

## MIT to Host Air Pollution Conference

A workshop-conference on the problems of air pollution and its control will be held December 2-3 at MIT.

The MIT Conference on Air Pollution and Administrative Control is one of a series of workshop studies MIT is carrying out during the Bicentennial year.

The conference, funded by the National Science Foundation and the Ford Foundation, has been organized by Dr. Ann F. Friedlaender, MIT professor of civil engineering and economics, in conjunction with the MIT Department of Economics. The sessions will be held in the Kresge Auditorium Little Theatre.

Scholars from a number of universities will present papers on a variety of topics and participate in discussions aimed at understanding the administrative problems associated with air pollution controls and evaluating procedures already implemented.

The conference will be limited to problems of atmospheric pollution and will study, in particular, problems posed by automobile emissions and stationary sources.

"There has been surprisingly little academic work directed at evaluating the administration and consequences of the recently enacted environmental laws," Professor Friedlaender said.

"The 1970 Clean Air Act as implemented by the Environmental Protection Agency, along with various state implementation plans, already has had important effects on production decisions by private and public bodies.

"Exactly how and why current

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## MIT Efforts Praised, But There's Still A Way to Go

MIT's efforts to achieve a goal of \$130,000 were praised at the United Way closing banquet last week by Dr. Bernice Miller, co-chairwoman of the Education Division campaign.

Reporting a total of \$595,900 for the division against a goal of \$650,000, Dr. Miller paid tribute to a very successful campaign at Northeastern and noted that MIT was making good progress toward its goal.

"While I am gratified that our efforts are recognized," MIT President Jerome B. Wiesner said, "we have yet to raise our participation rate to a satisfactory level.

"Now that the MIT campaign has been extended until December 6, I hope many more people in the community will take the opportunity to help the Institute meet its commitment to the United Way," Dr. Wiesner said.

"The United Way is the only non-MIT solicitation on the campus each year," he said. "It is the only way we have to support a vast number of very valuable social and public ser-



"YOUR'RE KIDDING!" was the reaction of Sandra Spurlock, right, when she learned she was the first winner of "The Trip," the annual lottery sponsored by the Quarter Century Club to benefit the Community Service Fund. Ms. Spurlock, assistant science librarian, selected Santo Domingo as her destination. Second winner was Maureen Chambers, left, a technical assistant in biology who was undecided as to whether she preferred San Juan or Lima, Peru. Altogether some 2,000 tickets were sold with proceeds of approximately \$1,250 to help support community agencies in which members of the MIT community serve as volunteers.

-Photo by Calvin Campbell

vice organizations that exist in the Boston area.

"This year the United Way has singled out the non-profit organizations—educational institutions, hospitals, cultural organizations—as a principal problem in the Boston area. Traditionally corporate donors do quite well both in percentage of participation and the amount donated while non-profit organizations perform relatively poorly or even badly both in participation and in dollar amount.

"Although I think it inappropriate to mount the kind of hard-sell campaign that industrial organizations use," Dr. Wiesner said, "it is important that we try collectively and individually to have some responsibility toward this drive.

"It does seem appropriate," Dr. Wiesner concluded, "that we should try to expand participation wherever possible in order to honor our commitment more effectively than we have in the past."

## Inner City Funds Diverted, Study Finds

By CHARLES H. BALL  
Staff Writer

Funds from a federal program designed to help inner city residents are being used largely for other purposes, such as building a tennis complex in Little Rock, Arkansas, according to a report from the MIT-Harvard Joint Center for Urban Studies.

The report, prepared by MIT Professor Bernard J. Frieden and Marshall Kaplan of the San Francisco and Dallas consulting firm of Marshall Kaplan, Gans, and Kahn, examines the first two years of the Community Development Revenue Sharing program and compares the results to the outcome of the earlier Model Cities program.

Community Development Revenue Sharing was established in August, 1974, as part of the Nixon administration's "New Federalism," with the stated goal of helping low and moderate-income people. It

consolidated funds from seven separate federal community aid programs, including Model Cities, into a single block grant awarded to cities on a formula basis.

Unlike the better-known General Revenue Sharing Program, its funds can be used only for the community development purposes of the seven earlier programs and only for projects that meet several other general objectives, one of which relates to benefits to low-income households.

The Community Development Revenue Sharing program, which began with annual funding of \$2.5 billion, is administered by the Department of Housing and Urban Development.

Frieden and Kaplan acknowledge that the new system has succeeded in simplifying grant applications and in giving greater flexibility to local communities, but they said it has brought about these benefits "at the

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## Projected Energy Demands Examined in WAES Book

The Workshop on Alternative Energy Strategies (WAES), a unique international project examining global energy needs to the year 2000, has published its first major technical report: a 565-page book projecting energy demands to 1985 for 13 nations, including the United States, which consume 80 percent of the free world's energy.

WAES is directed by Professor Carroll L. Wilson, Mitsui Professor in Problems of Contemporary Tech-

nology, emeritus, at MIT Sloan School of Management. WAES is an international project involving more than 35 participants from leading private and public companies and institutions as well as government bodies in 15 countries.

The WAES final report will be published in May.

"WAES has set itself the goal of assembling a set of coherent global energy pictures of the future," Professor Wilson said.

"To this end it has developed methods for estimating energy supply and demand through the year 2000 and, using these projections as a basis, for identifying the challenges and opportunities in alternative strategies."

*Energy Demand Studies: Major Consuming Countries* (MIT Press), represents the results of applying a carefully derived global methodology for projecting energy demand.

The studies are unique in other ways as well, Professor Wilson said. For example, they are the first studies of their scope to apply both economic and engineering parameters to the calculations, and to develop detailed projections with as

(Continued on page 7)

## Sick Pay Exclusion Repealed

The sick pay exclusion—up to \$100 per week—on federal income taxes has been retroactively repealed by the Tax Reform Act of 1976, according to Joseph R. Cullinan, senior accounting officer for payrolls.

For taxable years beginning after December 31, 1975, a maximum exclusion of \$100 per week, up to \$5,200 per person per year (\$10,400 on a joint return) is available only to a person under 65 who has retired on disability and who is permanently and totally disabled. This is defined as "unable to engage in any substantial physical activity because of a medically determined physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of 12 months or more."

The revised exclusion begins to phase out on a dollar-for-dollar basis when a person's "adjusted gross income"—including disability income—is more than \$15,000 and completely vanishes when his adjusted gross income is more than \$20,200.

## Political Science Names Hyman, Azar as Visitors

Two widely known scholars—Herbert H. Hyman and Edward E. Azar—have been appointed visiting professors in the MIT Department of Political Science.

The part-time appointments are for four and one-half months, Professor Hyman's beginning Sept. 1 and Professor Azar's on Jan. 16. The appointments were announced by Professor Myron Weiner, head of the department.

Dr. Hyman, who has been professor of sociology at Wesleyan University since 1969, is one of the outstanding sociologists in the country in the field of public opinion and political socialization. His books on interviewing methods and on secondary analysis of public opinion polls have for years been the standard treatises in those fields.

Dr. Hyman received his PhD in social psychology from Columbia

University in 1942. He has been a visiting professor and lecturer at several universities in this country and overseas.

He was an associate professor at Columbia University from 1951 to 1956 and professor of sociology at Columbia from 1956 to 1969. He was associate director of Columbia's Bureau of Applied Social Research from 1957 to 1969.

Dr. Azar, professor of political science at the University of North

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## No Information

The Information Center will be closed all day Thursday, Nov. 25, in observance of Thanksgiving. Regular operations will resume at 9am Friday, Nov. 26.

## More than \$800 Raised For Oxfam

The MIT community raised more than \$800 for Oxfam-America during the week of November 15 and more than 137 people participated in the Fast for a World Harvest held Thursday, Nov. 18, according to Joan Conway, a graduate student in nutrition and coordinator of the week's activities at MIT.

Ms. Conway stated that although the official sign-up sheet for those intending to fast had 137 signatures, she is confident that many more persons actually fasted. She added that thirty people who decided not to fast also donated money.

Ms. Conway thanked the MIT community for its support of Oxfam-America, and reported that 83% of the money donated will actually help finance Oxfam projects, since the organization has only a 17% overhead for operating costs.

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

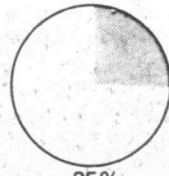
\$ contributed



\$102,642



% contributing



25%



# Draper Listed As Space Pioneer

Dr. Charles Stark Draper, Institute Professor Emeritus and Professor of Aeronautics and Astronautics Emeritus at MIT and founder of the Charles Stark Draper Laboratory, Inc., was among 35 space pioneers—eight of them Americans—who recently became the initial inductees into the newly-opened International Space Hall of Fame at Alamogordo, N.M.

Known as the "father of inertial guidance," Dr. Draper and his associates at the laboratory, then a part of MIT, designed and developed the on board guidance, navigation and control systems used by astronauts in the Apollo command modules and lunar modules to steer to and land on

the moon.

Other Americans included in the group with Dr. Draper were Neil A. Armstrong, the astronaut who became the first man to set foot on the moon, and Dr. Robert C. Gilruth, former director of NASA's Manned Spacecraft Center, Houston, Tex. Five Americans were honored posthumously: Dr. Hugh L. Dryden, Dr. Robert H. Goddard, Dr. Andrew G. Haley, Dr. William R. Lovelace II, and Dr. James H. Wyld. The initial group also included nine Russian space scientists, eight from Germany, three from Austria, two from France and one each from Italy, Rumania, Great Britain, Hungary, and Switzerland.

## People's Republic Astronomers Visit

A delegation of seven astronomers from the People's Republic of China visited MIT last Monday and Tuesday, Nov. 15 and 16, as part of a month-long tour of American scientific institutions.

The Chinese scientists, headed by Wang Shou-Kuan, deputy leader of the Radio Astronomical Department of Peking Observatory, were guests at a reception held Monday evening at the MIT Faculty Club by MIT and the Harvard-Smithsonian Center for Astrophysics.

Tuesday was devoted to scientific discussions in which MIT participants included Dr. Bernard F. Burke, Dr. Alan H. Barrett, and Dr. Stanislaw Olbert, professors of physics;

Dr. Philip Morrison, Institute Professor and professor of physics; Dr. C.C. Lin, Institute Professor and professor of mathematics; Dr. Saul A. Rappaport, associate professor of physics; and Dr. Paul C. Joss, assistant professor of physics. Dr. Philip C. Myers, assistant professor of physics, was local coordinator for the visit.

The astronomy group, which also visited Haystack Observatory and Harvard, is the 26th academic delegation from China to visit the U.S. since 1972 under the auspices of the Committee on Scholarly Communication with the People's Republic of China.

## INSTITUTE NOTICES

### Announcements

**B.F. Skinner Lecture**—Free tickets for LSC lecture Sun, Dec 12, 8pm. Available LSC office or any LSC movies.

**Creative Photog I (4.921) Lottery**—Those interested in taking course Spring term must sign up for lottery, Dec 1-15. Creative Photo Lab, W31-310.

**Scheduling for Student Center**—Scheduling for Spring term will begin Dec 1.

**Special Students**—Deadline for applications for February term is Dec 1.

**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**—Openings for children 2 1/2 to 5, part- or full-time in day care and nursery programs. Day Care tuition assistance available to MIT employees who qualify. Info: Child Care Office, Rm 4-144, x3-1592.

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

### Club Notes

**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. **Wonderland Ballroom Dancing**: special discount price (\$2) to members. Open Tues, Fri & Sat, 8pm-12m; instruction, Tues, 7:30-8:30pm. Info: Sharon, x5-8667 Dorm.

**Beefaroni Chess Club**—An alternative chess club featuring relaxed serious chess. Info: Gary Katiz, 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.

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

**MIT Electronics Research Society**—Last meeting of term, Mon, Nov 29, 8pm, Rm 20C-104. IAP course registration, many important topics. New members welcome. Info: x3-2060 eves.

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

**Gays at MIT**—(formerly Student Homophile League) Coffeehouse/Meeting, first Sunday each month, 5pm, Gay Lounge (Walker Rm 50-306). For further info or just a listening ear, call contact line, x3-5440.

**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, 1:00-3:00pm, du Pont gen exercise rm. Chief instructor: Mr. Yanagi, 6th degree black belt.

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

**MIT Madrigal Society**—Meetings, Wed, 8pm, Rm 4-160. We sing for our own pleasure. Sopranos, altos, tenors needed. Info: Scott Chase, 5-7655 or 5-7691 Dorm.

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

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

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

**MIT 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 Thur, 7-9pm, T Club Lounge, du Pont Gym.

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

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

**White Water Club**—Pool sessions alternate Tues, 8-10pm, Alumni Pool. Next session Dec 7.

religious

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

## CABLE TV SCHEDULE

November 24-November 30

**Channel 8:**  
**Wednesday, Nov. 24**  
 4:30-5:30pm 24-30 FPS Live with Ricky Leacock  
 5:30-6:30pm TUESDAY NOON "Video Images" (R)  
 8:30-9:30pm 24-30 FPS (R)  
**Thursday, Nov. 25**

**MIT Baha' Association**—Gathers informally in Pritchett Thurs, Dec 2, 12:30pm: Meditation.

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

**MIT Christian Science Organization**—Thanksgiving Service, Wed, Nov 24, 12n, Chapel.

**Hillel Services**—Fri: Traditional, 4:05pm, Rm 50-005; Reform, 7:30pm, Chapel. Sat: Traditional, 9:00am, The Cambridge Shul, 8 Tremont St, Cambridge. Anyone interested in working on Conservative services call Howie Hirsch, x5-6450 or Hillel Office, x3-2982.

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

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

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

**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. Sun, Dec 5: 9:15am & 12:15pm masses, guest preacher, Rev John Crocker. The Feast of the Immaculate Conception, Wed, Dec 8, masses: 11:45am and 12:30pm, Chapel; 5:05pm, Kresge Little Theatre.

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

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

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

**MIT Vedanta Society**—Meditation and discourses on the Gita by Swami Sarvagatananda, of the Ramakrishna Vedanta Society of Boston. Fri, 5:15pm, Chapel.

### 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.

**Monday, November 29**—Dorr-Oliver, Inc. Tuesday, November 30—Teradyne Inc; Xerox Corp. Wednesday, December 1—Eastman Kodak Co; Digital Equipment Corp; Microwave Rsrch Corp; Polaroid Corp; Oak Ridge Nat'l Lab. Thursday, December 2—Air Products and Chemicals, Inc; Honeywell, Inc; NCR Corp; Oak Ridge Nat'l Lab. Friday, December 3—Honeywell, Inc; Lawrence Livermore Lab.

### Foreign Studies

**Spring Term in England**  
 University of Rochester has an internship program with a British Member of Parliament in London. Students also take two academic courses. On the campus of Sussex University, Rochester has a Liberal Arts semester. Cost \$1815, excluding air fare. Full credit. Enrollment deadline end of November. Contact: Joanne Murray, Rm 5-104.

**Latin American Teaching Fellowships**  
 Fletcher School of Law and Diplomacy, Tufts University. The LATF Program is continually seeking highly qualified persons to undertake teaching/administrative/research assignments in universities and other institutions in the developing countries of Latin America and the Asia-Pacific region. LATF Fellows represent virtually every academic discipline and range in age and experience from retired university professors to mid-career experts on sabbatical to recent master's and doctoral degree recipients. There are no citizenship requirements and LATF appointments are made on a year-round basis with no deadlines for application. Contact: LATF headquarters, Medford, Mass. (617) 623-8474 or the Career Planning and Placement Office, Rm 10-140.

### Other Opportunities

**Lawrence Livermore Laboratory**  
 1977 summer employment brochures are available in Career Planning and Placement Office, Rm 10-140. Deadline: Dec 1, 1976, US citizenship required. Open to students and faculty members in the areas of experimental physics, theoretical physics, computer programming, chemistry, and materials science, mechanical engineering, electronics engineering, biomedical and environmental research and hazards control.

**The Oak Ridge National Laboratory**  
 1977 summer research program for students

who hold an undergraduate degree in engineering, mathematics, or environmental or physical science and who are attending, or planning to attend, graduate school is now open for applications. Deadline: Jan 15, 1977. Further information and application forms obtained from Career Planning and Placement Office, Rm 10-140.

### Graduate Studies

**AFL-CIO Labor Research Internship Program**

The AFL-CIO annually sponsors a Labor Research Internship Program. The internships are open to all college graduates who are US citizens and who will have completed at least 1 year of graduate work by June 1977. There are two intern positions available in the AFL-CIO Research Department for the year beginning July 1, 1977: one is in the area of economic research and the other involves research on occupational safety and health and economic issues related to natural resources. Salary is \$230 per week. Deadline: March 15, 1977. Contact: Graduate School Office, Rm 3-136.

**University Corporation for Atmospheric Research Graduate Fellowships**

The University Corporation for Atmospheric Research (UCAR) sponsors a program of fellowships for graduate study leading to the PhD degree in the atmospheric sciences and in related fundamental disciplines. The fellowships cover a year's study at any accredited US graduate school. The stipend is \$3500 plus tuition for the academic year. Any student who will have received a bachelor's degree by the spring of 1977 is eligible to study. All candidates must demonstrate strong backgrounds in mathematics and the physical sciences. Contact: Graduate School Office, Rm 3-136. Deadline: Feb 1, 1977.

**International Development Research Centre Thesis Research Awards for Canadian Students**

The International Development Research Centre offers five awards for research in the field of international development for tenure in a developing country during 1977-78. Applicants must be Canadian citizens who, by the date of commencement of the award, will have completed all requirements for the PhD degree except for the thesis. Research areas include any area of research dealing with international development, such as agriculture, food and nutrition sciences, health sciences, education, information sciences, social sciences, engineering, etc. Applications available in Graduate School Office, Rm 3-136. Deadline: January 31, 1977.

**Postdoctoral Fellowships of the Weizmann Institute of Science**

The Weizmann Institute of Science offers Postdoctoral Fellowships in life sciences and chemistry. The Fellowships provide a 12-month stipend (with possible renewal for a second year), a small relocation allowance and a one-way economy class airfare. The present annual stipend is approximately IL 45,000 per year and is adjusted twice a year in accordance with living costs. Application forms and additional information can be obtained from the Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel.

### New UROP Listing

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

**Concentration of Solid Food Particles by Osmosis**

It has been demonstrated in earlier projects that fruit pieces can be concentrated by osmosis using sugar solutions. A student is now invited to investigate if vegetables and flesh products can be concentrated in a similar manner. Freshmen are welcome for this project. Contact Prof. James Flink, Rm 56-109, x3-6735.

**Electronic Systems Laboratory: Communications Systems**

A current project for the DOT/Transportation Systems Center is a general investigation of radio location systems that may be used for a variety of present and perceived needs in position determination on the land surface. There are opportunities for student research in: 1) radio location technology, 2) factors affecting accuracy, 3) spectrum requirements, 4) communications aspects, 5) cost/benefit studies. There are also possible projects connected with the MIT TV cable such as remote operation of computer displays, very high speed data communication, and techniques for audience feedback. Contact John E. Ward, Rm 35-402, x3-3891.

**Boston Biomedical Research Institute Boston**

The Department of Muscle Research at the BBRI is carrying out an investigation to elucidate the mechanisms of muscle contraction and the cause of several diseases (hypertrophy, myotonia and muscular dystrophy) in which muscle tissue is defective. Several suggested research opportunities include enzymatic studies on muscle proteins and membrane systems of the muscle cell, electron microscopy of protein aggregates and mechanical measurement of single muscle fibers.

**Peter Bent Brigham Hospital Boston**

There is an opportunity for a student at Peter Bent Brigham Hospital to determine the use of radiotracers to evaluate cardiac functions. The current approach uses scintillation cameras coupled with digital mini-computers to evaluate contraction of the left ventricular wall during the cardiac cycle. An undergraduate would require computer programming background and some facility with the PDP-11 type computer. Student will also be in charge of computer function; computer programming operation, data acquisition and additional software development on cardiac function measurement.

**Mass Mental Health Center Boston**

Current studies at Mass Mental Health Center will involve correlative behavioral and biochemical experiments using: 1) models of classical conditioning; 2) escape-avoidance training; and 3) intracranial self-stimulation in rats. The student will need to become acquainted with the literature, do some library search work, will run experiments on animals, and do analysis of data.

**New England Aquarium Boston**

1) The Analytical Chemistry of Environmental Trace Metals. A student may participate in a project to improve instrument performance of a commercial DC plasma/Echelle monochromator system. Some experience in analytical chemistry and above average manual dexterity desired. 2) Construction of Submersible Instrument Packages for In Situ Seawater Analyses. A student, preferably a junior or senior, majoring in electrical engineering, computer science or a related field is invited to build a device for the electroanalytical determination of trace metals in seawater.

**Charles Stark Draper Laboratory Cambridge**

There are several projects available at Draper Lab including the following: 1) Computer controlled thermoelectric temperature control system: A student will study and perform procedures for integrating a thermoelectric temperature control system into the operations of a computer controlled automatic test system. 2) Ground fault detector: The student will experimentally investigate an idea on how to build a better performing yet cheaper electrical shock protection device for use in the home, coal mines, or hospitals. Improvements involve simplifying existing techniques and reducing the response time.

## Echoes

### 50 Years Ago

The Engineers defeated one of the strongest soccer teams in New England, Clark University, by scoring the only goal of the game.

Technology graduates played a major role in developing a new service provided by the Telephone Company. It is now possible for a person to have a photograph sent by wire to either New York, Chicago or San Francisco. The photo will arrive at its destination in an hour.

### 40 Years Ago

The 5:15 Club's Harvest Hop, scheduled for Thanksgiving Eve, will feature a live duck as one of the prizes of the evening.

### 25 Years Ago

Kenneth Holland, President of the Institute of International Education, presented President James R. Killian with a special certificate praising the Institute's active participation in the student exchange movement. Mr. Holland commended the Institute for bettering the foreign relations of the US.

Prepared by Marcia Conroy, MIT Historical Collections, 3-4444.

## TECH TALK

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# Forrester Warns of Excess of Capital Expansion in US

MIT professor, Jay W. Forrester, the father of "system dynamics," has told a Congressional Committee that long-term economic forces may have created an excess of capital expansion in the United States and that the nation must be on guard against a repetition of the Great Depression.

Dr. Forrester, Germeshausen Professor of Management at MIT, directs the System Dynamics Program in the Alfred P. Sloan School of Management. The field of system dynamics has been created since 1956 under Professor Forrester's leadership to evaluate how alternative policies affect growth, stability, fluctuation and changing behavior in corporations, cities, and countries.

In testimony November 10 before the Joint Economic Committee of the U.S. Congress, Professor Forrester said that the nation is in a "period of growing economic instability" and that the short-term business cycle "seems to be the focus of government economic policy."

He termed this a "short-range" view and said that the major economic and social stresses are coming from longer-term processes in society. This means that the origins of present difficulties have been taking shape for many decades, he said, and "now press on us for resolution."

"Economic policies derived from assuming the wrong causes are likely to accentuate the country's problems," he said. "To avoid serious damage from policies that do not adequately address the variety of changes now occurring in the economy, every effort should be made to understand better the entire time range of influences that are shaping the next one or two decades."

In the context of the long-wave

theory, he said, the Great Depression of the 1930's would be interpreted as a typical trough between a peak occurring about 1920 and a succeeding peak in the 1970's. "We believe it is urgent," he added, "to examine the possibility that the 1980's could repeat behavior like that experienced in the 1930's."

Professor Forrester said that present government policies appear to be based on several assumptions—that the short-term business cycle is the major cause of economic problems, that there is a trade-off between inflation and unemployment, and that nothing stands in the way of continuing along the economic growth path of the last three decades.

He said that the investigations of the System Dynamics Group at MIT—which utilizes computer modeling analysis to examine the forces underlying inflation, unemployment, and other economic trends—"are indicating that all three assumptions may be erroneous."

A prime example of possibly misdirected policy, he said, is the call in some quarters for still more capital investment, despite growing evidence of excess accumulation of capital expansion.

This ignores long-term economic cycles, he said, which can span 45 to 60 years or more and which have been created by major expansion and contraction of the capital sectors in the economy.

"The effect can be seen by starting in 1945 following the Depression and World War II when every aspect of capital plant was inadequate," he told the Congressional committee. "Consumer durables, housing, office

buildings, factories, transportation systems and schools were old and inadequate.

"To rebuild the depleted capital stock in a short time, like 20 years, construction of housing and equipment rose to a rate higher than would be needed in the long run for replacing the depreciation of capital plant. But when an adequate capital plant had been created, a time that may have occurred in the 1960's, tremendous forces persisted to sustain capital investment.

"Labor unions wanted to continue construction, companies in the capital sector sold their output more effectively and extended more credit, banks had been successful in loaning on new capital and wanted to continue, and the Federal Reserve increased the money supply in the name of sustaining economic growth.

"The result has been an unbalancing of the system with too much capital expansion and too much debt. Eventually, momentum must falter as capital plant becomes more and more excessive. It is probable that enough capital plant now exists to

sustain consumption output for one or two decades with little new additional investment.

"With a progressive decline in capital spending, unemployment would radiate from the capital sectors, and many companies in the capital sectors would go out of business."

Professor Forrester said the nation may be seeing symptoms of these potentially dangerous developments in the "present unemployment concentrated in the capital sectors, rising unemployment among college graduates, weakness in housing construction, difficulties in real estate investments, vulnerability in the banking system, and a faltering economic recovery."

Professor Forrester said conditions in the capital sectors may account for sustained unemployment now being experienced, even though money has been increased faster than output to encourage investment and reduce unemployment.

"If capital plant is already too high to be in balance with other economic forces," he said, "more money does not have leverage to increase invest-

ment or jobs in the capital sectors. If unemployment is coming from long-term changes that lie beyond the reach of money supply, then increasing the money supply only increases inflation...A mistaken belief in the ability of increased money supply to reduce unemployment can compound the problems of superimposing a high rate of inflation on other difficulties."

The country is moving to relieve unemployment by welfare, unemployment compensation and temporary government-created jobs, he said.

"Such policies might be suitable if the present unemployment were arising from the short-term business cycle and people were being helped through a brief interval before returning to their former jobs," he continued. "But if many former jobs are disappearing because some major sectors of the economy are in a long-term decline, such government programs will trap people in a dead end and keep them from moving to situations where they can fill a new and useful role."



A surprise party for even one person presents difficulties, but members of the Department of Psychology managed to arrange a surprise 60th birthday party for two of MIT's most illustrious professors—Dr. Walle J.H. Nauta, Institute Professor and professor of neuroanatomy (left) and Dr. Hans-Lukas Teuber, professor of psychology and head of the department (third left). One of their presents was the announcement that their colleagues had arranged for

the Springer-Verlag publishing firm of Germany to publish the collected works of each. Representing the firm were Dr. Charles F. Visokay, medical editor (second left), and Dr. Heinz Götze, president (right). About 150 attended the joint birthday party Friday night (Nov. 19) at the Brookline home of Dr. Stephen L. Chorover, professor of psychology. Professor Nauta turned 60 on June 8, and Professor Teuber on Aug. 7. (Photo by Arthur Newman)

## The IAP Corner

### Come Fly A Kite

By MARY ENTERLINE  
Editor, IAP Guide

When Ted Kuklinski suggests his friends go fly a kite, they don't get offended. They know he's inviting them to join him in his favorite activity.

Kuklinski, a graduate student in electrical engineering and computer science, will be extending this invitation to all members of the MIT community for the second year in a row during IAP. Beginning on Benjamin Franklin's 271st birthday, January 17, Kuklinski will be offering "Poor Richard's Short Course on Kites and Kite Flying."

The three-day course will feature two lecture/demonstrations which begin at noon in Room 66-110 on January 17 and 18, and a kite building workshop at noon in Room 16-134 on January 19. Kuklinski promises that every participant will walk away from the workshop with a flyable kite.

A visit to Kuklinski's office on the sixth floor of Building 36 shows that he's already succeeded in spreading his love of kites to many of his colleagues in the Research Laboratory of Electronics and in turning his office and those of his neighbors into a museum of kites. A mylar cobra kite crawls along the hall ceiling and Kuklinski's kite version of the US bicentennial star decorates his door.

Hanging in nearby offices are examples of commercial kites as well as ones made by members of the MIT Kite Experimental Lab. This group includes over twenty MIT faculty, staff, students, and alumni.

"No matter what design you come up with, you can, with a little bit of juggling, make a flyable kite," says Kuklinski. As proof, he points to his Liberty Bell kite which was named the Best Figure Kite in the 1975 Smithsonian Institute Kite Carnival and won Grand Prize in the 1976 Delaware Kite Festival but is based on the common diamond kite.

This year in the Great Boston Kite Festival Kuklinski was even able to fly an exact replica of an Interstate 76 sign from his hometown of Philadelphia—a feat which won him the "Green Kite Award" from Joe Green of the WBZ helicopter for the only traffic sign in the sky. Kuklinski got the exact shape and design for this kite by projecting a colored slide of the sign onto nylon and tracing it.

During his IAP course Kuklinski will be showing his own kites as well as those of his fellow members of the MIT Kite Experimentation Lab. Despite its name, the lab is an informal group founded by Kuklinski and some friends one day at the beach when they decided to release a kite with a note asking the finder to supply information on when and where it was recovered.

"We used the name, MIT Kite Experimentation Laboratory, to get a better response, since it sounds more official," says Kuklinski. The group has since launched other kites and gets about a 50 percent return on the cards. "We launched one kite in New Jersey which flew about 100 miles south," he reports.

This fall the group began living up to its name by experimenting with aerial photography. The members succeeded in suspending a radio-controlled instant camera from a giant seven by five foot kite and taking pictures of MIT. They hope to perfect their technique when they resume experimentation this spring.

Although Kuklinski hopes that a few of the participants in his IAP course may want to join the Kite Experimentation Lab afterwards, he is not planning any complicated project for them. He plans to teach them how to build the simplest kite of all, a Scott sled, so named because it was popularized by a man named Scott and looks like a bobsled.

"All you need is a piece of plastic, two dowels and string. It's so simple a child can make it," said Kuklinski. Asked when he made his first kite, he smiles. "When I was twenty-one. I had to grow up first."

## Managing Innovation is Symposium Topic

A blue-ribbon group of management experts and industrial leaders will participate in a day-long symposium in December on the topic, Management of Innovation, sponsored by the MIT Alumni Center of New York.

### British Nutritionist To Give Lecture At Joint Seminar

Dr. Magnus Pyke, a prominent British food scientist and nutritionist, author, and television commentator, will speak at MIT on Monday, Nov. 29, in a joint guest lecture sponsored by the MIT Department of Nutrition and Food Science and the Department of Nutrition of the Harvard School of Public Health.

"A New Identity for Science—Food Science or Otherwise" will be the topic of Dr. Pyke's lecture at 4pm in Room 54-100. Dr. Pyke will be introduced by Dr. Nevin S. Scrimshaw, head of the MIT Department of Nutrition and Food Science. The lecture will be open to the public.

Dr. Pyke, who had been an industrial research director for 25 years, in 1973 was appointed secretary of the British Association for the Advancement of Science. During the last three years he has become a nationally recognized figure through his appearances on the national science television program, "Don't Ask Me."

Dr. Pyke is the author of nine books, including *Food Science and Technology* (1965), *Now in its third edition, Technological Eating* (1972), and *Butter Side Up*, a book about the television program that is shortly to be published in the US.

sored by the MIT Alumni Center of New York.

The program, which has been organized for the benefit of the business and technological communities in the Greater New York area, will be held at the New York Hilton Hotel on Thursday, Dec. 9. It will explore various facets of the innovation process by which new products are conceived, developed, manufactured and marketed.

The luncheon speaker will be Dr. Robert N. Noyce, who received his PhD in physical electronics at MIT in 1953 and is chairman of the board and one of the founders of Intel Corporation. The company, established in 1968, is a major industrial factor in the design, development and manufacture of advanced semiconductor circuits known as large scale integration (LIS) circuits for computer memories and microcomputers. Dr. Noyce holds 16 patents on semiconductor methods, devices and structures.

Other symposium speakers and their topics:

Dr. Edward B. Roberts, David Sarnoff Professor of Management at MIT's Sloan School of Management, "Generating Effective Corporate Innovation."

Dr. Eric von Hippel, professor of management of the Sloan School, "Who Will Develop Your Next Product?"

Dr. James M. Utterback, of MIT's Center for Policy Alternatives and formerly a professor at the Harvard Business School, "The Changing Relationship Between Product and Production Process."

Dr. George R. White, on sabbatical leave from the Xerox Corporation,

where he has been vice president for product planning, and presently Carroll-Ford Foundation Visiting Professor of Business Administration at the Harvard Business School, "Management Criteria for Technological Innovation."

Alan R. Fufeld, director of the Technology Management Group, Pugh-Roberts Associates, Inc., of Cambridge, "Technology's Role in Corporate Strategic Planning."

Gene Bylinsky, former science reporter for the *Wall Street Journal* and since 1966 associate editor of *Fortune*, specializing in science, technology and medicine, "The Innovation Millionaires, How They Succeed."

Jerome J. Schaufeld, director of MIT Associates, a cooperative program linking MIT and leading American companies, "Using the University as a Resource for Innovation."

### Pettipaw Record

"Five Works," a record of the Cambridge Brass Quintet with Robert Pettipaw on trumpet, was recently issued by Crystal Records of Los Angeles.

Mr. Pettipaw, who founded the quintet in 1965, conducts the MIT Brass Ensemble and is a technical assistant in the MIT Department of Humanities. The quintet recorded one baroque composition by Daniel Speer and four twentieth century ones by Leonard Bernstein, Eugene Bozza, John Huggler, and Victorio Rieti.



# THE INSTITUTE CALENDAR

November 24  
through  
December 5

## Events of Special Interest

**TWO Crafts Sale\*** — Thurs, Dec 2, 8am-5pm, Bldg 10 Lobby. Come early to buy hand-made Christmas presents and holiday items.

## Seminars and Lectures

### Wednesday, November 24

**Nutritional Effects of Oral Glucose — Salt Therapy of Diarrhea\*** — Norbert Herschhorn, MD, Management Sciences for Health. INP Seminar. 12n, Rm 66-144.

**Afferent Connections of the Prefrontal Cortex and their Transmitters\*** — Dr. Ivan Divac, Neurophysiological Institute, University of Copenhagen. 12n, Rm E10-013.

**On the New England Continental Shelf Frontal Zone\*** — Charles Flagg, G. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Drinks, bring lunch.

**The Case for Infinite Product Life\*** — David Gossard, mechanical engineering. Mechanical Engineering Systems & Design Division Seminar. 1pm, Rm 3-465. Coffee & tea. Smoke-free.

**Coding Theorems for Individual Sequences\*** — Jacob Ziv, Bell Laboratories. ESL Control & Communications Seminar. 4pm, Rm 39-500.

**Markovian Reliability Analysis Under Uncertainty\*** — I. A. Papazoglou, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

**Africa Today\*** — Willard R. Johnson, political science. Minority Graduate Students Seminar. 7pm, Stu Ctr Mezzanine Lge.

### Monday, November 29

**Failure Diagnosis and Performance Monitoring of Nondigital Systems\*** — L. F. Pau, EECS, visiting professor. Aero/Astro Seminar. 3pm, Rm 37-252. Coffee preceding, Rm 33-222.

**High Level Waste Management\*** — William P. Bishop, chief, Waste Management Program, Division of Fuel Cycle, Nuclear Regulatory Commission. Nuclear Engineering Seminar. 3:30pm, Rm NW12-222. Coffee 3pm.

**Anomalous Animal Behavior Before the 6 May 1976 Italian Earthquake: Biological Responses to Charged Aerosols in the Atmosphere\*** — Helmut Tributsch, Fritz-Habert-Institute der Max-Planck-Gesellschaft, Berlin, Germany. Earth & Planetary Sciences Seminar. 3:30pm, Rm 54-915. Tea 3pm, Rm 54-923.

**A New Identity for Science — Food Science or Otherwise\*** — Magnus Pyke, FRSE, secretary, British Association for the Advancement of Science, London, England. MIT Nutrition & Food Science and Harvard School of Public Health Joint Guest Lecture. 4pm, Rm 54-100. Sherry hour follows, Rm 16-322.

**On Unstable Spiral Modes in Galactic Disks (Including Some Contributions of Peking Astronomers)\*** — Chia-Chiao Lin, Institute Professor, applied mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Tea 3:30pm, Rm 2-349.

### Tuesday, November 30

**Topics of Current Interest\*** — P.A. Politzer; Theoretical Description of an Unmagnetized Cylindrical Discharge with a Hot Cathode\* — Leslie Bromberg; G. Nuclear Engineering Doctoral Seminars. 12n, Rm 38-166.

**International Buffer Stocks for Grains and Food Aid\*** — Lance Taylor, nutritional economics. Center for Policy Alternatives Seminar. 4pm, Rm E53-482.

**A Conditional Profit Model for Qualitative Choice\*** — Jerry Hausman, economics. Mathematics Seminar. 4pm, Rm 2-338. Refreshments 3:30pm, Rm 2-349.

**The Rosetta Hailstone Experiment\*** — Roland List, physics, University of Toronto. Meteorology Seminar. 4pm, Rm 54-100. Refreshments 3:30pm, Rm 54-923.

**Strong Vibrational Excitation by V-V Transfer Following Weak Laser Pumping in Low Temperature Molecular Solids\*** — Henri Dubost, University of Paris-Sud, Orsay, France. Seminar in Physical Chemistry. 4pm, Rm 4-370. Coffee 3:45pm, Rm 6-321.

**Ballistic Impact Resistance of Polymeric Textile Structures\*** — David K. Roylance, materials engineering. Materials Science & Engineering Seminar. 4pm, Rm 9-150. Coffee 3:30pm.

**The Galactic Context of Star Formation\*** — Frank Kerr, University of Maryland. Astrophysics Colloquium. 4:15pm, Rm 27-352. Coffee 3:45pm.

### Wednesday, December 1

**Demonstration of Real-Time Three-Dimensional Position Monitoring Applied to Human Gait\*** — Frank C. Conati, G. Mechanical Engineering Systems & Design Division Seminar. 1pm, Rm 3-147. Coffee & tea. Smoke-free.

**Komatiites, Ultramafic Rocks and High Degrees of Melting in the Mantle\*** — Nick Arndt, Carnegie Institute Geophysical Lab, Washington, DC. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-915. Tea 3:30pm, Rm 54-923.

**Decision Techniques for Nuclear Utilities\*** — D. Bley, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

**The String Model of Hadrons\*** — Charles Thorne, physics. Undergraduate Physics Colloquium. 4:15pm, Rm 4-339. Refreshments.

**"Self Portrait", Slide, Lecture, and Making Self Portrait\*\*** — Dick Stround, artist & teacher. Student Art Association Lecture. 7:30-11pm, Stu Ctr Rm 429. Refreshments. Info: x3-7019, 1-5pm.

### Thursday, December 2

**Recent Experiments with Sub-Picosecond Optical Pulses\*** — Eric Ippen, Bell Laboratories. EECS Optics Seminar. 2pm, Rm 36-428.

**Lower Hybrid Heating of a Tokamak Plasma\*** — Abraham Bers, electrical engineering, RLE Plasma Dynamics Group. Plasma Theory Seminar. 2pm, Rm 36-261.

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

**A New Anesthetic Delivery System Using Microprocessors\*** — J. B. Cooper & E. D. Trautman, MGH. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 26-217. Refreshments 3:45pm.

**A Spin Refrigerator for High-Energy Physics\*** — Janice Button-Shafer, University of Massachusetts, Amherst. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

### Friday December 3

**Observation of New Steady State and Transient Effects in Three Level Systems\*** — A. Sanchez, post-doctoral fellow. RLE & Spectroscopy Laboratory Seminar on Modern Optics and Spectroscopy. 11am, Rm 9-150. Coffee 10:30am.

**A Study of Intentional Depolymerization of Vinyl Polymers Through the Exploitation of the Ceiling Temperature (As Applied Toward the Feasibility of Monomer Recovery)\*** — H. H. Ficke, G. Chemical Engineering Seminar. 2pm, Rm 66-110.

**Biomedical Ultrasonics\*** — Padmakar P. Lele, experimental medicine, mechanical engineering & nutrition & food science. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

**The Effect of Composition on the Boil-Off of LNG on Water\*** — J.A. Valencia, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

**Recent Results from the Divertor Injection Tokamak Experiment (DITE)\*** — J. P. Stott, Culham Laboratory. Francis Bitter National Laboratory Plasma Dynamics Seminar. 3:30pm, Rm NW14-2209. Refreshments 3pm.

**Theory of Chemisorption on Metallic Surfaces\*** — R. P. Messmer, G.E. Corp. Research & Development. Center for Materials Science & Engineering Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

## Community Meetings

**Wives Group\*\*** — Group leaders: Charlotte Schwartz, sociologist & Myra Rodrigues, social worker, both from Medical Dept; Carol Hulsizer, faculty spouse in residence, Ashdown Hse. Wed, 2-4pm, Stu Ctr West Lge. Babysitting Stu Ctr Rm 473. Cheryl, x3-4911. **Nov 24:** Hansa Apparao, social worker & Wives Group member, will speak on "Women in India."

**TOPS** — Tech Organization of Professional Secretaries. Meetings Thurs, 12n, Walker Blue Rm.

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

**MIT Women's Forum\*\*** — Meetings Mon, 12n, Rm 10-105. **Nov 29:** Amy Domini, of the investment firm of Tucker, Anthony and R.L. Day, will discuss ways in which women, as small investors, can use stock market investments to their best advantage.

**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.

**Viking: Is There Life on Mars?\*** — Alexander Rich, Sedgwick Professor of Biology, Viking Active Biology Team. AMITA (Association of MIT Alumnae) Dinner Meeting. Tues, Dec 7, cocktails 6:05pm, dinner 6:30pm, speaker 8:05pm, Faculty Club. Cost: \$7 for dinner. (May attend only lecture.) Dinner reservations by Wed, Dec 1: Sandy Yulke, x3-3436.

## Social Events

**Welcome Party for Holly Heine\*\*** — Meet the new assistant dean for student affairs, Holly Heine, '67. Sponsored by Association for Women Students, Thurs, Dec 2, 4-6pm, Rm 3-310. Men & women welcome.

**Christmas Rat** — Fri, Dec 3, 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.

## Movies

**The King of Hearts\*\*** — LSC. Fri, Nov 26, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Port of Call (Bergman)\*** — Film Society. Fri, Nov 26, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**The Count of Monte Cristo (1974)\*\*** — LSC. Sat, Nov 27, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**What's Up Tiger Lily\*\*** — SCC. Sat, Nov 27, 12m, Sala. Free, MIT or Wellesley ID required. Bring blanket.

**Lost in the Stars\*** — LSC. Sun, Nov 28, 6:30 & 9pm, Rm 26-100. Admission 75¢.

**Channel Flow of a Compressible Fluid; Waves in Fluids\*** — Fluid Mechanics Films. Mon, Nov 29, 4pm, Rm 39-500. Free.

**Bringing Up Baby; The Lady Eve\*\*** — Humanities Films. Tues, Nov 30, 7pm, Rm 4-270. Free.

**Uncle Vanya\*\*** — Humanities Film. Wed, Dec 1, 7pm, Rm 9-150. Free.

**Channel Flow of a Compressible Fluid; Waves in Fluids\*** — Fluid Mechanics Films. Thurs, Dec 2, 4pm, Rm 39-500. Free.

**The Adventures of Sherlock Holmes' Smarter Brother\*** — LSC. Fri, Dec 3, 7 & 9:30pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Thirst (Three Strange Loves) (Bergman)\*** — Film Society. Fri, Dec 3, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Dr. Zhivago\*\*** — LSC. Sat, Dec 4, 6 & 10pm, Rm 26-100. Admission 75¢, MIT or Wellesley ID required.

**Luther\*** — LSC. Sun, Dec 5, 6:30 & 9pm, Rm 26-100. Admission 75¢.

**The Magic Christian\*\*** — MidNite Movie. Sat, Dec 4, 12m, Sala. Free, MIT or Wellesley ID required. Bring blanket.

## Lobby 7 Events

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

## Music

**The Fires of London\*** — Music Section's Visiting Artist Series Concert. Sun, Nov 28, 8:30pm, Kresge. Peter Maxwell Davies, conductor. Program: Schoenberg's *Pierrot Lunaire*, Maxwell Davies' *Missa supra L'honneur de l'Arme*. Free.

**Lute Duets\*** — Catherine Liddell & Robert Strizich. Thursday Noon Hour Concert Series. Thurs, Dec 2, 12n, Chapel. Free.

**MIT Concert Band\*** — Conducted by John Corley. Concert Sat, Dec 3, 8:30pm, Kresge. Program includes works by Vincent Persichetti, Ernest Williams, Walter Piston, Andrew Kazdin, Joel I. Brickman & Morton Gould. Free.

**MIT Choral Society\*** — John Oliver, conductor. Program: Haydn's *Seven Seasons*. Sun, Dec 5, 2pm, Kresge. Tickets: \$5 reserved, \$4 unreserved, price with student ID. Reservations: x3-2906.

**Chamber Music Society Concerts\*** — Wed, 5:15pm, Music Library. Call x3-3210 for information.

## Dance

**Ballroom Dance Dorm Workshop\*** — Sponsored by Wellesley Ballroom Dance Club. Tues, Nov 30, 7-8:30pm, Tower Court at Wellesley. A little of everything, and then some. Info: Sandra Youa, 235-9673.

**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 (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

**Mud and Ice Photos\*** — Photographs by Carl Nesjar, CAVS Fellow. Thru Fri, Dec 10, CAVS corridor exhibition area. Hours: Mon-Fri, 9am-5pm.

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

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

**Drawings of Landscapes and Buildings\*** — Rotch Library exhibit works by Frank Miller, architecture graduate student. Thru Fri, Dec 3, Rotch Library, Rm 7-238. Free.

**Jim Dine Prints: 1970-1976\*** — Hayden Gallery exhibit Fri, Nov 19-Sat, Dec 18. hours: Mon-Sat, 10am-4pm.

**Will Faller: Catherine's Book and Self-Portraits\*** — Creative Photography Gallery exhibit Wed, Dec 1-Wed, Dec 22. Hours: Mon-Fri, 9am-10pm; Sat, 10am-6pm; Sun, 12n-8pm; Bldg W31. Public opening Fri, Dec 3, 5-7pm.

**Photographs by Peter Gil\*** — Photographs by Peter Gil, associate dean, Sloan School of Management. Wed, Dec 1-Thurs, Dec 23, 9am-11pm, Faculty Club.

**Big Prints\*** — Exhibition of oversized graphics, including works by Patrick Caulfield, Joe Goode, Tom Holland and John Walker. Hayden Corridor exhibit Fri, Nov 19-Sun, Jan 2. Open daily.

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

**Hart Nautical Museum\*** — Permanent exhibit of rigged merchant and naval ship models of yachts and engine models. Bicentennial exhibit: "1776-1976" — a frigate, 2 schooners, a gondola, and the Durham boat of the American Revolution. Open daily in bldg 5, 1st floor.

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

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

## Athletics

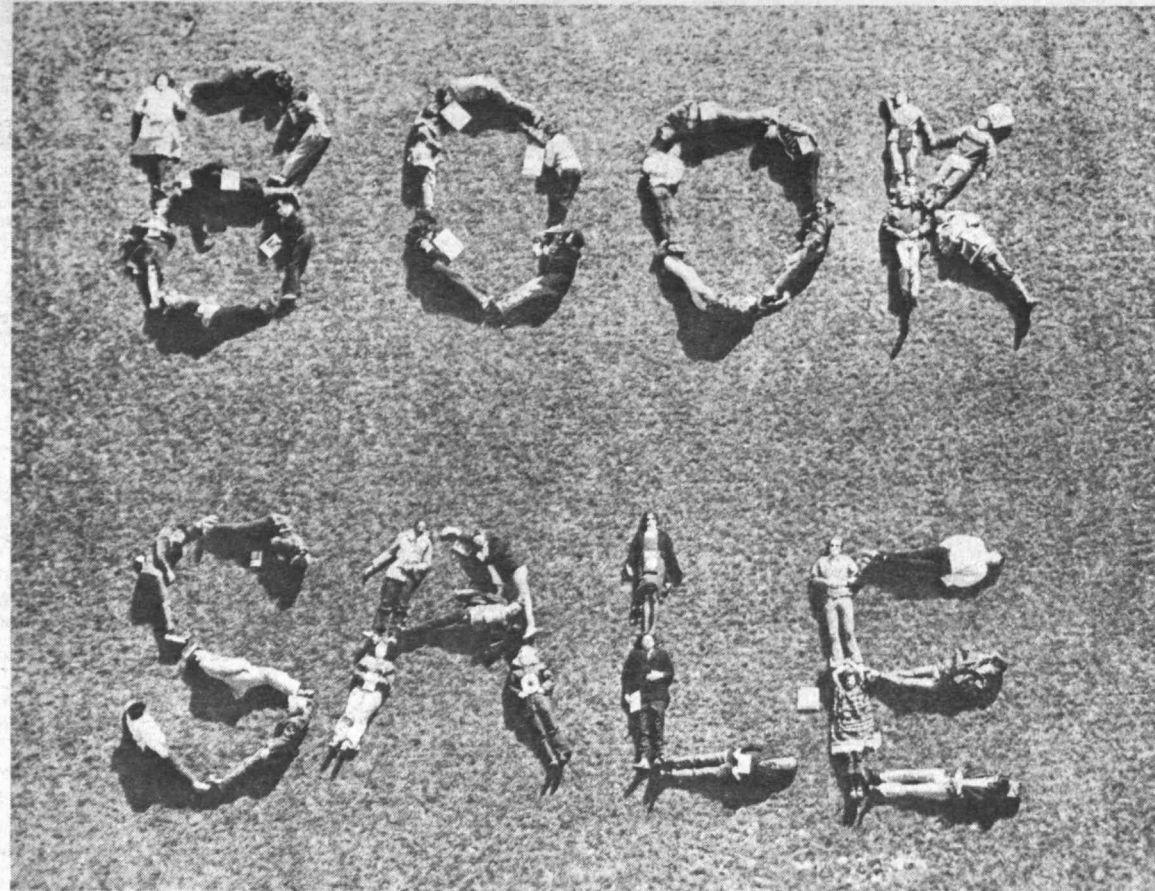
**Home Schedule\*** — **Saturday, November 27** — V M Basketball, Brooklyn College, 7:30pm, Rockwell Cage. **Tuesday, November 30** — Hockey. Tufts, 7pm, rink. **Wednesday, December 1** — JV M Squash. Phillips Exeter, 3:15pm, duPont squash courts. **Thursday, December 2** — V M Squash. Navy, 4:30pm, duPont squash courts. **Friday, December 3** — Saturday, December 4 — W Swimming. Boston College & Bridgewater State. Alumni Pool. **Saturday, December 4** — JV M Basketball. Emerson, 2pm, Rockwell Cage. **V Hockey.** Gordon, 7pm, rink. **JV Track.** WPI & Brandeis. 1pm, Rockwell Cage. **Sunday, December 5** — M Gymnastics. Penn. State, duPont Gym.

**Maggie's Self-Designed Fitness Class** — Classes 12n-1pm & 1-2pm. 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 departmental field.

\*Open to the public  
\*\*Open to the MIT community only  
\*\*\*Open to members only  
Send notices for Dec 1 through Dec 15 to the Calendar Editor, Room 111, Ext. 3-3279, before noon Friday, Nov 26.





**BOOKLOVERS UNITED** on the lawn of McDermott Court this week. They are members of the staff of the MIT Press who gathered to advertise the Press' holiday book sale to be held Thursday, Dec. 2-Saturday, Dec. 4 in the Sala de Puerto Rico in the Student Center. Over 1,100 titles—40,000 books with subjects ranging from energy and technology to philosophy and music—will be available with discounts up to 95 percent. This year's sale will also feature a special T-Shirt honoring Sonha Corvin-

Krukovsky Dovalevsky, one of the great women mathematicians brought to light in the MIT Press book, *Women in Mathematics* by Lynn Osen. A limited number of tote bags with the MIT Press Insignia will be available for purchase and will be offered free with purchases of \$100 or more. The sale will be open from 10am-9pm on Dec. 2 & 3 and from 10am-4pm on Dec. 4. Be sure to go early for prime selection. For further information contact MIT Press x3-7297. —Photo by Calvin Campbell

## Lyndon Named Chairman Of Visual Arts Committee

Professor Donlyn Lyndon of the MIT Department of Architecture has been appointed chairman of the MIT Committee on the Visual Arts, Professor Walter A. Rosenblith, MIT Provost, has announced.

The Committee on the Visual Arts coordinates non-academic activities in the visual arts at MIT and studies the Institute's visual environment, making recommendations to the Provost and President.

Professor Lyndon, who will continue with his academic responsibilities as professor of architecture, succeeds Professor Wayne Andersen. Professor Andersen was instrumental in organizing the Committee in 1966 and has served as founding chairman. He decided to step down after ten years in order to preserve the vitality of the Committee's programs and to allow for freshness of vision. He will continue at MIT as professor of art and architecture and this year will coordinate M.Arch thesis studies in the Department of Architecture and teach a PhD seminar on methodology.

Professor Lyndon came to MIT in 1967 and for eight years (1967-75) was head of the Department of Architecture.

Projects designed by him have been recognized by many awards, including several Progressive Architecture Design Citations and awards from the American Institute of Architects. He is president of the Association of Collegiate Schools of Architecture and on the board of directors of the Boston Society of Architects.

He wrote, with Charles Moore and Gerald Allen, *The Place of Houses* (New York City: Holt, Reinhart and Winston, 1974), a book written for a lay audience and described by Professor Lyndon as "an invocation to exercise personal care and enthusiasm when designing a place to live." He wrote the introduction to *Houses* by MLTW (Tokyo: A.D.A. Edita, 1975), an English edition of which will be published in 1977. His articles have appeared in many professional journals, and he has been editor of the *Journal of Architecture Education*.

Professor Lyndon helped found the architectural firm Moore, Lyndon, Turnbull and Whitaker (MLTW) of Berkeley, Calif., a firm that received national attention for its residential designs, most notably a second home condominium at Sea Ranch, Calif.



After coming to MIT, he founded Lyndon Associates, Inc., and became a partner of Center Consultants, both of Cambridge. Lyndon Associates received the Progressive Architecture First Design Award in 1970 for its design of Brown University's Pembroke Dormitories, a complex of four buildings for 200 students. A critical study of the buildings, completed in 1975, has been published in *Progressive Architecture* (February, 1976). The firm recently completed work on renovation of a section of MIT's Building 7 for Rotch Visual Collections (Rm. 7-304).

A native of Highland Park, Mich., Professor Lyndon received the AB and MFA degrees from Princeton University in 1957 and 1959. He came to MIT from the University of Oregon where he was head of the Department of Architecture from 1964-67. While head of the MIT Department of Architecture, he was visiting professor at the Bartlett School of Architecture, University College, London, (winter of 1970), and at the Department of Architecture, University of California at Berkeley (spring of 1973). From 1975-76 he was Kea Distinguished Professor at the School of Architecture, University of Maryland.

Professor Lyndon has served on many MIT committees, including the Corporation Joint Advisory Committee, the MIT Press Editorial Board, and the Building Committee. Recently he chaired the MIT Arts Advisory Group, which prepared a report, now under review, on MIT's needs for facilities to support the arts programs. He is also a member of the Executive Committee of the Council for the Arts.

Professor Lyndon lives in Newton with his wife, Alice (Atkinson), and their three children.

## Large Graphics In Hayden Corridor

A selection of contemporary large-scale graphics, "Big Prints," will be presented in MIT's Hayden Corridor Gallery from November 19 through January 2.

The works, all executed between 1971 and 1972, were commissioned by Bernard Jacobson, Ltd., in London.

Represented in the exhibition are lithographs and screenprints by leading American and English artists including Ed Ruscha, Tom Holland, Patrick Caulfield, John Walker, and Ludwig Sander.

Although thematically related by their ambitious size, the prints range in style from hard-edge and expressionist abstraction to a variety of figurative modes.

The exhibition is sponsored by the MIT Committee on the Visual Arts.

## Louis Skidmore Room Dedicated

Slide shows and photographic displays marked the dedication of the new home for the Rotch Library Visual Collections on Friday, November 19.

The dedication ceremony for the Louis Skidmore Room was attended by members of Mr. Skidmore's family and by representatives of the Council for the Arts, the School of Architecture and Planning, the Libraries, and the MIT administration.

The new room enables Rotch Library to consolidate most of its visual resources—slides, photographs, videotapes, films, and drawings—into a central facility carefully designed to provide a variety of work, study, and display spaces.

A gift from the architectural firm of Skidmore, Owings and Merrill contributed to the renovation of the room and exhibit areas in the adjacent corridor. The gift was made in memory of Louis Skidmore, a former student at MIT and co-founder of the internationally renowned architectural firm.

Professor Walter A. Rosenblith, MIT Provost, began the dedication ceremony by welcoming Mrs. Louis Skidmore and her sons, Louis, Jr., and Philip; John O. Merrill, Jr., of the San Francisco office of Skidmore, Owings and Merrill and a member of the Council for the Arts at MIT; Peter Hopkinson of the Boston office of SOM; and architect Marjorie Pierce of the Class of 1922, who knew Louis Skidmore in his student days. Professor Rosenblith described the Skidmore Room as a kind of

laboratory for architects and planners, providing for the visual arts a work place similar to scientific laboratories.

Louis Skidmore, Jr., of Skidmore, Owings and Merrill in Chicago, traced his father's career from his early studies in Boston until his death in 1962. Louis Skidmore, Class of 1923, studied architecture at MIT from 1921 to 1924. He received the Rotch Student Award, the Chandler Prize in 1923, and the Rotch Traveling Scholarship in 1926. In 1936, he joined in partnership with Nathaniel A. Owings, and in 1939, with the addition of John O. Merrill (MIT '19), the firm known as SOM was established.

Louis Skidmore, Jr. remarked that the firm had to survive through the difficult depression years, always maintaining excellence of design, encouraging young designers to play key roles, expanding the scope of services offered to clients, and working as a business without compromising quality. He commented that his father would wish the room named in his honor to be dedicated as well to future generations of faculty and students at MIT.

In accepting the room on behalf of the Libraries, Director of Libraries Jay K. Lucker observed that today's scholars do not live by books alone but by a wealth of visual images contained in slides, photographs, drawings, and microforms. He promised that the resources of the room would be made available to the entire MIT community to serve as the center of visual study materials at the Insti-

tute.

Dean William L. Porter of the School of Architecture and Planning noted that the Skidmore Room represents the collaborative effort of many people, including numerous alumni, faculty members, and Corporation members. He cited support from generations of the School's Visiting Committee chairmen: William E. Hartmann, a partner of SOM, I.M. Pei, and Norman B. Leventhal; and he congratulated Donlyn Lyndon of the Department of Architecture, whose firm, Lyndon Associates, designed the space.

Dr. James R. Killian, Jr., honorary chairman of the MIT Corporation, recalled his past association with Louis Skidmore and his family, and read a telegram from Mr. Owings that said, in part, "No memorial could be more fitting to his memory... always looking forward."

The Skidmore Room serves several purposes by effectively using a relatively small space. The collections are stored in file cabinets around the periphery and on the mezzanine. Suspended walls inside the room provide display area and projection surface. At one end of the room, individual light tables provide a place to assemble slides. At the other end, tables and chairs clustered around video, film, and slide viewing equipment create a study/seminar space. The functions of the room extend into the corridor by a series of wall and free-standing display cases.



INSPECTING THE FACILITIES OF THE LOUIS SKIDMORE ROOM, dedicated on November 19, are Louis Skidmore, Jr., Dr. James R. Killian, Jr., Mrs. Louis

Skidmore, Philip Skidmore, and Dean William L. Porter of the School of Architecture and Planning.

## Rosenblith Chairs Medical Meeting

Walter A. Rosenblith, MIT Provost and Institute Professor, served as 1976 meeting chairman in Washington, D.C., at the recent annual meeting of the Institute of Medicine.

The IOM meeting, held at the National Academy of Sciences with which the IOM is affiliated, was organized this year around the theme, "The Health Sciences and the Burden of Illness." Speakers during the two days of the meeting explored the relationship of research in biomedical and behavioral sciences to betterment of the health of the public.

## Medical Benefits Extended

MIT has implemented the new mandated mental and nervous act under Chapter 1174 and alcoholism treatment act under Chapter 1221, effective September 1, 1976. Essentially the act provides for certain minimum benefits to be paid under group health coverage for the treatment of mental illness and alcoholism. Further information is available from the Benefits Office, x3-4271 and at Lincoln Lab x659.

## Political Seminar To Hear Malbin

Dr. Michael Malbin, chief staff writer for the *National Journal*, will be the speaker for the Political Science discussion series on Wednesday, Dec. 1, at noon in the Milliken Room (E53-482).

"Carter Meets Congress" will be the topic of Dr. Malbin's speech. He received the PhD from Cornell University and has written extensively on national politics, election campaigns and congress. His most recent book deals with congressional staffs.

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



Car 8 trk stereo tape deck w/spkrs & tapes. Bill, x366 Linc.

Time-Life photog books. Barbara, x3-4401.

Push bttn am radio from '71 Merc Montego, v gd cond, \$10 or best. x5-8512 Dorm.

Canon FD 100-200 mm f5.6 zoom lens w/case, 10 mos, exc cond, best over \$100. Shankar, 498-4244, aft 10pm.

Royal port typwrtr, gd cond, \$25 or best. Rosanne, x3-5865.

Pr b nw Semperit tires, 195/70 SR-14 stl belt tubeless ww, \$45/ea. Irvin, x7382 Linc.

GE washer, \$90; 19" b&w TV, \$40; conv sofa, \$130; 2 dressers, \$40 & \$60; 2 end tbls, \$15/ea; sgl bed, \$20. Udy, 734-7129.

## Vehicles

'65 Ply Valiant, 6 cyl, auto, gd run cond, reliable & economical, \$250. Call 731-0635, aft 5pm.

'66 VW Sgqb, runs well, nw clutch, nds nw brakes, \$200 firm. x3-6462.

'67 Dodge Coronet, 2 dr sed, 273 V8, 2 barrel carb, std trans, 71 K, 1 ownr, \$400. Mike Lusch, x3-1851.

'67 Mustang, gd run cond, 4 gd tires, tape deck & spkrs, \$450 or best. Elinor, x3-5723.

'67 VW bus, body & eng gd cond, no rust, \$750. Call 641-0855.

'68 Linc Continental, all power, AC, amfm, nw starter & brakes, dependable trans, nds little work, \$300 or best. Call 484-0680, evgs.

'69 VW beetle, 90 K, gd cond, nw clutch & snows, '70 eng, lvg cntry, must sell, \$800 or best. Joseph, 864-5817, evgs.

'71 Peugeot 304, 4 spd, std, 4 dr, p brakes, gd cond, ask \$1,200. x3-2226.

'71 Vega Htchbk, std, snows, gd gas mileage, \$600 or best. Shing, x3-6466.

'73 Chevy Impala, 4 dr sed, 42 K, auto, w/blk vinyl roof, amfm, fac AC, exc conc, \$2,100. Peter, x3-1834.

'73 Vega, 2 dr htchbk, AC, 7 K, \$1,500. x3-3713.

'73 Volvo 145 wgn, auto, fuel injected, compl equip w/p st & br, AC, amfm stereo, roof rack, snows, 76 K, exc cond, \$3,600. Call 492-8835, aft 7pm.

'73 VW, exc cond mech & body, nw tires, 40 K. x8-1547 Draper.

'73 BMW 2002, metallic blu, 4 spd, Blaupunkt amfm, 4 nw mtd Michelin, sunfr, Konis, Semperit snows, 1 ownr, \$3,500. David Friedman, x3-4352.

'73 Pinto wgn, 4 cyl std, must sell, gd cond, 56 K, 2 nw Dunlop radials, \$1,600 or best. Call 321-1358, aft 7pm.

'73 Chevy Vega, yel, 24.5 K, exc cond, radio, AC, 4 spd std, must sell immed, \$1,800 or best. Danny, 247-8275, aft 5pm.

'74 Fiat 128 Sports, Fr blu, 4 spd, front whl drive, 34 mpg, am radio, 26 K, exc cond, ask \$1,950. Graham, x321 Linc.

'74 Ford Pinto wgn, gd cond, nw brake job, avail 12/1, \$1,600 or best. Hans, 354-6118.

'74 Fiat 128 sed, 16 K, radio, radial snows, exc cond, yel, must sell, \$2,000 or best. x7391 Linc.

'75 Cosworth Vega, 4 K, full wrnty, every option, \$4,500 or best. Tom, x3-5227.

'76 Ford Granada, grn, 6 cyl, auto, p st & br, low mileage, best reas. x3-2772.

## Housing

Arj, BR apt, MIT affil, nr T, off-st pkg, avail mid Dec, \$240 incl ht. Call 643-8796.

Back Bay, nr Kenmore Sq, avail immed, \$150. Matt, 266-4363.

Camb, fully furn 2 BR apt, LR, K, btwn MIT & Lchmr, safe nrhd, sub avail 2/1, \$175 + gas & elec (approx \$10). Mike, x3-1917.

Lex, Five Fields, mod 5 BR hse, lg playrm, common land w/cmnty pool & playground, lg secluded lot, avail 1/1, rent \$700. x3-3326.

Waltham, BR mod apt in Windsor Village, avail 1/1, rent incl all but elec. Henry, x3-5815.

Ski chalet, Wht Mtns, on large lake nr major ski areas, still avail to sm grp or indiv for Christmas-NY wk, other vac wks/wknds, also seas share avail. Roy, 547-6093.

S Vt, ski chalet avail Christmas nr your holiday, 3 BR, LR w/frpl, den w/frpl, all elec, mod facils. x477 Linc.

## Animals

Dreeps for sale, cute as kittens, hsebrkn, make great Christmas gifts, \$10. Glenn, x3-2245, or drop by Rm 5-007.

Free kittens: 7 wks old, healthy, litter trained, 3 tiger, 2 b&w. Jim, 245-8239, evgs.

Frdly, beaut tortoiseshell f cat, all shots, lks for gd home. Claudia, x3-4964.

Borzo pups, show quality, wormed & shots, priced to sell. x3-1907.

## Lost and Found

Found: if you own a tri-color collie & left pr gloves on Harvard bus Fri, Nov 12, call Stan, x5-9275 Dorm.

Lost: set of keys. x3-5109.

Found: calculator in Rm 38-500 area. x3-4675.

## Wanted

M sz 13 figure or hcky skates. Skates, Steve, x3-4680.

Animal carrier for train or plane trips, must be lg enough for Hungarian puli (about 2'1" hi). Call 247-2986.

Catalina, Oday or Ventura 22' sailboat, trailable. George, x3-5854.

Manual for Hallicrafter's Super Skyriker SW radio. Rob, 536-5146, evgs.

Seamstress to make blouse from embroidered mat'l. x3-6084.

(2) sets bunk beds w/matt, gd cond, reas. Shelly, x3-2686.

Intermediate handball partner. Steve, x3-6330.

Fancy old brass bed. Pam, x3-4977.

## Roommates

Rmmate to share 4 BR Allston apt, avail mid Dec or Jan 1, 1/2 blk Grn Line, \$112.50 + util. Call 254-2506.

Magnolia, comf furn hse built 1704, 35 mi N of Bos, mod K w/dw, DR, LR w/frpl, 4 BR, 1 1/2 B, desire 2 adults, \$300 + util. Mrs. Johnson, 525-3180.

Furn rm to sub, apt 3E Tang Hall, 12/15-1/31, must be MIT affil f, \$121/mo. Anu, 494-9234, aft 5pm.

For Cent Sq apt, nr T, qt nrhd, share w/2 other stus, \$75. Call 491-0608, aft 8pm.

## Carpools

Ride neded to Canton, lvg Draper 4:30. Marie, x8-4541 Draper.

## Miscellaneous

Any kind of typing done. Susan, x3-4701.

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

Prof, exper typist, w/ type anything, tech, etc, v reas rates, IBM Correct Selec II. Laurie, x3-7280.

W/ type theses, Manu, reports, etc, IBM Selec. Carol, x3-4153.

Ride neded to Daytona Bch area, or w/ drive your car to Fla, arrive bef 1/3. Lou, x7126 Linc.

Hrdwd floors prf sanded & refinished, 45c/sq ft. Christine, x3-2743.

# 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 — Paulette Chiles)

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

Administrative Staff, Systems Analyst (Project Manager) in the Office of Administrative Information Systems to be responsible for external specifications and implementation of major new or revised computer systems. Duties include feasibility studies; assisting users in defining objectives; developing dollar and staff budgets for proposed systems, overseeing documentation and user manual preparation. A Bachelor's degree, or equivalent professional experience in systems analysis and other computer related activities are required. Some supervisory experience desirable. A76-53 (11/24).

Administrative Staff, Applications Programmer, in the Office of Administrative Information Systems to write new or modified programs; prepare logic diagrams and data flow; test and debug programs; assist users with program problems. Will also attend instructional classes, seminars, etc., as necessary, to develop and maintain skill. Programming experience in a professional capacity as well as an Associate's degree required. A76-44, A76-51, A76-52 (11/24).

Sponsored Research Staff, Scientific Programmer, in the National Magnet Laboratory to support research in applied magnetism, magnet design, magneto optics, quantum optics, magnetism and superconductivity, plasma physics and molecular biophysics. Bachelor's degree in mathematics, an applied science or computer science, a minimum of one year's programming experience required. Experience with any of the following languages/systems desirable. Fortran IV, PL/I and assembly languages, OS/MVT/ISO on the IBM 370, Multics on the Honeywell 6180, DOS/BATCH and RSX-11M on the DEC PDP-11. D76-221 (11/24).

Sponsored Research Staff, in the Center for Cancer Research to provide tissue culture and other media for a group of laboratories, applying stringent quality control techniques. May perform other lab duties as required. A BS degree or equivalent in Chemistry or Biology is required as well as ability to manipulate chemical formulations and a mechanical aptitude. Position may involve maneuvering heavy containers. D76-222 (11/24).

Sponsored Research Staff, Biochemical Technologist, to participate in biochemical/biophysical study of lens cataract formation (Physics Dept.). Techniques include column chromatography, gel electrophoresis, spectroscopic assays, optical mixing spectroscopy and computational methods. Bachelor's degree in a basic science required. Laboratory experience, organization skill and technical flexibility preferred. D76-204.

Sponsored Research Staff, Research Analyst, in the Center for Policy Alternatives, a multidisciplinary academic center conducting research in various current issues. Will work on several sponsored projects in the areas of manpower markets for scientific, technical, engineering and professional personnel; collect data and develop time-series and cross-sectional data bases; econometric analyses of supply and demand factors; develop models for forecasting labor market behavior. A Bachelor's degree, a strong background in economics with experience in developing econometric models is required, as well as familiarity with labor economics and strong written and oral communications skills. D76-220 (11/17).

Admin. Staff, Programming Analyst, in the Information Processing Center User Services Group to provide programming information and debugging help to users; produce user documentation; conduct seminars, workshops, short courses; implement and maintain software such as debugging compilers, utility tools, plotting packages. A bachelors degree, or equivalent, strong experience with large time-sharing systems, PL/I, Fortran and system control languages required. Communications and documentation skills necessary. A76-49 (11/17).

Academic Staff, Technical Assistant, in Biology Department Microbiology/Biochemistry laboratory studying the molecular biology of mutagenesis. Activities include growth of bacteria and phage, isolation of mutants, running gels and columns, isolation of plasmids, pouring plates, use of Ames Saomonella/microsomal screen for detecting carcinogens as mutagens and other lab operations. Will be involved in laboratory organization and will be responsible for ordering basic lab supplies. A Bachelors or Masters degree in microbiology/biochemistry is required. C76-21 (11/17).

Exempt, Principal Operator, for Physical Plant Facilities Management System (a system to monitor mechanical and electrical environment). Will supervise: monitoring and record keeping aspects of system; coordinate section's reaction to emergency situations; may perform inspection, tests and analysis of control system components. An Associates Degree in engineering, or science, or equivalent is required. Technical and practical familiarity with electrical, electronic and mechanical components of control systems as well as demonstrated analytical skills relative to commercial and industrial HVAC systems are also necessary. Experience as a maintenance mechanic servicing a broad variety of HVAC is highly desirable. E76-41 (11/24).

Administrative Assistant V, for the Environmental Impact Assessment Project, Department of Urban Studies and Planning. Will assist in coordinating activities of large faculty/student research team; assist in preparation of publicity materials; monitor and prepare reports on progress of various segments of the project; arrange meetings with state agency representative; coordinate preparation and distribution of monthly newsletter; handle all day-to-day administrative aspects of the project. Excellent organizational ability is required as well as familiarity with newsletter and report preparation, typing skill. Experience in environmental planning, in dealing with government agencies and MIT experience preferred. Duration of project will be two years. B76-606 (11/24).

Sr. Secretary V to the Director of the Planning Office, will perform secretarial duties for Director and professional staff; answer correspondence independently and/or from verbal instruction; organize meeting agendas; arrange business meetings, luncheons; handle some manuscript editing; maintain budget records; assist in budget preparation; type correspondence and reports; coordinate work of other secretaries during peak work loads. At least 5 years responsible secretarial experience, or college training and 3 years secretarial experience required. Position also requires ability to transcribe machine dictation and to work under pressure. Interest in planning and/or architecture helpful. B76-527.

Secretary IV, to academic staff member involved in international research in the Center for Policy Alternatives will perform general secretarial duties including shorthand transcription; composing correspondence; arrange travel and meetings; coordinate proposal and report preparation. Excellent typing and shorthand skills, organizational ability, fluency in Spanish and/or Portuguese required. A Bachelor's degree and a minimum of 3 years secretarial experience desirable. Position includes overtime. B76-613 (11/24).

Secretary IV, to two faculty members in International Management, Sloan School. Will prepare course materials; type and edit manuscripts; arrange foreign travel, appointments, meetings; maintain student records; do occasional library research. Excellent typing, shorthand/speedwriting skills required as well as ability to transcribe machine dictation and a command of the English language. Two or more years secretarial experience preferred. B76-609 (11/24).

Secretary IV, to Architect and other professional staff in Physical Plant will type professional reports; arrange travel; maintain budget records and assist in budget preparation; arrange format, verify footnotes and references on manuscripts; may coordinate work of other secretaries in peak periods. High school training, or equivalent, plus 2 years secretarial experience or equivalent combination of education and experience required. Interest in architecture helpful. B76-610 (11/24).

Secretary/Receptionist IV, in the Medical Department Ear, Nose, and Throat Clinic will schedule appointments; transcribe medical notes and perform other secretarial duties as necessary. Additionally, will act as receptionist for 2 other clinics and a health care team. Excellent typing, ability to deal effectively with the public, previous experience, preferably in a public-oriented secretarial position required. 37 1/2 hr/wk. B76-605 (11/24).

Secretary IV, in the Medical Department Nursing and Surgical Service to provide reception and secretarial support to Nursing Service and Surgical Service. Type correspondence, reports, surgical notes, arrange travel; answer phones; schedule surgery with local hospitals; arrange patient admissions and discharge. Excellent general secretarial and organizational skills required. Secretarial experience in a busy setting also necessary. B76-595 (11/17).

Secretary IV, Part-time, to handle general secretarial duties for three Mathematics Department faculty members. Will type a large volume of technical material (manuscripts, class material); answer phones; arrange travel. Technical typing experience, ability to work under pressure required. 20 hr/wk. 1pm-5pm Mon. through Fri. B76-598 (11/17).

Secretary IV, part-time temp., in the Dean for Student Affairs Office will act as departmental "floater" secretary; perform general secretarial duties; type various material; answer phones; schedule appointments; interact with students, faculty and staff. Good typing skills and telephone manner, sensitivity and tact in dealing with people, flexibility to respond to direction from more than one person is required. 20 hrs/wk. Temp. through approx. 12/23/76. B76-603 (11/17).

Secretary IV in Resource Development's Leadership Campaign Office to provide general support: arrange appointments; travel; compose correspondence; type from machine dictation. Requires excellent typing, organizational skills; ability to set priorities and work independently. At least 2 years experience necessary. College background plus MIT experience preferred. B76-602 (11/17).

Secretary/Library Asst. IV, in the Dewey Library to perform general secretarial duties for the Head Librarian; maintain supplies; prepare student payroll; answer phones; assist at the public service desk and in processing specialized materials. Good typing skills, flexibility for changing assignments, ability to handle details with accuracy required. Formal secretarial training preferred. Library experience desirable. Position includes occasional evening or weekend work on a prearranged schedule. B76-593 (11/17).

Secretary III-IV, in Nutrition and Food Science headquarters will perform receptionist duties; type reports, correspondence, manuscripts; answer phones. Good typing and general secretarial skills required. Shorthand, familiarity with medical, biological and/or chemical terminology; secretarial school training helpful. B76-611 (11/24).

Secretary III-IV, in Mechanical Engineering. Will independently answer routine inquiries; monitor accounts; arrange conferences and social meetings; prepare course materials, correspondence, reports including some technical material; maintain student records; coordinate activities of student and faculty groups. Excellent typing, organization skills required. Shorthand skills, College and secretarial training preferred. B76-592 (11/17).

Secretary III, Temporary, in the Career Planning and Placement Office to handle typing duties related to spring recruiting activities; coordinate activities with students and recruiters; rotate coffee set up for recruiting sessions with others. Typing skill, ability to work effectively with people required. Familiarity with MIT helpful. B76-604 (11/24).

Secretary III, headquarters secretary in Materials Science and Engineering. Will handle varied duties: act as receptionist; arrange meeting and luncheons; maintain supplies and files; pick up and deliver materials at various MIT locations; type forms, memos, correspondence. Typing skills, ability to work under pressure required. 40 hr/wk. B76-594 (11/17).

Sr. Clerk III, part time, in the Treasurer's Office will type gift records; transcribe machine dictation; operate Magcard equipment; file; perform other clerical duties as necessary. Good typing, English grammar skills, ability to handle detailed work accurately required. 20 hr/wk. 1pm-5pm B76-612 (11/24).

Clerk III in Accounts Payable section of Comptrollers Acctg. Office. Will apply discounts to invoices; apply payments to purchase orders, audit invoices; prepare listings of outstanding commitments. Compute totals on processed invoices and prepare records for keypunching. Ability to work with figures as well as proficiency in use of adding machine required. B76-335.

Sr. Clerk III, in Aeronautics and Astronautics to handle all aspects of payroll reporting; distribute petty cash; handle purchasing and payment procedures; assist in financial report and budget preparation. Formal training in accounting or equivalent experience required. Facility with detailed work, command of English language required. Non-smoking office. B76-596 (11/17).

Clerk III, in Physical Plant to operate a Computer Console which monitors mechanical and electrical aspects of the Institute environment. Duties involve communications with Work Control Center, Heat and Vent, and others by telephone, radio page and other means. Respond to alarms and emergencies; handle related clerical procedures. Typing skill, command of English language required. Work experience in a physical plant department (or equivalent), familiarity with HVAC Control systems (electrical and pneumatic) helpful. Ability to react effectively in emergency situations necessary. 40 hr/wk. Position occasionally involves an irregular schedule. B76-600 (11/17).

Clerk Typist II-III, part-time in the Industrial Liaison Program to handle general typing assignments: mailing labels, bibliographies, and other materials. Excellent typing skill required. 15 hr/wk. B76-601 (11/17).

Computer Operator IV, in the Laboratory for Nuclear Science. Will operate IBM 360/65 Operating System; perform all phases of batch processing installation, maintain log of software and hardware malfunctions; assist in resolving related problems; perform necessary maintenance functions (i.e. clean tape drives) Ability to operate the IBM 360/65 Computer Complex including Console without supervision, knowledge of HASP and OS Operating Commands required. 40 hr/wk. 4pm-midnight B76-597 (11/17).

Keypunch Operator III, in the Admissions Office to operate IBM 029 and verifier. Ability to operate this equipment and to work under pressure is required. Position is part-time during spring and summer, full-time during balance of year. B76-607 (11/24).

Cashier III, in Comptrollers Accounting, Cashier's Office. Will receive and disburse cash; prepare receipt slips; log mail receipts; cash personal checks; prepare checks for deposit; prove cash fund. At least two years related experience, ability to handle a large volume of cash transactions with accuracy, to work effectively with others, and to use an adding machine required. B76-608 (11/24).

Technician A, in Aeronautics and Astronautics Gas Turbine and Plasma Physics Laboratory. Will assist in laboratory research or analytical work. Graduation from a 2 years applicable experience required. Technical capabilities should include mechanical assembly, piping, some machining, and wiring of electronic circuits from schematics. Solid state experience helpful. Candidate will be required to acquire a State Blasting License. H76-122 (11/24).

Waiter/Waitress, hourly, part-time in Faculty Club to set tables, take orders, serve food and beverages on banquet trays, clean and reset tables; dust chairs; wipe tables. Experience helpful but not necessary. 11:00am-3:00pm, Mon-Fri. Some evening and weekend work may be required.

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

ADMINISTRATIVE STAFF:  
A75-71, Documentation Manager, Admin. Info. Systems (7/14)  
A76-19, Systems Planner, Info. Processing Serv. (7/14)  
A76-37, Dir. MIT Educ. Council, Admissions (9/29)  
A76-40, Systems Prog., Info. Proc. Serv. (10/20)  
A76-42, Programmer, Resource Planning (10/27)  
A76-43, Asst. Dir./Prog., Office of Spns. Prog. (10/27)  
A76-45, Special Asst., Off. of the Chairman (11/3)  
A76-46, District Officer, Resource Devel. (11/10)  
A76-47, Facilities Inventory Auditor, Off. Fac. Mangt. Syst. (11/17)  
A76-48, Investment Real Estate Off., Treasurer's Off. (11/17)

BIWEEKLY:  
B76-204, Tech. Typist III, Res. Lab. of Elec. (8/25)  
B76-262, Admin. Asst. V, National Magnet Lab. (10/20)  
B76-334, Sec. III, Sloan School (8/25)  
B76-336, Sec. IV, Ctr. for Space Res. (8/25)  
B76-348, Sr. Clerk III, Registrar's Office (8/25)  
B76-349, Sr. Clerk III, Registrar's Office (8/25)  
B76-359, Sr. Clerk III, Devel. Office (8/25)  
B76-365, Production Asst./Sec. IV, Campus Info. Serv. (8/25)  
B76-366, Sec. IV, Humanities (8/25)  
B76-377, Sec. IV, Chemical Eng. (11/10)  
B76-392, Sec. IV, Alumni Assoc. (9/8)  
B76-432, Sec. IV, Political Sci. (10/20)  
B76-438, Sec. IV, Joint Ctr. for Urban Stdy. (9/15)  
B76-441, Sec. IV-V, Off. Fac. Mngmt. Syst. (11/17)  
B76-470, Sec. IV, Resource Devel. (9/22)  
B76-498, Sec. IV, Biology (10/27)  
B76-511, Asst. Computer Oper. III, Office Admin. Info. Systems (10/6)  
B76-525, Sec. IV, Physics Dept. (10/13)  
B76-526, Sec. IV, Ctr. for International Stdy. (10/13)  
B76-539, Clerk III, Physical Plant (10/13)  
B76-554, Sec. IV, Chemistry Dept. (10/27)  
B76-562, Sec. III-IV, Treasurer's Off. (11/3)  
B76-572, Sec. IV, Biology (11/10)  
B76-576, Sec. IV, Nutrition Food Sci. (11/10)  
B76-584, Sec. IV, Nutrition Food Sci. (11/10)  
B76-586, Admin. Asst. V, Mathematics (11/10)  
B76-591, Sec. IV, Humanities Dept. (11/17)

ACADEMIC STAFF:  
C76-6, Microbiologist, Medical Dept. (4/21)  
C76-11, Asst. Radiation Protection Officer, Medical Dept. (8/11)  
C76-13, Admin. Officer, Div. for Stdy. & Res. in Educ. (11/10)  
C76-14, Tech. Asst., Biology Dept. (9/15)  
C76-18, Nursing Super., Medical Dept. (10/20)  
C76-19, Institute Archivist, Librarian, Libraries (10/27)  
C76-20, Chemical Engineer, Energy Lab. (10/27)

SPONS. RES. STAFF:  
D75-48, Economist, Energy Lab. (6/25)  
D75-161, Economist Policy Analyst, Energy Lab. (9/15)  
D76-17, Biochemist, Res. Lab. of 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)  
D76-84, postdoc. res., Res. Lab. of Elec. (6/2)

# 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 telephoned to Ext. 3-3270 or mailed to Room 5-111. Please submit all ads before noon, Friday, Nov 26. They will be printed on a first come first serve basis as space permits.

## For Sale, Etc.

Great buy: Pioneer 55X trntrl w/Stanton 600 EE crtrdg, few mos, lite usage, \$140 or best. Dwight, 494-9820, lve msg.

Pr 15" Buick rims, \$7.50. Mac or Ray, x444 Linc.

Sears gas dryer, 2 yrs, used only 10 mos, w/vent tubing, \$135. Don, x3-3739.

F Xentry Fabiano ski boots, 7 1/2 N, \$18; 2 yng m Hyde hcky skates, sz 8, \$15; f fig skates, sz 8, \$5. Call 862-1935.

(2) pr Yamaha 170 cm skis, comb fbrlgas w/Solomon bndgs; pr sz 7 xtra N Rieker boots; pr 7 1/2 N Henke boots; exc cond, best. x7532 Linc.

Pr E78x14 stud Frstne snows, mtd Ford rims, v gd cond, \$30. Leo, x3-3424.

Swyngmatic baby swing. Amparo, 494-0073, evgs.

Twin orthopedic matt w/base, bought nw 6 mos ago \$130, \$70. Call 494-9083.

Philco 23" b&w TV, 14 mos, \$85; 2 fl jacks, \$10/pr. Call 646-0181, aft 6pm.

Chest style freezer, old but runs well, \$75. Call 352-6663, aft 6.

K sz off-the-floor waterbed, \$175. Call 494-9078.

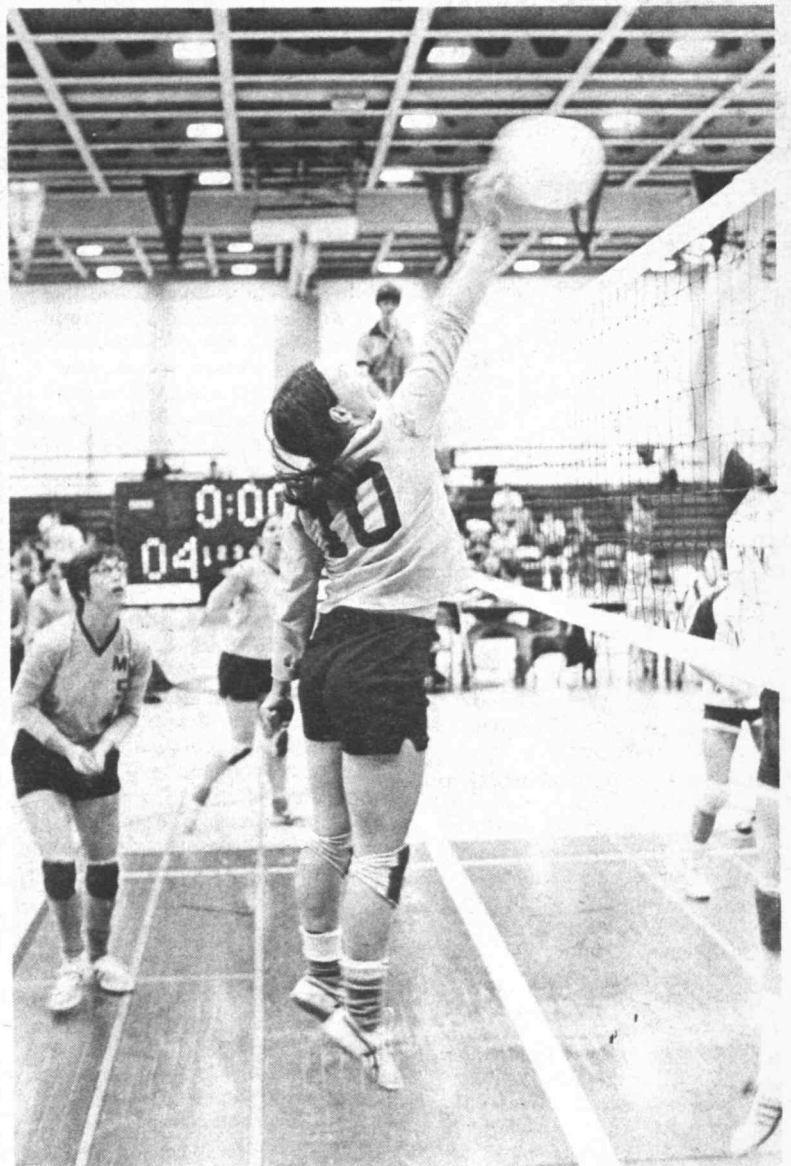
Solid office desk & chr, \$35; contemp K tbl & 4 chrs, \$45; dbl matt, \$40; fan, \$8; grn carpet, \$20; wht cups; glasses; K furn; yel draperies; refrig, \$60. Call 926-2129.

Used pr stud belted snows, F78x14, mtd Chevy (Pont) rims, gd cond, real cheap; nw F78x14 belted Frstne, mtd & blncd, nw Chevy rim, cheap; other useable GR78x14 Frstne radials, mtd, give if buy anything; \$30. Yum, x3-6907, lve msg.

AR trntrl w/nw H95 crtrdg, \$75; GE stereo cassette deck, \$70; Honeywell Pentax 35 mm camera w/case & fl.8 lens, \$125. x3-5775, lve msg.</



# Women's Volleyball Team Earns Championship Try



LISA JABLONSKI SPIKES A SHOT during the Eastern Volleyball Championships last week in Mansfield, Penna. With nine straight successful serves, Ms. Jablonski led the team to a tie from an 11-2 deficit in a game they eventually lost to Mansfield State. The Engineers went on to win the championship, however, and will travel to California for the national championships in December. At left are Lisa Albright and Karyn Altman.

—Photo by Mark James, courtesy of The Tech

# Inner City Funds Diverted

(Continued from page 1)  
expense of the poor.”  
“Early evidence suggests that local governments have used their freedom to shift funds quickly from poverty neighborhoods to other parts of the city,” they write, “with at least tacit federal approval.”

“And despite the rhetoric of local government control,” they continue, “national policy is encouraging the use of federal money for public works projects and discouraging its use for public services.”

These trends, the report said, have led to such projects as the tennis complex in Arkansas, a convention complex and downtown parking garage in Spartanburg, South Carolina, and a fire station in Gulfport, Mississippi—all judged by HUD, on review, to be legal activities, but all built with money designed to help low- and moderate-income people.

Similarly, Alhambra, California, intended to use Community Development Revenue Sharing funds to expand a golf course, and Honolulu to improve a zoo, but local challenges delayed those projects.

Guidelines require each community to provide citizens with adequate information about planned projects and to hold at least two public hearings to obtain citizens' views. But the law gives final authority for local decisions to elected officials, who can certify that projects meet “a particular urgency” even if they do not directly benefit the poor or help prevent blight.

Thus, Frieden and Kaplan argue, the intent of the program is being undermined at the expense of minorities and poor people, who “are no longer in fashion.”

In some areas of the country, they contend, Community Development Revenue Sharing “is becoming a wasteful public works program with

no evident purpose of its own. In other cases, leakage of funds beyond the neighborhoods of the poor minimizes the already rather fuzzy social priorities in the statute.”

According to Frieden and Kaplan's analysis, the program is not only channeling funds away from low-income neighborhoods, but is also reducing the flow of federal aid to the nation's older and poorer cities. Despite Congressional intentions to distribute community development funds according to established poverty indicators, they find that the distribution formula in the law “is actually shifting money away from cities with concentrations of poor people and into communities which are more affluent.”

The program, the report concludes, “is doing less than it could and much less than Model Cities did to give poor people a piece of the action.”

The authors do not recommend returning to Model Cities or to the categorical grant approach. But they think that early legislative action is needed to redirect Community Development Revenue Sharing to its declared goal and “to give the urban poor a fair share of resources for community development and a chance to help decide what kinds of projects are appropriate.”

Frieden, a professor of urban planning at MIT and former director of the Joint Center for Urban Studies, and Kaplan, a former consultant to HUD, undertook the study for a symposium on the results of

Johnson Administration programs as they evolved in the 1970s, sponsored by the Lyndon B. Johnson Library in Austin, Texas. In presenting their findings to an audience of scholars, public officials, and former Cabinet members of the Johnson and Nixon Administrations, they offered a number of specific recommendations for redirecting the Community Development Revenue Sharing program.

“What is needed,” they state, “is a deliberate federal strategy that recognizes the continuing special claims of poverty populations to a fair share of national resources, and a willingness to deploy the three types of federal aid (general revenue sharing, community development block grants, and categorical programs) according to this strategy.”

A key recommendation is to have the law establish a specific minimum percentage of funds to be used for low- and moderate-income families or in low-income neighborhoods in each community. The authors also call for the revision of the federal allocation formula in order to distribute aid to cities according to more accurate measures of need.

“Although Community Development Revenue Sharing is off to a poor start in our view,” they conclude, modifications could make it “a legitimate format for federal aid to urban areas.”

The program, they said, can yet offer cities “increased opportunities to improve the quality of life for low- and moderate-income people.”

## Energy Demands Examined

(Continued from page 1)  
many as 69 categories of energy use.

The categories, Professor Wilson said, “represent the principal energy-consuming activities in national economies and, taken together, account for the total energy demand.”

“Sectoral energy use is projected as the product of an economic activity level (for example, the number of vehicle miles traveled) and an energy-use efficiency (for example, miles per gallon).”

“The year before the oil crisis, 1972, was selected as the base year. In each Workshop country, base year

energy-use data have been compiled...from a variety of sources. This collection of base year studies from 13 major energy-consuming countries represents a unique body of data.”

Energy use in some subsectors of the United States is projected to grow at significantly higher or lower rates than the total energy demand, the WAES study projects. For example, U S industrial energy use, as a percentage of the total, is projected to increase from some 27 percent in 1972 to about 30-32 percent in 1985 due to relatively greater efficiency improvements in other sectors as well as to higher growth rates in the industrial sector.

Transportation energy use, on the other hand, declines from 32 percent of the total in 1972 to about 28 percent in 1985, reflecting the projected large improvements in energy efficiency in this sector.

“Chemicals, iron and steel, petrochemical feedstocks, and residential energy use are expected to be high energy growth sectors. In contrast, energy use by automobiles will decline from 1972 to 1985 because of the substantial improvements projected in mileage efficiency.”

Professor Wilson designed the structure of WAES in 1974 “as an experiment with a new mode of assessment for critical global problems” because intergovernmental machinery “rarely can afford a time horizon longer than that of governments—usually less than five years—and is not well designed for the conduct of assessments involving a mixture of political, social, economic and technical factors for a period 10-25 years into the future.”

In addition to the 35 WAES Participants, there are more than 40 Associates involved in the project. The Workshop has its secretariat at MIT. The national teams of Participants and Associates come from the U S, Canada, the United Kingdom, West Germany, France, Italy, Denmark, Sweden, Norway, Finland, The Netherlands, Japan, Mexico, Iran and Venezuela.

Participants from the United States are:

- Thorton F. Bradshaw, president, Atlantic Richfield Co.
- Walker L. Cislser, retired chairman of the board, Detroit Edison Co.
- John T. Connor, chairman of the board, Allied Chemical Corp.
- Richard C. Gerstenberg, director and former chairman, General Motors Corp.
- Dr. H. Guyford Stever, Science Advisor to the President.
- Associates from the United States are:
- Walter F. Allaire, director,

## Obituaries

### Matthew Sullivan

A funeral Mass was held Friday, Nov. 19, in Lexington for Matthew H. Sullivan of Lexington, formerly of Arlington, a Lincoln Laboratory employee who died Tuesday, Nov. 16.

Mr. Matthews, 53, was a utility man at Lincoln Laboratory. He had been employed by Lincoln Lab since 1949.

Mr. Matthews leaves his wife, Elizabeth M. (McLellan), two stepdaughters, Elizabeth Serpa of Bedford and Stephanie Hannon of Allentown, Pa.; and a stepson, Paul Meroth of Arlington. He is also survived by two brothers, Charles Sullivan of Scituate, R.I., and Edward Sullivan of Belmont; two sisters, Margaret Sullivan of Arlington and Catherine Doyle of Braintree; and several nieces and nephews.

In lieu of flowers, the family asks that donations be made to the American Cancer Society, 247 Commonwealth Ave., Boston.

### P. L. Donaldson

Funeral services were held yesterday (Tuesday, Nov. 16) at 11am at the Mann-Mann and Rogers Funeral Home, Jamaica Plain, for Peter L. Donaldson, a retired foreman at Lincoln Laboratory, who died Saturday, Nov. 13.

Mr. Donaldson, 73, a resident of Jamaica Plain for 37 years, was a native of Scotland. He came to Lincoln Laboratory in 1952 and was a foreman when he retired in 1968.

He was past member of the 4th Lodge in Instructions of the Masons, a member of the board of representatives for the Masonic Relief and past master of the Eliot Lodge of Masons.

Mr. Donaldson is survived by his widow, Isabel A. (Allan), a sister, Mrs. May Anderson, and a brother, Leslie Donaldson, both of Scotland.

- D76-108, Eng. Prog., Res. Lab. of Elec. (7/14)
- D76-113, Res. Engineer, Ctr. for Trans. Study. (7/14)
- D76-115, Immunologist, Clinical Res. 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 Res. Ctr. (8/11)
- D76-131, Research Analyst, Ctr. for Policy Alternatives (7/28)
- D76-140, Operations & Instrumentation Manager, National Magnet Lab. (8/25)
- D76-151, Magnet Design/Mathematical Analyst, National Magnet Lab. (9/15)
- D76-154, Experimental Physicist, National Magnet Lab. (9/15)
- 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. (11/13)
- 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)
- D76-198, Res. Engineer, Energy Lab. (10/20)
- D76-203, Scientific Prog., Elec. Syst. Lab. (10/27)
- D76-208, Technical Writer, Aero/Astro Innovation Ctr. (11/3)
- D76-209, Biochemist, Nutrition Food Sci. (11/3)
- D76-210, Radiochemist, Nuclear Reactor Lab. (11/3)
- D76-211, Plasma Physicist, National Magnet Lab. (11/10)
- D76-212, Fusion Reactor/Res., National Magnet Lab. (11/10)
- D76-213, Reading & Writing Specialist, Provost's Off. (11/10)
- D76-217, Programmer/Analyst, Joint Ctr. Urban Study. (11/17)
- D76-218, Biologist, Ctr. for Cancer Res. (11/17)

- EXEMPT:
- E76-34, Admin. Asst., MIT Press (9/22)
  - E76-37, Admin. Asst., National Magnet Lab. (10/13)
  - E76-40, Systems Programmer, Info. Processing Serv. (11/3)

- HOURLY
- 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:
- A76-34 Admin. Staff
  - D76-147 Spons. Res. Staff
  - D76-162 Spons. Res. Staff
  - B76-558 Sec. V
  - C76-15 Asst. Staff
  - B76-589 Sec. IV
  - B76-564 Sr. Clerk III
  - B76-486 Sec. IV
  - B76-590 Sec. V
  - D76-189 Spons. Res. Staff
  - B76-506 Sec. IV CANCEL
  - B76-591 Sec. V
  - B76-559 Sec. IV
  - B76-569 Clerk III
  - B76-578 Sec. IV
  - E76-35 Exempt
  - B76-599 Sr. Clerk III-IV
  - H76-92 Tech. A
  - B76-400 Sec. IV

- The following positions are on HOLD pending final decision:
- B76-581 Sr. Clerk III
  - B76-582 Sec. IV
  - B76-583 Sec. IV
  - D76-148 Spons. Res.
  - E76-32 Admin. Asst.

the University of Baltimore came in fourth.

Both MIT and Mansfield State will now travel to Pepperdine University, Malibu, Cal. to compete in the AIAW National Championships to be held December 7-11. The two teams will represent the Northeast region and will compete against teams from the other seven districts in the US for the national title.

## Skating Lessons

Skating lessons for children, ages six to 14, will be offered by the Athletic Department on Saturday mornings beginning December 11.

A series of eight hour-long lessons will be given. Beginners' classes will be held at 10am to be followed by advanced skating at 11am.

Each class will be limited to 30 children. An athletic card is required for registration together with a \$15 fee for the lessons. Deadline for registering is Wednesday, Dec. 8.

Registration forms with further details are available in Rm W31-117 or the Athletic Department headquarters.

## Alumni Lacrosse Interest Sought

Lacrosse coach Walter Alessi is wondering if there is enough interest to organize what would become an annual Alumni Lacrosse Weekend.

The weekend would include a Saturday home varsity game, a post-game cocktail hour and/or dinner and an alumni game on Sunday. Or perhaps just an alumni game.

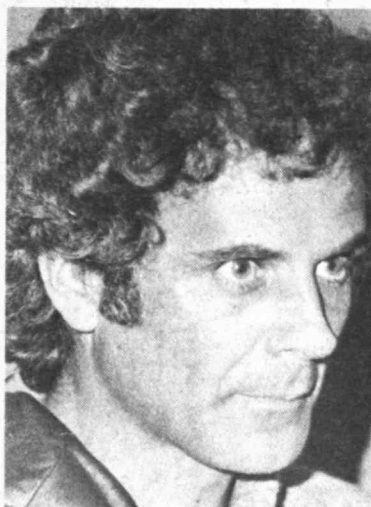
In 1977, the weekend involved would be May 7-8. On Saturday, the varsity plays Brandeis at home at 2:00pm, the cocktail/dining hour could be 5:30-? and the alumni game would be at 1:00pm on Sunday.

Those interested in a lacrosse weekend of this kind should notify Coach Alessi in writing as soon as possible.

—Dr. H. Paul Root, director of economic studies, General Motors Corp.  
—Dr. David Sternlight, chief economist, Atlantic Richfield Co.



# The Fires of London Plan Performance in Kresge



Fires leader Peter Maxwell Davies

By KATHARINE CHILDS JONES  
Staff Writer

The Fires of London, England's avant-garde music group conducted by composer Peter Maxwell Davies, will perform two music-theatre works in MIT's Kresge Auditorium at 8:30pm on Sunday, November 28.

The group will perform Schoenberg's *Pierrot Lunaire* and Maxwell Davies' *Missa super L'homme Armé* at the concert sponsored by the MIT Music Section and arranged in association with the British Bicentennial Arts Committee. The public is invited free of charge.

The Fires of London, an eight-member ensemble formed in 1970, performs significant works of music-theatre (a genre they brought to world attention in the late 1960s and early 1970s), twentieth century classics, and serious, contemporary chamber music, as well as works of early composers. They have appeared in concert at major international music festivals and on radio, television, record and film throughout Europe, Australia, and New Zealand.

The program will open with a performance of *Pierrot Lunaire*, a free, atonal composition considered to be the outstanding work of Arnold Schoenberg's middle period. A theatrical work, it was composed in 1912 for reciter and small instrumental ensemble (piccolo/flute, clarinet/bass clarinet, violin/viola, cello, and piano). *Pierrot*, the one-time clown of early Italian pantomime and puppet shows, appears here in romantic guise as a sensitive artist and lover whose only faithful confidante is the moon. The text is 21 rondeaux (a French poetic form) drawn from Albert Giraud's 50-poem cycle, *Pierrot Lunaire*, and grouped by Schoenberg into three parts of seven poems each.

A striking feature of the work is the use of *Sprechgesang* or speech-song whereby the reciter follows the indicated notes and rhythms but abandons the pitch right after singing it and slides up or down to the next pitch. The effect is midway between singing and speaking.

The instruments—all used only in the final number—are a source of various ensembles providing characteristic instrumentations for the different pieces.

Maxwell Davies' *Missa super L'homme Armé*, the second work on the program, was composed in 1968. It combines stereo tape, pre-electric gramophone horn, and player piano with conventional sound sources such as the clarinet, violin, and cello.

Members of The Fires of London, in addition to Maxwell Davies, are Mary Thomas, soprano reciter; Judith Pearce, flutes; Alan Jacker, clarinets; Duncan Druce, violin/viola; Jennifer Ward Clarke, cello; Stephen Pruslin, keyboard instruments, and Gary Kettel, percussion.

They record for Nonesuch, Deutsche Grammophon, Argo, L'oiseau Lyre, and Unicorn Records.

## Concert Band To Perform Program of Modern Music

The MIT Concert Band under the direction of John Corley will give a concert of band music composed in the last 40 years at 8:30pm on Saturday, December 4.

The public is invited free of charge to attend the concert in MIT's Kresge Auditorium.

The program will open with a performance of *Psalm for Band* by Vincent Persichetti. Composed in 1952, this is Persichetti's second work for band. It continues to be one of the most popular.

Symphony in C Minor by Ernest S. Williams is the longest and oldest work on the program. Inspired by the life of Joan of Arc, the three-movement symphony was written in 1938 in 19th century romantic style.

The second half of the program will open with a performance of Walter Piston's *Tunbridge Fair*, to be played in memory of the composer, who died on November 11. This is Piston's only work for concert band. Mr. Corley and the MIT Concert Band gave it its Boston premiere in the early 1950s.

Andrew Kazdin's *Invention on Two American Folk Tunes*—"Kate Cruel" and "When First Unto This Country A Stranger I Came"—will also be played. Kazdin, MIT '63, was tympanist in the Concert Band while an MIT student. This is one of sever-

al works he composed for the band. Daniel R. Christman, MIT '76, now a graduate student in chemical engineering from Bethlehem, Penn., will be soloist in *Dialogue for Oboe and Wind Ensemble* by Joel I. Brickman. Compositions for solo wind instruments with other winds providing accompaniment, are rare. Brickman, now on the faculty of Mary Mount College in Tarrytown, NY, and Manhattan School of Music, has composed orchestral, choral, and chamber music works that have won numerous awards.

The concert will close with Morton Gould's rhapsody, *Jericho*. Gould has written extensively for band; this is one of his earlier works.

The 60-member MIT Concert Band, formed in 1948, devotes itself to original works for symphonic band and has performed music by 20th century composers such as Darius Milhaud and Arnold Schonberg, as well as works of earlier composers. Many works have been composed specifically for the band.

John Corley who holds numerous positions in the Boston area, has conducted the band since its inception. He has appeared as guest conductor of the Boston Pops, the Cambridge Festival Orchestra, and is currently conductor of the Hingham Symphony Orchestra and director of the Boston Conservatory Wind Ensemble.

## Farren Works Premiered At Music Festival

Dr. Martin Farren of the MIT music faculty recently played a key role at the first Contemporary Music Festival of the University of Wisconsin-Parkside where he is visiting composer for the 1976-77 year.

Dr. Farren, assistant professor of music in the MIT Department of Humanities, gave several master classes and workshops on music theory, his music and experiences as a composer, and new music and its notation during the four-day festival.

Several of his compositions were played at concerts given on the final two evenings of the festival. The

Parkside Contemporary Players, at a concert featuring the works of Professor Farren, played four of his compositions, including two first performances. First performances were given of *Eden Among Us*, completed in early November at the MIT Experimental Music Studio, and of *Magnum Haereditatis Mysterium*, commissioned by the Lecture and Fine Arts Committee of the University of Wisconsin-Parkside. This work brings together musical ideas stemming from two cultures—western medieval compositional practice and south Indian rhythmic practice. They also played Music for



IN ANTICIPATION OF WINTER—workmen repair the roof of Kresge Auditorium at MIT. Kresge's roof, essentially a concrete shell, is only 3½ inches thick—relatively thinner than the shell of an egg. On top of the concrete, however, are an asphalt fabric, two inches of rigid fiberglass, a felt membrane, a two-

inch layer of cinder concrete and diamond shaped lead sheets 1/8 inch thick. Because of its unique construction, Kresge's roof is inspected every few years by a team of engineers. Kresge Auditorium was designed by architect Eero Saarinen.

—Photo by Calvin Campbell

## MIT to Host Conference On Air Pollution, Control

(Continued from page 1)

procedures have been determined and the nature of their associated costs and benefits has not received sufficient attention in view of the substantial resources directed towards environmental protection.

"Individuals representing a number of academic disciplines, industries and governmental agencies will be engaged in this workshop and conference. Through their interaction it should be possible not only to assess the implications of existing legislation and administrative decisions—but also to lay out some guidelines for future decision-making.

"Since it seems likely that legislation concerning atmospheric pollution will be considered at the next session of Congress, it is hoped that the conference will have a substantial impact on policy."

The program:

Thursday, Dec. 2: Morning session, 9:30—Chairman, Paul A. Samuelson, MIT Institute Professor and professor of economics.

Michael Spence, Harvard University, and Martin L. Weitzman, MIT professor of economics, *Regulatory Strategies for Pollution Control*. Discussants: Dr. Edward Clark, Council on Environmental Quality and William Drayton, Harvard Law School.

Helen Ingram, University of Arizona, *The Political Rationality of Innovation: The Clean Air Act Amendments of 1970*. Discussants: Charles Jones, University of Pittsburgh, and Charles J. Meyer, Stanford Law School.

Afternoon session—Chairman, Jack P. Ruina, MIT professor of electrical engineering.

Daniel L. Rubinfeld, University of Michigan, *Market Approaches to the Benefit of Air Pollution Abatement*. Discussants: A. Myrick Freeman, Bowdoin College and Lester Lave, Carnegie-Mellon University.

Donald N. Dewees, University of Toronto, *The Cost and Technology of Pollution Abatement*. Discussants:

John B. Heywood, MIT professor of mechanical engineering; Richard Nelson of Yale University, and Adel F. Sarofim, MIT professor of chemical engineering.

Marc J. Roberts, Harvard University, *The Political Economy of Implementation: The Clean Air Act and Stationary Sources*. Discussants: Henry Beale, Department of Environmental Protection, Connecticut, and Charles Corkin, Office of the Attorney General of Massachusetts.

Friday, Dec. 3: Morning session—Chairman, Paul L. Joskow, MIT associate professor of economics.

Edwin S. Mills, Princeton University, and Lawrence J. White, New York University, *Government Policies Toward Automotive Emissions Control*. Discussants: James A. Fay, MIT professor of mechanical engineering, and John Meyer, Harvard University.

Richard B. Stewart, Harvard Law School, *Judging the Imponderables of Environmental Policy: Judicial Review Under the Clean Air Act*. Discussants: Judge James Oakes, U.S. Court of Appeals, and Joseph Sax, University of Michigan Law School.

Afternoon session—Symposium on the Clean Air Act. Moderator, Robert M. Solow, MIT Institute Professor and professor of economics. Participants: Clarence Davies, Conservation Foundation; Richard Garwin, International Business Machines Corp.; Allen Kneese, University of New Mexico; James Krier, University of California at Los Angeles Law School; Frank Speizer, Harvard School of Public Health, and Roger Stretlow, Environmental Protection Agency.

## Gatos To Open Lecture Series

Dr. Harry C. Gatos, professor of electronic materials and molecular engineering in the Department of Materials Science and Engineering, will give the first guest lecture of the year in Course 3.091, *Introduction to Solid State Chemistry*, at 10am Monday, Nov. 29, in Rm. 10-250. The lecture is open to the MIT community.

Professor Gatos will review the evolution of semiconductor electronics from discrete devices to integrated circuits, emphasizing recent developments in electronic materials processing.

Dr. August F. Witt, professor of materials science, who teaches Course 3.091, said the guest lecture series was instituted to expose students to major research and development efforts in solid state science and technology being pursued by industry and in universities.

## Children's Tuition May Be Taxable

Tuition payments such as those made under MIT's Children's Scholarship Program may be considered taxable income under a recent Internal Revenue Service proposed regulation. The regulation is intended to be effective as of November 2, 1976, but not to apply to payments made prior to that date, nor does it apply to payments the employer was obligated, prior to November 2, to make for the 1976-77 academic year.

The IRS has invited comments on the proposed regulation between now and December 17. It is expected that many universities and higher education associations will object. MIT will take a position in opposition to the proposed regulation.

## Johnson To Speak On 'Africa Today'

Professor Willard R. Johnson of the MIT political science department will speak on "Africa Today" at 7pm today (Wednesday, Nov. 24) in the Mezzanine Lounge of the Student Center.

The seminar, part of the Minority Graduate Students' Seminar Series, is sponsored by the Graduate School Office. Everyone is invited to attend.

Professor Johnson is a specialist in African politics and the politics of economic and political development of the urban American ghettos. His extensive writings on national integration in Africa and US policy towards Africa include a book, *The Cameroon Federation*. Professor Johnson recently spent a sabbatical leave from MIT touring Africa.

## Visitors Named

(Continued from page 1)

Carolina, is one of the country's leading scholars in the analysis of international political problems. He conducts research in the domain of intra-national and international tension conflict reduction, alliance formation and international cooperation.

Professor Azar received his BA in political science at the American University of Beirut in 1960, MA at the University of the Pacific in 1965 and PhD at Stanford University in 1968.

He was an assistant professor and associate professor of political science at Michigan State University. He was associate professor of political science at the University of North Carolina from 1971 to 1976, when he was appointed professor.

## Catsimpoalas Book

Dr. Nicholas Catsimpoalas, associate professor of food biochemistry in the MIT Department of Nutrition and Food Science, is editor of the new book, "Islectric Focusing," published by Academic Press.