

A STUDY IN TEXTURES surrounds Ann Traver, administrative assistant in the Department of Urban Studies and Planning as she checks notices on the bulletin board at the junction of Buildings 8 and 16. —Photo by Calvin Campbell

Flu Shots Available

In response to many questions about the "swine flu" vaccine, the Medical Department offers the following advice:

—The monovalent (one strain) vaccine is effective only against A/New Jersey or "swine" flu. It affords no protection against any other strain of influenza virus.

—The monovalent vaccine is the only vaccine available at this time for those who are not classified as "high risk."

—The likelihood of an epidemic of swine flu this winter is very low.

—There is a high probability that many people will have influenza due to A/Victoria virus this winter. However, vaccine against this strain of virus is not available for the general population at this time.

—The vaccines are safe; reactions are uncommon and serious reactions are rare.

The answer, then, to the question, "Should I take the swine flu vaccine?" is, "Well—it probably won't do you any harm, but don't count on it to protect you against the kind of flu you're most likely to get this winter."

(High risk persons—those 65 and older and those of any age who have chronic illness—are receiving a vaccine which includes both A/Victoria and swine viruses.)

For those wishing to receive the monovalent swine flu vaccine, the following schedule has been established. Inoculations will be given in the Bush Room (10-105) Monday through Friday, Nov. 1 through 5.

Last Name	8am-11am	11am-2pm	2pm-5pm
Begins With:			
A-F	Monday	Tuesday	Wednesday
G-K	Thursday	Monday	Tuesday
L-Q	Wednesday	Thursday	Monday
R-Z	Tuesday	Wednesday	Thursday

All Night Shift: Monday through Thursday, 8am-11am.
All Evening Shift: Monday through Thursday, 2pm-5pm.
Individuals Who Have Been Away: Friday, 8am-5pm.

Uniform Electric Rates Pose Serious Repercussions for MIT

MIT Chancellor Paul E. Gray said this week that a change to uniform electric rates in Massachusetts—proposed by Question 7 on the November ballot—would have serious repercussions for the Institute because of an estimated \$1.5 million increase in annual costs and would require MIT to pay much more than its fair share of electric costs.

The Chancellor urged members of the MIT community to vote "No" on Question 7.

The proposal has been opposed by groups as diverse as the Americans for Democratic Action (Massachusetts Chapter); Associated Industries of Massachusetts; and the Massachusetts Labor Council AFL-CIO, among others. The proposed law was rejected last May by the Massachusetts House of Representatives by a vote of 182-49. Proponents of the law, including Massachusetts Fair Share, argue that the proposal will save money for small users and will discourage increased use of electricity by large users.

Chancellor Gray said: "We whole-

heartedly endorse constructive electric rate reform which will attack the cost problem and promote conservation in energy use, but the flat rate proposal does not offer this hope." Uniform electric rates would not be fair since they do not recognize the investments and other costs required of bulk purchasers who now qualify for lower unit rates. Unlike small users, bulk purchasers must take their electricity in large amounts at high voltages and install and operate

their own substations, transformers, and distribution lines to convert the power into usable form. Not only that, bulk purchasers must pay for the electricity that is lost in their own subsystems.

If flat rate becomes law, then the costs of installing and operating subsystems internal to bulk users will be shifted to the utility companies and, through them, to all consumers,

(Continued on page 6)

Beware: Bogus Deals

A sudden spate of calls offering bogus deals on office supplies has hit MIT again, according to Robert E. Durland of the Purchasing Office.

In one case a man representing himself as a physician says he is trying to settle an estate and offers supplies at very low prices.

In the other case a person purporting to represent the Government Supply Agency of Washington, D.C., offers supplies from cancelled federal projects in the Boston area.

Anyone receiving such calls should refer them to the Purchasing Office, x3-7245.



Economics raises a glass to physics. Dr. Paul A. Samuelson, right, Institute Professor and professor of economics at MIT and recipient of the Nobel Prize in Economics in 1970, toasts Dr. Samuel C.C. Ting, who shared the 1976 Nobel Prize in Physics. Dr. Samuelson joined more than 500 members of the MIT community in honoring Dr. Ting at a reception held by the Laboratory for Nuclear Science last Thursday, Oct. 21, in the Cyclotron building (Building 44). Dr. Ting shared the award, announced Oct. 18 in Stockholm, Sweden, with Dr. Burton Richter, of Stanford University, for discovery of the elementary sub-nuclear particle called the "J" particle. See other pictures on page 3.

Information Center, Guest Registry Merge

The MIT Information Center and the Registry of Guests have been combined as a result of a reorganization of their functions over the past few months, according to Kathryn Lombardi, manager of the Campus Information Services.

"The combined offices will retain the title, MIT Information Center, and will continue to provide those services traditionally offered by each office," Ms. Lombardi said. Those services include information on programs, activities and events; support for international visitors, faculty and staff; and coordination of special events.

"The changes which have taken place are mainly in the areas of responsibility of the individual staff members," she continued. Consolidation of the two functions will result in more efficient and economical services and will promote better co-

ordination of these services as well.

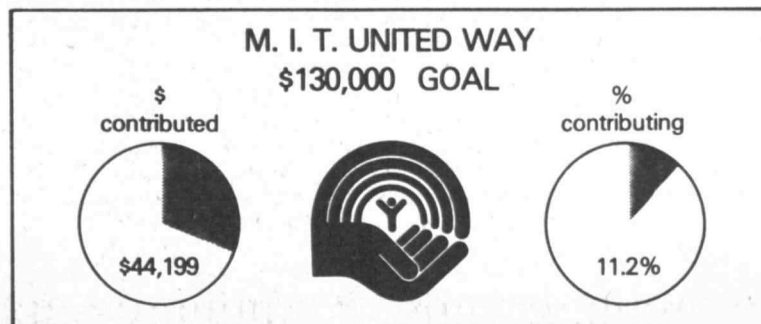
Responsibility for overall activities of the office will remain with Miss Mary Morrissey, director of the Information Center. Miss Morrissey serves in addition as coordinator for special events. People sponsoring major conferences or symposia on campus should contact Miss Morrissey for assistance in planning the activity and in coordinating the various MIT services needed to support the event.

Responsibility for supporting international visitors, faculty and staff will rest with Ms. Virginia Lyons, a member of the staff of the Registry of Guests for the past three years and now assistant for international visitors to the Center. In this capacity, she will receive support from other members of the Information Center staff—particularly in making arrangements for short visits of in-

ternational visitors to the Institute. Ms. Lyons will also assist Miss Morrissey in coordinating special events.

Offices for Miss Morrissey and Ms. Lyons are currently located in Room 7-121. The location of the Information Center itself remains in Room 7-111, in the Rogers Lobby. The services which the Information Center staff provides to the MIT community and to guests of the Institute include: answering general questions about programs, activities, locations of offices or events; referring specific questions to the proper source; distribution of Institute publications, including catalogues and special reports; and identification and distribution of all mail addressed generally to MIT. The Center also provides tours for visitors to the Institute, including special tours arranged upon request; maintains a computerized calendar of Institute events; maintains records of faculty and presidential committee membership and provides support for the registrar's office.

The Campus Information Services include the offices of Design Services and the MIT Bulletin as well as the Center. The Institute Information Services (which report to the vice president in the Office of the President and Chancellor) are comprised of the Campus Information Services (Kathryn W. Lombardi, manager) and the News Office (Robert M. Byers, director).



Banks Named Adjunct Professor

Louis Banks, former managing editor of *Fortune* magazine, has been appointed an adjunct professor of management at the Alfred P. Sloan School of Management at MIT. The appointment, for two years beginning last July 1, was announced by Dean William Pounds of the Sloan School.

Professor Banks, who also served as editorial director for all Time Inc. publications, has concentrated in his career as editor, writer and teacher on business policy and the relationships between business and society. His principal subjects at Sloan will be Business and Social Pressures and Business and the Media.



Professor Banks received a BA in economics from the University of California at Los Angeles in 1937. He combined graduate study in political science at UCLA with newspaper reporting until 1940, when he became a Navy pilot for the duration of World War II.

From 1945 to 1961, he worked for *Time* magazine in Los Angeles, Washington and New York in various writing and editing capacities. He joined *Fortune* in 1961 as assistant managing editor and became editor in 1965.

In 1970 he was appointed editorial director of all Time Inc. publications and a member of the Time Inc. Management Operations Committee.

In the fall of 1969 Banks had taken a sabbatical from *Fortune* to study at Harvard University as the first Niemann Research Fellow. After returning to New York he was appointed to the visiting committees of the Harvard Graduate School of Business Administration and the Harvard Department of Sociology.

In the spring of 1973 he retired from Time Inc. to accept a three-year appointment as Carroll-Ford Foundation visiting professor at the Harvard Business School.

Professor Banks is a member of the Time Inc. Board of Directors, a director of Harvard Magazine and a member of the Editorial Advisory Board of the Sloan Management Review. He is also a member of the visiting committee of the UCLA Graduate School of Management, a member of the Council on Foreign Relations, a director of the Boston World Affairs Council and the recipient of an honorary degree of doctor of humanities from Rollins College.

INSTITUTE NOTICES

Announcements

Instructor turn-in deadline for Freshman Evaluation Forms is today, Wed., Oct. 27.

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.

Assistant Petty Bureaucrat—Undergraduate wanted in FAC office for about 5 hrs work/wk. Inquire Rm 7-103.

Biomedical Engineering—Entrance examinations for interdepartmental doctoral program will be held during the last two weeks of November. Interested students apply in Rm 37-219 prior to Nov 3.

BSO Open Rehearsal—Wed, Nov 10. Discount tickets now on sale at TCA, 10am-3pm, Stu Ctr Rm 450, x3-4885.

EECS Seniors—Applications for graduate work in the Department must be submitted by Nov 1. Seniors in other departments who plan to apply for admission during 1977 are also urged to apply by Mon, Nov 1. Applications available Rm 38-444 and Rm 3-103.

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.

Freshman Reading/Resource Room—being set up by FAC Office. Contact: FAC Office, Rm 7-103, x3-6771 with suggestions or material you wish to loan or donate. Suggestions from upperclass students on material they would have found helpful as freshmen would be particularly appreciated.

GCS Meetings—Council Meeting: Thurs, Oct 28, 5:45pm, Blue Rm. Dinner, 5pm. See Walker DR cashier, RSVP.

IAP Funding—Application deadline for grants from IAP Activities Funding Committee is Fri, Oct 29. Submit Applications to Peggy Richardson, Rm 4-352, x3-4841.

IAP Guide—Today (Wed, Oct 27) is the last day to submit listings for first edition of 1977 IAP Guide. Submit material to department IAP Coordinators or to IAP Office Rm 7-108, x3-1668.

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.

Physical Education Registration—Registration for second quarter classes will be held Mon, Nov 1-Tues, Nov 2, 11am-12n & 1-3pm, du Pont Gym.

Preprofessional Meetings—Wed, Oct 27, Columbia Law School, interviews with John Kullberg, director of admissions, 9-11am. Thurs, Oct 28, Dickinson School of Law, interviews with Dr. Louis DeDuca, 3:30-4:30pm. Mon, Nov 1, Duke University, School of Medicine, group meeting with Drs Christakos and Gianturco, 12n, Rm 4-163.

Seniors—Students who plan to apply for graduate work at MIT during 1977 are urged to apply by Mon, Nov 1. Applications available Rm 3-103.

Serials and Journals in the MIT Libraries—MIT Libraries announce publication of 14th edition, revised and updated. Contains information on 15,000 titles held by Libraries. Copies are \$30 ea. Forward orders to 14S-310 with check or requisition for interdepartmental transfers.

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

Technology Children's Center—Day Care Program has openings for children ages 2 1/2 to 5, full-time. Tuition assistance available to MIT employees who qualify. Info: Child Care Office, Rm 4-144, x3-1592.

Club Notes

MIT Archery Club—Meeting Wed, Oct 27, 8pm, Baker House, main Lng.

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. Thurs, 7pm, Stu Ctr Rm 473.

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

MITBSU—General Meetings Sun, Oct 31, 3pm, BSU Lnge.

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

MITEFS—Meeting, Thurs, Oct 28, 8pm Stu Ctr Rm 400. Slides & lecture on African Cichlids. Speaker, Dr PA Lewis, renowned British aquarist. All welcome.

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

Lorne Cooper x5-7134.

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

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

MIT Judo Club—Beginner and experienced. Mon, Wed, Fri, 5:30-7:00pm; Sat, 1-3pm. duPont 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, duPont T Club Lnge.

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, DuPont Gym.

Tech Model Aircrafters—Regular Meeting, Wed, Oct 27, 7:30pm, Rm 50-318.

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, Oct 28, 12:30pm: Concepts of the Supreme Being.

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

Hillel Services—Fri: Traditional, 7pm, Rm 50-005; Reform, 7:30pm, Chapel. Sat: Traditional 9:30am, Chapel.

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.

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.

All Saints Day Masses will be held on Monday, November 1, in the MIT Chapel at 8am, 12 noon, and 5pm.

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, October 27—Central Intelligence Agency; Corning Glass Works; General Motors Corp; Gulf Oil Corp; Hercules Inc; Monsanto; Naval Underwater Systems Ctr; The Analytic Sciences Corp; Xerox Corp. **Thursday, October 28**—Continental Oil Co, R&D; Columbia Univ Grad Sch of Business; Dow Chemical USA; Gen Motors Corp; Hughes Rsrch Labs, div of Hughes Aircraft Co; IBM Corp; Pfizer Inc; Procter & Gamble Co; engineering div, engineering dev & packaging, manufacturing-plant management, management systems; Scientific-Atlanta,

Inc; Xerox Corp. **Friday, October 29**—Chrysler Corp; Ctr for Naval Analyses; Dow Chemical USA; GTE Sylvania Inc; Hughes Research Lab, div of Hughes Aircraft Co; Institute for Defense Analyses; Procter & Gamble Co, management systems div. **Monday, November 1**—Ciba-Geigy Corp; Data Gen Corp; Johns Hopkins Univ-Sch of Advanced Internat'l Studies; Univ of Hawaii at Manoa, College of Bus Admin; Outboard Marine Corp, marine engineering-stern drive section; The Shell Companies; Shell Development Co; Systems Control, Inc; Tektronix, Inc; Univ of So Calif, Sch of Urban & Regional Planning; Standard Oil Co of Calif & Chevron Companies; Weyerhaeuser Co. **Tuesday, November 2**—BASF Wyandotte Corp; The BDM Corp; Bell Systems, American Tel Long Lines, Western Electric, Bell Labs; First Coast Guard District; Schlumberger Well Services; Systems Control, Inc; Standard Oil Co of Calif & Chevron Comps; The Upjohn Co; G R Banderwell Engineers, Inc; **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 Ctr; Standard Oil Co of Calif & Chevron Comps. **Thursday, November 4**—The Boeing Co; EG&G Idaho, Inc; Eastman Kodak Co; Englehard Minerals and Chemicals Corp, minerals and chemicals div; General Dynamics Corp, Stromberg-Carlson, Pomona div, Ft Worth div, Conair div, electronics, electric boat div; TRW Defense & Space Sys Grp; Texas Instruments, Inc, BS/MS. **Friday, November 5**—Analytic Serv, Inc (ANSER); Bell Syst, Sandia Labs; The Boeing Co; Computer Sciences Corp, system sciences div; Consolidated Rail Corp; The Analytic Sciences Corp; TRW Defense & Space Sys Cp; Texas Instruments, Inc, BS/MS; Schlumberger Well Servs; Watkins-Johnson Co, Calif, Maryland.

New UROP Listing

For more detailed information on UROP opportunities listed, MIT undergraduates should call or visit the Undergraduate Research Opportunities Program Office, Room 29B-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.

DIGICOURSE: Electronic Components Testing Winthrop, Ma. DIGICOURSE builds electronic compasses, especially those designed for use underwater. This project would involve taking different types of electronic components and exposing them to hydrostatic pressure up to 20,000+ psi. The degradation of performance of the electronic components (resistors, capacitors, integrated circuits) would be measured. Some searching of the literature would also be necessary. The work could be done at MIT. Pay or credit offered.

Brain Metabolism—Patterns of Protein Synthesis McLean Hospital This laboratory is studying the protein changes that occur in the nervous system when behavioral change takes place. They are thinking in terms of proteins mediating structural changes rather than molecules encoding memory. Some areas in which work will be done: 1) Purification of proteins to determine associations. 2) Brain organization, protein composition, functional significance of protein in the brain. 3) Electronmicroscopy work to determine which elements in the cell are storing the protein, protein labeling, protein secretion, data about cell types, how they interact with the rest of the nervous system.

Department of Nutrition: Neuroendocrine Research

This is a study of the neuronal mechanisms involved in the secretion of a pituitary hormone (growth hormone) in experimental animals. Experimentation involved modifying brain neuronal activity with the diet or with pharmacologic agents and measuring subsequent changes in growth hormone secretion. Student is encouraged to assist graduate student in all phases of the research—the use of the literature, design of experiments, care of laboratory animals, and with radio-immunoassays for hormone analysis. Contact: Professor John D. Fernstrom, Rm 56-137, x3-3853.

Division for Study and Research in Education Undergraduates interested in working with elementary school children in regular school settings, are offered a unique opportunity to be actively involved in applied educational research. Students may combine experience in observing and interacting with children in the experimental program with related tutorials in developmental psychology. Students may also investigate particular research questions within the framework of the principal project: assessing the impact of an innovative reading curriculum. Contact: Muriel Birchette, project supervisor, Rm 20C-105, x3-5428, or Elaine Medverd, project coordinator, Rm 20C-126, x3-7362.

Harvard Medical School: Electron Probe Microanalysis Work in this laboratory involves use of electron probe microanalysis in biological research. Areas of research include: 1) Sample preparation for electron probe analysis; development of freezing technique; tool to work with liquid nitrogen in vacuum; transfer chamber. 2) Interfacing of new techniques with physical function of electron probe including development of hardware, software to control function; data collection. 3) Development of the physics of electron probe sample background. Student could also do work on proton probe located at Lincoln Lab.

Boston Energy Office 1) **Energy: History of Oil, Gas & Electricity, and Rate Reform.** This project would include tracing the history of these fields, including rates, usage patterns, conservation techniques, our regional idiosyncracies, and the future of electricity as a viable energy source. Also included would be a detailed discussion of the current proposed rate reform now under consideration in the state, and possible information on rate reform underway in other states for comparative purposes. The student should be either a junior or senior. 2) **Energy Use in Boston City Departments.** This project involves an ongoing survey of City of Boston departments and their energy usage, to determine how much the department uses gas, oil, electricity, steam, telephone services, and the corresponding budgetary breakdown. A system is needed to continually monitor energy use in order to help the Department curb excess use. Another student could work on analyzing the data gathered and give concrete recommendations to the research assistant. Some understanding of governmental regulations, engineering background, environmental, and political science interests helpful. 3) **Implementing Energy Savings in Boston Schools.** This project is concerned with implementing the recommendations of an Energy Office project which made calculations about the heating and lighting systems of the schools with potential energy savings in mind. This project would be to study the school report, make contact with the custodians, school department officials, and any other involved personnel to try and implement these suggestions. For credit only.

Echoes

50 Years Ago Mr. Raymond D. Douglass '24, Mathematics Department, will lecture on "The Theory and Efficient Use of the Slide Rule" at the first meeting of the Math Club. His discussion will include hints and short cuts in the use of the rule.

40 Years Ago Field Day Activities will no longer be supplemented by the throwing of eggs, fish and other refuse. Sophomores and Freshmen agreed that their activity was not in keeping with the idea behind Field Day and the Institute in general.

25 Years Ago Bertrand Russell, British mathematician and philosopher will discuss "Human Nature and Politics." At Hayden Gallery works known by names such as "Circular Relief" and "Translucent Variation on Spheric Theme" are on display. These constructions are the creation of Russian born Naum Gabo who through them projects his joint interest in art and science. Prepared by Marcia Conroy, MIT Historical Collections, x3-4444.

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CABLE TV SCHEDULE

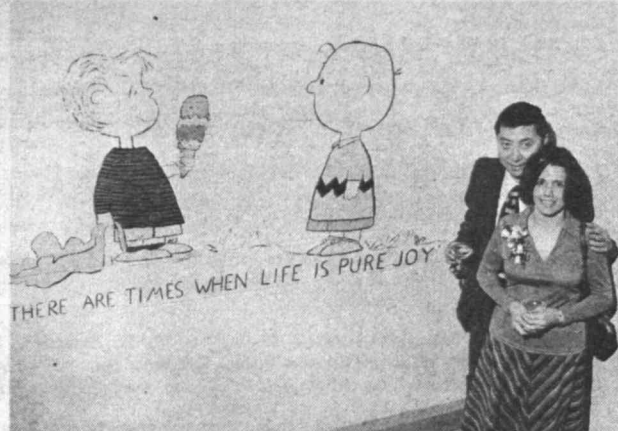
Oct. 27-Nov. 2

Channel 8
Wednesday, Oct. 27
12 noon **YOU ARE THE WAY** a film about the United Way
1pm **Way**
4:30pm **24-30 FPS** live with Ricky Leacock & guests.
to A discussion on the University Film Study's Summer Institute with video & film projects.
5:30pm **TUESDAY NOON "Referendum"** (R)
to
6:30pm
7:30pm **ELECTRIC FIELDS AND MOVING MEDIA** with Prof. J. Melcher
8:30pm
8:30pm **24-30 FPS** (R)
to
9:30pm
Thursday, Oct. 28
12pm **AN EYE TO THE PAST** a presentation of the 1pm MIT Historical Collections.

1pm to **24-30 FPS** (R)
2pm
5pm to **ELECTRIC FIELDS AND MOVING MEDIA** (R)
6pm
6pm to **AN EYE TO THE PAST** (R)
7pm
Friday, Oct. 27
12noon **FRIDAY NIGHT BOMBS AWAY** a live show with Robert D'Ancona
1pm to **FRIDAY NIGHT BOMBS AWAY** (R).
5pm to
6pm
Monday, Oct. 31
11am to **FRIDAY NIGHT BOMBS AWAY** (R)
12pm
12pm to **YOU ARE THE WAY** a film about the United Way
1pm
8pm to **ELECTRO-MAGNETIC FIELDS AND ENERGY** (6.013), Prof. J. Melcher, homework session, (live)
Tuesday, Nov. 1
12pm to **TUESDAY NOON** (live)
1pm
5pm to **ELECTRO-MAGNETIC FIELDS AND ENERGY** (R)
6pm
8pm to **ELECTRO-MAGNETIC FIELDS AND ENERGY** (R)
9pm to **TUESDAY NOON** (R)
10pm
Channel 12
4pm to **TIME-SERIES METHODS IN NON-PARAMETRIC THEORY** by Prof. E. Parzen. Program arranged through Prof. H. Chernoff of the Math Dept. Live from Harvard University.



Dr. Walter A. Rosenblith, MIT provost, was among 500 MIT people who gathered last Thursday, Oct. 21, at a reception held by the Laboratory for Nuclear Science in honor of Dr. Samuel C.C. Ting, right, who shared the 1976 Nobel Prize in Physics. With them is Dr. Hermann Feshbach, head of the MIT Department of Physics and Cecil and Ida Green Professor of Physics. Some 500 members of the community and associates of Dr. Ting attended the reception held at the Cyclotron.



Sometimes Linus says it all. Dr. Samuel C.C. Ting and his wife, Kay, pose beside a reproduction of the cartoon, painted on a stairway wall in the Cyclotron building, during a reception held to celebrate his sharing of the 1976 Nobel Prize in Physics.



"J" was the ubiquitous symbol at the reception for Dr. Ting, who shared the 1976 Nobel physics prize for his discovery of the elementary subnuclear particle called the "J" particle. Celebrating with Dr. Ting are Cyril W. Tourtellote, of East Walpole, Mass., and David M. Osborne, of Norwell, Mass., both staff members of the Laboratory for Nuclear Science. The occasion was proclaimed by a large, red "J" affixed to the roof over the Cyclotron entrance, and another was attached to the outside stairway at the east end of the building.

Photos by Calvin Campbell

Lecture-Concert On Cheng Planned

Professor Liang Tsai-Ping, president of the Chinese Classical Music Association of the Republic of China, will give a lecture-concert on the Chinese musical instrument cheng at 8pm on Tuesday, November 2, in Kresge Little Theatre.

The cheng belongs to the silk group of Chinese instruments. Similar to a zither, it was invented in the Chin dynasty (221-206 BC) at the time the Great Wall of China was built. It has 16 strings stretched over 16 frets on an oblong wooden box. The strings were originally silk, but brass ones have also been used since the late Ming and early Ching dynasties (about 1600). Adaptations of the cheng are used in Japan, Korea, and Vietnam.

Performer, composer, musicologist, and teacher, Professor Liang graduated from Peiping University. He has made several recordings of his compositions and performances on the cheng. He founded the Chinese Classical Music Association and directs the Institute of Chinese Music at the College of Chinese Culture in Taiwan.

Chinese music represents an important aspect of an extremely old civilization. According to Professor Liang, one should listen to it serenely and ritualistically.

Free tickets to the lecture-concert, sponsored by the MIT Chinese Student Club (CSC), are available in the lobby of Bldg. 10 from noon to 1pm through Thursday, October 28, and at the CSC Office, Rm W20-475.

Blood Drive Opens Today

MIT's eight-day fall blood drive opens today (Wednesday, Oct. 27) in the Sala de Puerto Rico in the Student Center. As of Monday evening, Oct. 25, over 900 appointments had been scheduled.

Those who haven't yet filled out an appointment form can pick them up at the blood drive table in the lobby of Building 10, in all dorms, fraternities, or at the TCA office.

The drive will be open today through Friday, Oct. 29, as well as Tuesday, Nov. 2 and Thursday, Nov. 4 from 9:45am to 3:30pm. On Monday, Nov. 1 and Wednesday, Nov. 3 the drive will be open from 2:30pm to 8:15pm to accommodate those who prefer evening hours. On the last day of the drive, Friday, Nov. 5, the hours will be 11:45am to 5pm.

Your donation is needed if the blood drive goal of 1,700 pints is to be met.

Torrey Book Out

Volta Torrey, former editor of *Technology Review*, is the author of *Wind-Catchers, American Windmills of Yesterday and Tomorrow*, recently published by the Stephen Greene Press.

Composers to Discuss Technology

By KATHARINE C. JONES
Staff Writer

Composers from Sweden, The Netherlands, Belgium, and the US will discuss the role technology plays in music composition at a panel, "What Do Composers Want from Technology?", to be held at MIT on Friday, October 29.

The panel is open to the public free of charge. It will be held at 4:15pm in Kresge Auditorium and is jointly sponsored by the International Society for Contemporary Music (ISCM) and the International Conference on Computer Music (ICCM).

Milton Babbitt, Conant Professor of Music at Princeton University and a recognized scholar of electronic music in the US, will be panel moderator. Expected to participate in the discussion are composers Knut Wiggen of Sweden, Enrique Raxach of The Netherlands, André Laporte of Belgium, and Benjamin Boretz and Richard Hoffmann of the US. Compositions by these people will be heard at electronic music concerts at 5pm and at 8:30pm Friday, October 29, also in Kresge.

Each of these composers produces electronic or computer-synthesized music, one of the most important musical developments of this century. Although the history of electronic music apparatus can be traced back to the early 1900s, it is only since 1950 that electronics has had a significant impact on serious music. Today new musical technologies, including electronics, not only provide new sources of sound but also aid the art of composition itself. Computer-based facilities, such as the MIT Experimental Music Studio, promote advanced work in music composition and research by providing the means whereby creative artists can apply modern technology to some of the most persistent problems in contemporary musical expression.

Professor Babbitt began studies in

music and mathematics at an early age and has taught in both fields at Princeton University. In the early 1950s, he became interested in the compositional possibilities of the RCA Mark I electronic music synthesizer. He consulted in the construction of an improved Mark II synthesizer, and was a founding member of the Columbia-Princeton Electronic Music Center which has housed that device since 1959. In that time he has written several works for tape alone and for live performers and tape, all of which demonstrate his ability to exploit a complex facility of this kind. A fellow composer has summed up the significance of Professor Babbitt's work by saying it amounts "virtually to a second twentieth-century musical revolution."

Knut Wiggen, a native of Norway, introduced electronic music to Sweden as chairman of Fylkingen. He helped build the Swedish Radio Electronic Music Studio and served as its director from 1969-76. In addition to a few instrumental works from the early 1950s, his main production is from 1971-75 and comprises five electronic music compositions, all using the computer-controlled analog equipment of the Swedish facility he created. He believes, "The idea of computer music is to use the computer mainly as a part of the composition's technical process."

Enrique Raxach, a native of Spain and citizen of The Netherlands, studied form, analysis, and instrumentation with Nurio Aymerich in Barcelona from 1949-52, and his compositional period dates from this time. In 1961 he participated in the International Music Weeks of the Gaudeamus Foundation and joined the Bilt-hoven group of composers. He has studied conducting with Paul Huperts at Utrecht under a grant from the Dutch government. His *Chimæra*, to be heard at the 8:30pm con-

cert, is for bass clarinet and analog tape recording.

André Laporte was the first producer of the Dutch transmissions of the Belgian Radio and Television and currently is president of the Belgian section of ISCM. His works, for various chamber, orchestral, and choral groups, have been heard extensively throughout Europe. His electronic piece on the evening concert calls for two tape recordings played simultaneously.

Benjamin Boretz was music critic for *The Nation* from 1962-69. He founded and has edited the semiannual review, *Perspective of New Music*. A founder of the American Society of University Composers, he currently teaches at Bard College in Annandale-on-Hudson, New York. His composition, *Group Variations II*, was synthesized digitally using MIT music professor Barry Vercoe's MUSIC 360 Language and the IBM 360/91 computer at Princeton University.

Richard Hoffmann, a native of Vienna, has taught at Oberlin Conservatory since 1954 where he is now professor of composition. He was closely associated with Arnold Schoenberg, first as student, then as secretary, and finally as coeditor of the Schoenberg collected edition. From this close association grew Professor Hoffmann's compositional procedures. He was visiting composer in the MIT Department of Humanities this past summer working in the MIT Experimental Music Studio where his composition, *In Memoriam Patris*, was realized digitally on the Studio's PDP-11/50 computer.

The public panel discussion involving these six composers is expected to bring a broad variety of electronic experience and aesthetic persuasion to the question of how artists are turning modern technology to cultural advantage.

Immediately following the panel in Kresge, there will be a matinee concert of computer-synthesized music, one of three free concerts to be held at 5pm, also in Kresge, from Thursday through Saturday, October 28-30, under the auspices of ICCM. ICCM will be held at MIT from Thursday, October 28, to Sunday, October 31; ISCM runs through Saturday, October 30.

Altshuler to Speak On Transportation

Alan Altshuler, professor of urban studies and political science at MIT, will speak at the opening seminar of the Technology and Policy Seminar Series on Tuesday, Nov. 2.

The new seminar series, offered jointly by the Center for Policy Alternatives and the Technology Policy Program, will draw its speakers this term from both the MIT and Harvard University faculties.

Professor Altshuler, former secretary of the Office of Transportation and Construction of the Commonwealth of Massachusetts, will discuss "Politics and Innovation in Urban Transportation."

All of the seminars will be at 4pm in Room E53-482. A discussion will follow the presentation. The public is invited to attend free of charge.

The IAP Corner

Scrabble Bee to be Highlight

Plans are afoot for an IAP activity that will delight all word-game lovers at MIT: an Institute-wide Scrabble bee.

The Scrabble bee is the brainchild of Jeff MacGillivray, a graduate student in physics from Bethesda, Md., and a self-confessed "games nut." Mr. MacGillivray and the Office of the Dean for Student Affairs will jointly sponsor the bee.

Everyone in the MIT community is invited to enter. All who do will continue to play until losing two games.

Present plans call for the tournament to be based on a series of two-player Scrabble games. Scrabble is a popular board game where players build a crossword puzzle and receive points for letters used. Standard Scrabble rules will apply with two modifications. An abridged dictionary will be arbiter in word disputes, and time clocks will be used to keep matches from stretching on for hours.

People who enter the tournament at the beginning of IAP in January will be scheduled to play no more than two games for each of the first two weeks. Multiple sections—scheduled as needed (evenings, weekends, etc.) to accommodate all who enter—will be held during early rounds of the tournament. Final rounds will be held in the Bush Room with provisions made for an audience to view the games. The winner will be determined at the end of IAP.

Right now Mr. MacGillivray is looking for volunteers during IAP to serve as deputy commissioners for each section and to help with tournament publicity and administration. He'd also like to borrow as many Scrabble sets as possible.

Prizes will be awarded to people who reach the final rounds. Donations of prizes and suggestions of possible donors will be appreciated. To help with the Scrabble bee call Mr. MacGillivray on Ext. 3-5285 or 3-4881. For further information on the Scrabble bee consult the first IAP GUIDE scheduled to come out on November 12.

Deadlines

Wednesday, October 27, is the deadline for submitting listings for the first edition of the 1977 IAP GUIDE. Activity listing forms may be obtained from department IAP coordinators of the IAP Office, Rm. 7-108, Ext. 3-1668, and should be returned to the same.

Friday, October 29, is the deadline for requesting funds from the IAP Activities Funding Committee. Funding applications may be obtained from the IAP Office, department IAP coordinators, of the chairwoman of the Activities Funding Committee, Margaret Richardson, Rm. 4-352, Ext. 3-4841. Completed applications should be submitted to Ms. Richardson's office.



SOVIET SPACE SCIENTISTS visited the MIT Center for Space Research earlier this week as part of a trip to Cambridge to tour both the MIT Center and the Smithsonian Astrophysical Observatory. Shown above are Professor Bruno Coppi, left, of the MIT Department of Physics, Academician R.Z. Segdeev, right, and B.N. Petrov. Dr. Petrov is president of the Intercosmos Council and Dr. Segdeev is head of the Soviet's Institute for Space Research. The Soviet group, consisting of 10 of the USSR's key space officials, was in the US to meet with officials of the National Aeronautics and Space Administration in Washington, D.C., in connection with joint US-USSR space science efforts.

—Photo by Cathryn M. Chadwick

THE INSTITUTE CALENDAR

October 27
through
November 7

Events of Special Interest

UROP Symposium: Undergraduate Research in Physics* — Wed, Oct 27, Rm 4-339. Speakers, topics and times are: Eximer Lasers, by William Rapoport, 3:30pm. Seyfert Galaxies, by Alberto Sadun, 3:50pm. A Retrospective Look at the Education Research Center, by Richard Bauer, 4:05pm. Model Breasts for Microwave Analysis, by Steve Bauer, 4:25pm. Molecular Beam Magnetic Resonance Techniques for Van der Waals Systems, by John Babiak & Ed Eyster, 4:40pm. Refreshments 3:30pm.

The Sandbox Derby — This year's "Introduction to Design" (2.70) competition is between rubber-band powered machines competing in a single elimination tug-of-war tournament in an 8'x2' sandbox. Final competition: Thurs, Oct 28, 12n, Rm 54-100.

Politics and Innovation in Urban Transportation* — Alan Altshuler, political science & urban studies & planning. Center for Policy Alternatives & Technology and Policy Program Seminar: first of a continuing series. Tues, Nov 2, 4pm, Rm E53-482.

Seminars and Lectures

Wednesday, October 27

Development of Weaning Foods in Latin America: The Beginning of a Research Project* — James E. Post, management, BU. International Nutrition Planning Program Seminar. 12n, Rm 66-144. Brown bag.

US Policy Toward Countries of the Third World* — Myron Weiner, head of political science department; Willard Johnson, political science; Lucian Pye, Ford International Professor of Political Science. Political Science Agenda '76 Seminar. 12n, Rm E53-482.

Comparison of Computer Simulated and Measured Currents, or, Evaluation of the IBM 370 Current Meter* — John Bennett, physical oceanography. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Coffee, bring lunch.

Experimental Study of Hinge-Plate Air-Cushion Suspension for High-Speed Ground Transportation* — David W. Mercaldi, G. Mechanical Engineering Systems & Design Division Seminar. 1pm, Rm 3-465.

Protection and Sensitization* — J. Th. G. Oberbeek, chemical engineering (visiting). Chemical Engineering Seminar. 3pm, Rm 66-110.

The Economics of Potential Future Space Transport Systems* — Richard L. Kline, Grumman Aerospace Corp. Aero/Astro General Seminar. 3pm, Rm 37-252. Refreshments 2:30pm, Rm 33-222.

Introduction to the Thermal-Hydraulic Design of LMFBR Blanket Assembly* — C. Chiu, G. Nuclear Engineering Seminar. 4pm, Rm NW12-222.

Use of Cues in Steady State Tracking* — William Levison, Bolt, Beranek & Newman. Man Vehicle Laboratory Seminar. 4pm, Rm 33-206. Coffee.

Norbert Wiener and John Von Neumann: Changing Relation of Scientist-Mathematicians to Technology and Society* — Steve Heims. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

Thursday, October 28

Synthetic Fuels and Combustion* — J. P. Longwell, chemical engineering (visiting). Chemical Engineering Seminar. 11am, Rm 66-360.

Stabilization of Internal Kink Modes in High Temperature and High Density Regimes* — Bahamadas Basu, RLE Plasma Dynamics Group. RLE Plasma Theory Seminar. 2pm, Rm 36-261.

Imaging with Random Phase Errors* — E. L. O'Neill, Worcester Polytechnic. EECS Optics Seminar. 2pm, Rm 36-428.

Present Frontiers in Diagnostic Ultra Sound* — Theodore Rhyne, staff engineer, MGH, EECS lecturer. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 26-217. Refreshments 3:45pm.

The Application of Optimal Control Theory to Dynamic Routing in Data Communication Networks* — Franklin Moss, G. Control & Communications Seminar. 4pm, Rm 26-214.

Energy for a Just and Sustainable Society: Part I, Conservation* — David J. Rose, nuclear engineering. Energy Assessment Group Seminar. 4pm, Rm 24-121.

Metal Binding in Sea Water* — Richard J. Stolzberg, New England Aquarium. Analytical Chemistry Seminar. 4pm, Rm 8-205.

Photon Scattering at Energies Less than 30 MeV* — Evans Hayward, National Bureau of Standards. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45, Rm 26-110.

Friday, October 29

Infantile Diarrhea* — J. Richard Hamilton, MD, pediatrics, University of Toronto. Nutrition & Food Science Seminar. 9am, Rm E18-408.

Magnetoacoustic Waves* — M. H. Brennan, School of Physical Sciences, Flinders University of Southern Australia. RLE Special Plasma Dynamics Seminar. 10am, Rm 36-261.

Pathophysiology of Acute Myocardial Infarction* — Dr. W. John Powell, Jr., Arteriosclerosis Center. Arteriosclerosis Center Seminar. 12:30pm, Rm E17-421.

Tomato Solids: A System for Observation of Physico-Chemical Properties and Storage Stability of Dehydrated Foods* — Marijan Boskovic, manager of R&D, Brady Enterprises. Nutrition & Food Science Seminar. 2pm, Rm 26-210.

Enzymatic Synthesis of Antibiotics* — J. M. Costa, G. Chemical Engineering Seminar. 2pm, Rm 66-110.

Restricted Diffusion of Macromolecules in Fine Pores* — T. M. Copeland, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

Laser Solenoid Fusion: A Status Report* — George C. Vlases, University of Washington, Mathematical Sciences, NW, Inc. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

The Parkman Murder: A Study in Criminal Medicine* — Saul Benison, history, University of Cincinnati. Concourse Committee on Social Relations at Harvard Seminar. 3:30pm, Rm 26-100.

Radio Therapeutic Implications of the Auger Effect* — S. James Adelsstein, radiology, Harvard Medical School. Nuclear Engineering Seminar. 3:30pm, Rm NW12-222. Refreshments.

Z-Pinches and Magnetoacoustic Waves* — M. H. Brennan, The Flinders University of South Australia. Plasma Dynamics Seminar. 3:30pm, Rm NW14-2209. Refreshments 3pm.

Amorphous Semi-Conductors at High Pressure: Semi-Conductors — Metal and Super Conductive Transitions* — N. Fritsche, University of Chicago. Center for Materials Science & Engineering Colloquium. 4pm, Rm 26-414. Coffee 3:30pm.

Monday, November 1

Non-Proliferation* — Victor Galinsky, commissioner of US Nuclear Regulatory Commission. Nuclear Engineering Seminar. 3:30pm, Rm 9-150. Refreshments 3pm.

Dense Orbital Behavior in a Class of 1-Dimensional Discrete-Time Systems* — M. Kalinski, Northeastern University, & Q. Klein. Control & Communication Seminar. 4pm, Rm 26-214.

A Matter of Time: Technology and Enterprise in the Watchmaking Industry* — David Landes, history, Harvard University. Technology Studies Seminar. 4pm, Rm 20E-205. Coffee 3:30pm.

Some Aspects of Wind-Induced Ocean and Coastal Circulations* — Ole S. Madsen, civil engineering. Ralph M. Parsons Laboratory Water Resources & Environmental Engineering Seminar. 4pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

The Extreme Drag Reduction Asymptote: Fejer's Kernel Exposed* — Willem V. R. Malkus, applied mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Tea 3:30pm, Rm 2-349.

Tuesday, November 2

Transport and Optics of Intense Positive and Negative Ion Beams* — L. Bromberg, G. Nuclear Engineering Seminar. 12n, Rm 38-166.

Numerical Solution of Plasticity and Viscoplasticity Problems* — J. Zarka, Ecole Polytechnique, Paris, France. Applied Mechanics Seminar. 3pm, Rm 3-270. Coffee after, Rm 1-114.

Control of Fracture Toughness of Glassy Polymers* — Frederick McGarry, polymer engineering & civil engineering. Materials Science & Engineering Seminar. 4pm, Rm 10-105. Coffee 3:30pm.

The Philosophy of Physics* — Carl-Friedrich von Weizsacker, director of Max Planck Institute on the Preconditions of Human Life in the Modern World. Physics Seminar. 4pm, Rm 26-100.

Stochastic Theory of Non-linear Rate Processes* — Kurt E. Shuler, chemistry, University of California at San Diego. Seminar in Physical Chemistry. 4pm, Rm 4-370. Coffee 3:45pm, Rm 6-321.

Modelling Climatic Response to Orbital Parameter Variations* — Isaac M. Held, Center for Earth & Planetary Sciences, Harvard University. Meteorology Seminar. 4pm, Rm 54-100. Refreshments 3:30pm. Rm 54-923.

The Soft X-Ray Binary System on AM Her* — David Hearn, Center for Space Research. Physics Department Colloquium. 4:15pm, Rm 37-252. Refreshments 3:45pm.

Wednesday, November 3

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.

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, RLS Plasma Dynamics Group. RLE Plasma Theory Seminar. 2pm, Rm 36-261.

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

Co₂ 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.

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.

Community Meetings

TWO Craft of the Month — Tech Wives hopes to start this new activity this year. If you know a craft and are willing to teach it, or have one you want to learn, call Wendy Glasser, 298-9460, aft 8pm.

Oxfam — American Fast for a World Harvest — Oxfam believes in the dignity of people and in their capacity to overcome problems that can crush or exploit them. Anyone or any campus group that wants to help organize the fast (Thurs, Nov 18) and fund raising for Oxfam please contact Joan Conway, x3-6730 or 661-9671, evgs.

Vegetarian Community Dinner — Wed, Oct 27, 6:30pm, Rm 10-105. Reservations necessary. Bring own dinner plate & cup.

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.

Sexual Adjustment and Contraception after Delivery — Helena McDonough, RN, CNM, medical. Medical Department Prenatal/Postnatal Program. Wed, Oct 27, 12n, Infirmary 3rd fl conference rm. Bring lunch, drinks provided. RSVP x3-1316, limited babysitting available, please call.

MIT Vegetarian Community — Chinese dinner Wed, Oct 27, 6:30pm, Rm 10-105. Cost \$1.25 members, \$1.75 non-members. Reservations: Chiu-Nan, x3-4170 days, x5-7256 Dorm evgs, by Sat, Oct 23.

Current Efforts to Protect the Climbing & Hiking Environment* — Sponsored by MIT Outing Club. Topics: I-93/Franconia Notch issue is at the critical stage; public participation is needed; Mohonk Trust (Shawangunks) Lawsuit; Eldorado Canyon. Mon, Nov 1, 6pm, Stu Ctr West Lge.

MIT Women's Forum** — Meetings Mon, 12n, Rm 10-105. Nov 1: Come join us for cider & donuts, and rap about election issues. NOTE: Meet in Rm 10-340 TODAY ONLY.

Wives Group** — Group leaders: Charlotte Schwartz, sociologist & Myra Rodrigues, social worker, both from medical department; Carol Hulsizer, faculty spouse in residence, Ashdown House. Wed, 2-4pm, Stu Ctr West Lge. Babysitting Stu Ctr Rm 473. Cheryl, x3-4911.

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.

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.

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.

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.

Social Events

Faculty Club Special Dinners*** — Wed, Oct 27: Lobster Nite. Baked or broiled, with salad bar & dessert cart. \$7.95 + tax. RSVP x3-4896.

TOPS — Tech Organization of Professional Secretaries. Thurs, Oct 28: Halloween Party. 12n, Walker Blue Rm (2nd fl).

The Jewish Connection: From England to Nepal* — Buzzy Gordon, Jewish world explorer, will speak. Hillel Oneg Shabbat discussion/social gathering. Fri, Oct 29, 9pm, Masterton Lge (east campus).

Any & All Israel Programs Bagels & Lox Brunch* — Sponsored by Hillel. Guests: Michael Kurt, AZYF & Sherry Leibowitz, WVJS. 11am, Rm 10-105. Cost: \$1.50, \$1.25 Hillel members.

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.

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.

Movies

Fundamentals of Boundary Layers; Boundary Layer Control* — Fluid Mechanics Film. Thurs, Oct 28, 4pm, Rm 34-500. Free.

The Apprenticeship of Duddy Kravitz** — LSC. Fri, Oct 29, 7 & 10pm. Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

La Notte (Antonioni)* — Film Society. Fri, Oct 29, 7:30 & 9:40pm, Rm 6-120. Admission \$1.

Horror Film Festival** — MidNite Movie. Fri, Oct 30, 12m, Sala. Free. MIT or Wellesley ID required. Bring blanket to sit on.

Slaughterhouse 5** — LSC. Sat, Oct 30, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

Jacques Brel is Alive and Well and Living in Paris* LSC. Sun, Oct 31, 6:30 & 9pm, Rm 26-100. Admission 75¢.

Flow Instabilities & Turbulence; An Interview with G. I. Taylor* — Fluid Mechanics Film. Mon, Nov 1, 4pm, Rm 39-500. Free.

Angles with Dirty Faces; Little Caesar** — Humanities Films. Tues, Nov 2, 7pm, Rm 4-270. 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.

Foxtrot and 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

Photographs* — Exhibition of photographs by MIT Student Art Association summer session, Linda Wasko, instructor. Thru Oct, Bldg 7, main corridor.

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

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.

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* — **Wednesday, October 27** — W Tennis. Boston State, 3:30pm, duPont tennis courts. **Saturday, October 30** — JV/F Soccer. Emerson, 2pm, Briggs Field. **Saturday, October 30 & Sunday, October 31** — V Sailing. NEISA Fall Intersectional, Schell Trophy, 9:30am, Charles River Lower Basin. **Tuesday, November 2** — W Volleyball. SMU & Holy Cross, 6pm, duPont Gym. **Saturday, November 6** — W Sailing. Coach-Alumni Regatta, Charles River Lower Basin. **V Soccer.** Coast Guard, 2pm, Briggs Field.

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 3 through Nov 14 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, Oct 29.

Music

Concerts of Electronic Music* — Thurs, Oct 28 thru Sat, Oct 30, 5:15pm, Kresge. Free.

Electronic Music Concert* — Program includes works by Barbaud, Kretz, LaPorte, Radovanovic, Raxach & Wigen. Fri, Oct 29, 8:30pm, Kresge. Free.

MIT Symphony Orchestra* — David Epstein, conductor. Program: Haydn's Overture to an English Opera; Beethoven's Seventh Symphony; Copland's Piano Concerto with Abbott Ruskin, soloist; Cowell's Tales of our Country. Sat, Oct 30, 8:30pm, Kresge. Admission \$1 at door.

Program of New Music at CAVS* — Nora Post, leading oboe virtuoso, assisted by Paul Earls. Program of recent & new works for oboes, tapes, laser & video, including first Boston performance of Paul Earls' *Doppelganger*. Sun, Oct 21, 2:30pm, CAVS exhibition room.

Lecture-Concert* Sponsored by MIT Chinese Students Club. Liang Tsai-ming, president of Chinese Classical Music Association, Republic of China, will give lecture-concert of *cheng* Tues, Nov 2, 8pm, Kresge Little Theater. Free tickets available thru Thurs, Oct 28, Bldg 10 Lobby, 12n-1pm or CSC office, Stu Ctr Rm 475. Info: Clinton Chen, 494-8103 (7-10pm) or Victor Wang, x5-7219 Dorm.

Theater and Shows

An Evening of One Act Plays* — MIT Dramashop presents Slawomir Roszek's *Enchanted Night* and Harold Pinter's *The Lover*. Fri, Oct 29 & Sat, Oct 30, 8pm, Kresge Little Theatre. Free. Followed by critique & coffee hour.

United Way Q & A

Q: What is the purpose of the giving guide?

A: The guide is an answer to the question most frequently asked of MIT United Way solicitors—"How much should I give?" Remember, it's only a guide. It should not inhibit people who wish to give more or less.

Q: How does the United Way go about setting its goal?

A: The fund goes directly to the communities it serves. More than 100 community leaders were canvassed by the United Way chairman in the process of setting this year's goal. The goal—\$18.6 million—is their assessment of the real needs of the 165 human care agencies supported by the United Way.

Q: How does this affect the Institute's United Way Drive?

A: The United Way is depending more than ever on the education division to make its breakthrough. As a leader in Greater Boston's educational community, it is our hope that MIT will make a significant contribution to the overall goal. The Institute's goal is to increase the percentage of participation, which was 24% last year, and to meet a goal of \$130,000.

Q: If I work in the Mass Bay area but do not live here, why should I give to the United Way of Mass Bay?

A: The services of the United Way agencies will reach you no matter where you live. The United Way concept nationwide is based on employees giving at work and receiving services where they live. The many advantages to giving at work—including payroll deduction plans and cost effectiveness of employee campaigns—contribute to the efficiency of the fund. Your gift to the United Way of Mass Bay where you work will undoubtedly be balanced by gifts from people who work in your community and live in the Mass Bay area.

Q: What agencies are supported by the United Way?

A: The United Way supports over 165 human care agencies, providing vital services often not available through any other funding source. These include 22 family counseling and child care organizations; 36 neighborhood and multiservice centers, including youth groups, drop-in centers for the aged, counseling, neighborhood improvement associations, day care for children depending on the community's need; 29 chapters of the American Red Cross; 13 Salvation Army Corps Centers and 51 Service committees throughout Massachusetts Bay towns; 28 Visiting Nurse Associations; 14 YMCAs located in every major population center in the Mass Bay area; 6 Boy's Clubs; 14 associations for the handicapped; 15 mental health associations and clinics; and numerous other programs for medical research and community service planning and development.



THE UNITED WAY, OUR WAY—United Way Chief solicitors for the MIT personnel offices, from left to right, Buzzy Bluestone, Ellen Schena and Clare Paulding, celebrate the success of their creative approach to fund raising—a United Way wine and cheese party. Admission to the party, held Friday, Oct. 22, was by ticket only. The ticket—a United Way pledge card and pledge in any amount. The party featured the drawing of a special prize, a collage of snapshots of everyone in the offices. The MIT personnel offices are separated into three separate areas: Personnel Development, Personnel Relations and Personnel Services. The solicitors took this alternative approach because they saw the United Way drive as a perfect opportunity for the personnel offices to do some uniting of their own. Their motto, "United Personnel for the United Way."

—Photo by Cathryn M. Chadwick

New Journal, *Rune*, Makes Campus Debut

The first edition of *Rune*, an MIT journal of arts and letters, has been published at MIT by a group of students and employees.

Short stories, essays, poems, and art work by MIT students, employees, and professors fill the 80-page journal written, designed, typeset, and printed at the Institute.

"I think *Rune* is characteristic of MIT because the staff became so involved in the processes of publication that they followed through the entire project themselves," editor Guy Nordenson, a senior in humanities and civil engineering from New York, N.Y., said.

Typesetting was done at *The Tech* on the student newspaper's typesetting equipment. Photographic work and printing was done at the Visible Language Workshop of the MIT Department of Architecture.

Collins Takes Alumni Post

The appointment of Joseph S. Collins, special assistant in the Office of the Chairman of the Corporation, as alumni regional director for the Midwest has been announced by James A. Champy, executive vice president of the MIT Alumni Association.

In his new position, Mr. Collins will have responsibility for all Alumni Association activities in an area including Montreal, Chicago, Detroit, Cleveland and Minneapolis/St. Paul. He will provide staff support for the Alumni Fund, club activities and alumni relations and serve as liaison between alumni and the MIT faculty and administration.

A native of Boston, Mr. Collins is a graduate of the United States Naval Academy where he received the BS degree in 1963. During active duty he served aboard a destroyer and an aircraft carrier and for three years was a briefing officer on the staff of the commander-in-chief, Atlantic, in Norfolk, Va. He is now a lieutenant commander in the Naval Reserve attached to the Defense Contracting Administration, Region 101.

Since coming to MIT in 1969, he has played a variety of roles in MIT's community relations activities and has served as executive secretary of the MIT Community Service Fund. He is vice president and a member of the executive committee of Cambridge Community Services, Inc., a member of the board of directors of the Margaret Fuller Neighborhood House and past president and director of the Cambridge Kiwanis Club.

Mr. Collins is married to Suzanne Callagy Collins. They have five children and reside in Milton, where Mr. Collins is a Town Meeting member and member of the warrant committee and Mrs. Collins is a member of the Planning Board.



Rune is named for an alphabet used by Germanic people from the 3rd to 13th centuries; it also means magic, poem, and song. Tentative title of the journal was *Mithras*, and material for publication was collected under that name last spring.

"We started the journal primarily to publish the art and writing of members of the MIT community," Mr. Nordenson said. "*Rune* shows the range of talent at MIT, and can serve to increase interactions between various arts and literary groups."

"Another purpose it serves is to focus some of the characteristics peculiar to the arts and letters produced at MIT," he said. "Many artistic and literary issues have relevance to scientific and technological ventures, much as such ventures may have important artistic and literary aspects. As much as possible we would like to illustrate these correspondences," he said.

The first issue of *Rune* was made possible by seed grants from the Council for the Arts at MIT and the Department of Humanities.

Rune may be purchased for \$1.50 at a booth in the lobby of Bldg. 10 through Friday, October 29, from 9am to 3pm. Copies may also be ordered through the Course 21 office,

Ext. 3-4446. Copies ordered by people not affiliated with MIT cost \$2.50.

Manuscripts and art work for the second issue of *Rune*, to be published in late spring or early fall '77, may be submitted to the editorial office, W20-453. People interested in working on future issues may speak to any of the staff, send a note to the office, or call Mr. Nordenson on 494-0042.

People who helped produce the first issue of *Rune*, in addition to Mr. Nordenson, are:

James Adams, a senior in mathematics from Prairie Village, Kan.; Paul Boisseau, a junior in physics from Waltham, Mass.; Teresa Costanza, a junior in materials science and engineering—cooperative course—from Berkshire, Md.; Robert Enders, MIT '76; David Feinberg, a junior in mathematics from Syracuse, N.Y.; Michael Freiling, a graduate student in mathematics from Fredericksburg, Va.; Marita Gargiulo, a senior in life sciences—nutrition from Clinton, Conn.

Also, Thomas Gooch, a senior in civil engineering from Fort Worth, Texas; Karen Kramer, a junior in materials science and engineering from Decatur, Ill.; Steven Lubar, MIT '76; David Mankins, a junior in mathematics from Des Moines, Iowa; Roxanne Regan, a secretary in the Department of Earth and Planetary Sciences; Pamela Rubin, a junior in political science and architecture from Old Westbury, N.Y.; Rebecca Waring, a sophomore in civil engineering from New York, N.Y.; and Michale Wax, a sophomore in chemistry from Dix Hills, N.Y.

NSF Awards \$243,000 Grant To Chemical Engineering

A program to strengthen the training of young scientists and their research efforts in the Department of Chemical Engineering at MIT has received a \$243,000 grant from the National Science Foundation's Research Initiation Support Program.

The major activities to be undertaken at MIT under the program involve improvement of curriculum and of permanent research facilities in the areas of polymer rheology and processing and chemical engineering systems. New equipment to be acquired under the program will be used in conjunction with new graduate laboratory subjects as well as in the existing and developing research programs of young faculty members. Other activities include fostering greater exposure of young scientists to people and ideas in their disciplines and promotion of exploratory research by young scientists.

To this end, the NSF grant will help the department to promote trips by young scientists to present their research, expand its guest seminar program and improve its graduate reference library.

Seed money from the grant will be provided on a competitive basis for research on new ideas by young scientists in the department.

The activities supported by the NSF grant are part of a larger, on-going effort within the department to strengthen its graduate training and research program.

A major part of that program was the construction of the Ralph Landau Building for chemical engineering, which was dedicated earlier this year.

Clark K. Colton, professor of

chemical engineering, will direct the NSF-supported program for the department.

Robert C. Armstrong, Robert E. Cohen and Christos Georgakakis, all assistant professors of chemical engineering, will be responsible for the various activities within the program. Karen C. Cohen, associate professor, and Martin Horowitz, lecturer, both of the Division for Study and Research in Education, will monitor and evaluate the progress of the overall program.

Landes To Speak

David S. Landes, Robert Walton Goelet Professor of French History at Harvard University, will speak on "A Matter of Time: Technology and Enterprise in the Watchmaking Industry" at the Technology Studies Program seminar Monday, Nov. 1, at 4pm in Room 20D-205.

Professor Landes, an expert in modern European and social history, will underscore the human factor in economic development, in his talk. The industry is unique, according to Dr. Landes, because the materials used in watchmaking are easily transported, so that the industry can develop wherever the talent exists.

Charles P. Kindelberger, Ford International Professor of Economics, emeritus, and senior lecturer in the Department of Economics at MIT, will comment. The seminar is open to the public. Coffee will be served at 3:30pm.

Uniform Electric Rates Pose Serious Repercussions for MIT

(Continued from page 1)

large and small. Chancellor Gray said that added costs resulting from flat rates would have to be passed on to MIT's students and other beneficiaries of the university's educational and research activities or squeezed out through reallocations within already overburdened budgets.

"The result of the 'flat rate' action, if approved, would inevitably require the Institute to effect increases in tuition, housing and food rates beyond those necessitated by the pressure of inflation generally," he said. Some of these increases would be effected almost immediately. "The costs of doing research at MIT would be increased and greater budget reductions would have to be made to offset these costs."

But even with these measures, he said, "there is a danger that in a time of severe budget restrictions, such as we are now experiencing, sudden uncontrolled expenses will impinge on the scope and quality of MIT's activities."

MIT is paying 3.32 cents per kilowatt hour of electricity, the Chancellor said, while the effective rate under flat rates would be 4.46 cents—

an increase of 35 percent.

The new rates, if approved by the referendum, would take effect December 2, meaning a direct and immediate annual cost impact of over \$1 million in MIT's electric bill plus an estimated additional half million dollar increase in the cost of goods and services purchased by MIT from hospitals, other institutions and industry located in Massachusetts.

"We can forecast with some assurance the action which industrial and other institutional consumers of electricity will take in passing their cost increase along to their customers, including MIT, he said. "The pass-through and inflationary effects of the recent severe fuel cost rise have been well demonstrated in our local economic situation. We fear that the flat rate would have the same overall negative economic input which would affect industrial and other institutional consumers."

Flat rates have not been implemented in any other state, and it is argued by those who oppose the measure that Massachusetts institutions and industry face an unfair competitive burden because of the proposed action.

Chancellor Gray said it should be made clear to the voters that the proposed flat rate law "provides only a redistribution of charges for electricity, with the large consumers paying more and the small consumers, less." While the immediate impact on the typical residential consumer in the Cambridge community will be a monthly saving of \$3 to \$4 in the electric bill, the longer term impact could well mean a substantial increase in the cost of electricity for all consumers," he said.

"The fact is," he said, "that MIT, in common with other large institutions, presently incurs significant distribution and other costs which lower in turn the overall cost of supplying electricity in Cambridge. Under a uniform rate, we would have to stop these special institutional expenditures, and the cost to all customers would increase."

"Large electric consumers," he explained, "have made extensive capital investments for internal distribution, such as for lines, transformers, and so on, in order to qualify for bulk sales transactions."

MIT has invested over \$5 million in electric distribution cables, transformers, and safety protective equipment," he continued. If the Cambridge Electric Light Company were to make an equivalent investment, then the fixed cost would amount to about \$800,000 on an annual basis for the MIT distribution system alone. The cost would have to be borne by all of the utility's customers." Proponents of the change do not take these facts into account, Dr. Gray said.

Chancellor Gray said this fact has been recognized by the majority report of the Joint Legislative Committee on Government Regulations opposing passage of this initiative petition.

He quoted from the report: "Since the unit price for electricity will be the same for all users, large customers who remain on the system will ask for the same service that small customers now receive. That will mean large industrial plants currently taking service directly from central transmission systems may demand lines and meters to separate units of its facility; the system will be asked to provide what the large firms formerly provided for themselves. This added cost will be shared by all customers in the system, including the smaller customers who were the original beneficiaries of this initiative petition."

(The full texts of the referendum and the Committees majority and minority reports appear on page 7. They are also included in the booklet "Massachusetts Information for Voters 1976" which has been distributed by the Secretary of the Commonwealth.)

When all of the costs which are incurred by MIT, and which are not passed on to Cambridge Electric, are recognized and tabulated, Chancellor Gray said, "the total is surprising."

"In fact," he said, "it would cost

Cambridge Electric about \$1 million to do for MIT what MIT now does for itself as a bulk purchaser." This is in addition to MIT's direct payment of \$3.1 in electric bills.

The Chancellor then referred to the point which was noted in the legislative committee's majority report, that some of the larger users of electricity may elect to cease buying electricity from public utilities and generate their own electricity.

"In the Cambridge service area the impact of the possible withdrawal of MIT or other large institutions could be devastating to the residential customer. Loss of only one major institution of the Cambridge system would immediately increase the average residential customer's bill by about five percent—almost half of what might be saved under flat rate," he said.

Chancellor Gray also noted that, as presently part of the Cambridge Electric system, MIT has designed its equipment and systems to avoid any unnecessary contributions to the peak demand of the Cambridge system.

In terms of load management, he said, MIT uses the production and transmission facilities of Cambridge Electric "much more efficiently than the average customer, twice as effectively as the average household, and 30 percent better than all residential customers as a group."

On the question of energy conservation—which proponents of a flat rate system contend would be a way for large users to cut their increased costs—Chancellor Gray said MIT has gone almost as far as it reasonably can in that direction. Moreover, he said, MIT uses electric energy much more effectively than the average residential user.

"We don't really need added incentives to conserve energy," he said. "All of our energy conservation activity has been accomplished with the incentives generated by the existing rate schedule and the high cost of electricity."

"Conservation is well advanced at MIT. At present, the Institute can demonstrate a reduction of 30 percent in kilowatt hour consumption since energy conservation activities were increased with the energy crisis in 1973 and the energy conservation program does not end here."

"Currently, MIT is making a \$1.5 million investment in the installation of a central computer-controlled energy management system to maximize the efficient use of energy in campus buildings. This installation is projected to reduce electricity demand and consumption by an additional 10 to 15 percent within the next two years."

"The law of diminishing returns brings into question the possibility of additional substantial reduction in electric consumption which might be expected to result from flat rates. The reductions to date and those programmed to result from facilities management will mean campus-wide lighting reduced to what is a minimum for campus activities, office, laboratory, and classroom lighting levels lowered to minimum visual task standards, corridor lighting levels maintained at the minimum safety level, and electric-drive mechanical equipment off unless required by ventilation code or minimum comfort requirements."

"The conclusion is that substantial further conservation will inevitably result in reductions in educational or research activities and personnel."

Pistol Course

A course in basic pistol marksmanship will be conducted by the MIT Pistol and Rifle Club on five consecutive Thursdays at 6:30pm beginning Nov. 4.

The instruction is aimed at those with no previous shooting experience who wish to learn safe firearms handling and shooting technique. The charge for the course is \$20, payable at the first class. All equipment and materials are provided and students are asked not to bring their own firearms.

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

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, Oct. 29. They will be printed on a first come first serve basis as space permits.

For Sale, Etc.

(1) F78x15 4 ply nylon cord stud snow, lk nw, \$20; 1 set tire chains for 14" whl, used once, \$20. Don, x7826 Linc.

Gigantic garage sale, moving: all types furn; appl; toys; baby furn; ping-pong tbl; linens; china; slvr; rugs; lamps; clothes; everything, Sat, 10/30, 9:30-5 & Sun 10/31, 10-3; 10 Sheffield Rd, Winchester.

Tbl/desk w/4 drwr sectn, 6' L, \$40; blu corduroy slipcover for stu bed w/mch covered bolsters, \$20; grn corduroy slipcovers for stu bed, nw, \$10; blanket type covers for VW seats, \$15; 2 wndws, 30x42" w/alum scr & storm, \$25/ea. Gunderson, x3-6085.

Tires, 5 deluxe champs, A78x13, used 800 mi, \$15/ea; pr D78x14 snows, used 1 seas, \$10/ea. Jim, x3-3273.

Brass frpl screen, 30" wide, 31" hi, draw-string type, lk nw, \$35; Coldspot 2 dr refrig/frzr, 16 cu ft, exc working cond, nds door paint, \$85. Anne, x3-5643.

Htd, cushioned vibrator/massager for back, hrdly used, nw \$45, sell for \$30. Sonia, x3-6046.

Indr shutters, wd, moveable louvers, var sizes; baby restraining gate. Tony, 661-6377.

B nw Corvus mdl 500 scientific calc, nvr used, \$45. Sam, x8-3666 Draper.

Koss PRO/5Q 4-chnl hdphones, 20-20KHz, fluid-filled ear cushions, 2/4-chnl switch, v gd cond, \$35 or best. Scott, x5-6473 Dorm, aft 6.

Zenith 21" b&w TV, \$65. Call 731-5090.

(5) panels 60x63 wht sheers, \$2.50/ea; avocado drapes, 63" L, \$5; wht drapes, 63" L, \$6; (5) 6" 220V ext cords, \$2.50/ea; wint coffee tbl, \$10; brn contemp couch, \$40; wht fl-ceil drapes w/red trim, \$13; all cln & lk nw. Debby, x8-4419 Draper.

Red & blk wool 6x9" rug, \$20; yel-brn braid rug, approx 6x8", \$10 bed frame, adj twin-qn, \$15; Regina 3 spd elec broom, \$15; dbl sz grn elec blnk, \$5; 2 prsn Coleman tent, \$35; 2 down slp bags; all nego. Ellen, x3-5813.

AC, 6000 BTU, 1/2 yr old, w/5 yr grnty, \$160. Peter, x3-1834.

Heathkit AA-14 solid st stereo amp, exc shape, \$55 nego. Erik, x3-2334.

(2) Sears twin bed matts & box sprs, 4 yrs, \$60/ea set. Bob, x3-6531.

Old f bike, sgl spd, \$10. Ann, x3-5763.

Big assortment CMOS, IC's. Greg, 492-6983.

Pr sz 8 European leath dress boots, xtra wide cuff, grn, pd \$65, nvr worn, \$30; pr sz 8 Eur leath shoes, pd \$40, nvr worn, \$15. Margarita, x3-6425, aft 1pm.

Blk Persian lamb full length fur coat w/sable collar & cuffs, sz 12, exc cond, make offer. Delaney, x5304 Linc.

Slide rule calc chips (mm5760) from Ntnl Semiconducter, \$5 w/LED display driver. Tom, x5-7186 Dorm, evgs.

Snows, A78x13, 1 seas old w/whls, for Toyota Corona, \$30. Tom, x7459 Linc.

Pr used stud radial snows w/rims, for Vega or any 1.65x13, \$40. Mitch, x3-5165.

Pr D78x14 Delta snows & rims, used 1 & 1/2 seas, \$84 nw, ask \$40. Ron, x3-4549.

Pr tires, A78x13 Gdtyr, almost nw, \$30; elec broom, \$10; toaster, \$7. Naga, x3-2422.

Solid mpl bureau, 6 drws (1 damaged), otherwise gd cond, \$25; blu & grn rya rug, lk nw, used 2 yrs, just cleaned, \$70 w/pad. x3-3210.

Dynaco stereo 400 power amp, 200 W/ch, fac assembled, used less 9 mos, \$300 or best. Call 494-8326.

Exc cond stl desk, 32x59", incl leath swivel chr & glass top, best reas. Call 523-5906, wkdays.

Bike, 16", \$12; 14" bike w/training whls, \$8; Playskool tricycle, \$3; riding tractor, \$2.50; armchr, \$5; crtns & drapes, oriental design, plaid, solid, brighten up your wndw, \$1-7/2 pr. Call 391-1086.

Unfinished pine storage chest, 23x18x18", lock cornered construction, v sturdy. Call 494-0271.

Antique Chinese tea tbl w/pot, lacquerware, all utensils, \$100; 3 footlockers, \$5-\$10/ea. John, 661-7118, evgs.

Davos 170mm skis w/Marker Rotomat bndgs, lk nw, \$30; Garmont bekl ski boots sz 12 1/2 M, fit sz 11 ft, \$15. x7128 Linc.

Full sz bed w/bksc hdbnd, matt & box spr, \$25 or best. Rick, x5845 Linc.

Pr 16SR13 radial tires w/1 K use, exc cond, \$45/pr. Dan, x5540 Linc.

F bike, gd cond, \$15. Bob, x3-4955.

Wood boat, 8", best; 8 trk tape deck w/spkrs, best. Bill, x366 Linc.

Ovrstuffed bge silk armchr, \$50. Susie, x3-4856.

Pr serviceable stud snows, mtd 14" Chevy rims, 6.95/6.45x14, \$25/pr. Vicki, x3-3381.

(2) interior doors, used, 6 panel pine, 77 1/2x30" & 78x27 1/2", \$5/ea. McKay, x3-2838.

Car seat for child, padded fbrglas, exc cond, \$4. x3-2948.

Port 3 cycle washer & dryer, gldn harvest color, 110 V, w/stacking rack & wndw exh, \$200 firm. Russell, x3-7872.

Christmas draws nr. order gifts now, beaut hand-crocheted peek-a-boo long sl swtrs made to order, your choice colors, \$25. Diane, x8-1766 Draper.

Divan, 1 hr, \$60; mpl chr, \$15; Zenith b&w TV, \$60; lamps, \$5 & \$10; old trunk, \$10; Remington man typwrtr, \$25; girl bike, \$30; sgl bed, frame & hdbnd, \$7. Call 643-4283, aft 5:30.

Toastermaster deluxe toasteroven, exc cond, \$25 or best; 2 brnr hotplate, \$8.50; sgl brnr hotplate, \$6; Shark sailboat, gd cond, \$100 or best. Ross, 494-0060, lve msg.

Admiral color TV, 25" console, nw pic tube, exc cond, \$150. Call 484-0176.

Power supply, 5V @ 80 amps, Lambda LM-G5-OV-R-M. Wis, 266-2968, aft 4pm.

AM radio from '71 Merc Montego, v gd cond, \$20; f sz 8N Riedell ice skates, fit 9-9 1/2 shoe, \$20. x5-8512 Dorm.

Fancy ovrstuffed chr; 2 lg sidebrds; wind glasses; paintings; hassock; pr vanity pamps; etc. Call 876-4328, evgs.

Head 200 cm slalom skis w/Look Nevada bndgs, \$65; Heierling sz 10 boots, \$45; both exc cond. x8-2874 Draper.

GE elec stove, wht, 40" w/storage drwr, 15 yrs, exc cond, \$75 or best; 10" K base cabinet assembly, birch cabs, formica top, dbl sink, dishwasher, 15 yrs, gd cond, \$125 all. Dick, x3-2816.

HP 25 calc, exc, \$115; Koss ESP 6-A electrostatic phones, exc, \$50; or best. Matt, x5-6259 Dorm, kp try.

Columbia wind-up phonograph w/wd horn & collection 30-40 old rcrds, \$250. John, x3-4132, kp try.

K cast iron stove, 4 sm pieces that go under eyes & grate missing, take away for \$20. Wayne, x7488 Linc.

Birch French Prov tbl w/2 leaves, \$90. x7260 Linc.

(2X) teleconverter for Canon mount, fully auto, exc cond, nw \$30, \$22; deluxe bulk loader w/frame counter, \$6; f sz 7N Clark Wallbees, nw cond, worn 2X, \$25. Barry, x3-6526.

(2) girl bikes, 20", \$30/ea. Russ, x3-5574.

Novus 6020 financial calc, RPN, all financial func, memory, 2 mos, nw \$28, \$15. Call 244-0514, evgs.

Sofa, 30x72", nds minor repairs, \$10. x3-7138.

Pr AR11 spkrs, Sansui 2000X revr, amfm, Miracord 750, Mark III trmtbl. Joe Ganotuline, x183-0 Bates.

Sansui RA-500 reverb amp; Sears DynaPly Snow Guard tires, sz B78x13, yr old; back issue Ntnl Lampon, '73-'76. Call 395-5106, aft 4pm.

Refrig, 20.5 cu ft Frigidaire, \$400; full sz matt, box spr, frame, \$100; colonial mpl drop top desk, \$150; all lk nw. Lew Chaulk, x7126 Linc.

Pr tkts Bos Sympn concert Nov 6, \$5.50/ea; 3 tkts Harvard-Yale football game, Nov 13, \$8/ea. Gloria, x3-3636.

Lg wd rm divider w/shlvs & cabs, 5' hi, 4' W, \$15; mpl frame sgl bed, \$15. Call 876-1593, evgs.

Pr stud snows, mtd GM rims, \$30. Gary, x7180 Linc.

Zig zag sew mach w/cab & bit in buttonholer, \$100. Diane, x3-4827.

First yr of The Baker St Journal, an Irreg Qtrly of Sherlockiana, ed by Edgar W. Smith, NY, '46, vol 1, nos. 1-4, \$50 or best; odd copy of vol 1, no. 2, \$10. Michael, x3-6972.

Bell & Howell autolod Super 8 FocusTronic fl.8, 5:1 zoom, nvr used, make offer. x3-5221.

Vehicles

'59 Tri Pacer 150 hp airplane, v low time, 1/2" valves, full gyros, Cessna 360 Nav Com, fairings, strobe, nw tires, bungees, muff, batt, etc, cln, hangared, \$5,700. Call 862-5904, evgs.

'62 Ply wgn, gd run cond, fall sticker, 2 nw tires, some body rust, \$130 or best. Israel, x3-3664.

'66 Rambler wgn, 6 cyl, std, \$200. Beth, x3-5115.

'66 T'bird, collectors item, all power works, prac nw batt, ignition tires, twin exh, shocks, carb, cockpit, exc, nds body work, \$550 firm. Ed, x8-4552 Draper.

'66 VW, gd eng, no brakes, \$200 or any reas offer. x447 Linc.

'67 VW bus, exc cond, \$800. Henry, x3-5483.

'67 Ford ranch wgn, 6 cyl, running cond, has sticker, ask \$300. Warren, x8-3969 Draper.

'68 Buick Electra 225, A/R, cruise control, \$400 or best. Dom, x3-6907.

'69 Pont GTO, gd motor, nds some work, \$650 or best. Call 666-0108, aft 9pm.

'68 VW bug, std, am radio, gd run cond, \$400. Gesela, x3-2208.

'69 BMW 2002, exc running cond, nds body work. Rick, x5-6382 Dorm.

'69 Chevy Impala, ugly but faithful, \$350. Call 628-6320.

'71 Pinto, \$650. x7548 Linc.

'71 Ply Fury III, 4 dr sed, auto, p st, AC, radio, nw trans, exc cond, \$1,100. Silvia, x3-3300.

'71 Renault 16, 4 dr hchbk, orig ownr, 34 K, auto front whl drive, exc cond, many xtras, \$1,350. Call 862-7795.

'72 Vega, 44 K, gd cond, 20-25 mpg, xtra snows, best. x3-2386.

'73 VW superbeetle, amfm, radials, nw muff, 61 K, exc cond, \$1,900. x3-6323.

'73 GM Suburban, mustard color, 9 sts, p st & v-hvy duty springs, shocks & whls, \$2,550. Ernest Stern, x356 Linc.

'74 Ply Sebring Sat, 20 K, V8, exc cond, 2 dr sed, \$2,800. Linda, x3-7023.

'74 Fiat X/19, beaut yel 2-seater, exc cond, many xtras, \$2,900. x5-8644 Dorm.

Semi-compl Yamaha 350 Cafe Racer, fresh crank, ported reed cys, Bassani chambers, racing swingarm, Konis, rearsets, etc, \$250; nw Dunlop K-81 tires (3.60x18 & 4.10x18), \$45/pr. Chip Farley, x3-6050.

Housing

Bos, Br apt nr Copley, Indry, pool, gym, other facil, v secure bldg nr T, sub 12/15-8/31, \$241 incl util, x3-5180.

Camb, 2 BR apt, Cent Sq, ww, AC, nr MIT. Peter, x3-6926.

Lynnfield, cstm blt ranch, 3 BR, entry K, Indry 1st fl, frml DR, LR, full bsmnt, garage, exc schools, conv to Camb, hi 40's. Call 1-334-4810.

Melrose, 3 BR side-entr colonial, 1 1/2 B, fam rm, LR w/frpl, mod K, DR, lovely lg lot, secluded back yrd, 20 min MIT, \$42,500. Dexter, x3-4449.

Revere, lg mod 2 BR, sub 11/1 thru Mar, 20 min MIT, ww, dw & disp, free pkg, pool, Indry rm, \$260. Chris, x3-2686, afts.

W Rox, pre-Civil War hse on 1/4 acre w/lots trees, incl apple & pear, compl renovated incl mod K, 1 1/2 B, 5 BR, fam rm, lg playrm, frpl, wide fl boards, \$38,900. x3-6632.

Visit fellow & fam w/ swap home in Vail, Colo w/ resp fam in Camb, 1/1-4/30. Ellen, x3-6610.

Animals

Beaut Alaskan malamute pups, AKC reg, champ sired, shots, wormed & ready to go. Ione, x3-7001.

Old Eng sheepdog pups, 5 wks, AKC, champ line, show & pet qual, ready 10/15. Call 1-659-4283.

Lost and Found

Found: 4-6 mos f pup, blk & tan, Grmn shep/lab, healthy, intelligent. x5-7430 Dorm, late evgs.

Wanted

Used alum canoe. Bob, x3-1734.

H78x15 snows & rims, mtd if psbl, for '71 Ford. Mac, x444 Linc.

Telephone answering mach. Arthur, x3-3747.

Refrig, gd cond, 5-10 cu ft. Frank, x3-4311.

IBM selec typwrtr(s), gd work cond. Fran, x3-4801.

Dance band in Glenn Miller style for ballroom dancing, Nov 13, 4-5 pces. Call 536-1300.

Land, 100+ acres forest/meadow, spring or running water requisite. Call 628-9841, evgs.

Prsn w/TVT Cookbook, want to xerox a few pages out of it; also any systems dynamics books, IBM artisan typeball & courier italic. Call 494-8888.

Refrig. Doug, x5-6391 Dorm.

Ride to Phila, Pa any wknd. Christine, x3-5324.

Wanted: 3 RR ties. Lois, 566-0033.

Roommates

F rmmate to share 6 rm Arl Hts apt, nr bus. Call 643-2934, aft 7:30 or wknds.

Parking

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

Wl swap West for East or Albany. Chere, x3-3639.

Wl swap Westgate for East or Albany. x5-6668 Dorm.

Carpools

Ride nded Wilmington, N Reading area to MIT, hrs flex. Peter Allaman, x3-1738.

Miscellaneous

Bookbinding, gold embossing, book repair, cloth or leather. Alex, x8-1583 Draper.

Wl swap 15" Buick rims for 15" Chevy rims. Ray, x444 Linc.

Handwriting analyst avail for parties or indiv analysis, univ trained. Ken, 926-3349, evgs.

Exper tchr, Bos College grad, M. ED, in reading, avail for tutoring, elem lvl. Inco, x3-3356.

Any kind typing done, IBM Correct Select. Susan, x3-4701.

Wl do typing on IBM Selec. Carol, x3-4153.

If free firewd, come & get it. Call 862-9462.

If you nd thesis drawings, illustrations, graphs or charts, call Hannah Abbott, 494-0288.

Typing, tech & non, cheap cheap rates. Sierry, x3-7758.

Hrdwd floors prf sanded & refinished, 45e/s

Question 7

LAW PROPOSED BY INITIATIVE PETITION

Uniform Electric Rates

Do you approve of a law summarized below, which was disapproved by the House of Representatives on May 3, 1976, by a vote of 182-49, and on which no vote was taken by the Senate before May 5, 1976?

YES

NO

Summary

The proposed act would impose a general requirement that every electric utility company charge a uniform rate per kilowatt hour of electricity. The proposed act would except from this general rule rates charged to other electric utility companies and to residential customers who heat their principal place of residence by electricity. The Act would also permit a different rate to be charged residential customers for the first three hundred (300) kilowatt hours they consume each month, and would authorize "peak load" pricing whereby a higher rate than the uniform rate per kilowatt hour may be charged during the periods of the day or seasons of the year when consumption of electricity is the greatest. The Act would authorize the Department of Public Utilities to issue implementing rules and regulations and provides for enforcement.

A YES vote is a vote to establish uniform electric rates for most users of electricity.

A NO vote is a vote to continue the present system which allows different rates for different users and amounts of usage.

Full Text of Law

An Act to lower electric bills for residential customers, small businesses, and other small users by establishing fair share rates by requiring electric companies to charge a uniform rate per kilowatt hour.

Be it enacted by the People, and by their Authority:

SECTION 1. Purposes. The purposes of this act are to make the rate structures of electric utility companies more equitable, to lower rates for residential customers, small businesses, and other small users and to require electric utility companies to terminate their present practice of charging a lower rate per kilowatt hour of electricity to customers who consume a high volume of electricity.

SECTION 2. Fair Share Rates. Notwithstanding any law to the contrary, every electric utility company must charge a uniform rate per kilowatt hour of electricity to all customers. Every electric utility company is prohibited from altering, amending, or changing any present charges, or instituting any other charges or costs, or engaging in any act or practice, or from implementing any device or technique if the direct or indirect result of any of the aforesaid

would be contrary to the effect or purposes of this act.

SECTION 3. Exceptions.

a. A lower rate than the uniform charge per kilowatt hour of electricity may be charged to other electric utility companies.

b. A lower rate than the uniform charge per kilowatt hour of electricity may be charged for the first 300 kilowatt hours of electricity per month used by any residential customer.

c. A lower rate than the uniform charge per kilowatt hour of electricity may be charged to residential customers who heat their principal place of residence by means of electricity as of the effective date of this act. Such a lower rate may be charged only for the cost of electricity for such residence.

d. A rate per kilowatt hour of electricity which reflects peak load pricing may be charged. For purposes of this section, "peak load pricing" is a rate structure that varies according to the level of kilowatt demand on a utility system over a daily, seasonal or annual cycle with a greater rate charged for kilowatt hours consumed during the greatest periods of consumption.

SECTION 4. Rules and Regulations. The Department of Public Utilities or any

successor agency or department is hereby authorized and directed to establish rules and regulations as may be necessary to carry out the purposes and administration of the provisions of this act.

SECTION 5. Enforcement. The Supreme Judicial Court or the Superior Court shall have jurisdiction to enforce compliance with the provisions of this act and with all other rules or regulations of the Department of Public Utilities or any successor agency or department made under authority hereof.

SECTION 6. Civil Remedy. Any residential customer of an electric utility company may bring an action in the Superior Court to enjoin any violation of this act or any rule, regulation or order issued hereunder. If the Court finds that such a violation has occurred, the petitioner shall be awarded reasonable attorney's fees and costs incurred in connection with such action.

SECTION 7. Severability. If any provision of this act or the applicability thereof to any entity, individual, or circumstance is held invalid, the remainder of this act and the application of such provision to other entities, individuals, or circumstances shall not be affected thereby.

A major problem with initiative petitions like this one is that they may not be amended in any manner by the legislature. Therefore, this committee and all other legislators must vote on the petition in its present form. While we agree with rate reform, we are unable to approve this particular measure because of the problems already described in this report in regard to this petition in its present form.

Keeping down the cost of providing electricity is important for everyone. Requiring each customer to pay his fair share of the cost is proper and essential. What is required in Massachusetts is a rate structure that will do that, not legislation that will win wide political favor, by unfairly providing a temporary

benefit to many people that will quickly disappear and turn into an added cost for everyone.

We, the undersigned members of the Joint Committee on Government Regulations, vote that H 4201 ought NOT to pass.

Senators:	Representatives:
John F. Aylmer	Robert B. Ambler
Robert A. Hall	Theodore J. Aleixo, Jr.
James P. Rurak	Arthur M. Khoury
	Robert A. Manzelli
	Raymond J. Boffetti
	A. David Rodham
	J. Michael Ruane
	John B. Perry
	C. Vincent Shea
	O. Roland Orlando
	Robert W. Gillette

MINORITY REPORT

Massachusetts residents use less electricity than citizens of almost any other state in the nation, but we face the second highest rates in the country. Almost every month brings news of a rate hike. And the existing rate structure places a disproportionate share of these soaring costs on those who can afford it least.

The Department of Public Utilities (DPU), while regulating the revenues of the electric companies, has traditionally allowed the companies to determine from which classes of customers this revenue will come. The electric companies have chosen to adopt rates which make electricity cheaper as more is used. To compensate for the low price charged to large users, small users have had to pay much higher rates. As a result, small users—homeowners and tenants—now typically pay 60 to 70 percent more per kilowatt hour of electricity than do the big businesses in their communities.

For decades, such promotional rate structures had a certain economic logic, not only for the electric companies, but for the public as well. New generating plants were more efficient than the old ones and could produce electricity at lower average costs. To a certain extent these lower costs were passed on to all customers. Thus, despite the expense of construction, each new plant lowered the average per-unit cost of power. In retrospect it is clear that this policy encouraged wasteful and short-sighted patterns of consumption, for which we are now paying the price. But at the time that policy did hold down the cost of electricity. In fact, Boston Edison actually lowered its rates twice during the 1960's.

Today, however, the situation has changed. The energy crisis has reminded us that electricity is an expensive, and in some ways, a scarce resource which we waste at our own peril. The environmentalists, have taught us that increased consumption means increased pollution and destruction of natural resources. Technical bottlenecks have limited economies of scale in electric generating plants. And most importantly, today, rising construction, labor, and interest costs have made new generating facilities so expensive that they now tend to increase the average per-unit cost of electricity, instead of lowering it.

Sensible rate reform would have two objectives: 1) to lower electric bills for the small users who have been discriminated against by the existing rate structure; and 2) to discourage the growth of demand for electricity, so as to conserve resources and avoid the necessity of new and costly construction. The Fair Share Rates proposal accomplishes both objectives, in a way that's easy to understand and to administer.

The proposal simply requires all electric companies in the state to charge all of their customers at a uniform rate per kilowatt hour—just as gas stations charge all of their customers the same price per gallon. The present elaborate rate structure, with its promotional "declining blocks" system, would disappear thirty days after passage of the bill. The only exceptions are clauses permitting, though not requiring, reduced rates for all-electric homes, for kilowatt hours sold under a "lifeline" basis, and for off-peak consumption (i.e., power used when demand is low and the utilities have idle power plants).

For most residential users, Fair Share Rates would produce immediate savings. The only category of customer that would face substantial rate increases is precisely the category that has been enjoying subsidized rates for decades, and the category responsible for the fastest growth in electricity consumption—big business. Since the discounts to these corporations have been large, the one-time increases resulting from the elimination of these subsidies would also be large. Fair Share Rates would typically be 20-40% above the average cost now paid by large industrial users. This is how Fair Share Rates would accomplish their second objective, slowing down the growth of over-all demand for electricity.

With the growth of the movement for rate reform, company officials and industrial lobbyists have already started threatening to shut down their plants and move the jobs out of state. These dire warnings deserve careful consideration, and that is the purpose of this concluding section.

For the great majority of employers in the state, electricity costs remain a tiny fraction of operating costs. The energy crisis has increased the fraction in recent years (exact post-crisis figures are not yet available), but estimates based on 1972 data suggest that in most Massachusetts industries electricity still represents no more than 2% of the cost of production.

In any event, firms which locate here are attracted not by our utility rates, but by our markets, our skilled labor force, and our scientific and educational resources. Marginally higher costs of electricity, a small factor of production, are unlikely to outweigh these other attractions.

All in all, industry's threats of job loss seem to be the same kind of business bluff we have faced over tax reform, environmental action, or insurance rate reform. The evidence that jobs would be lost from rate reform is at best meager. When the First National Bank of Boston surveyed New England businessmen in 1974 to see if their capital spending plans had been affected by the soaring costs of fuel (increases far greater than those that Fair Share Rates would bring to industry) 94% reported they had no intention of cutting back.

The problems of the Massachusetts economy are profound and complex. They cannot be solved, however, by maintaining a hidden subsidy to big business financed by a rate structure that is, in effect, a highly regressive tax on small consumers. Fair Share Rates promise immediate savings to hard-pressed tenants and homeowners, important ecological and economic benefits derived from reductions in demand for electricity, and minimal effect on employment in the state. The Fair Share Rates proposal is a timely and sensible step toward an energy policy appropriate to our nation's third century.

We, the undersigned members of the Joint Committee on Government Regulations, vote that H 4201 OUGHT to pass.

Senators:	Representatives:
Walter J. Boverini	Brian J. Donnelly
Denis L. McKenna	Rudy Chmura
	William F. Galvin
	Daniel F. Pokaski

Sen. William X. Wall is reserving his rights.

Legislative Committee Reports

MAJORITY REPORT

This initiative petition properly recognizes that the high cost of electricity has placed an inordinate burden upon Massachusetts consumers living on low, middle or fixed incomes. This bill, however, takes an unproductive approach to achieving the goal of identifying those people most affected by high utility costs and providing some means of relief to those people.

There is no question that if this initiative petition were put into effect, the result would be an immediate drop in the bills of smaller customers and an immediate increase in the bills of larger customers. However, the reaction to this state of affairs by those experiencing the increase, would assure that the advantage gained by smaller customers would be short lived.

The most significant and potentially dangerous result of this legislation is the prospect of substantial loss of jobs at a time when unemployment is already too high.

The "Fair Share" bill would force the industrial user to absorb over \$70 million in higher electric costs.

Some economists have predicted that as many as 41,000 jobs would be lost in Massachusetts over the next few years if major employers had to face such an enormous increase in their operating costs.

We do not know with any great degree of certainty whether the job loss will be as high as 41,000 jobs. Other economists have predicted losses as low as 4,000 jobs.

According to the proponents of this legislation, the average cost savings to residential customers of one of the state's largest utility companies would be \$1.99 per month.

A majority of this committee is unable to justify the somewhat limited benefits in light of predictions of economic consequences which vary from substantial to catastrophic.

Nor is job loss the only problem with this legislation. Some of the larger customers, educational institutions, hospitals, large firms, if not housing complexes, will find it advantageous to cease buying electricity from public utilities and generate their own with new facilities. The resulting unused capacity of the system will have to be paid for by the remaining customers of the utilities, including the smaller customers who were the original beneficiaries of this initiative petition.

Since the unit of price for electricity will be the same for all users, large customers who remain on the system will ask for the same service that small customers now receive. That will mean large industrial plants currently taking service directly from central transmission systems may demand lines and meters to separate units of its facility; the system will be asked to provide what the large firms formerly provided for themselves. This added cost will be shared by all customers in the system, including the smaller customers who were the original beneficiaries of this initiative petition.

Those large customers who remain on the system and demand comparable service to the smaller customers will cease to have any incentive to cut down on their peak use. The result is that these users will add to demand at system peak. Over time, this will mean that more capacity will be required by the system relative to the total electricity generated. The resulting deterioration in load factor will mean higher cost electricity for everyone because it will mean the use of more costly facilities to meet the increased demand at periods of peak demand. This added cost will be billed to all customers in the system, including the smaller customers who were the original beneficiaries of the initiative petition.

It is very difficult to escape the conclusion that the initiative petition although providing an immediate advantage for smaller customers by taxing larger customers to subsidize them, will, over the next five-year period, work to the disadvantage of all customers.

The disadvantage for all customers arises because this initiative petition results in a rate structure even further away from a cost basis than the current rate structure. When rates do not approximate costs, there is an incentive to waste and no incentive to conserve. This is one of the reasons why the cost of providing electricity is high enough to prompt this initiative bill. The high cost of electricity in Massachusetts is not the result of inefficient operation of the system facilities. Rather, it is the result, in part, of circumstances beyond the control of anyone in Massachusetts, and in part, of improper pricing policies in the past. Neither this initiative petition nor any other proposal will be able to make rising construction costs for additional generating plants and higher fuel prices disappear. Those costs are real and will have to be borne by all customers no matter how they are divided up among the customers. Large and small should both pay what is fair on a cost basis. Neither should suffer for the other. This can be done, and an advantage achieved for everyone, by establishing a system of time of day rates and other rate reforms which would be available to all customers.

Time of day rates and other rate reforms would not offer the immediate cash advantage to small customers that is promised by the initiative petition. They would instead offer an immediate advantage that would not disappear in future cost increases and that would not hurt everyone after a few years. Such rate reforms are presently under serious consideration by both this legislative committee and the legislature.

Dramashop Offers One Act Plays

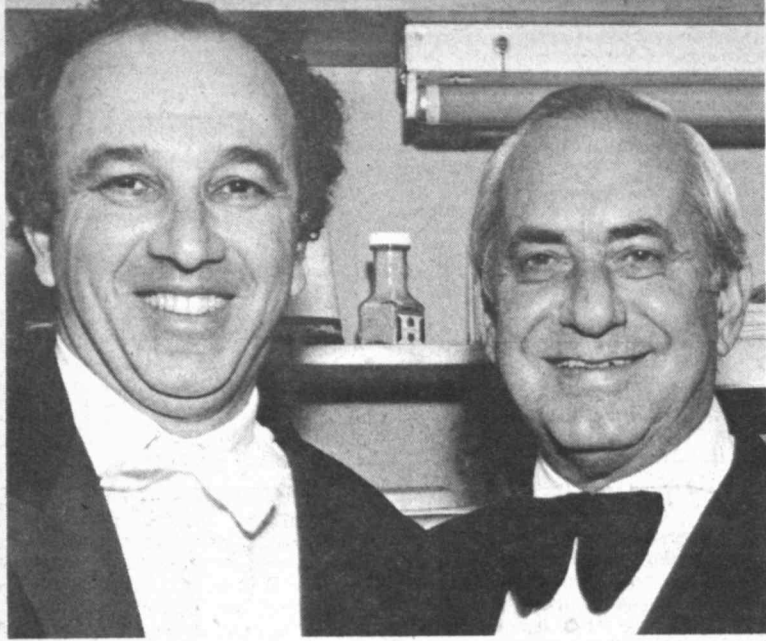
Two contemporary comedies that approach absurdist theater—*Enchanted Night* by Slawomir Mrozek and *The Lover* by Harold Pinter—will be produced by MIT Dramashop on Friday, October 29, and Saturday, October 30, at 8pm in Kresge Little Theatre.

Enchanted Night, a philosophical play exploring the world of dreams and reality, will be directed by Gary Maciag, a junior in linguistics and philosophy from Garfield, N.J. Mr. Mrozek, a Polish playwright, is best known in the U.S. as author of *Tango and Out at Sea*, the latter play having been produced by Dramashop several years ago.

The Lover, a play about a husband

and wife, each having a lover, examines marital infidelity and the love between a man and woman. It will be directed by Thomas Mills, a senior in biology from Rockford, Ill. Mr. Pinter, a British playwright, also wrote *The Homecoming*, a play made into an American Film Theater movie recently shown at MIT by the Lecture Series Committee.

All are invited, without charge, to attend the productions; critique and a coffee hour will follow.



MIT SYMPHONY ORCHESTRA conductor David Epstein (left) meets with Cambridge Mayor Alfred E. Vellucci after "A Salute to Cambridge," a special concert given by the orchestra for the city of Cambridge on October 22. Some 700 Cambridge citizens heard the orchestra play music by Haydn, Copland, and Beethoven at the concert sponsored by MIT in collaboration with Mayor Vellucci. Professor Walter A. Rosenblith, MIT Provost, and Mayor Vellucci spoke during the concert intermission. They compared MIT and Cambridge to a concerto with the two working together to make harmony. The orchestra will present the same concert in Kresge at 8:30pm on Saturday, October 30. Tickets, free to members of the MIT community, are available in the lobby of Bldg. 10 for as long as they last or until Friday, October 29. Admission will be \$1.00 at the door.

—Photo by Ed Pacheco

Cross Country Team Invited To NCAA Championships

MIT's cross country team just received the news that they have been selected by the NCAA to represent District I in the Fourth Annual Collegiate Division III Cross Country Championships.

The competition will be held Nov. 13 at Case Western Reserve University, Cleveland, Ohio. The selection marks only the second time an MIT intercollegiate team has been picked for a post-season NCAA tournament. The MIT baseball team was selected in 1974 for the NCAA Tournament. MIT will join Brandeis, Lowell University and Keene State, the other New England representatives, in the championship competition.

Senior Captain Frank Richardson (Sac City, Iowa) leads the Tech harrier contingent that will include junior Chris Svendsgaard (Piedmont, Cal.), soph Barry Bayus (Beltsville, Md.), freshmen Len Nasser (New London, Conn.) and Dave Westenberg (Cottage Grove, Minn.), and seniors John Krolewski (Coventry, R.I.) and Steve Keith (Dana Point, Cal.).

The Tech team finished their regular season with a 7-1 won/lost record and a fourth place finish in the 28 team field of the Boston State Invitational. The next outing for the NCAA Championship-bound Engineers is the annual New England Intercollegiate, Nov. 6 at Franklin Park.

Soccer

The MIT soccer (3-4-1) team has won two of their last three games, marking an improvement over last year's 2-8-1 season record. Tech was victorious over Lowell University 4-2 and Boston College 2-1 in double overtime. The loss came this past Saturday against Holy Cross with a score of 1-3.

MIT dominated the Lowell University team throughout the match played on Sat., Oct. 16. Tech led at the half 1-0 with a goal by senior Lampros Fatsis (Pelham Manor, N.Y.) with an assist by frosh Laird Cagan (Scarsdale, N.Y.). In the second half, senior Jan Krakauer (Cincinnati, Ohio) scored on a rebound off a Fatsis shot and jacked the score up to 3-1. Laird Cagan brought in the final goal of the game assisted by senior Johan Nye (Croton-on-Hudson, N.Y.). MIT had the upper hand all the way, outshooting Lowell 30-4.

The victory against Boston College on Tuesday, Oct. 19, came after two overtime periods with a final score of 2-1. Boston College, the ninth ranked team in New England, had recently beat Babson, the number one ranked New England Division III team, in

an upset victory. In the MIT-BC match, BC was the first team to score but Tech's sophomore Paul Thompson (Palatine, Ill.) tied up the score with an assist by freshman Alex Ilori (Kwara State, Nigeria). During the second half of the game, both teams had many opportunities to score but were not able to take good advantage of them. Then, with 4:45 left in the second overtime, Lampros Fatsis brought the victory home with a great shot to the far corner. Alex Ilori made his second assist of the day on the winning goal.

The MIT soccer team will travel to Colby this weekend where they will push for another victory and an improved season record.

POSITIONS AVAILABLE

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

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

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

Dick Higham 3-4278
Pat Williams 3-1594
Carolyn Scheer 3-1595
(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, 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 Ph.D. 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 measur-

ing neurotransmitter and melatonin 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. Bachelors 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 Associates degree required. A76-44 (10/27).

Academic Staff, Institute Archivist, Librarian, responsible for administration of the Institute Archives and collection of manuscripts, personal papers, oral history and rare books. Duties include physical and bibliographical organization of the collections, reference service, preparation of guides, inventories and exhibitions, identification and acquisition of new collections, development of a policy manual covering access to archival material. M.L.S. or equivalent experience. Ph.D. in history of technology or science highly desirable. Minimum 5 years experience required. C76-19 (10/20).

Admin. Staff, Assistant Director/Program Administrator in the Office of Sponsored Programs will be responsible for proposal review, grant and contract negotiations and post award administration; act as liaison with respect to sponsored programs in a number of academic departments and/or research laboratories. Considerable experience in sponsored program administration and university accounting is required as well as a Bachelors degree or equivalent. MIT experience preferred. A76-43 (10/20).

Sponsored Research Staff, in Physics to participate in biochemical/biophysical study of lens cataract formation. Techniques include column chromatography, gel electrophoresis, spectroscopic assays, optical mixing spectroscopy and computational methods. Bachelors degree in a basic science, laboratory experience, organizational skill and technical flexibility required. D76-204 (10/20).

Academic Staff, Chemical Engineer in the Energy Lab to do postdoctoral research on the problem of NO emission from coal burning fluidized beds: develop mathematical model for predicting NO emission and detailed experimental studies of the processes leading to the formation and partial destruction of NO during fluidized combustion of coal; assist in building, operation of experimental apparatus to enable gas and solid samples to be chemically analyzed. Ph.D. in Chemical Engineering required. Familiarity with processes of fluidization, combustion of coal and with analytical methods (i.e. gas chromatography, mass spectroscopy) desirable. C76-20 (10/20).

Sponsored Research Staff, Scientific Programmer in the Electronic Systems Laboratory to update, develop and maintain a general purpose library of routines useful in control theory, mathematical programming and dynamic systems theory under the direction of ESL Faculty and Staff. Will occasionally work on programming problems and special purpose programming for research projects. Minimum B.S. in Mathematics, Engineering or Computer Science; M.S. is preferable. Experience in Fortran Scientific Programming and familiarity with linear algebra desirable. D76-203 (10/20).

Administrative Staff, Programmer in the Resource/Alumni Data Systems group will be responsible for existing PL/1 OS and DOS computer systems; develop and program new applications in support of the MIT Leadership Campaign. Two years PL/1 programming experience required. Working knowledge of TSO and OS JCL important. Previous experience with university data processing systems desirable. A76-42 (10/20).

Sponsored Research Staff in the National Magnet Laboratory, Mechanical or Electrical Engineer, to design complex superconducting magnet systems for experimental magnetohydrodynamic power generators. B.S. in electrical or mechanical engineering, ten years experience in design of superconducting magnets and large cryogenic systems required. D76-201 (10/20).

Admin. Asst., Exempt, to assist Mechanical Engineering Administrative Officer in a variety of areas with special emphasis on preparation of research proposals and payroll reports; monitor monthly statements and review, as necessary, with account supervisors. Accounting skills, ability to work independently required. Familiarity with MIT accounting and payroll procedures desirable. E76-40 (10/27).

Exempt, Student Accts. Representative in the Student Accounts Office to assist and work with students in the financial registration process and act as intermediary between students and various Institute Offices; aid students in understanding the accounting entries applied to their accounts; be responsible for the accuracy of these accounts. Prepare adjusting and correcting entries as required. College degree and/or equivalent in accounting experience, patience and ability to communicate effectively; ability to make decisions required. E76-39 (10/20).

Secretary IV-V, to the Vice President and Dean of the Graduate School. Will handle general secretarial duties related to supervisor's responsibilities as Dean and as senior officer responsible for a number of MIT departments. Will interact with all MIT academic and administrative departments as well as outside organizations. Opportunity exists to do preliminary background research and to prepare draft reports on various issues. Initiative, organization skills, excellent secretarial skills, including the ability to compose correspondence preferred. Familiarity with MIT procedures preferred. Position includes occasional overtime. B76-558 (10/27).

Editorial Assistant IV in Chemical Engineering to assist in editing, producing and testing of continuing education texts for graduate engineers; arrange meetings; prepare reports; write news releases. A Bachelors degree in science or engineering, or its equivalent, editing and writing skills, good typing required. Familiarity with MIT procedures helpful. B76-555 (10/20).

Secretary IV, in the Energy Lab to handle general secretarial duties for a research group. Type correspondence and other material; arrange travel; monitor monthly statements. Excellent typing skill including the ability to type technical material required. Applicants must also have flexibility to handle varied assignments and work loads. B76-566 (10/27).

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 book-keeping procedures required. Secretarial school or college training desirable. B76-567 (10/27).

Secretary IV to 3 Biology faculty members; type correspondence and scientific manuscripts; arrange travel; answer student inquiries; handle purchasing procedures; maintain expense records; assist in budget preparation. Excellent typing, ability to organize and complete work with minimal supervision required. Familiarity with MIT accounting and purchasing procedures desirable. B76-498.

Secretary IV Temporary, to faculty member and research staff in the Center for Policy Alternatives. Will type correspondence and reports from draft, occasionally using word processing equipment; arrange travel appointments; answer routine correspondence and inquiries independently. Excellent organization and typing skills required. Position includes occasional overtime. Temp. through 6/30/77. B76-559 (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 in the Chemistry Dept. to faculty member/Editor of the *Journal of Organic Chemistry*. Maintain journal records and statistics; process a large volume of manuscripts. Will also handle secretarial duties related to faculty members teaching and research duties: type reports, course material. Ability to use machine dictation equipment, organization skills, good typing skills required. A minimum of 2 years' secretarial experience preferred. B76-554 (10/20).

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 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 as course work in computer programming required. 20 hrs/wk. B76-563 (10/27).

Sr. Clerk IV, temporary, in the MIT Press, to participate in one-year feasibility study on in-house computer book composition. Duties include typing, editing, coding by computer (will be trained); pasteup preparation; scheduling of various stages of printing process; coordination with outside suppliers. Familiarity with book production, manufacturing, typography, editing, computers desirable. Typing skill is necessary. Primary work site will be off the MIT campus. Position is for 35 hrs/wk; daily schedule can be flexible. B76-439 (10/20).

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 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).

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).

Messenger Clerk II part time, temporary in Psychology, to do errands for department Administrative Assistant as needed. Includes errands to laboratory supplies, payroll and accounting offices when needed, cleaning of support rooms and general housekeeping chores, as well as lifting of heavy boxes and cartons. 5-10 hrs/wk. Position is for academic year only. B76-553 (10/20).

Technician A (E-M), hourly, in the Laboratory for Computer Science to assist in laboratory, research and analytical work; assemble various electromechanical devices; maintain laboratory Parts Room. Graduation from a 2 year day technical school or equivalent and a minimum of 2 years applicable experience required. Five years experience in similar assembly work desirable. H76-102 (10/20).

Hourly, Glassware Washer, part-time, in the Arteriosclerosis Center will wash radioactive glassware. A reliable individual is required. Approx. 2 hrs/day, Mon.-Fri. H76-111 (10/20).

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.

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)

BIWEEKLY:
B76-204, Tech, Typist III, Res. Lab. Elec. (8/25)
B76-262, Admin. Asst. V, National Magnet Lab. (10/20)
B76-283, Sec. IV, Ctr. for Policy Alternatives (9/8)
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)
B76-365, Production Asst./Sec. IV, Campus Info. Serv. (8/25)
B76-366, Sec. IV, Humanities (8/25)
B76-377, Sec. IV, Chemical Eng. (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)
B76-449, Sec. III, Medical Dept. (9/15)
B76-470, Sec. IV, Resource Devel. (9/22)
B76-481, Sec. IV, Devel. Office (9/29)
B76-486, Sec. IV, Office of the Chairman of the Corp. (9/29)
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)
B76-538, Clerk Typist II, Purchasing Dept. (10/13)
B76-539, Clerk III, Physical Plant (10/13)
B76-541, Sec. III, National Magnet Lab. (10/13)
B76-547, Admin. Asst. V, Sloan School (10/20)

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)

SPONS. RES. STAFF:
D75-48, Economist, Energy Lab. (6/25)
D75-161, Economics 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. Progr., Res. Lab. Elec. (7/14)
D76-113, Res. Engineer, Ctr. for Trans. Stud. (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)
D76-197, Systems Prog., Earth Planetary Sci. (10/20)
D76-198, Res. Engineer, Energy Lab. (10/20)
D76-199, Tech. Asst., Earth Planetary Sci. (10/20)

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)
H76-103, 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:
D76-19, Spons Res. Staff
D76-58, Spons Res. Staff
D76-533, Sec. IV
D76-488, Sec. III CANCEL
D76-532, Sr. Clerk IV
B76-213, Sec. V
D76-394, Sr. Sec. IV
B76-504, Clerk III
B76-545, Clerk III
E76-38, Admin. Asst.
D76-44, Spons. Res. Staff
C76-16, Tech. Asst.
D76-504, Clerk III
B76-509, Sr. Clerk IV
B76-420, Sec. IV
B76-535, Sec. IV
D76-200, Spons. Res. Staff
D76-548, Clerk II
B76-549, Sec. IV
B76-189, Sec. III
D76-195, Spons. Res. Staff
D76-174, Spons. Res. Staff
B76-522, Sr. Clerk III
B76-544, Sec. IV

The following positions are on HOLD pending final decision:
E76-21, Exempt
D76-57, Spons. Res. Staff
D76-90, Spons. Res. Staff
A76-36, Admin. Staff
B76-550, Sec. IV