

Three Appointed Ford Professors

Three internationally noted MIT engineering professors—Stephen H. Crandall, Merton C. Flemings and Donald R.F. Harleman—have been named Ford Professors of Engineering in the MIT School of Engineering.

The appointments were announced by Alfred H. Keil, Dean of the School of Engineering.

The professorships were endowed in 1959 by the Ford Foundation to advance interdisciplinary approaches to engineering at MIT, to introduce new methods of engineering teaching and to strengthen basic research in newly emerging fields of engineering.

Professor Crandall, of the Department of Mechanical Engineering, is one of the country's leading educators in the teaching of solid mechanics and is widely noted as an authority on random vibrations, a field which he pioneered and developed since it became important with the advent of jet and rocket engines.



A graduate of the Stevens Institute of Technology, he became an instructor in mechanical engineering at MIT in 1946, when he received the PhD in mathematics from MIT. He was appointed full professor and head of the Mechanical Engineering Department's Applied Mechanics Division in 1958.

In recent years Professor Crandall has turned his attention to problems of noise transmission from soils to buildings and to the protection of buildings from earthquakes.

His visiting appointments have included a national Science Foundation Science Faculty Fellowship in 1964-65 at the University of California at Berkeley and Honorary Research Associate at Harvard University in 1971-72. He received the Worcester Reed Warner Medal from the American Society of Mechanical Engineers in 1971 for contributions to the permanent literature of engineering. The book, "An Introduction to the Mechanics of Solids," completed at MIT in 1959 under his leadership.

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Faculty to Meet

A regular meeting of the faculty will be held Wednesday, Sept. 10., at 3:15pm in Rm. 10-250.

Recommendations of candidates for bachelors and advanced degrees will be presented by the Committee on Academic Performance and the Committee on Graduate School Policy, respectively. Also on the agenda is a motion to continue arrangements for participation of non-faculty in faculty meetings.

New faculty officers for 1975-76 are: chairman—Professor John Ross of the Department of Chemistry; associate chairman—Professor Suzanne Berger of the Department of Political Science, and secretary—Professor Irving Kaplan of the Department of Nuclear Engineering.

Alumni Officers Conference To Draw 600 to Campus

Some 600 MIT alumni leaders from throughout the US will gather on campus Friday and Saturday (Sept. 12-13) for the 1975 Alumni Officers Conference.

The conference will begin with a 5pm reception at Stratton Student Center followed by a dinner in the duPont Gymnasium at 7pm. Howard W. Johnson, chairman of the MIT Corporation and co-chairman of MIT's \$225 million Leadership Campaign, will be the speaker.

Bike Alert

The Campus Patrol this week issued a warning to people who ride bicycles around MIT not to park and chain them in corridors.

Several people walking through the corridors have been injured, most frequently when they catch their legs on protruding pedals. Moreover, the patrol said, bicycles left in corridors represent a hazard in the event a building must be evacuated quickly.

Chief James Olivieri said improperly parked bicycles will be given red safety violation tags and repeated offenses may result in confiscation of the bicycles and or subsequent fines.

Chief Olivieri urges bicycle riders to park their bicycles in the special bicycle parking area behind the Bush Bldg. (Bldg. 13) near the Medical Dept. courtyard. An attendant is on duty there from 8am to 6pm Mondays through Fridays. More bicycle compounds are being planned, he said.

Following welcome by President Jerome B. Wiesner Saturday morning, the group, meeting at Kresge Auditorium, will hear discussions of the alumni survey by Vice President Constantine B. Simonides, recent developments in the undergraduate experience by Chancellor Paul E. Gray, and plans for and organizational changes in the Alumni Association by the new executive vice president, James A. Champy.

The morning program will conclude with a panel including Dean Alfred H. Keil of the School of Engineering; Dean Kenneth R. Wadleigh of the Graduate School; Dean Emeritus Irwin W. Sizer of the Graduate School; Dean William L. Porter of the School of Architecture and Planning; and Dean for Student Affairs Carola B. Eisenberg.

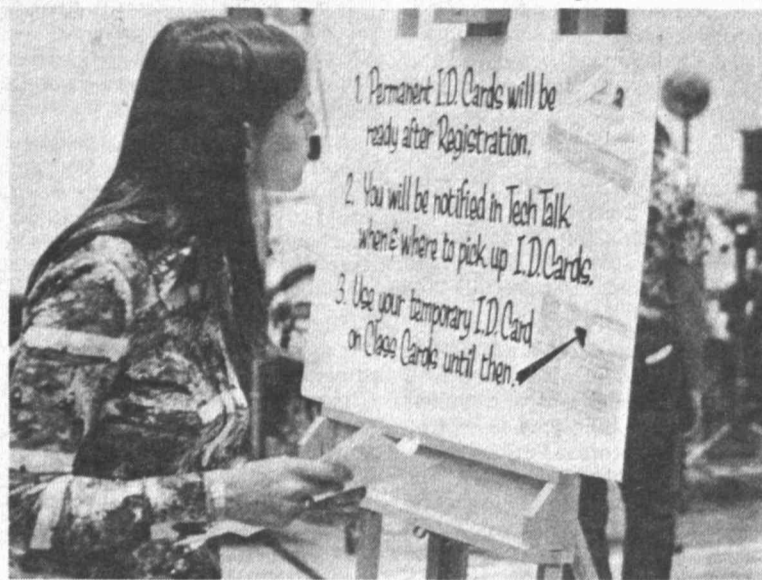
Howard L. Richardson, of New Britain, Conn., Class of 1931 and president of the Alumni Association, will preside at an awards program during luncheon at Walker Memorial.

At 2:30pm Saturday at Kresge, Dr. Hans-Lukas Teuber, professor and head of the Department of Psychology, Dr. Ann M. Graybiel, assistant professor of psychology and brain science, and Dr. John Robert Ross, professor of linguistics, will present a program on "The Human Brain: The Relationship of Physical Structure and Behavior."

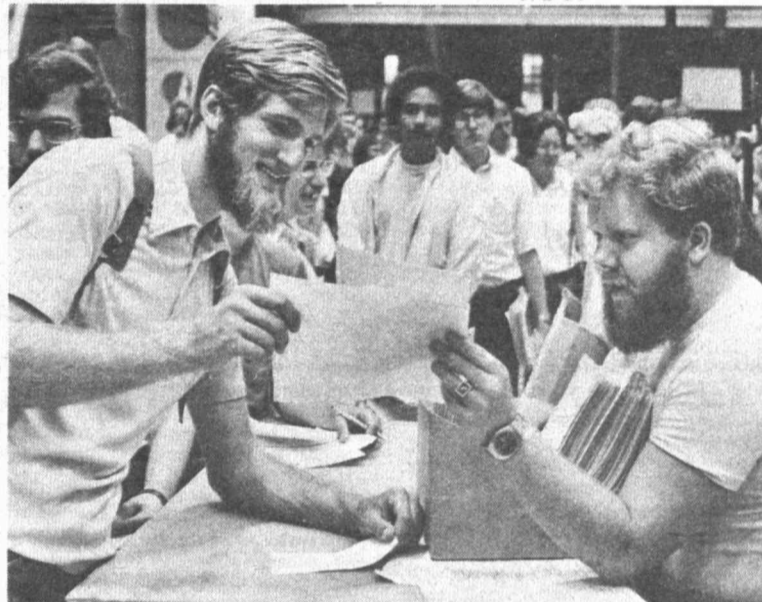
The conference will end with an exhibition by the MIT gymnastics team in duPont Gymnasium and a social hour in the Student Center.

Conference chairman is George J. Schwartz of Newton, Class of 1942.

Registration Day



Mary Jo Doherty, a sophomore from Rockville, Md., checks a sample ID card during Monday's registration in duPont Gymnasium.



Michael Rowen, a junior in earth and planetary science from Atherton, Calif., checks out his registration form with Joseph Schneider, a junior in physics from St. Louis, Mo.

—Photos by Calvin Campbell

Neutron Star Weighed

By BARBARA BURKE
Staff Writer

MIT astrophysicists reported Monday (Sept. 8) that they have weighed a neutron star—a star that has collapsed into a sphere about 10 miles across, crushing the atoms in its interior.

The minuscule star, Vela X-1, was found to be at least 1.7 times heavier than the sun. This extraordinarily compact object (comparable to a pea weighing a thousand million tons) lives in close orbit with a giant blue star, about 20 times as massive as the sun and about 30 times larger in diameter.

The MIT results are particularly important because they challenge theories proposed by physicists about the behavior of matter at extremely high densities. Some theories predict that neutron stars cannot be as heavy as Vela X-1 has been found to be.

"The mere fact that you have a neutron star as massive as this places constraints on the physics of these objects," said Dr. Paul C. Joss, assistant professor of physics at MIT, who worked on the measurements with Dr. Saul A. Rappaport, associate professor of physics, and Dr. Jeffrey McClintock, staff researcher in the MIT Center for Space Research.

"The star is performing an experiment for us," Dr. Joss said. "It tells physicists about interactions of matter at very high energies and densities—conditions that you can't simulate in laboratories on earth."

Vela X-1 is one of more than 100

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Noted French Educator to Visit

Dr. Bertrand Schwartz, the French professor of mining engineering who led reform in engineering education in French universities in the 1950s and 1960s and who, subsequently, steered development of France's newly-instituted approaches to lifelong and continuing education for all adults, will be a visiting professor at MIT for six weeks this fall.

Professor Schwartz' stay at MIT will be sponsored by the MIT Center for Advanced Engineering Study, headed by Professor Myron Tribus. Dr. Judah L. Schwartz (no relation), professor of engineering science and education in the MIT School of Engineering, will coordinate the visit by the distinguished French educator.

Professor Bertrand Schwartz will be at MIT from Sept. 15 through Oct.

31. Under the co-sponsorship of CAES and the Division for Study & Research in Education headed by Dr. Benson R. Synder, Professor Schwartz will conduct four seminars dealing with various aspects of reforms in engineering education and in adult continuing education now in force in France. Times and places will be arranged and announced after he arrives.

Professor Schwartz hopes to meet informally with faculty and students from throughout MIT's academic departments to exchange ideas about how engineers and technicians of the future can be educated more effectively and how large adult populations can be motivated to continue their own educations. He will have a temporary office in Rm 9-228 in the CAES building and will be reachable on Ext. 3-7409.

Professor Schwartz presently is professor at the University of Paris and a principal consultant to the French minister of education for adult and continuing educational programs. France recently adopted legislation that requires all employers to provide workers with opportunities for continuing education at company expense. Professor Schwartz provided much of the leadership that led to the adoption of this legislation.

Professor Schwartz' own experiences began in the 1950s when he was a professor of mining engineering at the University of Nancy. As professor and later director of the School of Mining there he introduced experimental programs that reformed the traditional and purely technical curriculum so as to provide

(Continued on page 3)

Science Prints Letters on J Particle

Events leading to discovery of a new subnuclear particle last year and announced simultaneously in November by independent groups at MIT and Stanford are the subject of two letters published in the Sept. 5 issue of Science magazine.

Authors of the letters are Professor Samuel C.C. Ting of the MIT Laboratory for Nuclear Science and Professor Martin Deutsch, LNS director.

The particle was named the "J" particle by the MIT group headed by Dr. Ting and working at the Brookhaven National Laboratory on Long

Island in New York. The Stanford group, working independently and without knowledge of the MIT discovery, called the particle they observed "psi."

According to the Science letters, the confirmation at the Stanford Linear Accelerator—achieved by an entirely different kind of experiment—came following the Brookhaven results.

The experiments with the Brookhaven particle accelerator that led to the "J" particle discovery took place in late August of 1974, the letters said. The MIT Brookhaven group withheld announcement pending in-

terpretation.

On Nov. 11, when Dr. Ting was at Stanford, he was told that Stanford people had discovered a new subnuclear particle over the previous weekend and it turned out to be the "J" particle.

Dr. Melvin Schwartz of Stanford, in an article in the New York Times last Sunday reporting the Ting and Deutsch letters to Science, was quoted as saying the account was correct. The Stanford discovery, he said, was the result of following up suspicious effects observed over the previous summer.

Astrophysicists Weigh Collapsed Neutron Star

(Continued from page 1)

x-ray sources in the Galaxy, the first of which was discovered in 1962. It and its optical companion form one of eight known binary x-ray systems, each consisting of a collapsed star and a relatively normal star orbiting closely about each other.

The collapsed star may be a white dwarf (a star that has collapsed to about the size of the earth), a neutron star, or—in the most exotic and yet unproven case—a black hole.

Neutron stars themselves remained a theoretical abstraction until recently. A neutron star collapses until the protons and neutrons in its interior are pushed

Obituaries

Gerson E. Berger

Gerson E. Berger, 67, of Brighton, who retired as an electrician in Physical Plant in 1973, died Saturday, Aug. 16. Mr. Berger worked at the Institute for 20 years. He is survived by his wife, Adele; son Melvyn, of New York City; and two sisters, Rose Benjamin, of Worcester and Alice Artz, of New York.

John P. Hunt

John Phillip Hunt, 75, of Brighton, who retired as a carpenter at Lincoln Laboratory in 1968, died Friday, Aug. 31. Mr. Hunt first came to work at the Institute in 1954. He leaves his wife, Isabelle; a son, John Phillip, of Marblehead; a brother, Theodore, of Rosindale; a sister, Mrs. Hanna Beckwith, of Alden, Pa.; two grandchildren, and one great grandchild.

together, forming one giant nucleus. Such stars were first hypothesized in the 1930s, but no evidence of their existence was found until the discovery of radio pulsars in 1968.

Some astrophysicists had in fact speculated that Vela X-1 might be a white dwarf, rather than a more exotic neutron star, but the MIT results "provide very strong evidence that it is a neutron star," said Dr. McClintock. "A white dwarf would probably collapse of its own weight if it were as massive as we have found Vela X-1 to be."

The MIT researchers announced their results, obtained from current x-ray observations of the neutron star, and previous optical observations of its companion, in an International Astronomical Union Circular sent Monday to universities and observatories.

The x-ray observations were made with SAS-3, the NASA x-ray astronomy satellite operated by MIT, under the direction of Professor George Clark of the Department of Physics and the MIT Center for Space Research. The satellite was launched last May.

The MIT studies of Vela X-1 (Vela for the constellation in which it is found, X for the x-rays it emits) began last June, when SAS-3 happened to record a flare of x-rays from the star. Dr. Rappaport, who was monitoring the satellite data, asked NASA's Goddard Space Flight Center to point the satellite at the x-ray source.

The x-ray source was then discovered to be pulsing: the intensity of its x-ray emission varied

over a 283-second period. Scientists believe such pulsing is caused by hot spots on the star; thus the pulse period is a measure of the time it takes the star to rotate.

"The discovery of the regular pulsations was important for two reasons," Dr. McClintock said. "First, it told us that Vela X-1 was not a black hole—a ball of matter so dense that no radiation can escape its gravitational field—would not emit regular pulsations of x-rays."

Second, Dr. McClintock said, "The regular pulsations enabled us to measure the Doppler shift in the period of the star's x-ray emission as the star orbited around its optical companion." (The Doppler shift is the same effect that causes the pitch of a train whistle to drop as a train passes by.)

From these Doppler shift measurements, which gave the speed and path of the star, the astrophysicists could infer the gravitational attraction between the two objects. This in turn gave them a mathematical relation between the two masses.

They then used information about the optical star's Doppler shift (from studies by optical astronomers) to arrive at a second relation between the two masses. By solving the two equations, they figured out what part of the mass belonged to the neutron star, and what part to the optical star, arriving at the figure of 1.7 solar masses for the neutron star.

However, this is a conservative figure; the actual mass could be 20 to 30 percent higher. This is because it's difficult to tell how tilted the

orbits of the two stars are as seen from earth. Also, the optical measurements used were somewhat imprecise; astronomers disagree about the exact figures.

The MIT researchers point out that when more precise optical measurements become available, the neutron star's mass can be recomputed. If it is greater than 1.7 solar masses, this will place stronger constraints on the models proposed by theoretical physicists.

The neutron star may also help physicists study the life history of such objects. The other two pulsating x-ray sources in binary orbits have almost circular orbits, which is puzzling, Dr. Rappaport said, because the explosion believed neces-

sary to create a neutron star should "kick it into an elongated orbit."

Astrophysicists speculate, he said, that neutron stars raise powerful tides on their companions, which act to circularize the orbits. But much is unknown about how such a process would work.

However, the MIT researchers have found that Vela X-1 has a slightly elongated orbit; the tides have not yet completely circularized the orbits. So the star may serve not only as a laboratory for the physics of matter at high energies and densities, but also as a "missing link" that may help astronomers understand the interactions of these incredibly dense, tiny objects and their gargantuan companions.



Studying x-ray satellite data in the SAS-3 control room in the Center for Space Research are (left to right) Drs. Paul C. Joss, Saul A. Rappaport and Jeffrey E. McClintock. The three used SAS-3 data and previous optical observations to weigh neutron star Vela X-1.

INSTITUTE NOTICES

Announcements

Official Notice—All changes in addresses and telephone numbers must be turned into Registrar's office, Rm E19-335, by Fri, Sept 12, for inclusion in student directory. Telephone requests will not be granted.

MIT Family Day Care Program—Warm, loving homes needed, especially on campus, to care for infants and toddlers. Info: Child Care Office, x3-3953.

Join Ongoing Software Project—Digital Systems Lab looking for undergraduates to assist in work on new timesharing system for HP 2100 minicomputer. Some experience in programming minis well beyond user level required. No pay; lab credit arranged. Prof. Hoo-min Toong, Rm 38-641, x3-2116 or Brad Hampson, Rm 38-644, x3-7350, asap. Freshmen encouraged to apply.

Students Interested in Applying to Law School—Group meeting Wed, Sept 10, 4pm, Rm 3-133. Preprofessional Advising & Education Office.

Student Furniture Exchange—Open Tues & Thurs, 10am-2pm. Buy and sell to students, tax-free donations gratefully accepted. 25 Windsor St. x3-4293.

New UROP Listings

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

WELCOME UPPERCLASSMEN!

Call for Proposals
If you haven't read the "How to Participate" section of the new 1975/76 UROP Directory, do it now. All that information was put together for you with loving care and won't fit in this column.

First Term Proposals: Feel free to start submitting them. General Principles: Don't ask for what you don't absolutely need. Be sure to have submitted your past UROP evaluations. Write a good proposal. Announcement of Awards: Starting the week of September 29th. Please don't call and bug us that week; answers will get out as fast as we have them. Decisions will be made in order of receipt of proposals until we are broke. Availability of Funds: 1) Generally available for materials and supplies requests within reason. 2) Gen-

erally available for overhead waiver requests when faculty or departments offer wages to UROP students. 3) Tougher to get if you're asking for significant wages from UROP itself. Promise: If you've been inventive, resourceful, persistent, and responsible in eeking out research support for your UROP work but find there's still an honest-to-gosh personal deficit you can't swallow, we'll manage it.

Open Saturday—The UROP office will be open this Saturday from 10am until 4pm. Drop by for answers to questions, advice and direction. The blue doors on the side of the building will be open.

Division for Study and Research in Education
The Logo Project at MIT is a research group studying applications of computer technology to education. Undergraduates can become involved with the group through the UROP program and the Division for Study and Research in Education. A number of research projects are available such as designing and using new computer-controlled devices. Visit the Logo project on the 3rd floor at 545 Tech Square. Also contact Elaine Medverd, Rm 20C-126, x3-7362.

Department of Nutrition
The effects of marginal malnutrition over many generations on maternal behavior and early pup development in the rat. Currently being studied is the effect on behavior of nearly 20 generations of low protein diet in a group of rats. Students are encouraged to develop specific projects along these lines. This project would be of interest to students in the Departments of Nutrition and Psychology. Limited funds are available. Contact Debbie McCoy, x3-1712, Rm 56-125.

Western Electric N. Andover, Ma.
The Merrimack Valley Division of Western Electric would like to involve interested undergraduates and faculty in the following projects: 1) Temperature Profiles in Large

Sealed Vessels; 2) Frequency Shift During Manufacture of Sealed Crystal Devices; 3) Computer Aided Fault Diagnostics for Repair of Hybrid Integrated Circuits; and 4) Effectiveness of Sn-Ni Electroplated Alloy as a Diffusion Barrier Between Cu and Au. Western would also be interested in having students explore possibilities in other areas of metallurgy, thin-film chemical processes, computer fault analysis design of mechanical transport systems, waste treatment and water conservation, and recovery processes for precious metals.

MITRE Corporation Bedford Ma.
Experimental Computer Science: System Penetration

MITRE is currently engaged in the design of computer systems that are not penetrable, i.e. no unauthorized access to information is possible. One such system, built on a DEC PDP-11/45 has been completed, and designs for other systems are proceeding. This task is the examination of the PDP-11/45 based system for design or implementation flaws and the exploitation of these flaws to produce a penetration, i.e. to gain access to information in an unauthorized fashion. Systems other than the PDP-11/45 are also of interest and may be examined as time permits. Car needed for transportation to Bedford. Pay or credit available.

Children's Hospital Boston, Ma.
Relation Between the Myoelectric Signal and Muscle Tremor

When a muscle contracts to effect or stabilize a movement in the body, a slight oscillation exists in the contraction. No muscle is capable of contracting in a perfectly smooth manner. A controversy has arisen in attempting to describe the observed muscle oscillation. Past research has established a mathematical relationship between myoelectric signal and muscle movement. The myoelectric signal is the manifestation of the neural activity that controls the muscular contraction.

By applying the present model to empirical data it will be possible to determine if the origin of the tremor is neuromuscular. A second project involves the analysis of electromyographic signals (muscle signals).

Massachusetts General Hospital Boston, Ma.
Role of Hyaluronate in Morphogenesis and Differentiation

Studies have revealed a striking relationship of hyaluronate turnover with morphogenetic cell movements and subsequent differentiation in the regeneration blastema of the amputated newt limb and in the embryonic chick cornea, brain, limb bud and vertebral preskeleton. These observations led to an hypothesis that hyaluronate facilitates mesenchymal cell migration but prevents aggregation and consequent differentiation. This project will be concerned with the control of hyaluronate removal, and will involve purification of the enzyme, hyaluronidase, which will be used for the production of specific antibodies. The antibodies will then be used to develop a sensitive assay for the enzyme in site.

Tufts University School of Medicine Boston, Ma.

The following projects are available: 1) Immunochemistry of blood group antigens and antibodies; 2) Chemical structure of antigens and relation to function in processing immunity or tolerance, and 3) Study of Lymphocyte surface molecules.

Foreign Studies

Luce Scholars
The Luce Scholars Program, providing a stipend of \$9,000 for a year of work and study in East and Southeast Asia, is seeking applications from MIT seniors, graduate students, recent alumni and junior faculty members under 27 years of age. MIT is one of 60 American universities invited to submit nominations, from which 15 Luce Scholars will be selected. Eligible candidates from all fields except Asian affairs should call Professor Eugene G. Skolnikoff, campus contact and director of the Center for International Studies, at x3-3140 before September 30 for further information.

MIT Club Notes

MIT Baha'i Association—Will gather Mon, 5pm, Rm 8-105.

MIT/DL Bridge Club—ACBL Duplicate Bridge. Tues, 6pm, Walker Memorial Blue Rm.

MIT Choral Society—Directed by John Oliver. Open rehearsal Thurs, Sept 11, 7:30pm, Rm 10-250. 1975-76 season will include Brahms, Requiem; Stravinsky, Mass for Double Chorus and Beethoven, Mass in C Major.

MIT Concert Band—Open to players at all levels. Three concerts of contemporary music at MIT plus Midwest tour in Jan. Rehearsals Mon, 7:30pm & Wed, 8pm, Kresge. Info: x3-2906.

MIT Festival Jazz Ensemble—Performs original compositions of contemporary jazz. Auditions for Ensemble & Concert Jazz Band Sun, Sept 14, 5pm, Kresge Rehearsal Rm A. Returning members come at 6:30pm.

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

Strategic Games Society—Sat, 1pm-1am, Walker Rm 309 & 318. Offers opponents and discounts on merchandise to members plus gaming & periodical library. Info: Paul Bean, 266-6108.

Student Homophile League—Gay Lounge, Rm 50-306, open daily for lunch & random other hours, x6745 Dorm. Tom, Contact Line, x3-5440, provides info, referrals, counseling, or just talking to gay persons. Meetings 1st & 3rd Sun every month, Gay Lge. Consult bulletin board, Bldg. 3, for info.

Tech Squares—Learn to Square dance. Beginners dance Tues, Sept 16, 8-11pm; Sala. Admission \$1, 1st time free. Watch for info on regular dances this month & classes, which begin in Oct. Mike Tersoff, x3-7659 or 266-8266; John DeTreville, x3-7659.

Religious Activities

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

Campus Crusade for Christ—Spaghetti dinner followed by "family time." Food, fellowship, teaching. Wed, Sept 12, 5:30pm, Rm 37-252. Free.

Celebration of Holy Communion—MIT Lutheran & Episcopal Ministry. Wed, 5:05pm, Chapel. Supper following, 312 Memorial Dr.

Christian Worship Service—Sun, 10:45am, Chapel. Refreshments following service.

Hillel Services—Yom Kippur—Sun, Sept 14, Kol Nidre: Traditional 6:30pm, Kresge; Reform 7:30pm, Chapel. Mon, Sept 15: Traditional 9am, Kresge; Reform 9:30am, Chapel; Yizkor (Memorial Service): Traditional 12m, Kresge; Reform 12m, Chapel. Succos—Fri, Sept 19, 7pm; Sat, Sept 20, 9:30am, Mincha-Maariv 7pm; Sun, Sept 21, 9:30am; all Chapel.

Islamic Society—Prayers Fri, 1pm, Kresge rehearsal rm B.

Prayer Time—Lunch hour Bible classes led by Miriam R. Eccles. Fri, 1-2pm, Rm 20E-226. All are welcome.

Roman Catholic Mass—Sunday 9:15am, 12:15 & 5:15pm; Tues & Thurs, 5:05pm; Fri, 12:05pm; all Chapel. Weddings, baptisms, confessions, call Fr. Moran, x3-2981.

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MIT Libraries Term Hours

Library	Mon-Thurs	Friday	Saturday	Sunday
Aero. & Astro. (33-316)	9-6	9-6	12-4	closed
Archives (14N-118)	9-5	9-5	closed	closed
Barker Engineering (10-500)	9-11	9-8	9-8	1-11
Chemistry Read. Rm. (18-490)	10-5	10-5	closed	closed
Dewey (E53-138)	8:30-11	8:30-8	9-8	1-11
Humanities (14S-200)	8-11	8-9	9-8	1-11
Lindgren (54-200)	8:30-11	8:30-9	10-6	1-11
MARIC (5-331)	9-5	9-5	closed	closed
Microreproduction (14-0551)	9-5	9-5	closed	closed
Music (14E-109)	8:30-11	8:30-9	9-8	1-11
Reserve Book Room (14N-132)	8-11	8-9	9-8	1-11
Rotch (7-238)	9-11	9-8	10-6	1-11
Science (14S-100)	8-11	8-9	9-8	1-11
Space Cntr. Read. Rm. (37-582)	9-5	9-5	closed	closed
Student Center (W20-500)	Open 24 hours a day, seven days a week.			
Von Hippel Mat. Ctr. (13-2137)	9-7	9-5	closed	closed

All Libraries, with the exception of the Student Center, are closed on Labor Day, Thanksgiving, Christmas, New Year's Day and Independence Day. The Student Center Library closes only on Christmas Day and New Year's Day.

Special schedules are posted for hours during vacation, between-term periods, and on the following holidays: Columbus Day, Veteran's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Patriots Day and Memorial Day.

ADP Resumes

MIT's Administrative Development Program will be resumed this fall by the Office of Personnel Development.

John M. Wynne, vice president for administration and personnel, said the group that took the first section of the program—organizational psychology—last spring will begin the second section—on financial management—on Oct. 6.

In addition, he said a new group will begin the first section—organizational psychology—on Oct. 15. They will take financial management next spring.

The group that started last spring is known as ADP V. The group starting this fall will be known as ADP VI.

Participants for ADP VI will be selected primarily from a backlog of applicants for previous programs, but new applications received by Friday, Sept. 19, will be considered. Faculty, staff and exempt employees interested in applying should contact the Office of Personnel Development.

Mr. Wynne also announced changes in the instructional staff for ADP. Drs. Adam and Maureen Yagodka, Co-Directors of the Office of Personnel Development, will replace Professor David Berlew of the Sloan School of Management for the organizational psychology section of the program. Mr. Eric Herzog of the Sloan School will teach that part of the financial management section previously taught by Professor John A. Rockart and Dean Thomas M. Hill. Mr. John A. Currie, MIT Director of Finance, will continue to teach the MIT perspective of the financial management section.

Volunteers are needed now to participate in recreational and other activities for Cambridge youngsters with special needs in a program to be coordinated by Lee Sorrell '75 in conjunction with MIT Urban Action. Primary focus of the program will be teaching swimming, physical education, and transportation skills. Interested persons may contact either Jack Barry x-4498 or Joe Collins X-1988.

Ford Professors Named

(Continued from page 1)

ship and still widely used, revolutionized the teaching of solid mechanics at the undergraduate level.

Professor Flemings of the Department of Materials Science and Engineering, has done pioneering research that led to the development of new casting processes and the casting of materials with improved properties. His undergraduate and graduate work was done at MIT and he received his doctorate in 1954, joining the faculty as an assistant professor in 1956 after working in the research laboratory of the American Brake Shoe Co. He was appointed Abex Professor of Metallurgy in 1970 and associate director of the Center for Materials Science and Engineering in 1974.

For more than 20 years, Professor Flemings has been associated with research and teaching in materials engineering at MIT, concentrating on innovation and technology transfer in materials industries. He is chairman of the Materials Engineering panel of the Department of Materials Science and Engineering.

In recent years he has turned his attention to the transfer of new casting technologies out of the laboratory into production. One of the results of this effort has been the development of a new casting process, known as Rheocasting, which has formed the technological base of one of the first companies spawned by the MIT Development Foundation.

Professor Flemings, who is the author of a highly regarded textbook on casting processes, has been active in developing education programs at MIT and other institutions. Among his many international honors, the



most recent is the Axel Hultgren Memorial Lectureship of the Swedish Association of Physical Metallurgists.

Conference Studies Demolition



DEMOLITION DEBRIS was the subject of a workshop conducted by Professor David Wilson of mechanical engineering (left) and attended by Robert Colonna from the Environmental Protection Agency, Richard Wiesman, a senior in mechanical engineering, and Dr. Charles Johnson from the National Science Foundation, among others. Professor Wilson's study for NSF analyzes recovery potential of demolition wastes—like those being salvaged in the Charlestown El take-down.

Knowing principal materials used in construction of today's buildings will be essential to knowing how to demolish those structures for salvage material when they reach obsolescence in 65 years, according to Professor David Gordon Wilson of MIT's Department of Mechanical Engineering.

Professor Wilson discussed preliminary findings of an eight-month study into uses of demolition wastes at a joint MIT-National Science Foundation Workshop on Demolition Debris held last week at MIT. The \$40,000 study to identify economic, legal, and technological factors in recycling construction materials is sponsored by the NSF's Research Applied to National Needs (RANN) Program.

The workshop, attended by government and industry representatives, featured reports by Seymour B. Feller, director of demolition for the City of New York, and Dr. Charles Johnson of the Office of Systems Integration and Analysis for NSF. MIT seniors Patricia Foley of civil engineering and Richard Wies-

man of mechanical engineering are assisting with the study.

Promising materials mentioned for future re-use were copper, aluminum, steel, wood, lead, and glass. Professor Wilson said there is virtually no salvage of concrete or plastics at present. Markets for used bricks, however, vary nationally.

The study includes a comparison survey of demolition industries in Boston, Atlanta, and Los Angeles, Professor Wilson said.

Embroiderer Fell To Teach Class

Rene Fell, an internationally known embroiderer, will teach a beginning course in needlepoint this fall under the auspices of the Technology Matrons.

Weekly classes will be held 9:30-11:30am, beginning Wednesday, Oct. 8, in the Emma Rogers Room (10-340). Enrollment will be limited to 15, on a first come, first-served basis.

Mrs. Fell, vice president of the National Standards Council of American Embroiderers, has taught all types of embroidery in Boston and at museums and needle guilds throughout the US. Those interested in enrolling in beginners' canvas work may call Mrs. Priscilla Gray at 729-4098.

In addition, the Matrons have announced two classes in crewel embroidery. Beginners' classes will be 9:30-11:30am Mondays, beginning Oct. 20; intermediate classes 9:30-11:30am Tuesdays, beginning Oct. 21. Both classes will be limited to 12 members and held in the Emma Rogers Room. Beginners may call Nancy Hollomon at 734-4763; intermediates, Pat Eden, 494-8599 or x3-2858, for enrollment and further information.

Laser Book Out

A brochure outlining laser and optics research at MIT is being distributed through headquarters of the Departments of Mechanical Engineering, Chemistry, Electrical Engineering and Computer Science, Physics, Aeronautics and Astronautics, and Nuclear Engineering.

The brochure lists subjects relating to lasers and optics, and describes research projects in the various departments, laboratories and research centers.

French Educator to Visit

(Continued from page 1)

students with a broad background in industrial sociology, psychology, communications and economics. His ideas at the time were considered revolutionary.

In the early 1960s, when depression and widespread unemployment occurred in the iron mines of Lorraine, Professor Schwartz became involved in providing adult education for masses of people, helping them out of illiteracy and into new trades. The program was organized around the University of Nancy through cooperative planning with government officials, labor unions and the clergy.

Professor Schwartz believes that a modern society must be based on continuing education for all, that

Lasers Measure Molecules Precisely

Measurements precise to one part in a hundred billion have been made by MIT researchers studying the structure of the iodine molecule by measuring its absorption of laser light.

The measurements, reported in the Sept. 1 issue of *Physical Review Letters*, enabled researchers to study subtle interactions between nuclei and electrons in the excited iodine molecule. These interactions, called magnetic octupole interactions, result from the fact that the distribution of charge in the iodine nuclei is not spherical.

The ability to perform these precise measurements—a record for optical spectroscopy—makes possible a more complete understanding of the distribution of electric and magnetic fields in atoms or molecules in an excited electronic state.

Moreover, such measurements would be useful in developing an international standard for frequencies and wavelengths, based on iodine. Scientists and engineers throughout the world could then use iodine to make sure that their own lasers were producing light of the desired wavelength.

The studies were conducted in the MIT Research Laboratory of Electronics, by staff researcher Dr. Lloyd A. Hackel; former MIT researchers Dr. Kent H. Casleton and Dr. S.G. Kukolich; and Dr. Shaoul Ezekiel, associate professor of aeronautics and astronautics. The work was funded by the Air Force Office of Scientific Research.

The word octupole, as in "magnetic octupole interactions," is one of a series of terms physicists use to describe the distribution of charges or the distribution of electric currents within the nucleus, which are important because they affect the orbits of the electrons in the atom or molecule.

A nucleus with spherical charge distribution has a large electric monopole moment; a nucleus with a cigar-shaped charge distribution has a large electric quadrupole moment and so on. In an analogous way, a nucleus may possess a magnetic dipole moment, a magnetic octupole moment, and so on, depending on the distribution of electric currents within it. (These currents are caused by spinning protons.)

Magnetic octupole interactions in the ground state of atomic iodine were first observed at MIT in 1954, by Professor John King, using microwave spectroscopy in atomic beams.

(This work was related to the pioneering work of Dr. Jerrold R. Zacharias, now Institute Professor Emeritus and Professor of Physics

Symphony Auditions

Auditions will be held today (Wednesday, Sept. 10) and Thursday (Sept. 11) for members of the MIT Community interested in joining the MIT Symphony Orchestra.

The auditions will be at 7:30pm both days in Kresge Auditorium.

The symphony, directed by composer-conductor David Epstein, will play four concerts at MIT during the 1975-76 season—on Oct. 25, Dec. 6, March 13, and May 8. In addition, the orchestra has been invited to play at the Kennedy Center in Washington, DC, on April 26, 1976, during its spring concert tour.

Emeritus, in developing atomic frequency clocks.)

Studies of the excited state of the iodine molecule became possible only with the invention, in the 1960s, of lasers, which provide strong beams of light of narrow wavelength.

When a molecule like iodine absorbs such laser light, the additional energy kicks the molecule into an excited state. As the molecule falls back to the ground state, it re-emits this light, which is detected on a photodetector. From the characteristic wavelengths, or colors, at which absorption takes place, physicists deduce the magnitude and nature of the interactions within the molecule; for example, whether they are due to electrons, or the nucleus, or both.

Thus with the advent of lasers, a great deal of structural information which was totally hidden before could be detected and measured.

The MIT ultra-high-resolution spectroscopy involves two beams of iodine molecules, and two highly-stabilized argon ion lasers. (These lasers, designed and built at MIT, can be held to a given wavelength with a precision of one part in ten million million.)

Light from each laser was sent into a beam of iodine molecules. The frequency of one laser was locked to an iodine absorption line, and the frequency of the second laser was locked to a different iodine line. By mixing (beating) the two laser frequencies, the researchers could determine the frequency separation between them, and thus the spacing between the iodine absorption lines.

But these new measurements will soon be dated. Professor Ezekiel and Dr. Hackel are already planning measurements that will be precise to one part in ten thousand billion—one hundred times more precise than the record precision they just achieved. With this, they hope to detect even subtler interactions in excited iodine—nuclear electric hexadecapole interactions.

Public Internship Program Planned

The MIT Departments of Political Science and Urban Studies and Planning will conduct a year-long internship program in state and local politics for a limited number of students. The program will include placement in local public agencies and a bi-weekly seminar.

The 24-unit course is designed for students who want to work part-time in a public sector agency. Most internships will be tied to a state or local legislative body or executive agency.

An organizational meeting for interested students will be held in Rm. E53-338 at 7pm, Tuesday, Sept. 16. Students also may contact Timothy Bird, Rm. 4-209, Ext. 3-1368 or 3-1355, or Martha Weinberg, Rm. E53-425, Ext. 3-5261.

Students interested in an internship program but who are not in a position to make a year-long commitment should also attend the meeting since there are alternative internship programs available, Mr. Bird said.

while DSRE has been concerned with making college-level teaching, particularly in engineering and technical areas, more effective both for the student and for society.

In the case of CAES, Professor Schwartz' visit coincides with a period when the Center is seeking to identify new directions, new programs, new approaches for future programs. While Professor Schwartz is here, Professor Tribus hopes to be able to videotape record several conversations with him which can later be circulated among engineering schools and engineering educators throughout the US.

CAES at MIT has been a leader in developing programs for the continuing education of engineers and technical management personnel

THE INSTITUTE CALENDAR

September 10
through
September 21

Wednesday, September 17

The Politics of Blood-Transfusion Hepatitis* — Stan Finkelstein, M.D., Postdoctoral Fellow in Humanities & Engineering; research associate, political science. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

Thursday, September 18

What is Active About Diamagnetism* — Marc Kastner, physics. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

Friday, September 19

Plasma Heating with Relativistic Electron Beam* — Kim Molvig, RLE. Plasma Dynamics Seminar. 4pm, Rm 36-261.

Community Meetings

MIT Club of Boston — September Luncheon Meeting with Jonathan Kozol, author. Thurs, Sept 11, 12n, Aquarium Restaurant, 100 Atlantic Ave, Boston. Reservations: Ms. Kiarats, x3-3878.

Family Day Care Orientation — Sponsored by MIT Child Care Office for current & prospective providers and those interested in family day care. Mon, Sept 15, Wed, Sept 17 & Fri, Sept 19, 1-5pm, Rm 4-145. Info: x3-1592.

Science Library Tours* — Wed, Sept 17, 10:15am; Thurs, Sept 18, 3:15pm; meet in Rm 14S-100. Will include library tour and explanation of resources and services in Science Library.

Pistol Course ** — Beginning Thurs, Sept 18, 6:30pm, duPont pistol range, for 5 Thurs nights. Open to first 20 adult members of MIT community. Fee \$15. Tom McLennan, x3-3296 or Andy Platais, x8-1417 Draper.

Coming Out* — Rap session sponsored by MIT Student Homophile League. Sun, Sept 21, 4-6pm, Rm 50-306. Refreshments.

MIT Women's Forum* — Meetings Mon, 12n, Rm 10-105 (Tues in case of holiday). Nominations accepted for Women's Advisory Group representatives until Fri, Sept 12. Send names to Betty Campbell, Rm 24-017, x3-6067.

MIT Diet Workshop** — Thurs, 12n-1pm, Stu Ctr Rm 491.

English Conversation Classes — For wives of visiting faculty, wives of staff and students from foreign countries, offered by Technology Matrons. Registration Thurs, Sept 18, 10am-12n, Rm 10-240. Classes Tues & Thurs morn for 10 weeks. Fee: \$20. Babysitting provided for additional \$5.

Social Events

Rock Revival** — Sponsored by Student Center Committee with Little Walter & his golden oldies. Fri, Sept 12, 9pm, Sala. Admission: \$.75/couple, MIT or Wellesley ID required. Free beer & punch, live DJ.

Singles Cocktail Party* — Sponsored by Over 30's Singles Club. Wed, Sept 17, 5:30pm, Faculty Club Lge. Cash bar. New Members welcome.

Gay Dance* — Sponsored by MIT Student Homophile League. Sat, Sept 20, 9pm, Sala. Admission \$1.50. Refreshments. Info: x3-5440.

24 Hour Coffeehouse* — Enjoy relaxing conversation, piano playing, games, inexpensive food, candy & drinks. Open 24 hours per day, 7 days per week, Stu Ctr 2nd fl lge.

Over 30's Singles Club — Lunchtime meeting in Stu Ctr East Lge (small dining room off Lobdell) Fri, 12:30-1:30pm. New members always invited. Look for the table with the red balloon. Erica, x3-2117 or Marty, x8-1206 Draper.

Movies

Chinatown** — LSC. Fri, Sept 12, 7 & 10pm, Kresge. ID required.

Paisan (Rossellini)* — Film Society. Fri, Sept 12, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

The Sting** — LSC. Sat, Sept 13, 7 & 10pm, Kresge. ID required.

Klute — MidNite Movie. Sat, Sept 13, 12m, Sala. Free, MIT or Wellesley ID required, 2 persons/ID.

It's a Mad (etc.) World** — LSC. Sept 14, 6 & 9:30pm, Rm 26-100. ID required.

Animal Crackers** — LSC. Fri, Sept 19, 7 & 9:30pm, Kresge. ID required.

Bicycle Thief (DeSica)* — Film Society. Fri, Sept 19, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

Finders Keepers, Lovers Weepers** — MidNite Movie. Fri, Sept 19, 12m, Sala. Free, bring blanket.

A Woman Under the Influence** — LSC. Sat, Sept 20, 6:30 & 10pm, Rm 26-100. ID required.

Pyar Kiye Jaa** — Sangam. Indian movie with English subtitle. Sun, Sept 21, 2:30pm, Rm 10-250. Admission \$.50.

The Day the Earth Stood Still** — LSC. Sun, Sept 21, 6:30 & 9pm, Rm 26-100. ID required.

Lobby 7 Events

National Mime Theater* — Wed, Sept 10, 12n. Free.

Theatre and Shows

The Fantasticks* — MIT Musical Theatre Guild. Sept 12 & 13, 8pm, Sept 13 also at 3pm, Kresge-Little Theatre. Tickets: \$1.50. advanced sales & reservations, \$2 at door. Info: x3-6294.

The Shakespeare Ensemble — Seeking people for sets, costume publicity & other backstage positions. Prof. M. Biggs, Rm 14N-316, x3-4420.

MIT Musical Theatre Guild seeks director, music director, designer & tech people for fall show, "Celebration." Info, x3-6294.

Exhibitions

MIT Innovation Center Exposition** — Wed, Sept 10, 2-5pm, Rm 37-252. Projects displayed include new frame for racing bikes, & electronic game package for home television. Faculty & students will answer questions.

Faculty Club Art Exhibit* — Works by Cindy Close exhibited during Sept.

Hart Nautical Museum* — Permanent exhibit of rigged merchant and naval ship models, half models of yachts and engine models. Open daily in Bldg 5, 1st floor.

MIT Historical Collection* — Permanent exhibition, open Mon-Fri 9am-5pm, Bldg N52, 2nd floor.

Athletics

MIT Wrestling Team — Organizational meeting Thurs, Sept 11, 5pm, duPont wrestling rm, 2nd fl. All interested should attend or contact Coach Chassey, x3-4917 or E. van Lidth de Jeude, x6413 Dorm.

Home Schedule* — Sunday, September 14 — V Sailing. Large Invitational, 9:30am, Charles River Lower Basin. F Sailing. Dinghy Invitational, 9:30am, Charles River Lower Basin. Monday, September 15 — V Baseball. University of Lowell, 4pm, Briggs Field.

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 department and field.

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

Send notices for September 17 through September 28 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, September 12.

Events of Special Interest

Alumni Officers Conference — Fri, Sept 12, opens with reception, 5pm, Stu Ctr; dinner, 7pm, duPont Gym, with Corporation Chairman Howard W. Johnson, co-chairman of Leadership Campaign, speaker. Sat, Sept 13: Welcome by President Jerome B. Wiesner; discussions at Kresge by Vice President Constantine B. Simonides, Chancellor Paul E. Gray, Alumni Association executive vice president James A. Champy. Morning program concludes with panel including Dean Alfred H. Keil of the School of Engineering; Dean Kenneth R. Wadleigh of the Graduate School; Dean Emeritus Irwin W. Sizer of the Graduate School; Dean William L. Porter of the School of Architecture and Planning; & Dean for Student Affairs Carola B. Eisenberg. Awards Program during luncheon, Walker Memorial, presided over by Howard L. Richardson, '31, president of the Alumni Association. Program on "The Human Brain: The Relationship of Physical Structure and Behavior," Dr. Hans-Lukas Teuber, head of Department of Psychology; Dr. Ann M. Graybiel, psychology & brain science; Dr. John Robert Ross, linguistics; 2:30pm, Kresge. Conference concludes with gymnastic team exhibition duPont Gym, & social hour, Stu Ctr. Conference Chairman, George J. Schwartz, '42.

Seminars and Lectures

Wednesday, September 10

Chile Today* — Laura Allende, sister of Salvadore Allende. Social Action Coordinating Committee (SACC) Lecture. 7:30pm, Rm 26-100.

Thursday, September 11

X-Ray From Gravitational Collapsed Bodies — Neutron Stars, Black Holes...* — George W. Clark, physics. Physics Colloquium. 4:15pm. Rm 26-100. Refreshments 3:45pm, Rm 26-110.

Monday, September 15

The Propagation of Wind-Generated Inertial Oscillations: An Application of a Ray Theory Approximation* — John Kroll, mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Coffee 3:30pm, Rm 2-349.

Heat Resistance of Thermophiles and Enzymes of Psychrophiles* — Dr. John Scholefield, University of Strathclyde, Glasgow, Scotland. Nutrition & Food Science, Microbiology & Biochemical Engineering Seminar. 4pm, Rm 16-134.

Tuesday, September 16

MIT PDP-11 Users Group Meeting* — Sponsored by IPS. 2:30pm, Rm 13-5002. Coffee 2pm.

The Computer as Wind Tunnel* — Richard Eppler, head of Institute for Mechanics, University of Stuttgart, Germany, Aero/Astro General Seminar. 4pm, Rm 35-225. Coffee 3:30pm, Rm 33-222.

Year to Year Variability in the Weather in the Southern Hemisphere* — Kevin Trenberth, New Zealand Meteorological Service. Meteorology Seminar. 4pm, Rm 54-100. Refreshments 3:30pm, Rm 54-923.

Sculptures to Be Relocated

Five major sculptures by Jacques Lipchitz and Max Ernst, on exhibit in the Hayden Gallery at MIT this summer, will be moved to new campus sites this week. Arrangements were made for the loan to MIT of these important sculptures by the Com-

mittee on the Visual Arts. The Council on the Arts at MIT was instrumental in obtaining the works.

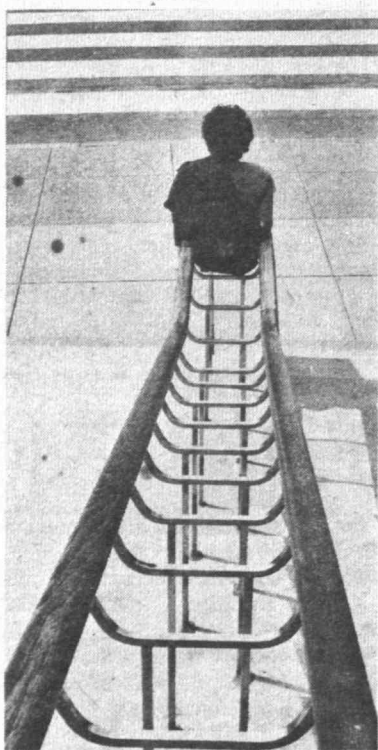
The Lipchitz sculptures—all large-scale bronzes—are on five-year loan to the Institute from the collection of the artist's widow, Mrs. Yulla Lipchitz, and their daughter, Lolya Lipchitz.

The Lipchitz works—Bather (1923-1925), Figure (1926-1930), Sacrifice III (1949-1957) and Hagar in the Desert (1957)—will be placed in the Hayden Sculpture Courtyard (adjacent to the Hayden Gallery). Another Lipchitz piece, Joie de Vivre (1927), was installed in the courtyard early last summer.

The Max Ernst sculpture, Capricorn, will be sited in the lobby of the Center for Materials Science and Engineering (MIT's Building 13) where it will remain until January, 1976. Capricorn was lent by Mrs. Dominique de Menil, a member of the MIT Council for the Arts.

All of the sculptures were on view in the Hayden Gallery last summer in the exhibition "Bronzes from the MIT Collection: New Acquisitions and Loans."

The sculpture loans augment the Committee on the Visual Arts' art-in-the-environment program. With the recent acquisition of a work by Pablo Picasso and several sculpture proj-



The balustrade at 77 Massachusetts Avenue makes a fine seat for this student.

ects in process, the Committee on the Visual Arts plans to have pieces by many major American and European artists located throughout the campus by the end of next year.

Denker Named

Dr. Stephen P. Denker of Stamford, Conn., Class of 1960, has been appointed regional director of the MIT Alumni Association for the New York and adjacent areas.

Announcement was made by James A. Chamy, association executive vice president. Dr. Denker will be staff representative for all association activities in the New York area.

Dr. Denker joins three other association regional directors appointed earlier: Martin M. Phillips, regional director for the southeastern US; Ronald S. Stone, regional director for southwestern and western states; and Daniel J.

Fingerman, regional director for midwestern states. Mr. Phillips, Mr. Fingerman and Mr. Stone all work out of alumni association offices in Cambridge. Dr. Denker will work out of the MIT Alumni Center of New York and will be responsible for activities in an area from southern Connecticut to Delaware.

Dr. Denker received SB and SM degrees from MIT in 1960 and the PhD degree from MIT in 1963, all in electrical engineering and solid state physics. He taught electrical engineering at Columbia University from 1963 to 1967, was with General Telephone and Electronics Laboratories, Inc., 1967-68, and was with Schlumberger-Doll Research Center at Ridgefield, Conn., from 1968 until joining the association staff.

Music Seminar

Selected students at MIT, Wellesley and Harvard may participate this academic year in the Faculty Seminar on Music, Linguistics and Aesthetics, an interdisciplinary, interuniversity group of Boston area professors.

First meeting will be at 4pm Wednesday, Sept. 17, in Room 10-340.

Openings were announced by the MIT School of Humanities and Social Science, in conjunction with the Division for Study and Research in Education.

The seminar, which met at MIT in

1974-75, studies grammar of music, formal mechanisms of musical meaning, music as a perceptual and cognitive process, and music as a vehicle for expressing human affect.

Students may receive credit in Special Topics subjects given by faculty in the departments represented, or through new subject listings, with the approval of the relevant committees on curricula.

Interested students may contact Professors Irving Singer (x3-4141), David Epstein (x3-3210), Jeanne S. Bamberger, (x3-7374), or John Harbison (x3-3210).

CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111, and presenting Institute identification. Ads may be telephoned to Ext. 3-3270 or mailed to room 5-105. Please submit all ads before to Ext. 3-3270 or mailed to Room 5-105. Please submit all ads before noon, Friday, September 12. They will be printed on a first come, first served basis as space permits.

For Sale, Etc.

Inbrd/outbrd boat, '72 Chrysler Sport Fury tri-hull open bow, 130 hp Volvo/Penta, trlr, fully equip, recent overh, xtras, \$2,750 or try it & best offer in 10 dys. Mel, x3-1342.

Sears Kenmore elec dryer, \$15; door latch, nds fixing. Ogden, x3-3178.

Sgl bed w/nice wd frame, \$25. Beth, 547-7920, aft 6.

Typwrtr, Royal Apollo 10, \$60; Exakta lenses, 20 mm & 50 mm, access. x9591 Dorm.

Refrig, 5.5 cu ft, exc cond, \$70; Whirlpool AC, used 2x, lk nw, \$110; desk, 43x21, 5 drwr, \$5. Call, 661-3739, evgs.

Wint desk, immac, \$150. Dave, x3-3739.

Plane, '68 Lark Commander N4180X, 180 hp Lycoming 1370 TTAE, NARCO12A, NARCO2A, ELT, FGP, v gd cond, except paint, June annual. Erik, x8-3339 Draper.

Doors: plywd, suit for tbls or drafting brds, var prices. Henry, x3-7004.

Fold tbl & 2 fold chrs; beaut wd bed frame w/hd & ftbrds. Stavros, x3-7107.

Lg tent; Coleman 2 brnr stove; Coleman dbl mantle lantern; 2 slp bags, zip tog; cook kit; priced to sell fast. Call, 237-4033, evgs.

Frstne stud snws, used 1 seas, 6.50x13, \$20. x3-4181.

Lg waterbed frame, matt, liner, htr thermo, \$75. Liz, x8-1522 Draper.

Estate sale 9/13, 10-6, items from 200 yr Cape, glassware, china, postcards, jewelry, furn, etc, 45 min west of Camb, Rt 140 Hopedale, btwn Upton & Milford lines. Paul, x3-7697.

Dyna/Scott/Univ 50-50W stereo sys, make offer; Yamaha YDS-3 250 cc mtrcyc. Rick, x8-1469 Draper.

M 3 spd bike w/21" frame. Call, 547-3336.

Hotpoint refrig, shocking org, 10 cu ft, \$25. M. Toscano, x3-1630.

Padded swivel chr; dresser; wd cpbrd; chrs; ctrns; flr fan; tbl fan; tbl lamp; cshn; tape rcrdr; dart brd; Kware; cheap, less in combinations. Call, 354-3723, evgs.

Stu couch; carved mahog uphol chrs; Lincoln rocker; wint Parson's tbl; mahog buffet; 54" rnd tbl; mpl chest; chrs; tbls; 4 tbl lamps; 2 slide cameras, \$25; etc. Call, 876-4328.

F 5 spd bike, kryptonite lock, front bskt, \$60. Robin, 332-2886.

Hitachi TV, \$50; elec drill, \$4; soldering gun, \$4; toaster, \$3; 10.5x15 rug, \$5; dishes, \$3. x3-7074.

Garage sale Sat, Sept 13 (rain date Sept 14), J. McClintock, 34 Fells Rd, Winchester, 10am-2pm, incl 10 spd m bike.

Three 2314 disc packs; 150 computer tapes. x3-1734.

Color RCA 23" TV, port or stand on attach legs, \$350 or best. x3-2974.

Stu musical instruments: Beac flute, \$100; Fr horn, \$125. J. Fish, x183-236 LINAC.

Largest Maytag elec dryer, perf cond, less yr old. Call, 277-1578.

'73 Honda 750 CC, \$1,500; 12" Draecena plant; 2 blu/grn shag rugs, 12x14.5 & 6x6; 3 red scatter rugs; couch; crtns; desk; bkcses; best. Kathy, x8-1584 Draper.

Youth bed, \$20; hchr, sep into tbl & chr, \$8; Johnny-jump-up, \$3; Papooser carrier, \$4; car st w/nw cover, \$7; infant st, \$1. Call 391-1086.

Free piano, not v gd cond but works, colored keys help teach child, U move. Jane, 354-0786, aft 6pm.

K sz bed sheets, 2 nw, 2 nr nw, \$10/all. x3-2235.

Refrig, v gd cond, \$40. Dinesh, x3-5106.

Matt & box spr, \$20. Edward, x3-5971.

GE refrig, med sz, \$15; Norge refrig/frzr, 20 cu ft, \$40. x3-6811.

Flr/wndw fan, 22", 3 spd, Sears Kenmore, \$10; elec broom, 2 spd Regina, \$7. Mandy, x3-1873.

Pioneer TX-500 tuner, \$75; Pioneer SC-700 preamp, \$75; Dual 1218 w/base, dust cvr, \$100; Roberts 1725 reel & 8 trk tape rcrdr, \$150. Dave, x3-7779.

Dinner tbl, \$10; chr, \$10; sgl bed, \$10; free desk; free chem cabinet. Linda, x3-5647.

Olivetti Lettera 35 elec port typwrtr, beaut mach, works well, hrdly used, orig \$140, best. Meera, x3-6784.

Free upright piano, 1st fl, Newton. Bob, x3-2593.

Wstghse chest frzr, 5.3 cu ft, lk nw, \$125. x0512 Dorm.

Burlap drapes, tobacco brn, 84" L, 5 pr, \$4/pr; elec frypan, \$8; mtch towel set; 2 pr Papagallo shoes, ankle strap, 9M, b nw wht, brly used navy, \$10 both or best. x8-2577 Draper.

Auto cassette player; port dishwasher; 3 spd m bike; chest drwr; nitestd; desk lamp; swag lite; guitar; etc. Bruce, x3-2297.

Ambassador amfm stereo & radio, \$75; 10 spd m bike, \$85; Kryptonite lock, \$15; 2 man typwrtrs, best; misc hsehd items. Jody, x3-5542.

Twn sz beds, 2, incl matt, box spr, iron frame, cstrs, \$20/ea. Yvonne, x3-2589, 26 Carey St, Wtrtwn.

Sm auto coffee percolator, \$7. Call, 492-8065.

Pr nw tan "Jaguar" shoes, sz 12, \$15; West Bend humidifier, \$12. Call, 494-0368, evgs.

Victorian furn parlor set, c. 1860, \$375; sec'y & other antiques. Alan, x3-6279.

Homelite 12" XL-2 chain saw, 2 yrs, exc cond, \$65 or best. x3-3502.

Elec 2 spd exercycle, hrdly used, \$275; 2 transistor power amps, 85 W/ch, ask \$300. Yale, x3-1623.

Drafting brd w/attach ruler, 21x26. ZB, x3-6973.

Colonial furn: 2 end tbls, coffee tbl, swivel chr, fluor desk lamp. Mike, x3-5824.

F 3 spd Phillips bike, gd cond, lg rear bsks, \$35. Shirley, x3-3852, evgs.

Playpen; portacrib; child bike; toddlers wnt clothes; chldrns games. Call, 862-6509.

Surprise wife or sweetheart w/beaut hand-crocheted shawl, made to order, your choice color(s), taking Xmas orders, \$25. Diane, x8-1766 Draper.

F 3 spd bike, rusty but works, best. Susan, x3-1351.

Sm Frigidaire, b nw, A-1 cond, \$50. E. Ricker, x3-1919.

Dbl brnr hotplate; broiler oven; both exc cond. Paula, x3-6405.

ARXA trntbl w/M91ED, yr old, \$75; Superex hdphones, \$12. Rick Hester, x3-1716, 10am-4pm.

Man typwrtr w/case, Underwd Pica, exc cond, \$45; Garcia salt water spinning rod & South Bend reel, used 3X, \$22. Joe, x3-5484.

Sgl sz matt, \$15; contemp sofa, wht w/chrome legs, \$170; Zenith 17: b&w TV, UHF & VHF, \$75; TV stand, \$5; hall tbl, \$8; Kware, cheap; armchr, \$5; Andrew, 266-5742, 4-7pm.

Royal man port typwrtr w/case, \$30; Broil-King infrared baker-brlr oven, \$20; IBM elec office typwrtr, \$90; Universal vac w/attach, \$15; coffee & end tbls, \$10; etc. Pat B, x3-2694.

K tbl w/leaf, \$100; hand hooked rugs, wool, 4, \$200. Raddocchia, x3-7914.

Whls, 2, snws & hubcaps, '70 BMW 2002, \$25/ea; Dynastar omeglass skis, 195 CMS, barely used, \$160 or best. Jack Frailey, x3-4974.

Royal man port typwrtr w/case, \$30; Broil-King infrared baker-brlr oven, \$20; IBM elec office typwrtr, \$90; Universal vac w/attach, \$15; coffee & end tbls, \$10; etc. Pat B, x3-2694.

Slumberland twn matt, \$20; Sunbeam elec frypan, \$16; sm elec fan, \$5; desk lamp, \$5; Halina camera, 45 mm, f2.8 w/blt in lite mtr, exc cond, \$15; Hon, x3-6893.

Port whirlpool bath, almost nw, orig \$300, \$200. Fisher, x3-5571.

M 10 spd bike, 27" frame, wht, Raleigh Rcrd, nrly nw, \$85. Don, x3-3550.

Dresser w/5 lg drwr, \$25; lt mahog desk, \$25. Mona, x3-5890.

TV, 19" b&w Sylvania, \$40. Marc, x6449 Dorm.

Breuer chrs, 6, open (orig), \$130/ea. x3-6551.

Lg foam matt, \$5, coffee & 2 end tbls, \$4; take away; nego. Bob, x9602 Dorm, kp try.

Pr m sz 9 1/2-10 European style earth shoes, used v slightly, orig \$40, ask \$20. Bill, x3-7611.

Collier 3 in 1 conv carriage, v gd cond, \$20; Bunny Bear car seat, lk nw, \$10. Call, 875-6248.

Almost nw full sz box spr & matt, \$75. Celia, 354-2290.

Sofabed, gd cond, \$45; endtbl, \$25; tbl lamp, \$25. Call, 547-8185, morns.

Matt & box spr, sgl sz, \$50. Peter x3-2627.

HP-45 calculator w/applications book, xtra batt pack, \$150. Joe, x3-7141.

DR rcrd cab, \$9; Carousel dishwasher, \$9; mod hall mirror, \$7; attractive K crtns, other drapes, \$7; lg tbl lamp, \$7. x5726 Linc.

M 10 spd 24" whl bike, \$30; F78x14 tires: Gdrich mtd snws, nrly nw, \$20/ea; retreads, less 3 K, \$10/ea; port phone, \$20; m watch, Omega Chronometer, nvr worn, \$180. Victor, 547-4154.

Grn fbrglas planters, 4, 30"x7"x6" deep; 1 cu ft marble chips; 2 plant lites w/gro-lite bulbs, 4' std dual lamp & 2' sq dual lamp. Carol, x3-1332.

Qn sz box spr, matt, frame, tufted hbrd, \$95. x7492 Linc.

Car was stolen, have 2 HR 78 x15 stl belt radial stud snws, used about 2K, \$130 or best. Debby, x8-4419 Draper.

Peugeot PX10E bike w/Campy Nouvo Rcrd front & rear derailleurs, nw Regina chn, less yr, perf cond, Citadel lock, car bike rack, \$380 or best. Mike, x6512 Dorm.

Teflon 7 pc cooking set, red, \$8; 24 pc slvrware set, org handle, \$5; set plates, cups, etc; asst K utensils. Call, 661-0661.

Red Fr velvet 12x12 carpet, wool, w/pad, \$250; port Hoover washer & port Maytag dryer, \$75/ea. x5773 Linc.

Danish lge chr, \$10; gold plaid bdsprd, sgl sz, w/blstrs w/mtch covers, \$5; sunlamp, \$2. Sharon, x196-342 EDC.

Racing style bike, 3 spd, \$35 or best. Bob D, x3-2843.

Tires, 5.60x15 snws, mtd Saab rims, nr nw, \$35. Ray, x5838 Linc.

Dbl beds w/frames, 2, \$45 & \$55; 3 hang bkshlvs, \$15/set; wht util cab, \$5; rt angle bkshlf, \$15; Head Mstr tennis rckt, mtl, used once, \$30; rear bike bsks, \$5; drapes, etc. Call, 266-7797.

Take a green friend home, plant sale Wed, Sept 17, 1pm til sold out, Bldg 10 rotunda.

Stereo, amfm, Hitachi cassette tape rcrdr, \$125; typwrtr, \$25; 4 pl set dishes, \$25; mech sweeper, \$5; scale, \$5; 2 carpets, 1.5x2', \$1; etc. Call, 494-8801.

Bose 901 spkrs, 2, w/series II equalizers, \$290. x3-3072.

Vehicles

'63 Chevy, 6, eco & reliable, body OK, \$150. Lyon, x3-2214.

'63 Ford Gal conv, under 71 K, sgl ownr, exc int, eng & top. x3-4703.

'65 Buick Spec, 2 dr, auto, sm V8, \$300 or best. x3-2555.

'66 Ford Frlnr S1 9 psgr wgn, 289, p st & br, auto, roof rack, cln, no rust, \$500 or best. Bernie, x3-6091.

'67 Saab 95, V4 wgn, runs well, nds exh sys, body fair cond, \$200 or best. Bonnie, x8-4006 Draper.

'67 Dodge van camper, 65 K, gd cond, many xtras, best. Reint, x3-4519.

'67 Alfa Romeo Duetto Spyder, I have 2, starting price, \$1,200 for both, nego. Jonathan, 232-2914, kp try.

'67 GMC Handivan, 6 cyl, 3 spd std, nw carb, starter, distributor, runs v well, \$600 firm. Morgan, x7546 Linc.

'68 Chevy wgn, 6 cyl std, v gd cond, lvg cntry, \$675. Jim, x3-5586.

'68 Ford Cstm 500 wgn, auto, p st, fm, gd run cond, \$400. Larry, x3-5517.

'68 Datsun 1600 roadster, gd mech, exc body, Calif car, 3 tops incl hdt, \$1,200. Harris, x3-6679.

'69 VW Sqbk, nw tires & snws, fair-gd cond, \$650 firm. Harvey, x8-1760 Draper.

'69 Olds 88 sed, p st & br, radio, AC, runs gd. Bob Harlow, 244-7630.

'70 Ply Duster, auto, p st, \$1,000; snow chains, \$10. x3-7001.

'70 Toyota Mark II, best. Call, 326-5151, bef 4:30pm.

'70 Grand Prix, exc cond, 4 spd, fac mags, nw tires, snws, lo miles, gd mpg, \$1,500 or best. Joe, x3-6185, lve msg.

'70 Simca, 43 K, 4 dr, gd mileage, gd cond, \$700 or best. x3-7824.

'70 Ford XL, p st & br, AC, blu, 61 K, \$1,050 or best. Woo, x3-4024.

'70 Merc Cougar hdt, p st & br, 351 eng, amfm stereo, snws & rims, 80 K, \$1,300. Call, 877-4480.

'71 VW Sqbk, lt blu, exc cond, nw batt, brakes, exh, snws, 57 K, \$1,950 or best. x3-1668.

'71 Opel, auto, 20 mpg town, 27 K, \$2,400. x3-1341.

'72 Opel Manta rally, 4 spd std, 40 K, exc cond, recent paint, many nw parts, \$1,500. Chan, x3-1448.

'73 Pinto wgn, 4 spd std, under 15 K, stl radials, rustpruf, rear defog, exc cond, \$1,995. John, x3-2869.

'68 Bennelli 250, v gd cond, w/hvy chn, lock, hlmt, best. x7162 Dorm.

'71 Honda CL 350, less 12K, eng recently rebilt, many xtras, exc cond, ask \$525; m 3 spd bike, gd cond, ask \$20. Tony, x3-1826.

'71 Yamaha 350, dented gas tank, otherwise v gd cond, \$500. Jia Shu, 965-2504, kp try.

'72 Honda CB 350, 11 K, xtras: shop manual wndshld, hlmt, \$700 nego. Bill, x3-2503.

'75 Honda CB 360. Call, 263-3716, aft 6.

Yamaha R5C 350 cc mtrcyc, working cond, luggage rack, \$500 or best. Mike Gordon, 267-2199.

Housing

Arl, 10 rm, lg mod eat-in K, frml DR, beam ceil, frpl LR, 5 BR, den, sunrm, 2 car gar, fenced crnr lot. lo 50's. Doris, x7155 Linc.

Bel, totally furn 2 BR apt, study, K, lg LR, porch, d&d, Indry, garage, no chldrn or pets, \$350 incl util. Call, 484-4791.

Beverly, 2 BR ranch, 1/3 acre, landscaped, gas hot wtr & heat, lg garage, nr shops, sch, bus, \$33,900. Shey, x5763 Linc.

Lex, spll lvl 7 rm hse, 1 1/2 B, mod K, 3 BR, 4 acres, dead-end str, bus for sch, 1 car garage, \$49,000. Call, 862-4150.

Reading, 5 rm hse, beam ceil LR w/frpl, 2 BR, DR, finishable bsmnt, garage, lg lot, qt str, ask \$37,000. Florence, x3-7052.

W Rox, 2 lg rms in home, avail now for sgl grad, own transp ideal, nr T, no smokers, otherwise flex, \$150 incl ht & off-st pkg. Call, 327-6539, evgs.

W Som, spac mod 5 rm apt, 1st fl 2 fam hse, nw K & B, \$215 + util. x327 Linc.

N Conway area, nw 3 BR furn chalet, frpl, ww, slps 8, avail 12/1-5/1. Dick Clark, x7760 Linc.

Highland Lake, Stoddard, NH, 2 seclu lkfrnt cott, all facil, frpl, elec, scr porch, rowboats, avail to Columbus Day, \$125 & \$100/wk, also avail wknds. x8-1566 Draper.

Prof cpl seek to sell 3 BR 2 story hse, Mexico City, wl consider swap for hse or apt greater Bos area. Vicky, x3-3242, lve msg.

Gd home for yr old blk lab mix, gd w/chldrn. x3-5819.

Grmn shep pups, AKC, 9 wks, temperment v sound & guaranteed. Bob Di, x3-2701.

Welsh pony, dapple gray, gd w/chldrn, ride & drive, driving harness, saddle & bridle avail. Benner, x3-2250.

Sm, vivid, playfl cat nds loving home, we are lvg cntry, free. Call, 494-8121.

Gladys, adorable, loving, mature basset hound, spayed, nds sm yard to guard, free to gd home. Rob, x3-7053.

F pups, 2, 7 wks, free to gd homes. Sandy, x3-4342.

F 34, seeks position as vegetarian cook in exch for rent reduction. Ann, x8-1349 Draper.

Typing: theses, reports, stat, IBM Selec, fast & accurate. Jean, x3-7410.

WI do typing. Jean, x3-2361.

Lost and Found

Found: slvr keychn w/charm nr Bldg 26, describe to claim. Carla, x3-2819.

Wanted

Desirable tenant nds 3-4 rm 1st fl apt on T, pref Bel, Arl, Camb line, 1 prsn, no pets, nd by 9/25 or 10/1. Call, 289-6598, evgs.

Electronics whiz to fix Bowmar calculator, for \$. Bill, x3-2701.

WI pay cash for ltwght man typwrtr, esp Olivetti Lettera 32, gd cond. Mona, x3-1491.

Someone to do hsework in Belmont, on bus line, your schedule. Call, 484-7681, evgs.

Info about Basenjis, am thinking of buying one. x3-3270.

Drafting tbl w/adj angle, x3-4811, kp trying.

Rm & brd avail for responsible f stu in exch for srvc sch yr, '75-'76. x3-6085.

Frame & hbrd for dbl or qn sz bed; upright piano in reas cond. Call, 782-0289.

Babysitting for infant in your apt, pref Westgate, 12-5:30, \$1.50/hr. Call, 232-7418.

Used refrig, under \$30. x6568 Dorm.

Garage to rent in Camb. Chas, 354-1816.

Stu, 2 w/van or lg wgn to convey papers of deceased fac member to Beverly Farms, pay nego. x3-3454.

Cider press to use or purchase. Dick, x3-4495.

Babysitter a few half dys/wk. Call, 484-8239.

Responsible 24+ f, 3 working & grad stu, seek cln, qt apt in Wtrtwn area, refs avail. Rosalie, 698-1063, evgs.

Roommates

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 Grades II-IV 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
(secretary - Dixie Chin)

Virginia Bishop 3-1591
Mike Parr 3-4266
(secretary - Joy Dukowitz)

Sally Hansen 3-4275
Jack Newcomb 3-4269
Evelyn Perez 3-2928
(secretary - Susan Bracht)

Ken Hewitt 3-6512
Carolyn Scheer 3-6511
(secretary - Ellen Schena)

Spons. Res. Staff in Research Laboratory of Electronics will work on molecular beam stabilized Argon laser for ultra-high resolution spectroscopy. Ph.D. in Physics or equivalent required. One year appt. D75-162 (9/10).

Spons. Res. Staff, in Architecture will develop faster scan techniques for computer graphics. Will work on an interdata model 85 with control store, interfacing it with MIT Cable television; develop programming language for computer animation. Assembly language computer programming and analogue video experience required. D75-165 (9/10).

Acad. Staff, Technical Asst., in Biology will assist in biochemical experiments to study the structures and function of chromatin from chick embryonic tissues. Strong background in chemistry required. Some biology or bio chemistry training desirable. C75-25 (9/10).

Spons. Res. Staff in Research Laboratory of Electronics will work on atomic beam stabilized dye laser for ultra-high resolution spectroscopy. Ph.D. in Physics, or equivalent, required. One year appt. D75-163 (9/10).

Spons. Res. Staff in Architecture will manage computer graphics development program; apply raster scan technologies to creative writing technologies; use mass memory interdata computer system with video display; will supervise programmers. Programming experience, preferably with PL/1 and assembly language and computer graphics experience, preferably with raster scan required. Candidates should also be experienced in graphical layout and production, and interested in creative writing and technical documentation. D75-164 (9/10).

Spons. Res. Staff, temporary, in Research Lab of Electronics will work on Nuclear Engineering Program of Controlled Thermonuclear Fusion Research. Ph.D. in plasma physics, knowledge of neoclassical transport theory to participate in Theoretical Tokamak investigations required. Temporary for approx. 10 months. D75-169 (9/10).

Spons. Res. Staff, Operations Branch Mgr., in Energy Lab will handle operational procedures for New England Energy Management Information System. Duties include responsibility for installing standard programs and data series in user data bases; provide operating documentation and training to users; monitor system resource; set up user accounts; prepare statistical data, MA, or equivalent, in engineering, with relevant computer experience required. D75-166 (9/10).

Spons. Res. Staff, temporary, will work with Director and Program Directors in Energy Lab to identify, define specific research areas related to end-use technology; initiate and prepare proposals; coordinate existing projects with many segments of MIT

community. Technical background and experience in technical coordination required. Temp to 1/31/76. D75-167 (9/10).

Spons. Res. Staff, surface physicist, in National Magnet Laboratory will perform research on plasma wall interactions as occur in Alcator tokamaks; participate in design and construction of high vacuum pumping and gas inlet systems and related instrumentation of Alcator B device. Ph.D. in surface physics or plasma physics, minimum of 5 years experience in high vacuum techniques and problems associated with plasma wall interactions required. 1 year appointment. D75-168 (9/10).

Admin. Staff, Sr. Staff Acct., in Energy Lab will assist in all Institute and agency related accounting functions of Lab: develop, implement and monitor contract and general budgets; maintain liaison with Accounting Office and Office of Sponsored Programs; schedule and supervise work of supporting personnel; may assist in initiation and operation of on-line computer accounting system. Extensive experience with MIT accounting, budgeting and contracting policies required. Please submit resume. A75-51 (9/10).

Admin. Staff, Asst. Director in the Admissions Office will interview prospective students, assist in review and evaluation of applications, travel to meet with students, high schools, Educational Counselors; aid in preparation of publications, maintain considerable correspondence, participate in planning, with particular emphasis on minority students. Experience in administration or minority programs strongly preferred; a background in high school guidance or math/science teaching will be considered. A75-49 (9/3).

Spons. Res. Staff, Economics/Policy Analyst will conduct analysis of public policies regarding government regulation of private industry and consumer behavior in area of energy and the environment, and also federal expenditure on research, development and demonstration in the energy field. Analysis is to focus initially on the automobile industry; other areas will include synthetic fuels, solar power, conservation practices. Must have training in microeconomics and public policy analysis and/or management of U.S. Federal programs, training and experience in political science with policy analysis orientation. D75-161 (9/3).

Spons. Res. Staff, Medical Technologist/Technician in Clinical Research Center will perform lab procedures in 12-bed center and for a large volume of out-patients. ASCP registration, experience in clinical chemistry, hematology, and urinalysis and familiarity with lab instruments required. Bachelor's degree in Biology or Medical Technology preferred. D75-109.

Spons. Res. Staff, Applications Programmer in the Lab for Nuclear Science will develop, write, debug and test computer programs for analyzing data on reactions of high energy elementary particles; adapt and test other MIT lab programs; produce and maintain group program documentation and develop system management for large-scale computer jobs. Bachelors or graduate degree in Physics, Math, Computer Science or Elec. Eng., familiarity with relativistic kinematics, properties of elementary particles, Fortran IV programming, IBM System 360 Job Control Language, IBM 360 Assembly Language required. D75-153 (9/3).

Spons. Res. Staff, Programmer, for Computer Music Project in Humanities: develop a musical score editor using high resolution graphics (System has a PDS-4 display interfaced to a PDP-11/50.) Practical experience in PDP-11 assembler programming, working knowledge of music creativity in area of person-machine communications required. Degree in computer science and/or music helpful. D75-156 (9/3).

Academic Staff, Tech. Asst. in Nutrition and Food Science laboratory of Neuroendocrine Regulation will perform assays of brain neurotransmitters, enzymes and amino acids; teach assay methods to students and others; maintain quality control of lab techniques; oversee lab maintenance. Will use fluorescence assay, scintillation counting and spectrometry methods. Masters degree in biochemistry or related field required. C75-22 (9/3).

Admin. Asst., Exempt, in Medical Dept. Psychiatric Service will assist Psychiatrist-in-Chief in overall administrative operation of service including supervision of 4 departmental secretaries; may perform some confidential secretarial functions. Good organizational skills to coordinate a variety of administrative activities required. Previous supervisory experience and a history of progressively responsible employment desirable. E75-35 (9/3).

Tech. Asst. IV in School of Humanities and Social Science Oral History Laboratory will handle project design, document research, interviews, documentation; assist lab director with oral history research; catalogue documents; create and maintain filing system; assist students in research projects. BA in history of science, or history, with

strong science background, experience with historical document research and handling required. Interviewing experience in oral history field desirable. Position is full time, but could be converted to part time to accommodate selected candidate. B75-432 (9/3).

Technical Assistant IV at the Creative Photography Lab, Architecture Dept., will maintain equipment, supplies facilities of the Lab during evening hours; prepare set up equipment, chemicals; interact with students. Produce slides, help with exhibitions. Must be a working photographer. Duration of position renewed each academic term. B75-462 (9/3).

Secretary V, to Chemistry Department faculty member working with large international research group in field of enzymology; take and transcribe shorthand dictation; maintain small library; arrange appointments; answer telephones; order lab materials; handle varied administrative matters. Excellent secretarial skills, including shorthand. A mature, sensitive manner in dealing with people required. B75-475 (9/10).

Secretary IV-IV to 2 psychology faculty members, students, and other members of their research group will perform general secretarial duties including shorthand and machine dictation; monitor status of budgets, grants; maintain schedules, appointments. Shorthand and machine transcription skills, ability to maintain accurate files and records required. B75-469 (9/10).

Secretary IV, part-time, will assist Political Science Administrative Officer in secretarial duties relating to Department administration: prepare payroll material; monitor accounts; maintain expense records; share in receptionist duties. Excellent typing skill, experience with bookkeeping procedures, ability to handle detailed work required. Business or secretarial school training, familiarity with MIT procedures preferred. B75-465 (9/10).

Secretary IV, part-time in Physics Department will perform varied duties related to production of monthly journal: maintain manuscript records and monitor their status in review process; edit manuscripts. Good typing skill required. 15 hrs/wk (1pm-4pm). Job-sharing position. B75-477 (9/10).

Secretary IV, in Resource Development, Office of the Vice-President, will perform general secretarial duties under supervision; shorthand and dictation skills and error-free typing required. Busy office, must be able to work under pressure. B75-451 (9/3).

Secretary IV to Associate Professor in the Optical and Infrared Laser Research Group; will type correspondence, manuscripts (some technical), arrange meetings, and travel arrangements. Good shorthand and excellent typing required. Ability to communicate and to deal with students and staff important. B75-384.

Secretary IV, headquarters secretary in Ocean Engineering will perform secretarial duties for Department Head, Admin. Officer and several students; arrange appointments, travel; maintain confidential files; answer phones. Excellent shorthand skills, familiarity with MIT procedures required. Technical typing skill desirable. B75-436 (9/3).

Secretary IV to two faculty members in Civil Engineering, Water Resources Division: perform general secretarial duties including typing of correspondence, reports, theses; maintain files and accounts; answer phones. Typing skill and willingness to learn technical typing required. B75-357.

Secretary IV, to Executive Director, System Dynamics Group, Sloan School, will type varied material from draft, machine, and shorthand dictation; organize and maintain files, arrange travel and appointments; research subject material. Excellent typing, organization and English grammar skills, initiative required. Applicants should have previous secretarial experience and flexibility to work overtime. Shorthand or speedwriting helpful. B75-351.

Secretary IV, to the Institute Secretary for Foundations will be responsible for office purchases, budget accounting; travel arrangements, itineraries; will maintain file on philanthropic foundations; research and reference materials; maintain communications with top level Institute offices. Excellent secretarial skills; ability to organize; discretion. Knowledge of MIT is desirable. B75-455 (9/3).

Secretary IV in Civil Engineering Transportation Systems Division will perform general secretarial duties for faculty member: type correspondence, reports; maintain files and accounts; edit; share office duties with other secretary. Position includes student contact. Good typing skill required. B75-296.

Secretary III-IV, temporary, will assist Industrial Liaison Officer in preparation of Directory of Current Research; coordinate incoming correspondence; maintain records and files; assist in preparation/typing of manuscripts;

proofread. Organization, communication, typing skill required. Keypunching ability, or willingness to learn, preferred. Must be able to structure workload to meet publication schedule. 20 to 40 hours/week, depending on workload. B75-439 (9/3).

Secretary III-IV, to faculty members and several graduate students in Ocean Engineering: type varied material including technical reports, class notes; arrange travel and appointments; maintain files and records on research accounts; monitor monthly statements. Excellent technical typing skill, ability to work independently and under pressure required. 2-3 years secretarial experience, including some at MIT, desirable. Shorthand preferred. B75-438 (9/3).

Secretary III or IV, in Physical Plant will handle requests for use of the Student Center, Kresge and the Chapel. Type, answer phones, bill for LSC movies, other events. Assist students; keep records; ability and attitude to deal with members of the MIT community and others using the facilities. Good typing important. B75-444 (9/3).

Secretary III-IV, Mathematics Dept., will provide secretarial support for 10 faculty members. Type mathematical papers, class notes, exams, correspondence. Handle telephone, files, travel arrangements and some records. Excellent typing required; technical typing experience preferred. Typing is bulk of workload. B75-448 (9/3).

Secretary IV, at the Committee on the Visual Arts will type general correspondence, manuscripts, keep records, take minutes. Will also take notes at seminars, do library research, coordinate seminar activities and field work, handle independent correspondence. Will assist CVA project coordinator; schedule meetings, prepare written material: reports, grant applications, and research findings. High level of independent work; good judgment, excellent typing, research writing experience, familiarity in running graduate seminars, solid background in the history of Art or of French literature preferred. B75-460 (9/3).

Secretary IV to Harvard-MIT Program in Health Science & Technology will perform secretarial duties for interinstitutional research group working on health care technology project. Transcribe from oral and machine dictation; arrange travel; administer grant; edit and type manuscripts. Excellent secretarial skills including shorthand/speedwriting, interest in health care required. College training, familiarity with medical/technical subjects desirable. B75-420 (9/3).

Secretary IV to two Industrial Liaison Officers will handle secretarial duties related to program which provides liaison between private industry and MIT research groups. Position includes frequent contact with member companies. Will transcribe machine dictation; compile statistics; maintain files; fill requests for publications, symposia information. Good typing skill, 1-2 yrs. Secretarial experience required. MIT experience and ability to use dictation equipment desired. B75-426 (9/3).

Secretary IV in the Medical Department to two physicians. Answer telephones, schedule appointments and travel, type correspondence and transcribe case histories. When necessary, maintain files and records and chaperone pelvic examinations. Excellent typist; previous experience, preferably in medical area, required. B75-447 (9/3).

Secretary III-IV, Analytical Studies and Planning Group, to work on various projects for central administration and faculty committees, type reports, schedule meetings, maintain files and financial records, general project assistance. Excellent typing, proofreading skills. Ability to set priorities and work under pressure. Will work with several staff members. 37 1/2 hours week. B75-441 (9/3).

Secretary-Sr. Clerk III, temporary, in Career Planning and Placement Office will handle large volume of typing, answer telephone requests for information, materials, etc.; share in setting up coffee for recruiters; interact with students and recruiters. Excellent typing skill required. Familiarity with MIT helpful. Position runs through 3/31/76. B75-468 (9/10).

Secretary III, in Physics Graduate Office will handle secretarial duties relating to prospective graduate students: mail applications; type varied correspondence concerning admissions process. Good typing skill familiarity with or willingness to learn IBM Mag Card typewriter required. B75-474 (9/10).

Secretary III in Center for Theoretical Physics will perform secretarial duties for several faculty members: type, including some technical material; arrange meetings and appointments; work with students and visitors; answer phones. Good typing skill required. Shorthand helpful. B75-473 (9/10).

Secretary III to 2-3 Sloan School faculty members; handle correspondence, files, phones; course materials.

Type manuscripts; independently acknowledge routine correspondence. Good typing filing skills required. Formal secretarial training or experience preferred. B75-466 (9/10).

Secretary III (Floater) in the Medical Department will have primary responsibility for relieving absent secretaries in department. Will help out with heavy work loads - transcribe case histories, handle correspondence, files, and mailing. May also work for part-time staff and help out in department business office. Flexibility, good typing and ability to learn medical terminology required. Some previous experience. B75-450 (9/3).

Secretary III in Aeronautics and Astronautics will type correspondence, for faculty, research staff, students, perform varied other secretarial duties; arrange travel, maintain files; act as receptionist; distribute library materials. Ability to work independently and under pressure, good typing skill required. B75-424 (9/3).

Secretary/Receptionist III, in Office of the President and Chancellor will share duties of reception area, typing, mail, xeroxing, and telephones, on a weekly rotation basis between reception desk and secretarial area. Excellent opportunity to learn secretarial procedures. Good accurate typing necessary; flexible, pleasant personality to deal with visitors to the offices, 37 1/2 hour work week. B75-458, B75-459 (9/3).

Secretary III to two faculty members, in the fields of management science and marketing, Sloan School: will take and transcribe dictation; type course material, manuscripts; file; answer phones; other secretarial duties as required. One secretary office; applicant should have excellent typing, shorthand/speedwriting, organization skill and ability to meet deadlines. B75-367.

Secretary III, part-time, in 2-person office in Operations Research Center: perform general secretarial duties for faculty members; assist Admin. Asst. in performing general office functions: coordinate seminars, workshops, type technical reports. Ability to handle detailed work, technical typing skill, or willingness to learn required. 20 hrs/wk. B75-417 (9/3).

Sr. Library Asst. IV, in Barker Engineering Library Processing Office: will have responsibility for cataloging monographs, serials and MIT report series. Verify and prepare catalog records; supervise card corrections and card catalog filing, theses processing; maintain processing file; prepare display; assist at catalog information Desk. Previous library experience in cataloging/processing department, some graduate library science courses, organization and typing skill required. College degree preferred. B75-429 (9/3).

Sr. Clerk III-IV, part-time will type correspondence and reports in Center for International Studies. Must have excellent typing skill and be able to work under pressure. 20 hrs/wk. B75-476 (9/3).

Jr. Comp. Op. II, in Center for Space Research will operate Minicomputer system used to support satellite operations: data reception; program processing; maintain associated log books, tape libraries, hardcopy files. High school graduate or equivalent required. Some college training and computer experience helpful. Candidates should be able to follow instruction and adapt to procedure changes. B75-416. (9/3).

Waitress/Waiter, Set tables, take orders, serve food and beverages on banquet trays. Clear and reset tables. Dust chairs, wipe table clean. Experience is helpful but not necessary. 11:00am-3pm M-F. H75-111, H75-112, H75-113, H75-114, H75-115 (9/3).

Computer Operator IV in the Office of Administrative Information Systems will operate IBM Model 145 and associated peripheral equipment under DOS/VS. Must have good knowledge of DOS job control, multiprogramming experience and ability to follow standardized operating instructions. Minimum 1 year experience required. 12 midnight-8am shift, B75-195 (5/21), B75-427 (9/3).

Acctg. Clerk IV in Graphic Arts to handle all accounts payable functions including billing and related clerical duties. Thorough knowledge of accounts payable procedures (invoicing, pricing, etc), facility in working with figures, ability to use calculators required. Accounting or business school graduate or 3 yrs. related experience also necessary. B75-422 (9/3).

Sr. Clerk IV, in Telecommunications Office will prepare, issue and follow-up telephone orders, provide information to users, maintain inventory of telephone equipment, handle other clerical duties. Experience in office work, familiarity with a telephone company helpful. B75-443 (9/3).

Sr. Clerk III, in Comptrollers Accounting Office, Transfer Voucher Section: will type vouchers; charge and credit projects; file; research problems;

reconcile accounts. Working knowledge of bookkeeping, typing skill required. B75-431 (9/3).

Sr. Clerk III, in Registrar's Office will assist in student registration, verification of student status, registration corrections, student requests and filing, using IBM terminals. Type notices to degree candidates. Excellent typing, accuracy with figures. B75-449 (9/3).

Kitchen Helper/Potwasher, hourly, in Food Service will clean and sterilize equipment, tables, implements; maintain walls and floors in food service area; remove waste material daily; perform other duties as assigned. Must be able to read, speak and understand English. 40 hr/wk. H75-90 (9/10).

Cook's Helper, hourly, in Food Service will prepare vegetables using steam kettle, high pressure cookers, make specialty salads and prewrapped sandwiches; maintain sanitary work area; inventory product usage. Applicants should have some experience in food service and preparation of menu items; must be able to read, understand and follow recipe instructions; understand and speak English. 40 hr/wk. H75-77, H75-88 (9/10).

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:

A75-26, Dist. Officer, Resource Develop. (7/9)
A75-27, Director, Development Off. (6/25)
A75-35, Regional Rep., Alum. Assn. (6/25)
A75-38, Operations Mgr., Medical (7/9)
A75-41, Proj. Mgr., Off. of Admin. Inf. Syst. (8/6)
A75-44, Proj. Planner, Planning Office (8/20)
A75-48, Director, Tech. Ed. Proj., Off. of Pres. & Chnc. (9/3)

BIWEEKLY:

B75-190, Tech. Asst. IV, Arch. (6/25)
B75-263, Sec. IV, Div. for Study. & Res. in Ed. (6/25)
B75-267, Sec. IV, Res. Lab. of Elec. (6/25)
B75-273, Sec. IV, Mt. Sc. & Eng. (7/9)
B75-290, Sec. III-IV, Energy Lab. (7/23)
B75-306, Sec. IV-V, Physics (7/23)
B75-308, Sec. IV, Tech. & Culture Seminar (8/6)
B75-318, Sr. Clerk IV, MIT Press (8/6)
B75-320, Sec. III-IV, Chem. Eng. (8/6)
B75-338, Sec. III, Alum. Assn. (8/6)
B75-339, Sec. IV, Mech. Eng. (8/6)
B75-342, Sec. IV, Jnt. Cntr. Urb. St. (8/20)
B75-349, Sec. IV, Sloan (8/20)
B75-354, Sec. IV, Sloan (8/20)
B75-358, Sec. V, Resource Deve. (8/20)
B75-362, Sr. Clerk III, Purchasing (8/20)
B75-363, Sec. III, Libraries (8/20)
B75-366, Sec. IV, Chemistry (8/20)
B75-380, Sec. IV, Alum. Fund (9/3)
B75-382, Sec. IV, Pol. Sc. (9/3)
B75-385, Sec. III-IV, Artificial Int. Lab. (9/3)
B75-386, Sec. III, Artificial Int. Lab. (9/3)
B75-389, Sec. III-IV, Elec. Eng. & Comp. Sc. (9/3)
B75-390, Tech. Artist IV, Graphic Arts (9/3)
B75-393, Sr. Clerk III, Comp. Acct. Office (9/3)
B75-395, Clerk-Messenger II, Off. of Spons. Prog. (9/3)
B75-396, Sec. III, Sloan (9/3)
B75-407, Sr. Clerk III, Phys. Pl. (9/3)
B75-409, Lib. Gen. Asst. IV, Energy Lab. (9/3)

ACAD STAFF:

C75-17, Admin. Off., Mech. Eng. (8/6)

SPONS. RES. STAFF:

D75-8, Biophysicist, Nat. Magnet Lab. (6/25)
D75-48, Economist, Energy Lab. (6/25)
D75-70, Electrical Engineer, Lab. for Nuc. Sc. (6/25)
D75-93, Comp. Linguist, Res. Lab. of Elec. (6/25)
D75-106, postdoc. res., Lab for Nuc. Sc. (6/25)
D75-107, postdoc. res., Lab. for Nuc. Sc. (6/25)
D75-111, Programmer, Artificial Intell. Lab. (6/25)
D75-112, Engineer, Energy Lab (6/25)
D75-114, Asst. Director, Cntr. for Inf. Systems. Res. (7/9)
D75-120, Systems Programmer, Lab. for Nuc. Sc. (7/23)
D75-124, energy conversion, Energy Lab (8/6)
D75-125, energy modeling, Energy Lab (8/6)
D75-126, postdoc. res., Energy Lab. (8/6)
D75-127, postdoc res., Energy Lab (8/6)
D75-129, Proj. Mgr., Cntr. for Trans. St. (8/20)
D75-131, independent research, Cntr. for Cancer Res. (8/20)

D75-133, Res. Engineer, Chem. Eng. (8/20)
D75-134, nuclear medicine, Nuc. Eng. (8/20)
D75-138, programmer, Proj. MAC (9/3)
D75-139, Dir. of Publications, Jnt. Cntr. Urb. St. (9/3)
D75-142, financial asst., Proj. MAC (9/3)
D75-143, plasma physicist, Cent. for Space Res. (9/3)
D75-144, Exec. Editor, Meteorology (9/3)
D75-146, Staff Engineer, Hlth. Sc. & Tech., (9/3)
D75-147, Proj. Engineer, Hlth. Sc. & Tech., (9/3)
D75-148, Proj. Engineer, Hlth. Sc. & Tech., (9/3)
D75-149, Systems Programmer, Hlth. Sc. & Tech., (9/3)
D75-150, Systems Programmer, Hlth. Sc. & Tech., (9/3)

EXEMPT:

E75-14, Nurse, Clin. Res. Center (8/20)

HOURLY:

H75-55, Tech. B., Lab for Nuc. Sc. (6/25)
H75-65, Tech. A., Lab for Nuc. Sc. (6/25)

The following positions have been FILLED since the last issue of *Tech Talk*:

B75-400	Sec. III (cancel'd)
E75-33	Nurse
B75-403	Sr. Clerk III
B75-383	Sr. Lib. Asst. IV
B75-437	Sec. III
B75-399	Sec. IV
B75-130	Sec. IV
C75-20	Acad. Staff
B75-289	Sec. IV
C75-23	Acad. Staff
D75-140	Spons. Res. Staff
A75-46	Admin. Staff
75-753-A	Spons. Res. Staff
A75-23	Admin. Staff
B75-463	Sec. III-IV
D75-14	Acad. Staff
B75-425	Clerk III
B75-435	Cl.-Typ. II
C75-21	Acad. Staff
B75-281	Sec. III
H75-93	Lab. Asst.

The following positions are on HOLD pending final decision:

C75-21	Acad. Staff
B75-406	Clk. Typ. II
D75-113	Spons. Res. Staff
H75-110	Waiter/Waitress
B75-405	Acct. Asst. V
B75-402	Sec. IV
B75-456	Sec. V

Revised Guide Being Distributed

Distribution was begun this week of the 1975 revision of "Policies and Procedures, A Guide for Faculty and Staff Members." Distribution is being made through departmental, laboratory and center headquarters. This is the first revision of "Policies and Procedures" since 1966.

John M. Wynne, vice president for administration and personnel, who coordinated the development of the revision, said the current volume contains policy changes made since the previous revision and updates procedural and descriptive material. "The policy statements in this document are those which have previously been adopted and published by the normal processes," he said.

The 1975 edition of the document first published in 1939 by the then MIT President, Karl Taylor Compton, contains several new features. Among them:

—Source Codes designating which Institute office or activity is the main source of information on a given subject.

—An index to speed the location of particular information.

—Loose leaf copies for departmental use for which updated pages will be distributed as required until the time of the next revision of the bound copies being distributed this week to faculty and administration members.

Mr. Wynne said current plans call for republishing the bound version as necessary, probably every two years.

The first revision of the 1939 document was published in 1945. Subsequent revisions were published in 1947, 1952, 1957, 1961 and 1966.

Tennis, Anyone?

The faculty-staff tennis tournament will be held in October. Entrants must submit entry blanks by 1pm, Thursday, Sept. 18, to Professor Edward A. Crocker in Rm. W32-133. First round matches must be played by Thursday, Sept. 25.

Summer News Digest

Thomas F. Jones Named Vice President

By JOANNE MILLER
Staff Writer

Welcome back, everyone. MIT, like the nation, had a relatively quiet summer. Nevertheless, notable things did happen. Here is a digest from *Tech Talks* of June 4 through Sept. 3.

Dr. Thomas F. Jones, former president of the University of South Carolina and a widely known engineering educator and administrator, became MIT vice president for research July 1, succeeding Dr. Albert G. Hill, who retired. Dr. Jones will have administrative responsibility for sponsored research at MIT. He was president of the University of South Carolina from 1963 to July 1974 when he came to MIT as visiting professor. As vice president he will retain the title of visiting professor in the Division for Study and Research in Education and in the Department of Electrical Engineering and Computer Science. (June 25)

Soderberg Chair

Establishment of the Carl Richard Soderberg Professorship in Power Engineering was announced by Chancellor Paul E. Gray. The chair honors Institute Professor Emeritus C. Richard Soderberg who was head of the Department of Mechanical Engineering from 1942 to 1959 and dean of the School of Engineering from 1954 to 1959. The Soderberg Professorship will be filled by promising young faculty members to enhance their career development in teaching and research. (June 25)

Picasso Sculpture

A monumental sculpture, *Figure Découpée*, by Pablo Picasso was installed in June in the grassy area near the Hermann Bldg. in June. The sculpture is constructed of reinforced concrete and engraved by sandblasting, and was executed by Carl Nesjar, a former Fellow at the Center for Advanced Visual Studies. The piece is among the last Picasso authorized to be cast before his death in 1973, and was made possible by a gift from an anonymous friend of MIT. (June 25)

Tang Fire

Four persons were injured—one fatally—in a flash fire of undetermined origin in a corridor on the 19th floor of Tang Hall on Tuesday, July 22. Renato C.V. Ribeiro, a PhD candidate in physics from Sao Paulo, Brazil, died at Massachusetts General Hospital on July 27 from burns and respiratory injuries. Others injured were Charles A. Thomson, building manager of Westgate, Manuel F. Sopas, maintenance mechanic at Tang, and Owen L. Deutsch, a graduate student in nuclear engineering from New York City. Cause of the fire was not determined. (July 23, August 6)

Widnall Honored

Professor Sheila E. Widnall received the 1975 Society of Women Engineers Achievement Award in June. The award, highest given by

Seminar Series to Explore Human Ideas and Images

A weekly seminar series for the entire MIT community dealing with evolution of ideas and images human beings have had about themselves and their place in nature since the beginning of western history will be offered Thursdays from 4pm to 6pm beginning Sept. 18 in Rm. 9-150 under sponsorship of the Seminar on Technology and Culture at MIT.

Seminar leader will be Judith Wechsler, associate professor of the history of art in the Department of Architecture. The series, entitled "Humanitas: An Evolving Perspective," will be offered through the fall and spring terms and will feature major speakers. Each meeting will be followed by a buffet supper and discussion.

The first seminar will feature John Finley of Harvard speaking on The Greek View of the Human and of Science. Fall term schedules are:

Sept. 25, Nahum Galtzer, Boston University, The Biblical View of Humanity; Oct. 2, Harry Bober, New York University, Medieval Images of the Human: Religion, Art,

the Society, was presented in recognition of Professor Widnall's contributions to the fluid mechanics of low speed aircraft and hydrofoils and fundamental research on aircraft-wake turbulence. (June 18)

Wadleigh Appointed

Dr. Kenneth R. Wadleigh, a member of the mechanical engineering faculty for 29 years, former dean for student affairs, and, since 1969, an MIT vice president, was named to the additional post of dean of the Graduate School. He succeeds Dr. Irwin W. Sizer, who retired this year. In announcing the appointment, Chancellor Paul E. Gray said, "The MIT Graduate School is considered by many to be among the foremost in the nation and Professor Wadleigh is eminently qualified to maintain the traditions of leadership and the standards of excellence established by Dean Sizer and his predecessors." (June 4)

MITE & ABC

Two programs aimed at preparing and motivating minority young people for college careers made their debut at MIT this summer: MITE and ABC. MITE (Minority Introduction to Engineering) brought 38 high school sophomores and juniors to MIT for two weeks in July to stimulate their interest in engineering through field trips, lectures, social events and a design competition. The program was jointly sponsored by MIT and the Engineers' Council for Professional Development. (July 9, August 6) ABC (A Better Chance) came to MIT for two weeks in August to build confidence and self-esteem for more than 100 ninth and tenth grade minority youngsters who have won scholarships to attend competitive public and private secondary schools. (July 23)

Strehle Elected

Glenn P. Strehle, '58, was elected treasurer of the MIT Corporation at the corporation's meeting in June to succeed Joseph J. Snyder who retired July 1. Mr. Strehle, who has been active in MIT alumni affairs, returned to MIT from his position as vice president, director and a member of the executive committee of Colonial Management Associates, Inc., a Boston investment advisory firm, and president of Colonial's Advisory Services Division which is responsible for advising endowment funds, retirement plans and institutional accounts. (June 4)

CEEB Award

MIT received first place award for its communications program for prospective students in a competition sponsored by the College Entrance Examination Board and the Council for the Advancement and Support of Education. Entries were judged by a panel of high school and college students, who made their selections on the basis of quality, responsiveness and relevance of information provided. The award

Science; Oct. 16, Myron Gilmore, Harvard, Renaissance Ideas of Human Nature; Oct. 23, Leo Steinberg, University of Pennsylvania, Michelangelo and the Metaphor of the Body; Oct. 30, Owen Gingerich, Harvard, The Copernican Revolution; Nov. 6, Richard Douglas, MIT, the Reformation; Nov. 13, I. Bernard Cohen, Harvard, The Seventeenth Century: Galileo, Newton Descartes, Leibniz, and Spinoza; Nov. 20, Frank Manuel, New York University, The Philosophes and the Dilemma of Utopia; Dec. 4, Judith Wechsler, MIT, Revolution and Romanticism in Nineteenth Century Painting; and Dec. 11, Howard Gruber, Rutgers/Newark, Darwin: Survival and Chance.

Seminar speakers during the spring term will include such persons as Sir Isaiah Berlin of Oxford, Erich Heller of Northwestern, Everett Mendelsohn and Robert Coles of Harvard, Herbert Simon of Carnegie-Mellon, Robert Lifton of Yale, Victor Weisskopf and Jerome Lettvin of MIT, and others.

carried with it a \$1,500 grant from Aetna Casualty and Life Insurance for MIT's general scholarship fund. (June 18)

Computer Leaders

Three MIT computer scientists—Dr. Michael L. Dertouzos, Dr. Marvin L. Minsky and Dr. Seymour A. Papert—were among seven leaders in the computer field worldwide featured in an article in *Newsweek International* entitled "Who's Really Who in Computers." Dr. Dertouzos is director of Project MAC and professor in the Department of Electrical Engineering and Computer Science; Dr. Minsky is Donner Professor of Science and professor in the Department of Electrical Engineering and Computer Science; Dr. Papert is Cecil and Ida Green Professor in Education and professor in the Department of Mathematics. (July 23)

Rasmussen Named

Dr. Norman C. Rasmussen, a member of the nuclear engineering faculty since 1958 and director of the MIT summer program in nuclear power reactor safety since 1969, was named head of the Department of Nuclear Engineering, effective July 1. He succeeds Dr. Edward A. Mason, who took a leave of absence in January when he was appointed to the Nuclear Regulatory Commission. Dr. Rasmussen was director of the recent study for the Atomic Energy Commission which explored the public risks from nuclear power plant accidents. (June 11)

Henley Trip

The MIT second varsity heavyweight crew and a four-man-crew competed in July in the Henley Royal Regatta in England. The varsity won two come-from-behind victories, but were defeated in the semi-finals by the University of London. The four-man-crew won the Elite Four title at Nottingham, but later was defeated by the Vesper Boat Club.

New JCUS Director

Professor Arthur P. Solomon of the Department of Urban Studies and Planning at MIT became director of the Harvard-MIT Joint Center for Urban Studies, succeeding Professor Bernard J. Frieden. A widely recognized authority on housing and urban affairs, Professor Solomon has been associate director of JCUS since 1971. He is the author of numerous articles and books on rebuilding cities, financing housing development, poverty and inequality and strategies for urban growth. (June 11)

Three Appointed

Three young faculty members have been appointed Esther and Harold E. Edgerton Assistant Professors for two years, effective Sept. 1. They are: Robert E. Cohen, assistant professor of chemical engineering, Alan J. Grodzinsky, assistant professor of electrical engineering and computer science, and David G. Holmes, assistant professor of mechanical engineering. The Edgerton Professorships were established by the MIT Corporation to honor Institute Professor Emeritus Edgerton and his wife, who have been associated with MIT for nearly 50 years. (Sept. 3)

New Residence

A new undergraduate residence hall opened in late August to house 300 students in six five-story towers that are interconnected on the ground level. The new house brings MIT's undergraduate housing capacity to 2,220, while 1,300 undergraduates live in 28 fraternities and two independent houses. The remaining 600 undergraduates commute from home or live in private housing. The faculty family in residence in the new hall is Professor James H. Williams, Jr., of mechanical engineering, and his wife Karen Hollander Goodall, a part-time technician in biology. (August 20)

Hook-up Block to Aid NE Fishing Industry

A new "hook-up block," developed at MIT with help from the fishing industry, could result in safer trips to sea for crewmen on board New England's side trawling fishing boats.

The improved block, funded through MIT's Sea Grant Program, will help reduce hazards fishermen encounter in setting out and retrieving the trawling nets, and could increase efficiency in the trawling operation.

Attached to the boat's side near the stern by a heavy chain, the hook-up block encircles two heavily loaded net tow cables and guides them during the trawling run as the net fills with fish. The block prevents the cables from fouling the vessel's propeller or crossing over onto the deck, and holds the nets in a relatively constant position even during turns.

With the conventional hook-up block, a series of three hinged links, a crewman has to lean far out over the boat's rail to wrap the block manually around the cables and fasten it with a pin that must be lashed in place.

Releasing the old block can be even more dangerous: the crewman must lean out over the boat's rail to remove the pin and pry the block apart with a crowbar. Its sudden release under a load of many tons can make the block fly back toward the fisherman, who could be struck and seriously injured.

A fisherman can easily drop or push the new Sea Grant block on to the net-tow cables, securing them in seconds.

In the new MIT block design, two rigid steel side plates frame an operating linkage of three levers: a gate lever that opens to capture the cables, a springloaded catch lever, and a release lever. To release the cables from the MIT block, the fisherman removes a safety pin, steps back from the rail a safe distance, and trips the release lever by pulling on a lanyard.

The new block, for which patents are pending, was designed under the MIT Sea Grant Program by Professor Stephen P. Loutrel of the MIT Department of Mechanical Engineering and two graduate students: John C. Wall of Bessemer, Ala., who developed and constructed the prototype now in use, and Nicholas K. Mango of West Hartford, Conn.

The engineers, prompted by requests from the fishing industry,

Hellman To Return

Playwright Lillian Hellman will present three lectures at MIT this fall as a visiting professor in the Department of Humanities.

Ms. Hellman, who has taught at MIT on three other occasions, will give three lectures here on October 21, November 11, and December 2, for "The Film Experience" (21.121)—a subject which studies America's principal film genres. The three lectures will be open to the MIT community.

She will speak on her experiences in Hollywood during the 1930s and 1940s when she worked there completing film adaptations for her three major plays, "The Children's Hour," "The Little Foxes," and "Watch on the Rhine." Recently published books by Ms. Hellman include: *An Unfinished Woman* (1969) and *Pentimento* (1974).

studied present blocks during voyages aboard the side trawler, *Vincie N.*, out of Gloucester, with help from Joseph Novello, captain. Later, the new design was tested aboard Captain Novello's vessel and aboard the *Massachusetts*, out of Boston, one of the largest side trawlers in new England's fleet.

Working with fishing industry representatives, the MIT Sea Grant Program has begun to explore ways to distribute the new, safer block to the fishermen. Besides the block's advantages in safety and efficiency, the Sea Grant Program hopes that insurance premiums for personal liability on board fishing vessels might be reduced when an improved safety record is established by the MIT hook-up block.

INSITE Adds Five Members

The user group through which MIT shares INSITE II, a computer system for managing facilities inventories, has added five members, according to Kreon L. Cyros, system designer and director of MIT's Office of Facilities Management Systems. This brings total group membership to 15, including MIT.

As tightened budgets make the use of existing facilities more important, membership in the consortium is expected to increase in the next year, Cyros said.

The newest members are: Affiliated Hospitals Center, Inc., including Peter Bent Brigham Hospital, Robert Breck Brigham Hospital, and Boston Hospital for Women; Bristol Community College in Fall River, Mass.; Harvard Real Estate Department of Harvard University; Wentworth Institute and College of Technology; Yeshiva University, New York, which includes Albert Einstein College of Medicine. Members who joined earlier are Syracuse University, Harvard Medical School, Tektronix, Inc., Portland, Ore; Children's Hospital Medical Center, University of Alabama at Birmingham, Brown University, New England Deaconess Hospital, Mt. Sinai Medical Center, and Rush-Presbyterian St. Luke's Medical Center, Chicago.

MIT uses INSITE II to manage information on 20,000 spaces in 120 buildings totalling eight million gross square feet. Other members of the users' group have applied the system to rebuilding a city block near the center of Chicago, recovering added support costs for hospital patient care, and doubling overhead recovery funds for university research.

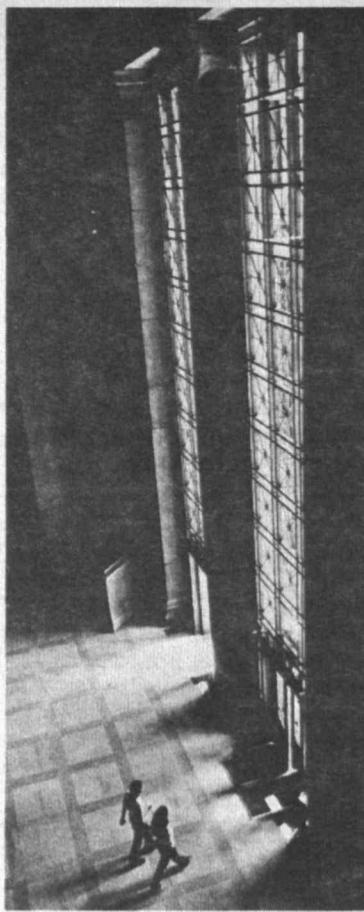
Offshore Oil Find May Not Lower Prices

Even if large amounts of gas and/or oil are found off the Massachusetts coast the cost of those products to New Englanders probably won't drop, an MIT professor has warned.

"A new refinery might mean increased tax revenues to a local community and some new jobs, but it would not necessarily mean lower oil prices," said Dr. Judith T. Kildow, assistant professor in the MIT Department of Ocean Engineering.

"Prices will continue to be influenced by overall demand for energy and by the OPEC (Organization of Petroleum Exporting Countries) cartel and the federal government," Dr. Kildow said.

Her remarks were presented as commentary on the WGBH-TV program, *The Evening Compass*.



Rogers Lobby

Development Foundation Explored by NY Times

The MIT Development Foundation, Inc., started in 1972 to speed transfer of new technology from laboratory to industry and, in the process, generate new enterprises, was the subject of a major article in *The New York Times* financial section Sunday, Aug. 24.

Under the headline "MIT's Hothouse for New Ventures," the article said MIT set up the Foundation, a tax-exempt entity, "as an experiment in grappling with the problems of launching new enterprises."

In a fresh approach, the *Times* said, Foundation President Richard S. Morse, Senior Lecturer in the MIT Sloan School of Management and an expert on entrepreneurship, has tried to bring together under one umbrella all necessary elements—research, production expertise, capital and managerial talent.

So far, the Foundation, with 20 industrial sponsors, has examined

'Fuzzy Set' Experiment to Aid Designers

When three MIT researchers recently passed out a questionnaire in the lobby of the Maclaurin Bldg. (Bldg. 10) asking for an aesthetic response to a photograph of a foot bridge, they had no special interest in a particular foot bridge or foot bridges in general.

They were interested in collecting "value judgment" responses to a design-related question.

The 500 questionnaires passed out Thursday, Aug. 7, asked people to give a short description of their

While a natural gas discovery off the Massachusetts coast would be beneficial since New England is heavily dependent on natural gas, "it might not affect the price of natural gas if, as the administration proposes, the price is deregulated," Dr. Kildow said.

Dr. Kildow's commentary sought to assess what could be expected during the production stage if exploratory work to be carried out over the next three to five years indicates that there is enough oil or gas on the Georges Bank to warrant development.

Referring to a report recently published by the Massachusetts Energy Office, part of the Department of Consumer Affairs, Dr. Kildow said developable gas on the Bank would have to be piped to the nearest shore point because of the

Novel Bicycle Hotline May Curtail Thefts

Greater Boston's first and only Bicycle Hotline (354-7555)—control center for more than a dozen stolen bike reports a day—has evolved into a stream of publicity for its inventor, Joel Weingarten, a junior in architecture at MIT and native of Wayne, N.J.

Between interviews with reporters from United Press International, the *Boston Herald-American*, and a number of area radio stations, Weingarten has been shepherding afflicted Boston bicyclists for the past six months.

He operates the Hotline from a siren red wall telephone at the bicycle Workshop, 233 Massachusetts Ave., Cambridge, which he co-owns with Eugene A Morgan, a graduate of MIT's Class of 1949.

"There's a lot of stolen property at stake here," the 22-year-old businessman said. "The whole idea of a Hotline came to me when I had 35 bicycles stolen from behind the locked doors of my own shop during business hours."

The key to his success is a file of more than 1,000 stolen bikes and their serial numbers, compiled from calls by other repair shops, private parties and local police departments. Weingarten says demands for copies of the list have increased so rapidly that he is planning an appeal to fellow MIT students and interested professors to help him computerize the system.

"As long as states fail to legislate mandatory registration codes, bicycles will always be easy to steal because they can't be traced," he said. "An MIT-based computer network could reduce significantly the number of unrecovered two-wheelers that have to be auctioned off by police departments every year."

Weingarten plans to request back files from the Boston and Cambridge Police Departments and other area police agencies to support his search system. He has urged other repair shop owners to become suspicious of expensive bikes brought in by owners with little knowledge of the vehicles and to dial the Hotline for a spot check.

"The majority of stolen bikes are taken in one city and transported to another," Weingarten said. "With a computer-controlled tracking system, we'll be able to see trends in geographical areas, times of day and seasons of the year when thefts occur."

A direct result of the statistics bank, he claimed, would be fewer purchases of stolen bikes because prospective buyers would use the Hotline to verify their investments before closing a deal.

Swim Classes Set

Swimming classes for children of MIT community members will be offered Saturday, Sept. 20, through Saturday, Nov. 15, except for Saturday, Oct. 4. Beginner classes will be from 10:30am-11:15am, followed by advanced classes from 11:30am-12:15pm.

Classes will be limited in size. Registration will be accepted on a first come-first served basis. There is a \$15 instruction fee and an athletic card is required.

150 proposals, 80 percent from MIT sources. Four have been identified as viable and of these, two have been launched—Sala Magnetics, Inc., specializing in magnetic separation processes, and Rheocast Corp., which recently came into being to produce dye-cast copper and bronze hardware—and another is in the process of being launched.

Cywinski to Chair BIOCAPT Meeting

Dr. Josef K. Cywinski, lecturer in the joint Harvard-MIT Program of Health Sciences and Technology and a staff member at Massachusetts General Hospital, will chair the opening session of BIOCAPT '75, the first international conference on biomedical transducers, in Paris, France, Nov. 3-7, sponsored by the French Ministry of Health. Faculty interested in participating may contact Dr. Cywinski at 193-2450.

aesthetic response to a series of photographs of a foot bridge.

Another 250 people surveyed Friday, Aug. 8, were asked to give a word describing a foot bridge before seeing the photographs, then were shown the photographs and asked to relate how well their word matched the photographs.

The researchers—James Becker, assistant professor of civil engineering, Michael Grezso, visiting lecturer in architecture, Stanley West, assistant professor

high cost of underwater pipe—\$2 to \$3 million a mile.

"Once piped to the onshore site, it must be processed immediately for safety reasons. This means that one or more gas processing plants will have to be built near the landfall."

Oil, on the other hand, offers more options for New England, Dr. Kildow said.

"The oil could be piped ashore and refined here or transported by pipe or tanker to refineries further south...Major oil companies would no doubt prefer the less costly alternative of expanding their existing capacity in the mid-Atlantic states.

Independent oil companies would have greater incentives to build a refinery here, "but they would have to outbid the majors for leasing rights on the Bank."

of civil engineering and Hai-Tao Wang, a senior in civil engineering—are interested in perfecting a method where imprecise information—words like "pleasant" or "graceful"—can be fed into mathematical decision-making models.

"If civil engineers or architects could define more precisely value-laden words like "graceful" or "serene" in a decision-making process, it would enable them to more rationally examine alternatives in design decisions," Becker said.

Because value-judgment words like "graceful" or "serene" are less precise data than numbers, models into which these words are fed cannot be as precise as models using numbers. Therefore, these models are called "fuzzy set" models—having no exact limits.

This "fuzzy set" concept was developed by Dr. L.A. Zadeh at the University of California, Berkeley. Michael Grezso interested in using the concept of designing with computers, is working with Dr. Zadeh on his PhD project.

The survey was preliminary to developing a method of gathering value-judgment responses to be fed into "fuzzy set" models. With the knowledge gained from this survey, a second questionnaire will be prepared for distribution to architecture and engineering students at MIT and Harvard in September.