt says fragile but Susan L. Kayton's entry in the Course 2.70 Introduction to Design contest—she called it the Mugger Tugger—was overwhelmingly formidable. She won the Sandbox Derby, a tug of war, defeating 129 other student-made, rubber-band-powered devices. In this picture Kayton prepares to wind up the spool she fashioned from the fiber board made available in the identical parts kits given students by Professor Woddie Flowers, who is in charge of the course. As the spool is rolled the bands are stretched. The key to Kayton's success, according to Professor Flowers: "She planned well. She had her machine finished early so that she could test and redesign it. And she practiced a lot." Professor Flowers also said Kayton's machine constituted a proper impedance match with the sandy surface on which the tug of war was held.



**EXPERIMENTAL PROJECTS LAB** employees Fred Johnson, right, a senior technician, and Don Wassmouth, a mechanic's aid, stand at the end of the sand table as two tuggers go at it. The EPL built the tables on which the machines competed and prepared the parts kits given to students who designed and built their own machine without help.



**HOLDING THE MARKER** that determines who won or lost is Adam C. Bell, right, visiting associate professor of mechanical engineering. Student judge Roger Fish counts down the seconds in the set-up time.



**DELICATE TASK** of setting up a tugger is accomplished by Jeff Crothers, left, and Brad Brewster. Machines had to pass weight and volume tests before being allowed to compete.

Photos By  
Cathryn M. Chadwick

## Gannett Newspaper Seminars to Resume

The first Gannett Newspaper Seminar of the academic year will be held Tuesday, Nov. 9, at 4pm, in the Bush Room, 10-105. Robert Polansky, senior systems analyst at Xylogics Systems, Inc., will discuss the processing of wire-service news by the Dymo/Xylogics Copy Processing System.

Professor J.F. Reintjes of the Department of Electrical Engineering and Computer Science, director of the Gannett program, said wire-service news processing is benefiting from a recent upgrading of service by United Press International and the Associated Press. Both services are now offering faster story trans-

missions to newspapers, and more sophisticated story formats, he said. Electronic news-processing systems in newspaper editorial departments can utilize these new formats to organize wire service stories within computer memory, by category, priority, state-of-origin and other criteria. Selected stories may also be directed to particular news departments or individual editors for furth-

er action.

Mr. Polansky will describe the techniques available in the Dymo/Xylogics Copy Processing System to perform automatic sorting and distribution of wire-service stories. He will also describe research in sorting and distributing "loosely formatted" wire copy, which was done several years ago by him at the MIT Electronic Systems Laboratory.

## Obituaries

### Olive R. Smith

A memorial service for Olive Rogers Smith, a long-time employee of the Comptroller's Accounting Office, will be held at Gordon Chapel of Old South Church at 2pm Saturday, Nov. 6.

Mrs. Smith, who was 70, died following a long illness. She was the widow of Albert V. Smith, director of buildings and power from 1933 until his death in 1943.

Mrs. Smith joined the Comptroller's Accounting Office in 1948, retiring as administrative assistant in 1971. She was a member of the MIT Silver Club.

Survivors include her daughter, Judy A. Keyes of Brockton, two grandchildren, Tamara J. Selfridge and Peter A. Keyes of Brockton, and a sister, Virginia R. Henkel of Chicago.

Memorial contributions in lieu of flowers may be made to the American Cancer Society.

### Janet K. Cutler

Janet K. Cutler of Cambridge, an editorial secretary in the Information Processing Center, died Thursday, Oct. 28. She was 26.

Ms. Cutler came to work at MIT in April, 1974. At the time of her death she was working on the department newsletter, *IPS Computing News*.

She is survived by her parents, Mr. and Mrs. Irwin Cutler, of Wantagh, N.Y.

(Continued from page 6)

departments; answer correspondence and other student inquiries. Good typing skill, accuracy with detail required. Some college training helpful. B76-569 (10/27).

**Clerk II-III** in the Joint Center for Urban Studies to answer phones; sort mail; type; handle other general clerical duties. Will also spend approximately one-third of time performing messenger duties between the Center, MIT and other local points. Typing skill, flexibility for changing assignments, reliability required. B76-571 (10/27).

**Payroll Clerk III-IV**, in the Comptroller's Accounting Office. Will process departmental payroll reports for keypunching; log adjustments; handle special procedures related to vacation payments. Ability to work with sensitive information, at least 2 years accounting experience (preferably in a payroll department) required. B76-579 (11/3).

**Bookchecker II**, part-time in the Science Library to inspect library materials to assure proper charge-out procedures are followed; direct users as requested; perform general clerical tasks. Ability to enforce regulations with tact and courtesy required. 9 hrs/wk: Sat. 10am-8pm. B76-568 (10/27).

**Technician A**, hourly, (Jr. Control Room Operator) in the National Magnet Laboratory to start up, effect control and surveillance during operation, shutdown and secure two 5,000 kw motor generator sets and attendant equipment; set-up and break down magnets in cells; check cell safety; monitor research technicians' use of remote control equipment; operate feedback control systems for the main dc generators; perform varied other related technical duties. Graduation from a 2 years day technical school, or equivalent, plus 2 years application experience required. Background in electronic circuitry, understanding of the behavior and operation of large motor generator sets and attendant equipment desirable. H76-107 (10/27).

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:

A75-71, Documentation Manager, Admin. Info. Systems (7/14)  
A76-19, Systems Planner, Info. Processing Serv. (7/14)

A76-23, Alumni Regional Director, Alumni Assoc. (7/28)  
A76-37, Dir. MIT Educ. Council, Admissions (9/29)  
A76-40, Systems Prog., Info. Proc. Serv. (10/20)  
A76-42, Programmer, Resource Planning (10/27)  
A76-43, Asst. Dir./Prog., Office of Spons. Prog. (10/27)

#### BIWEEKLY:

B76-204, Tech. Typist III, Res. Lab. Elec. (8/25)  
B76-262, Admin. Asst. V, National Magnet Lab. (10/20)  
B76-334, Sec. III, Sloan School (8/25)  
B76-336, Sec. IV, Ctr. for Space Res. (8/25)  
B76-348, Sr. Clerk III, Registrar's Office (8/25)  
B76-349, Sr. Clerk III, Registrar's Office (8/25)  
B76-359, Sr. Clerk III, Devel. Office (8/25)  
B76-518, Acct. Asst. V, Campus Info. Serv. (8/25)

B76-366, Sec. IV, Humanities (8/25)  
B76-392, Sec. IV, Alumni Assoc. (9/8)  
B76-400, Sec. IV, Earth & Planetary Sci. (9/8)  
B76-432, Sec. IV, Political Sci. (10/20)  
B76-437, Tech. Asst. V, School of Humanities & Social Sci. (9/15)  
B76-438, Sec. IV, Joint Ctr. for Urban Study. (9/15)  
B76-441, Sec. IV-V, Off. of Facil. Mng. Syst. (10/6)

B76-470, Sec. IV, Resource Devel. (9/22)  
B76-486, Sec. IV, Office of the Chairman of the Corp. (9/29)  
B76-498, Sec. IV, Biology (10/27)  
B76-511, Asst. Computer Oper. III, Office Admin. Info. Systems (10/6)  
B76-517, Tech. Asst. III-IV, Safety Office (10/6)  
B76-518, Acct. Asst. V., Comptroller Office (10/6)

B76-525, Sec. IV, Physics Dept. (10/13)  
B76-526, Sec. IV, Ctr. for International Study. (10/13)  
B76-527, Sr. Sec. V, Planning Office (10/13)  
B76-539, Clerk III, Physical Plant (10/13)  
B76-553, Messenger Clerk II, Psychology (10/27)  
B76-554, Sec. IV, Chemistry Dept. (10/27)

#### ACADEMIC STAFF:

C76-6, Microbiologist, Medical Dept. (4/21)  
C76-11, Asst. Radiation Protection Officer, Medical Dept. (8/11)  
C76-14, Tech. Asst., Biology Dept. (9/15)  
C76-15, Head Librarian, Libraries (9/15)  
C76-18, Nursing Superv., Medical Dept. (10/20)  
C76-19, Institute Archivist, Librarian, Libraries (10/27)  
C76-20, Chemical Engineer, Energy Lab. (10/27)

#### SPONS. RES. STAFF:

D75-48, Economist, Energy Lab. (6/25)  
D75-161, Economist Policy Analyst, Energy Lab. (9/15)  
D76-17, Biochemist, Res. Lab. Elec. (2/25)  
D76-49, Plasma Physicist, National Magnet Lab. (4/14)  
D76-61, Energy Economist, Energy Lab. (5/5)  
D76-67, Biologist/Biomedical Engineer, Mech. Eng. (5/5)  
D76-70, postdoc. res., Physics, Lab. for Nuclear Sci. (5/5)  
D76-71, postdoc. res., Physics, Lab. for Nuclear Sci. (5/5)

D76-84, postdoc. res., Res. Lab. Elec. (6/2)  
D76-108, Eng. Prog., Res. Lab. Elec. (7/14)  
D76-113, Res. Engineer, Ctr. for Trans. Study. (7/14)  
D76-115, Immunologist, Clinical Research Ctr. (7/14)  
D76-121, Res. Engineer, Energy Lab. (7/28)  
D76-123, Staff Biophysicist or Biochemist, National Magnet Lab. (7/28)  
D76-126, Immunologist, Clinical Research Ctr. (8/11)  
D76-131, Research Analyst, Ctr. for Policy Alternatives (7/28)  
D76-140, Operations & Instrumentation Manager, National Magnet Lab. (8/25)  
D76-147, Systems Prog., Lab. for Nuclear Sci. (9/15)

D76-148, Project Eng., Mechanical Eng. (9/15)  
D76-151, Magnet Design/Mathematical Analyst, National Magnet Lab. (9/15)  
D76-154, Experimental Physicist, National Magnet Lab. (9/15)  
D76-162, Programmer, Lab. for Nuclear Sci. (9/29)  
D76-172, Chemist, Elec. Eng. (10/6)  
D76-175, Scientific Prog., Earth Planetary Sci. (10/6)  
D76-179, Programmer, Ctr. for Space Res. (10/13)  
D76-180, postdoc. res., Physics, Lab. for Nuclear Sci. (10/13)  
D76-181, coal/gas combustion res., Energy Lab. (10/13)  
D76-182, Staff Engineer, Elec. Eng. & Computer Sci. (10/13)  
D76-183, Staff Engineer, Elec. Eng. & Computer Sci. (10/13)  
D76-185, Mechanical Eng., Lab. for Nuclear Sci. (10/13)  
D76-186, Postdoctoral Scientist, Ctr. for Space Res. (10/13)  
D76-187, Postdoctoral Scientist, Ctr. for Space Res. (10/13)

D76-188, Postdoctoral Scientist, Ctr. for Space Res. (10/13)  
D76-189, Tech. Asst., Nuclear Eng. (10/13)  
D76-198, Res. Engineer, Energy Lab. (10/20)  
D76-201, Mechanical or Electrical Eng., National Magnet Lab. (10/27)  
D76-203, Scientific Prog., Elec. Syst. Lab. (10/27)  
D76-204, Staff Biochemist/Biophysicist, Physics. (10/27)

**EXEMPT:**  
E76-32, Admin. Asst., Microreproduction Lab. (9/15)  
E76-34, Admin. Asst., MIT Press (9/22)  
E76-35, Food Serv., Prod. Superv., Food Serv. (10/6)  
E76-37, Admin. Asst., National Magnet Lab. (10/13)

**HOURLY:**  
H76-92, Tech. A, Chemistry Dept. (9/15)  
H76-102, Tech. A, Lab. Comp. Sci. (10/27)  
H76-103, Cook's Helper, Dining Serv. (10/13)  
H76-108, Campus Patrol Officer, Campus Patrol (10/20)

The following positions have been FILLED since the last issue of *TECH TALK*:

B76-552, Sec. IV  
Z76-2, Tea Host/Hostess  
B76-556, Clerk IV  
B76-543, Sec. IV  
B76-557, Clerk IV  
A76-15, Admin. Staff  
B76-449, Sec. III  
B76-530, Sec. IV  
H76-110, Tech. B  
B76-215, Sec. V  
B76-547, Admin. Asst. V  
B76-546, Clerk III  
D76-199, Spons. Res. Staff  
B76-439, Sr. Clerk IV  
B76-541, Sec. III  
B76-538, Clerk-Typist II

The following positions are on HOLD pending final decision:

D76-173, Spons. Res. Staff  
B76-530, Sec. IV  
B76-215, Sec. V  
H76-111, Glassware Washer  
D76-197, Spons. Res. Staff



# Soccer Team Loses to Tufts, But Posts Win Over Colby

By JILL A. GILPATRIC  
Director of Sports Information

The MIT soccer (4-5-1) team lost their match against Tufts 2-3 in overtime Tuesday, Oct. 26, but brought home a 2-0 win against Colby College this past Saturday.

The Tufts team, undefeated in league play, scored in the first 25 seconds of the game to take an early lead. But MIT jumped out in front during the first half with goals by freshman Zanda Ilori (Kwara State, Nigeria) and senior Lampros Fatsis (Pelham Manor, N.Y.). Then, with only eight minutes to go in the game, Tufts scored and tied up the match, making it necessary for the teams to play two 5-minute overtime periods. Tufts then scored the winning goal in the first overtime. Although MIT had chances to score, they weren't able to capitalize on them.

After making the long trip up to Colby on Saturday, MIT was a little sluggish during the first few minutes of play but were soon playing well. Tech took a 1-0 halftime lead on a goal by sophomore Mike Raphael (Ottsville, Pa.) with assist by sophomore Rob Currier (Coco Solo, Canal Zone). During the second half Zanda Ilori scored his sixth goal of the season assisted by freshman Laird Cagan (Scarsdale, N.Y.). Goalie Tom Smith (Millville, N.J.) played a superb game, making 15 saves to give Tech their only shutout of the season.

The MIT soccer team will wrap up

their 1976 season at home this Saturday in a game against Coast Guard.

## Volleyball

The MIT women's volleyball (15-0) team extended their perfect season in a 2-0 win against Wheaton last Tuesday.

On Saturday, MIT took top honors in the Metropolitan Women's Intercollegiate Athletic Council Tournament held at Eastern Nazarene in which they were top-seeded. The five participating teams were B.U., B.C., Eastern Nazarene, Wellesley and MIT. In the semi-finals MIT met Wellesley and won the match 2-0. Tech then met Eastern Nazarene in the finals competition and took the match 2-0.

Coach Dave Castanon stated that, "The team is really feeling the pressure of being undefeated." The players know that if they should lose their perfect record their chances of being invited to the Eastern Championships will be much slimmer.

## Community Hockey

Community Hockey League is open to all members of the MIT community, including faculty, staff and alumni. Anyone interested in playing Community Hockey this winter should contact Sanford Krasner at Draper ext. 8-4115 or evenings at 547-8099. Please leave your name, extension and home phone. An Athletic Card is required for participation in Community Hockey.

## Basketball Clinic Held



Coach Billie Jean Moore, left, discusses the day's events with Jane Rosenkrans, Women's Basketball Coach at MIT.

The MIT Department of Athletics sponsored a women's basketball clinic on Friday and Saturday, Oct. 29 & 30. Billie Jean Moore, coach of the 1976 United States silver medal winning Olympic Team, conducted the clinic attended by over a hundred coaches and students from New

England colleges and high schools. Ms. Moore is the assistant athletic director and women's varsity basketball coach at California State University at Fullerton. During her seven years at Cal State she has coached her teams to an incredible 126-13 overall record.

# World Hunger Programme

(Continued from page 1) organized to help alleviate the starvation and malnutrition that afflict an estimated half-billion people, will enlist the expertise of economists, political scientists, anthropologists, and sociologists, as well as food technologists and nutritionists, Dr. Scrimshaw said.

Within the WHP specific priorities include determination of human nutritional requirements and their fulfillment in practice, and nutrition and food objectives in national development planning, both areas in which the MIT Department of Nutrition and Food Science and the International Nutrition Planning Program have considerable expertise and experience.

A third concern of the WHP will be practical research into the problem of preventing food losses in poorer parts of the world. As much as 40 percent of the food produced in some regions may be preventably lost to rodents, insects, mould, and simple spoilage, Dr. Scrimshaw said.

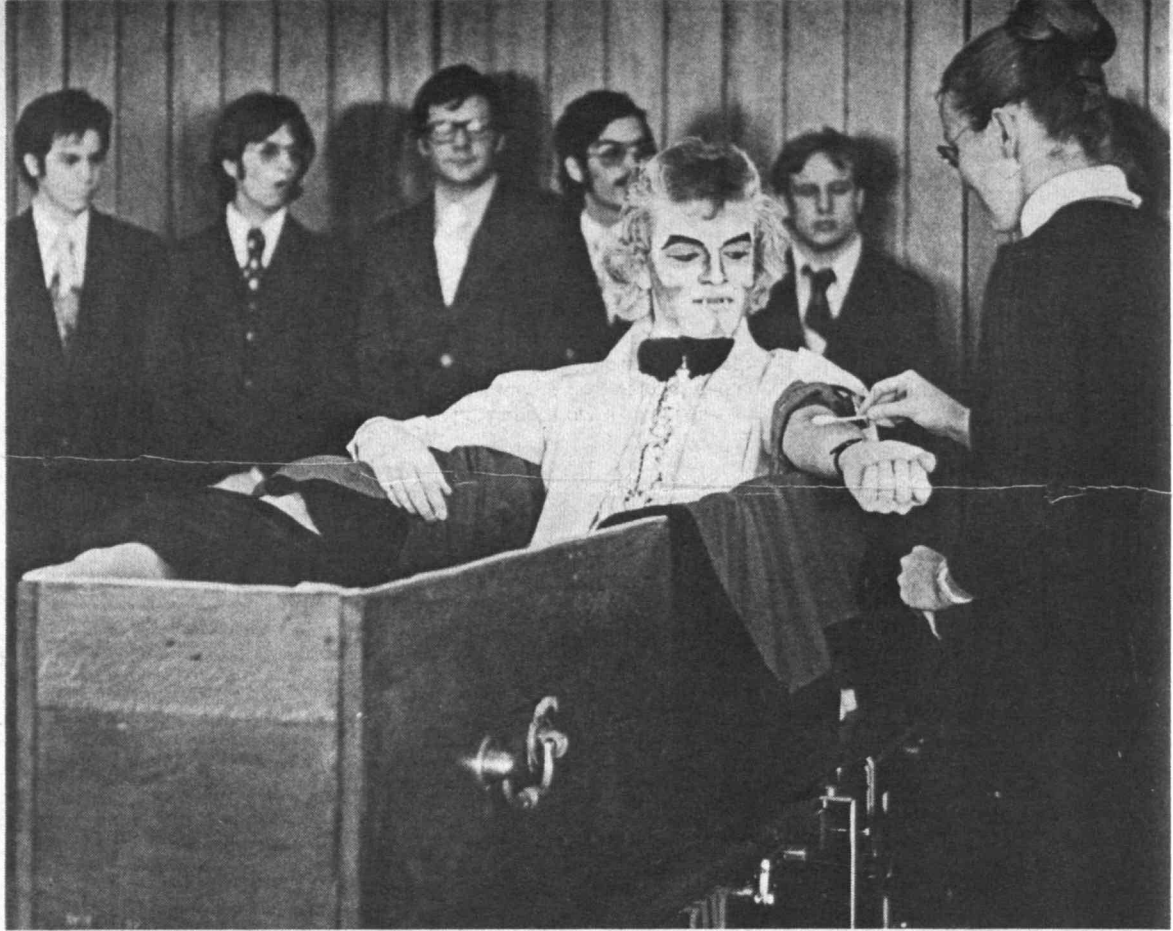
The first associated institution of the Programme, the Institute of Nutrition of Central America and Panama (INCAP), is conducting research and training in all these areas

and the Central Food Technological Research Institute (CFTRI) in Mysore, India, will be the major UNU center for post-harvest conservation of food. Each will train 12-14 fellows annually from developing countries.

A third institution, the Nutrition Center of the Philippines (NCP), will receive four persons at a time for training in planning and execution of food and nutrition policy within national health and education sectors. Workshops on the interfaces between agriculture and food and nutrition are also being organized by the UNU at the various international centers for agricultural research.

"These workshops," Dr. Scrimshaw said, "will include such considerations as the importance of legumes as nutritional supplements to cereals, the nutritional significance of green and yellow vegetables, the combinations of crops that meet the nutritional needs of populations, nutritional goals of plant breeders, and the nutritional consequences of insect and mould infestation of grains and legumes."

Dr. Scrimshaw said that all three of the major UNU programs are seeking imaginative and effective approaches to adapting existing knowledge and technology in developing countries and the training of professionals in developing countries in such approaches.



COUNT UMOC RAISES THE COUNT—Count UMOC, contrary to traditional vampire behavior, gave blood at the MIT blood drive Friday, Oct. 29, in the Student Center. The Count (Brian G. Hughes, a senior in mechanical engineering from London, England) arrived in a coffin carried by pallbearers and was greeted by Nurse Ruth Ann Chaplis. He is a contestant in the annual Ugliest

Man on Campus (UMOC) competition to raise funds for the American Cancer Society. The blood drive will continue all this week, and potential donors are reminded that there is still time to "Lend a hand, give a pint, save a life." Details are available from the TCA office, x3-7911.

—Photo by Cathryn M. Chadwick

Deadline for proposals for Special Summer Programs for the 1977 summer is Friday, Nov. 5. Details of proposals can be developed following the deadline. Proposals should be submitted to the Office of the Summer Session, Rm E19-356.

# Lincoln Laboratory Marks 25th Year

(Continued from page 1)

James R. Killian, honorary chairman of the MIT Corporation, who was president of MIT in 1951 when, at the request of the Army, Navy and Air Force, the laboratory was established to develop new techniques to protect the country against an attack from the air.

In the 25 years since, Dr. Dinneen said, the laboratory has done pioneering work in radar detection and satellite communication. He pointed out also the economic significance of the laboratory to the economy of Massachusetts.

"I have many memories," Dr. Dinneen said, "but among the sharpest will be the spirit displayed during our recent family day when the children of the people who work here played in this very cafeteria and lined up for hours to have balloons filled with helium."

He expressed the hope that out of that interest will come fresh scientific and technical careers that will help carry on what he called the "spirit of Lincoln Laboratory."

"The spirit and interest in our programs is as high as it has ever been," Dr. Dinneen said.

Air Force Gen. William J. Evans, chairman of the Joint Advisory Committee of the services which guides the planning and carrying out of Lincoln's defense programs, said Lincoln Laboratory was the "epitome of the genius and dedication of the US science and technical community."

Secretary of the Air Force Reed said Lincoln Laboratory's achievements in behalf of the nation were monumental, but he added: "Lincoln Laboratory's finest hour may be in the future. Technology is our main fortification and advances in information systems are the core of a strong defense."

The Department of Defense Meritorious Award which the Air Force Secretary presented in behalf of Secretary of Defense Donald Rumsfeld, read in part:

"The Laboratory's expertise and the outstanding professional dedication of its personnel have played a key role in the technological potential for new airborne, ground and satellite system communication, as well as advanced radar, reconnaissance and laser techniques. . . .

"Over the past 25 years, the Lincoln Laboratory, through patriotism, motivation and dedication, has provided the Department of Defense outstanding technological support which is worthy of commendation. Therefore, I am pleased to confer on the Massachusetts Institute of Tech-

nology/Lincoln Laboratory, the Department of Defense Meritorious Award."

Dr. Wiesner, in accepting the award, said he had a sense of "double pride."

"The formal official pride of MIT in the 25 years of outstanding accomplishment and contribution to the technology of our nation and its national security, and also the very deep personal pride of a founder and early participant in the programs of the laboratory. . . . Hardly anything at MIT has given me more continuing satisfaction than the continued outstandingly creative efforts of the Lincoln Laboratory and its contributions to our national security."

Dr. Wiesner said that MIT has since its earliest days been committed to public service, a commitment it holds "as an equal thrust with education." He said service to government and industry, especially through research and development, has always been a vital aspect of MIT's efforts.

"In turn, our educational efforts have benefitted from the realism and quality of the technical work this posture has drawn to MIT. The Lincoln Laboratory is really one of the finest examples of this synergism."

"In today's complex, technology-based world, technology is a double-edged sword underwriting our security and our peace, and at the same time in some real sense increasing the confusion and the danger to which we are exposed. This requires of us a sophisticated, perhaps schizophrenic outlook: on the one hand insuring the availability of the technology and forces in being able to insure the peace and to provide the military strength that clearly underscores our freedom, and on the other hand to keep the polarized world from sliding into a positive-feedback mode of an open-ended accelerating arms race that would expose all to an ever-increasing uncertainty and danger. The work of the Lincoln Laboratory has contributed to both of these objectives through its technological developments and through its detailed studies of weapons systems operations, a major contribution to the security of this nation over the past quarter century of which I am proud."

Dr. Wiesner also expressed his appreciation to Secretary Reed for the "extraordinarily enlightened Air Force sponsorship which has been an important element in the laboratory's ability to stay vital and contribute to the national defense preparedness. . . ."