Massachusetts Institute of Technology



May 2, 1973 Volume 17 Number 42

Special \$20 Million Truck Route Skirting MIT Called 'Disastrous'

MIT announced this week that it "strongly" opposes the idea of constructing a special road for trucks through the eastern part of Cambridge on the northern edge of the campus

The MIT Planning Office, in a report sent to the Boston Transportation Planning Review (BTPR), said that such a road would be "disastrous" to the area and would "in no way aid the truck traffic problem in Cambridge."

The BTPR produced a tentative proposal for the road in December, 1972, in order to obtain reaction from affected groups. The agency was established by Governor Francis W. Sargent to advise him on transportation policies for the metropolitan area.

The Planning Office report made these major findings:

-The future impact of the road would cause MIT research programs in the area to be restricted or terminated, would conflict with plans for public and private housing and business development and would make some student

apartments uninhabitable because of increased noise and air pol-

-The estimated \$20 million cost of a special road could not be justified on the basis of the most recent information available, which indicated that a 'small percentage" of Cambridge truck traffic is through

-Such a road, "with easy access within Cambridge," could be used "by all types of vehicles, causing the same hardships as a

(Continued on page 8)



A new day care center-which its sponsors believe could become a model university centeropened April 30 in Eastgate for members of the MIT community whose children need full-day, vear-round care.

The center, located adjacent to the present nursery school at Eastgate, is operated by Technology Children's Center, Inc. (formerly Technology Nursery School, Inc.)

It is planned to have the center accommodate up to 20 children, with admission based on availability of space and on such considerations as the child's and the family's needs.

Ms. Frances Olson has been appointed director of (Continued on page 8)

\$4.5 Million Industry-MIT Research Seeks Advances in Steel Casting Process

A breakthrough in the steel casting process, leading to much lower costs, is the goal of a research and development program begun several months ago by scientists at MIT and three compa-

The Advanced Research Projects Agency is giving financial support to the four-year effort, which is expected to cost \$4.5 million.

The participating companies are Abex Corporation, of Mahwah, N.J.; General Electric Research Laboratories, of Schenectady, N.Y., and Hitchiner Manufactur-

ing Corporation, of Milford, N.H. Radically new techniques will be investigated by the researchers as a way of developing automated processes using reusable molds. Because of the extremely high temperatures required to melt steel, essentially all steel castings today are produced in nonreuseable molds, usually made of sand, that are resistant to heat.

Some typically steel-cast prod-

ucts familiar to the public are turbine blades on jet engines, component parts for automobiles and wheels for railroad freight

The research at MIT, according to Professor Merton C. Flemings of the Department of Metallurgy and Materials Science, will concentrate on two areas:

-Learning to cast steel when it is at lower temperatures in the semi-solid state, using technology developed at MIT over the last several years.

-Attempting to use electromagnetic forces to contain and transport molten or semi-molten

Flemings, who is chairman of the university-industry team, said that a major attraction of the program for him "was to try it as an experiment in new ways of having MIT work with industry." He added:

"In this case, we're working on an important industrial problema program well beyond the current state of the art, but not significantly competitive with or overlapping current industrial activity, a program where the gamble is too great for industry to go it alone and where they are not concerned about proprietary programs."

Meetings are planned four times a year for an exchange of ideas.

"We also anticipate interaction between groups in another way." Flemings said. "We expect MIT students will be doing some of their research work in industry and we hope industrial personnel will spend time at MIT.

"It's meant to go the gamut from good basic engineering all the way to the building of a prototype machine.

"And a major difference from past projects is that coordination of the program will be largely the responsibility of an advisory

Each participant in the program, he explained, has a separate research contract which must be justified on a year-toyear basis. The advisory board, which was set up to help in that process, he said, includes not only representatives from the participating facilities but also individuals from government and industry not associated with the program.

During the first 18 to 24 months. Flemings said, the four participants in the program will do independent but related studies with the objective of "coming up with innovative ideas which can be tested on a laboratory scale."

"At the end of this period," he said, "we propose to take the best of our new concepts and use them as the foundation for the construc-

(Continued on page 2)



Two astronomy workshop students gaze at sunspots through a six-inch telescope set up beside the Green Building. Explaining their project to passersby are freshman Joan Kowalski and senior Judy Sonberg.

Enrollment Period Starts For New MIT Health Plan

Enrollment is now open in the new MIT Health Plan, which is due to go into operation on July 1.

Letters and pamphlets are being mailed to all MIT personnel this week inviting them to join the plan, and a series of open meetings has been scheduled to answer questions of faculty, staff and employes about the program.

Three of the informational meetings will be held next Tuesday, Wednesday and Thursday, May 8, 9 and 10, in Room 26-100 at noon each day.

Another meeting has been scheduled in the Schell Room at the Sloan Building (E52-461) at noon on Wednesday, May 16, and a meeting also will be held at the Lincoln Laboratory at a time and place to be announced.

Reply cards have been included in the pamphlets being mailed out. Applications will be available at the open meetings, at the Benefits Office and at the Medical Depart-

The application deadline is June

1 for those who will begin receiving services July 1. Membership will be limited

during the first three years of the

program to 1,000 MIT personnel

and their families.

Arrangements also are being made to offer the MIT Health Plan to persons employed at the Charles Stark Draper Laboratory, Inc., which will be divested from MIT. The enrollment program at the laboratory will be undertaken as soon as agreements reached.

Both individual and family memberships will be available in the MIT Health Plan, which is being offered in cooperation with Blue Cross and Blue Shield as an alternative to the present Blue Cross-Blue Shield coverage.

(Continued on page 2)

Structure Replaced

The staircase structure which has been a fixture in the lobby of MIT's Bldg. 7 for nearly two years was being dismantled Tuesday and is to be replaced with a different structure sometime this summer.

Michael Underhill, instructor in architecture, said new designs for the lobby are being drawn now. The staircase structure was designed by students in the Department of Architecture and others.

Young Alumni Nominated To Corporation Membership Six young alumni have been nominated for the five-year membership

on the Corporation reserved for representatives from recent classes. This year's candidates are:

Arlene Fingeret, SB in humanities in 1972, co-ordinator of adult education services at the Education Warehouse in Cambridge.

Lee D. Giguerre, SB in humanities in 1973, editor-in-chief of The Tech and a member of the senior class executive committee.

Shirley Ann Jackson, SB in physics in 1968, expecting to receive the PhD in physics in September, 1973, when she will become a research associate at the National Accelerator Labora-

Howard J. Siegel, SB in electrical engineering and management in 1972, a graduate student at Princeton University

Laurence Storch, SB, SM in civil engineering in 1971, a student at

(Continued on page 8)

Physics Lab An Intellectual Playground

The Physics Corridor Lab in Room 4-309 is an intellectual playroom for interested students.

The Lab includes about 20 experiments, kept purposefully simple, which are completely set up and ready for data taking. The experiments deal with introductory physics, electricity, magnetism, mechanics and atomic phys-



Michael G. Baumann, a freshman from Lancaster, Pa., studies an experiment in forced harmonic motion in the Physics Corridor Lab.

Students "talk through" the experiments, aided by tape recordings or written material. Explanation of each experiment takes 5 to 15 minutes and students are then able to extract and analyze

"After spending some time with an experiment," said the Lab's faculty advisor, physics Professor Marc Price, "a student has learned a new concept. The Corridor Lab offers an unusual, individual learning experience, often not available in the classroom or in large lab sessions."

The Lab was initiated four years ago by the Education Development Center and was located in a corridor. "Since then," Professor Price said, "we have expanded the idea and moved the Lab into a classroom. It's really a 'walkin lab' now."

Alexander Re-elected President of Union

William B. Alexander of Lincoln Group 19 has been re-elected to a two-year term as president of the Research, Development and Technical Employees' Union.

Also re-elected were Reginald C. Roderick, Jr., treasurer, and Joseph P. Fleming, secretary. Both are Draper Laboratory employees.

John N. Goddard of the campus laboratory supplies office was elected vice president.

Enrollment Opens in New MIT Health Plan

(Continued from page 1)

For the first year, 1973-1974, single persons will be charged \$1.50 more per month than their current MIT Blue Cross-Blue Shield payment, and persons with family memberships an additional \$4 per month.

MIT's contribution to the cost of each employe's membership will be the same as the contribution to the present Blue Cross-Blue Shield

Chancellor Paul E. Gray, in the

letter to MIT personnel formally announcing the establishment of the plan, said:

"The new program is the result of a planning effort which has extended over several years. We encourage you to consider joining the plan because we think it represents an important step forward in the provision of health care at reasonable costs. We believe you may find membership in the plan to be an attractive alternative to your present health care arrangements."

Dr. Albert O. Seeler, director of the Medical Department, said that the MIT Health Plan is, in effect, an extension of the primary medical care services now offered to faculty, staff and employes through the Medical Department.

It provides additional services to MIT personnel and extends this augmented coverage to their

The comprehensive health care

the aluminum and zinc alloys-

steel is poured at 2,800 degrees

Fahrenheit, and aluminum at 1,250

degrees-that it attacks, warps

and erodes the channels that lead

to the mold cavity and erodes the

search program is to develop a

workable, automated process for

making steel castings that will do

for steel what die casting has done

a ferrous (steel) die-casting

activity," Flemings said. "I hesi-

tate to use those words only be-

cause I am convinced that the ma-

chine we develop will no more look

like an aluminum die-casting or

other currently used system than a

Flemings said that casting steel

in its semi-solid state-one of the

principal goals of the MIT re-

search-is analagous to the form-

ing of warm ice cream or sherbert.

It is partly liquid or fluid, but can

have its shape changed as easily

this," he said, "is that the semi-

solid metal is at a lower tempera-

ture than liquid metal and gives up

its heat less rapidly, thereby eroding or attacking the casting

The experimentation with elec-

tro-magnetic forces-the second of

machine less readily.

"One of the advantages of doing

as a moderately viscous fluid."

747 looks like a dirigible."

"Some might call our joint effort

for aluminum and zinc.

The essential aim of the re-

mold cavity itself.

services provided under the plan include periodic physical examinations, visits to the doctor, diagnostic service such as laboratory and x-ray work and hospitalization.

The plan differs from present Blue Cross coverage mainly in its pre-payment and comprehensive

Members will choose a personal physician from the MIT Medical Staff, and may be referred to other physicians. Except in emergencies, they will be limited to hospitals affiliated with the plan.

These are Mt. Auburn Hospital, Cambridge Hospital and the MIT Infirmary, for medical and surgical care, the Boston Hospital for Women, for maternity and obstetrical care, and other hospital facilities in special medical cases.

After the three years, a decision will be made whether to continue the plan and make it available to

Should a decision be made to discontinue the plan, participants will be able to return to the Blue Cross-Blue Shield program. If they choose, they and their dependents

dents, but the Institute cannot contribute to the total cost for students as it does for Institute personnel. Thus, student participation would be more costly than the combination of the present mandatory student health fee, which covers medical department services and infirmary charges, and the optional additional fee for outside hospital insurance.

The plan will be operated on a limited basis for three years in order to evaluate the program in light of other health care developments which may also take place. Should more than 1,000 persons apply prior to the June 1 deadline, members will be selected on a random basis within the several categories of employment at MIT.

all MIT personnel.

will be able to continue receiving care from the MIT medical staffand thus be assured of long-term continuity of health care. The program is available to stu-

Further information can be obtained from the Benefits Office or from the Office of Laurence H. Bishoff, assistant director of administration for the Medical Department.

APPLYING NEW TECHNOLOGY

MIT-Industry Steel Research Program To Explore Casting in Semi-Solid State

(Continued from page 1)

tion of a protoype ferrous casting machine.

"For two years, no innovative idea will be too far out for us to consider seriously," he added. The ones we can make work in the laboratory are the ones we will try to incorporate in a machine if they show the way to lower the cost of ferrous casting."

"Each of the companies involved has a unique combination of experience in dealing with molten ferrous alloys, outstanding research and development labs, and reasonable proximity to each other and to MIT.'

The majority of aluminum castings and zinc alloy castings are made today by a process called die-casting, in which molten metal is forced into a mold cavity and solidifies into a given shape, such as a doorknob, carburetor or automobile grille. The die is made of metal and is reusable. The process has been highly automated and is a rapid, inexpensive way of making metal parts of these alloys.



Professor Flemings

There is no comparable process for making steel castings.

The reason is that steel melts at so much higher temperatures than

First Donors Give \$5,000 In CSF Drive for Funds

Contributions of \$5,000 had been received by the Community Service Fund (CSF) as of Friday, April 27, according to Professor Anthony French, co-chairman of the CSF board of trustees.

"We are gratified at this early show of support," Professor French said, "and we hope those who plan to contribute will do so quickly so that the board can complete its allocations within the next two weeks.

"One point that needs to be stressed," Professor French said, "is that contributions made to CSF are tax deductible."

ceived requests totaling nearly \$87,000," he said. "It is unlikely that the Fund will have that kind of money available this year, so the process of cutting the requested amounts has already begun.

"The difficulties this year are particularly acute," Professor French continued. "Two programs for which CSF has provided major support in the past-Urban Action and Tutoring Plus-have submitted proposals totaling more than \$44,000. The activities of both of them will be curtailed if the Fund cannot provide adequate support and other funding is not

Tutoring Plus is an educational enrichment program in Area Four, immediately adjacent to MIT. It was started by MIT students in cooperation with neighborhood parents and is now run by the parents.

Under this program approximately 140 children are paired with tutors on a one-to-one basis. In addition, Tutoring Plus operates an after-school learning center in which more than 150 children participate.

Originally, nearly all tutors were MIT or Wellesley students, but the program has expanded to include tutors from other colleges in the area. A large number of the tutors, however, are still drawn from the Institute

The Urban Action Volunteer and Resource Center is MIT's oncampus coordinating agency for colunteer services. During the past year Urban Action has developed stronger ties with the faculty and employees of the Institute and, as a result, is planning several new projects which will help meet community needs.

In addition to recruiting and placing volunteers, Urban Action runs periodic workshops in which volunteers can share their experiences and discover ways to make programs more effective. Urban Action works with other such groups at area universities and with various community agencies to provide a coordinated

MIT's major contributions to the program-is an example of the radically different technology that will be examined in the overall project, Flemings said.

> 'Here we aim to replace some of the components of the casting machine, such as the shot chamber and plunger, with electro-magnetic forces, thereby eliminating the materials problems we now have as a result of the extremely high temperatures," Flemings

> "It is clearly possible to lift, contain and move molten steel entirely by electro-magnetic forces without the steel coming into contact with any refracting or metal

"The problem is to do this reliably and economically."

Other MIT personnel participating in the program are Assistant Professor Robert Mehrabian, who will assist Flemings in supervising the casting and solidification group at the Institute; Professor Thomas B. King, who will supervise work related to the reactivity of molten steel; Professor James R. Melcher, of the Electrical Engineering Department, who will supervise work dealing with the transport of liquid metals using electro-magnetic forces, and Dr. Henry H. Kolm of the Francis Bitter National Magnet Laboratory, who will also supervise work on electro-magnetics as applied to the movement of molten metals.

TECH TALK

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National Academies Elect Eight from MIT Faculty





Held





Minsky



Modigliani



Rosenblith



Five members of the MIT faculty have been elected to the National Academy of Sciences and another three have been elected to the National Academy of Engineering.

The five honored by election to the NAS are:

John W. Cahn, professor of metallurgy in the Department of Metallurgy and Materials Science. Richard M. Held, professor of experimental psychology in the Department of Psychology.

Marvin L. Minsky, professor of

partment of Electrical Engineering and co-director of the MIT Artificial Intelligence Laboratory.

Franco Modigliani, Institute Professor and professor of finance and professor of economics in the MIT Sloan School of Management and the MIT Department of **Economics**

Irving E. Segal, professor of mathematics in the Department of Mathematics.

The three honored by election to the NAE are:

Robert M. Fano, Ford Professor of Engineering and associate head of the Department of Electrical Engineering for computer science and engineering.

Robert W. Mann, professor of engineering in the School of Engineering and chairman of the executive committee of the MIT Division of Health Sciences, Technology, Planning and Manage-

Walter A. Rosenblith, provost of the Institute and professor of communications biophysics in the Department of Electrical Engineer-

In the cases of the three elected

to the NAE, each was cited for contributions to engineering. Professor Fano was honored for pioneering work in the development of the first interactive timesharing computer system and contributions to communications theory. Professor Mann was cited for contributions to design education and to the advancement of biomedical engineering. Professor Rosenblith was recognized for contributions and leadership in communications biophysics and in the development of biomedical engineering.

The five from MIT elected to the NAS were among 95 new members elected during the Academy's 110th annual meeting in Washington, D.C. The new members bring total Academy membership to 1,012, of whom 75 hold appointment to the MIT faculty or staff or are members of the MIT Cor-

The three MIT professors elected to membership in the NAE were among 70 new members elected to that body. The new members bring the total NAE membership now to 429, of whom 27 are MIT faculty or staff members or members of the MIT Corporation.

The totals include 10 members of the MIT faculty and two members of the MIT Corporation who are members of both the National Academy of Sciences and the National Academy of Engineer-

The Election to the national academies is considered one of the highest honors that can be accorded to an American scientist or engineer. The NASA was established in 1863 as a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. The congressional act of incorporation of the NAS, signed by President Lincoln, calls on the academy to act as an official adviser to the federal government, upon request. The NAE was established in 1964 to share the responsibility given to the NAS.

MIT faculty members who are members of both the NAS and the NAE include:

Manson Benedict, Institute Professor and professor and former head of the Department of Nuclear Engineering.

Raymond L. Bisplinghoff, professor of aero-nautics and astronautics who is presently rying with the National Science F

in Washington, D.C.
Morris Cohen, Ford Professor of Materials

Science and Engineering.
Charles S. Draper, Institute Professor
Emeritus, professor emeritus and former
head of the Department of Aeronautics and
Astronautics, senior lecturer and president of
the MIT Charles S. Draper Laboratory.
Harold E. Edgerton Institute Professor

Harold E. Edgerton, Institute Professor Emeritus and professor emeritus of electrical measurements in the Department of Electrical Engineering.

Jerome C. Hunsaker, professor emeritus and former head of the Department of Aeronautical Engineering (now Department of Aeronautics and Astronautics). Warren K. Lewis, professor emeritus and

former head of the Department of Chemical

Engineering.
Thomas K. Sherwood, professor of chemical

engineering emeritus in the Department of Chemical Engineering. Julius A. Stratton, MIT president emeritus

and a life member of the MIT Corporation.

Jerome B. Wiesner, now president who as
Institute Professor and professor of electrical engineering has previously served MIT as provost, as dean of science and as director of the MIT Research Laboratory of Electronics.

James B. Fisk, president of the Bell Telephone Laboratories, Inc., and Charles A. Thomas, chairman of the board of trustees of Washington University, both life members of the MIT Corporation. Emanuel Piore, con-

sultant to the MIT president, also is a member of both NAS and NAE.

other NAS and NAE.
Others who hold MIT faculty or staff appointments and who were previously elected to the National Academy of Sciences are:
Robert A. Alberty, dean of the School of Science and professor of chemistry in the De-

partment of Chemistry. William F. Brace, professor of geology in the Department of Earth and Planetary Sci-

John M. Buchanan, John and Dorothy Wilson Professor of Biochemistry in the De-

partment of Biology.

George H. Buchi, Camille Dreyfus Professor of Chemistry in the Department of

Chemistry.
Martin J. Buerger, Institute Professor
Emeritus and professor emeritus of mineralogy and crystallography in the Depart-

ment of Earth and Planetary Sciences.

Bernard F. Burke, professor of physics in the Department of Physics.

Vannevar Bush, a life member of the Corporation, formerly chairman and later honorary chairman of the Corporation, and also formerly a vice president and professor of electrical engineering.

Alberto P. Calderon, professor of mathe-

matics in the Department of Mathematics.
Jule G. Charney, Alfred P. Sloan Professor
of Meteorology in the Department of Mete-

orology.

John Chipman, professor emeritus of metallurgy in the Department of Metallurgy and Materials Science Noam A. Chomsky, Ferrari P. Ward Pro-fessor of Modern Languages and Linguistics

in the Department of Foreign Literatures and Linguistics.
Samuel C. Collins, professor emeritus of mechanical engineering in the Department of

Mechanical Engineering.

Jacob P. Den Hartog, professor emeritus of mechanical engineering and naval archi-

tecture and senior lecturer.

Martin Deutsch, professor of physics in the Department of Physics.

Department of Physics.

Herman Feshbach, professor of physics in the Department of Physics and director of the MIT Center for Theoretical Physics who will ecome head of the Department of Physics

Crawford H. Greenewalt, chairman of the finance committee of E. I. du Pont de Nemours & Co. and a life member of the MIT

Corporation.

William R. Hawthorne, head of the engineering department at the University of Cambridge, England, and a term member of the MIT Corporation (NAS foreign associate).

Hoyt C. Hottel, professor emeritus of chemical engineering and senior lecturer in the Department of Chemical Engineering.

Arthur R. Kantrowitz, Visiting Institute

Frederick G. Keyes, professor emeritus of hysical chemistry in the Department of Chemistry. Har Gobind Khorana, Alfred P. Sloan Pro-

fessor of Biology and Chemistry in the De partment of Biology and the Department of Chemistry.

Edwin H. Land, Visiting Institute Professor Benjamin Lax, professor of physics in the Department of Physics and director of the Francis Bitter National Magnet Laboratory. Norman Levinson, Institute Professor and professor of mathematics in the Department of Mathematics

J. C. R. Licklider, professor of electrical engineering in the Department of Electrical Engineering.

Chia-Chiao Lin, Institute Professor and professor of applied mathematics in the Department of Mathematics.

Irving M. London, professor of medicine at MIT and the Harvard Medical School, director of the Harvard-MIT Joint Program in Health

of the Harvard-MIT Joint Program in Health Sciences and Technology, and professor of biology in the MIT Department of Biology. Alfred L. Loomis of New York City, life member emeritus of the MIT Corporation. Francis E. Low, Karl Taylor Compton Pro-

fessor of Physics in the Department of Physics.
Salvador E. Luria, Institue Professor,

Sedgwick Professor of Biology in the Depart ment of Biology, and director of the MIT Center for Cancer Research.

Boris Magasanik, professor of microbiology and head of the Department of Biology. Willem V. Malkus, professor of applied mathematics in the Department of Mathe-

Philip Morrison, professor of physics in the Department of Physics.

Philip M. Morse, professor of physics emeritus and senior lecturer in the Department of Physics.

Walle J. H. Nauta, professor of neuro-anatomy in the Department of Psychology. Egon Orowan, professor of mechanical engineering emeritus and senior lecturer in the Department of Mechanical Engineering.

Frank Press, Robert R. Shrock, Professor of Geophysics and head of the Department of Earth and Planetary Sciences. Alexander Rich, professor of biophysics in the Department of Biology. Bruno B. Rossi, Institute Professor Emeri-tus and professor emeritus of physics in the

Department of Physics Paul A. Samuelson, Institute Professor and

professor of economics in the Department of George Scatchard, professor emeritus of physical chemistry in the Department of

Chemistry.
Francis O. Schmitt, Institute Professor

Emeritus and professor emeritus of biology in the Department of Biology. (Continued on page 8)

electrical engineering in the De-IN GRADUATE SCHOOL

Jeanne Richard Appointed Assistant Dean

The appointment of Jeanne Richard as assistant dean with special responsibilities for women graduate students has been announced by Dr. Irwin W. Sizer, dean of the Graduate School.

"This new position, effective May 1, was established to implement MIT's commitment to actively recruit women, under MIT's new Affirmative Action Plan," Dean

Sizer said. Dean Richard believes that graduate programs at MIT offer opportunities excellent talented women. "We already have 304 graduate women on campus and by fall this number should increase by 11 percent," she said.

"With continuing cooperation from departments, much can be done not only to attract more women but to make this campus a more attractive place for their education.

"For example," Dean Richard said, "we have been working to establish fellowships for women and we are also making special arrangements for light class loads for mothers of young children."

Dean Richard came to MIT in 1948 as a secretary in the Sloan School of Management after receiving the BS degree from Simmons College. She later transferred to the biology department where she became administrative secretary in charge of departmental headquarters.

In 1966 she joined the Graduate School staff, assuming responsi-



Dean Richard

served as recording secretary for the Committee on Graduate School Policy (CGSP) and in 1970 was promoted to administrative assis-

Dean Richard has a long-stand-

bilities for budget and operational details of the Graduate Office. She

Changes Costing \$650,000 To Increase Reactor Flux

Renovation of the MIT nuclear reactor to provide greater neutron flux in the beams used by radiation researchers has been approved by the Atomic Energy Commission.

The project is now entering the contracting stage, according to David D. Lanning, professor of nuclear engineering, who is in charge of the redesign. Costs for completing the renovation are projected at \$650,000.

The AEC review process, including the 30-day public notice period, was completed April 9. The review included a thorough safety analysis, covering modernization of the reactor's electronic systems, the use of a light water coolant, and modification of the core. When the new core is in place, the reactor will operate with greater efficiency, at the same 5 megawatt power level it now has but with increased neutron intensity in the beam.

Present schedule for the renovation project will shut the reactor down when equipment and material are in hand beginning February 1974. The entire reactor staff will participate in the renovation and it is expected that the new core will be activated the following July.

The MIT reactor, first activated in July, 1958, provides a wide range of radiation research conditions for MIT experimenters and irradiation services for licensed groups and institutions in the

ing interest in women graduate students. She was an active participant in the Women's Forum in 1972 and was responsible for gathering data on graduate women which was used in the ensuing report on women at MIT.

In her new position, Dean Richard will work closely with academic departments in helping them to recruit more women graduate students and to provide an environment congenial to the needs of women.

Dean Richard will also coordinate her efforts with Dr. Carola B. Eisenberg, dean for student affairs, and with Dr. Mary Potter Rowe, special assistant to the president and chancellor for women and work.

In the Graduate School, Dean Richard will work with the staff on all aspects of graduate education in addition to her special assignment relating to women.

Dean Richard resides at 150 Beaconsfield Road, Brookline.

Cantata Singers Concert May 9

The Cantata Singers, conducted by John Harbison, associate professor of muisc at MIT, will present a spring concert on Wednesday, May 9, at 8:30pm in Harvard's Sanders Theatre.

include The program will Cantata 46 and 105 by Bach and works by Josquin, Schutz and Ruth Crawford.

Professor Harbison, who has conducted the Cantata Singers since 1968, will retire from the position after the May 9 performance. He will be replaced by Philip Kelsey, a local conductor.

Tickets, available at the door, will be \$2.50, \$3.50 and \$5, and \$1 for students with IDs.

Accounts Notice

All June degree candidates should call the Student Accounts Office, Room E19-215, Ext. 3-4133, for an appointment to ensure that unresolved financial obligations do not jeopardize degrfee confer-

The office is open from 9am to 3pm Monday through Friday, with Monday and Friday set aside for appointments. -



May 2 through May 11

Events of Special Interest

MIT Moot Court of Appeals, II

San Antonio Independent School district v. Rodriquez, the constitutionality of financing public education through local property taxes. Judges: Gregory K. Spence, associate dean, College of Arts and Sciences, Boston University; Ralph Fine, chairman of the Boston Finance Commission. Appellants: Neil Cohen, urban studies, '74; Rhonda Wrenn, political science, and black studies, Wellesley, '74. Appellees: John Austin, chemical engineering, '74; E. Martin Davidoff, Sloan, '74. Wed, May 2, 3pm, Rm 400 Stu Ctr.

Orientation Meeting for Undergraduates Interested in Management Discussion led by faculty and students in the Department of Management concerning careers and programs in this field. Wed, May 2, 7pm, Sala de Puerto Rico. Refreshments.

Creative Photography 4.051 Lottery

Students interested in placement in this over subscribed course. Sign up for lottery, May 2-9, Rm W31-310. Drawing on May 10.

Spring Craft Sale

Technology Matrons' sale includes: pottery, baked goods, toys, paintings, jewelry, knitted items, clothes and greeting cards, all hand made. Thurs, May 3, 8am-4pm, under the dome in Bldg 10.

Advisory Committee on Shareholder Responsibility Thurs, May 3, 5:15pm, Rm 10-300.

Palestine in Film

Series of short films on Palestine presented by the MIT Arab Students Organization. Thurs, May 3, 7:30pm, Mezzanine Lge, Stu

Fiji Island Party

Phi Gamma Delta Fraternity is holding a party with band and free drinks in Fitchburg, Mass. Sat, May 5, 8pm-12m. Tickets on sale at booth in Lobby of Bldg 10, each ticket admits 1 couple. Bus ride \$1 per person.

MIT Moot Court of Appeals, III

James v. Valtierra, whether California counties can require a referendum before applying for US funding for public housing. Judges: John Cratsley, and Richard Banks both from the Roxbury Municipal Court. Appellants: Mark Freundel, political science; '73; Terrance D'Eugenio, urban studies, special student. Appellees: Larry Eisenberg, urban studies, '73; Laurence Kahn, special student, University of Rochester, Wed, May 9, 3pm, Rm 400 Stu Ctr.

Ann Landers-Informal Discussion

Ann Landers, the syndicated columnist will speak on her views on women in traditionally male professions. Thurs, May 10, 1pm, Kresge Little Theatre.

Seminars and Lectures

Wednesday, May 2

Modelling the Performance of a Single Screw Plasticating Extruder Prof. J. R. A. Pearson, chemical engineering, Imperial College, London. Polymer Processing Seminar Series. 12n, Rm 12-142.

Pharmacokinetics and Cell Kinetics in Cancer Chemotherapy Prof. Kenneth Bischoff, chemical engineering, Cornell. Chemical Engineering Seminar. 2pm, Rm 10-105.

Xenon Oscillations in Large Pressurized Water Reactors

W. R. Corcoran, combustion engineering. Nuclear Engineering Seminar. 3:30pm, Rm NW12-222. Coffee, 3pm.

Recent in vitro Studies on Bone Resorption

Dr. Paul Goldhaber, dean, Harvard School of Dental Medicine. Oral Science Seminar. 3pm, Rm E18-301.

Course 900 Special Lecture - Videotape Playback

Dr. Hans-Lukas Teuber, pschology, MIT. Pschology Seminar. 4pm, Rm W20-473.

Functional and Conformational Probes of Metallo Enzymes

Dr. B. L. Vallee, biochemistry, Peter Bent Brigham Hospital. Ashdown Memorial Lecture. 4pm, Rm 4-270. Sherry hour will follow lecture.

Technology Studies Workshop

"Natural Knowledge and Cultural Context: A Case Study in the Technical, Social, and Cultural Backgrounds of Scientific Change in the Industrial Revolution." Prof. Arnold Thackray, speaker. Commentators: Prof. Elting Morison, 1926 Killian Professor and Prof. Leon Trilling, aeronautical engineering. 4pm, Rm 14E-304. Coffee, 3:45pm.

Wind Load Design Based on Statistics

Prof. A. M. Hasofer, mathematics and statistics, University of New South Wales. Civil Engineering-Structural Safety Theory Seminar.

Psychotechnology and Social Conflict: The Politics of Brain and

Prof. Stephan L. Chorover, psychology, MIT. Respondents: Dr. William H. Sweet, chief, Neurological Services, MGH; Hubert E. Jones, MIT, chairman, Task Force on Children Out of School. Technology and Culture "Images of Man" Series. 5:30pm, Rm

Tuesday, May 3

New IBM System/370 Capabilities: Multiprocessing and OS/VS2 Release 2

Robert Daley, information processing services; Arnold Miller and Don Mitchell, IBM. Information Processing Services Seminar. 3pm, Mezzanine Lounge Stu Ctr. Coffee 2:30pm.

The Loudness of Sonic Booms

Dr. Daryl N. May, acoustics, Quebec Centre for Industrial Research. Interdepartmental Acoustics Seminar. 4pm, Rm 3-370. Coffee, 3:30pm, Rm 1-114.

Electrochemical Techniques in Flash Photolysis Studies

Cuthbert Donald Taylor, MIT. Analytical Chemistry Seminar. 4pm, Rm 8-105.

New Developments in Materials Processing

Prof. N. P. Suh, mechanical engineering, MIT. Production, Automation and Manufacturing Seminar. 4pm, Rm 37-212.

The Unique Extensive Time-Invariant of Quantum Mechanics: **Energy Minus Available Work**

Elias P. Gyftopoulos, nuclear engineering, MIT. Thermodynamics Seminar. 4pm, Rm 3-343. Coffee.

Future Trends in Food Industry Research Dr. E. Briskey, Campbell Institute for Food Research. Nutrition and

Food Science Seminar. 4:15pm, Rm 54-100. Coffee, 4pm.

Ionicity of the Chemical Bond in Crystals

Dr. James C. Phillips, Bell Telephone Labs. Physics Colloquium. 4:30pm, Rm 26-100. Coffee, 4pm, Rm 26-110.

An Exploration in the Foundations of Economic Analysis: Labor

Thomas Vietoriez and Bennett Harrison. Graduate Economics Association. 4:30pm, Sloan Penthouse.

Synthetic Organic Chemistry, II

Prof. Teruaki Mukaiyama, Karl Pfister visiting professor. Chemistry Seminar. 4pm, Rm 4-270.

Symmetry Rules for Organometallic Reactions

Prof. Ralph G. Pearson, Northwestern University. Harvard-MIT Inorganic Chemistry Colloquium. 5pm, Rm MB-23, Harvard Chemistry Laboratories.

Friday, May 4

Extensional Rheology of Highly Elastic Materials

Prof. J. R. A. Pearson, chemical engineering, Imperial College, London, Polymer Processing Seminar Series, 12n, Rm 12-142.

What Are Models Made Of?

Dr. David Hawkins, philosophy, University of Colorado. Education Division Colloquium. 12n, Rm 9-150.

Two-Photon Spectroscopy Using I-R Lasers

Dr. Sam Freund, National Bureau of Standards. Physics Seminar. 1:30pm, Rm 3-133.

Chemical Engineering 10.992 Doctoral Seminars

A. Jeje, "Transient Pool-Boiling-Heat Transfer Between Immiscible Liquids"; M. Manning, "Bosch, Bosch, Where Are You?". 2pm, Rm 10-105.

Failure Prediction in Brittle Materials Using Acoustics Emission

Dr. Anthony G. Evans, National Bureau of Standards, Washington, DC. Mechanical Engineering Special Materials Seminar. 2pm, Rm 1-203.

Photo-Ferromagnetic Effect in Magnetic Semiconductor CdCr₂ Se₄ Prof. V. Vasalego, Lebedev Institute, Moscow. Francis B. Bitter Magnet Lab Seminar. 2pm, 2nd floor Conference Rm, Magnet Lab. Coffee, 1:45pm.

Course 900 Special Lecture-Videotape Playback

Dr. Hans-Lukas Teuber, pschology, MIT. Pschology Seminar. 3pm,

Flow in Lungs

Dr. Marc J. Jaeger, J. Hillis Miller Health Center, University of Florida. Mechanical Engineering Seminar. 3pm, Rm 3-270. Coffee, 4pm, Rm 1-114.

Differential Geometry in the Solution Manifold of a Relativistic Wave Equation Prof. Irving Segal, mathematics, MIT. Seminar on Mathematical

Cosmology, Field and Particle Theory. 4pm, Rm 8-205.

Egoism and Altruism

Prof. Bernard Williams, philosophy, Cambridge University. 4pm, Rm 14E-304.

Quasi-One-Dimensional and Quasi-Two-Dimensional Magnetic Materials: Crossover and Scaling Phenomena Dr. Luke L. Liu, physics, MIT. Materials Science Colloquium. 4pm,

Rm 9-150. Coffee, 3:30pm.

Recent Experiments on the Princeton Tokamak

Dr. Wolfgang Stodiek, Princeton University. Plasma Dynamics Seminar, 4pm, Rm 26-214.

Monday, May 7

Bullets, Candles and Soap Bubbles by Color Schlierem Photography Kim Vandiver, ocean engineering, MIT, Woods Hole Oceonographic Institute. Electrical Engineering Seminar. 12n, Rm 10-275.

The Technical Expert in Adversary Proceedings: The ABM Debate, a **Not Disinterested Controversy**

Prof. George Rathjens, political science, MIT. Technology and Culture Science Luncheon Seminar. 12n, Stu Ctr Dining Rm 3. No reservations, lunch \$2.

The Political Role of the Military in Indonesia and the Concept of National Resilience.

Gen. Hasnan Habib, Indonesian Center for Strategic and International Studies. Center for International Studies Seminar. 1-2:30pm, Rm E53-482. Bring your lunch.

Open-Demonstration of the Intrex System

Barker Engineering Library. 2pm, Orientation Room, 5th Floor, Building 10.

Tuesday, May 8

Power and Energy-Fourth EPL Seminar in the Contemporary Problems in Mechanical Engineering Series**

Panel of speakers. Engineering Projects Lab Seminar. 1pm-3pm, Rm 3-133. Coffee, 3pm.

Patents: An Overview of Patent Law, Patent Office Procedure and **MIT Patent Policy** Jeffrey A. Meldman, electrical engineering, MIT. Electrical

Engineering Coffee Hour. 3:30pm, Rm 10-105. Coffee. The Power of Vector Machines in Atmosphere Modelling Dr. Rex Fleming, Texas Instruments. Meteorology Seminar. 4pm,

Rm 54-311. Coffee, 3:30pm, Rm 54-923. One Man's Noise in Another Man's Signal-Measurements of the

Atmospheric Electrostatic Field Ralph Markson, atmospheric science, State University of New York Albany. Aero/Astro Seminar. 4pm, Rm 33-206.

The Use of Homogeneous Coordinates in a Three-D Optical Illusion Ed Jernigan, graduate student, electrical engineering. CIPG Seminar. 4pm, Rm 20B-222. Coffee, 3:30pm.

Infrared Emission from H-II Regions

Dr. J. A. Frogel, Harvard College Observatory. Astrophysics Colloquium. 4:15pm, Rm 37-252. Coffee, 4pm.

Primary Structure of Guinea Pig Anti-Hapten Antibodies

Dr. John J. Cebra, biology, Johns Hopkins University. Biology Colloquium. 4:30pm, Rm 6-120. Coffee, 4pm, Rm 56-520.

Wednesday, May 9

GK 101, It Mechanism of Action and Dental Application Prof. Joseph H. Kronman, orthodontics, Tufts Dental School. Oral Science. 3pm, Rm E18-301.

Synthetic Organic Chemistry, IV Teruaki Mukaiyama, Karl Pfister visiting professor, Tokyo Institute

of Technology. Chemistry Seminar Series. 4pm, Rm 4-270.

Life as a Hassid in a Scientific Society Prof. A. M. Hasofer, visiting professor civil engineering and Atara

Hasofer, clinical psychologist. Hillel Seminar. 8:30pm, West Lge,

Thursday, May 10

Application of Gas Chromatograph-Mass Spectometer-Computer Methods to Analysis of Body Fluids Tyrone Smith, MIT. Analytical Chemistry Seminar. 4pm, Rm 8-105.

Interdependence of Sintering Mechanisms

Prof. M. F. Ashby, Harvard. Ceramic Seminar Series. 4pm, Rm 31-161. Coffee, 3:40pm.

The Retinex Theory of Color Vision

Prof. Edwin H. Land, visiting Institute professor. Physics Colloquium. 4:30pm, Rm 26-100. Coffee, 4pm, Rm 26-110.

Dependency and Development***

Prof. Andreas Papandreou, economics, York University, Toronto, former Greek cabinet minister. Graduate Economics Association and Center for International Studies Seminar. 4:30pm, Sloan

Filling Some Holes on the Energy Front

Mike McCormack, US Congressman, Electrical Engineering Colloquium. 8pm, Rm 9-150.

Greece: A Case Study in American Imperialism*

Prof. Andreas Papandreou, economics, York University, Toronto, former Greek cabinet minister. Graduate Economics Association and Center for International Studies Seminar. 8:30pm, Sala de Puerto Rico.

Nuclear Engineering 22.911/22.912 Doctoral Seminars P. Wood,"Use of Thorium in LMFBR Blankets"; D. Ehst, "Tokamak Kinetic Theory." 3pm, Rm 24-117.

Coastal Zone Resource Management

13-2101.

Dennis Duscik, civil engineering, MIT. Water Resources & Hydrodynamics Seminar. 4pm, Rm 48-316. Coffee, 3:30pm, Rm

Partial Safety Factors Specified According to Operations Research Theory

Prof. J. Murzewski, Krakow Politechnic Institute, Poland. Civil Engineering Structural Safety Theory Seminar. 4pm, Rm 1-353.

Production of Aligned Composites by Directional Control of Solid **State Transformations** Dr. J. Livingston, General Electric Research and Development Center, New York. Physical Metallurgy Seeminar. 4pm, Rm

Teaching and Research Abroad for Holders of Advanced Degrees Panel discussion with Prof. Martin Abkowitz, Prof. Hoyt Hottel and Prof. Daniel Kleppner. Foreign Study Office Seminar. 4pm, Rm

Solvent Crazing in Glassy Polymers

Dr. Roger P. Kambour, manager, polymer studies group, General Electric. Polymer Mechanical Behavior Seminar. 4pm, Rm 3-133.

Synthetic Organic Chemistry, III

Teruaki Mukaiyama, Karl Pfister visiting professor, Tokyo Institute of Technology. Chemistry Seminar Series. 4pm, Rm 4-270.

The British Open University: Experience and Perspective Prof. M.J. Pentz, dean and director, studies in science, The Open University. Education Division Colloquium. 8pm, Rm 26-100.

Friday, May 11

Tunneling and Transportation

Eugene L. Foster, chief Tunneling Projects Office, Department of Transportation, Washington DC. Mechanical Engineering Seminar. 3pm, Rm 3-270. Coffee, 4pm, Rm 1-114.

Laser-Fusion and Physics

Prof. Moshe Lubin, Institute of Optics and Department of Aerospace Sciences, Rochester University. Plasma Dynamics Seminar. 4pm, Rm 26-214.

Aircraft Structure and the Men Who Developed Them

Nicholas J. Hoff, professor emeritus, Stanford University. Aeronautics and Astronautics' Lester D. Gardner Lecturer. 5pm,

MIT Club Notes and Meetings

ACBL Duplicate Bridge. Thurs, 7pm, Student Center Rm 491. No card fees if under 5 tables. - First Lou Reich Memorial Knockout Team Event. Thurs, May 3, 7pm. Large master point awards, low card fees. No card fee if your team loses first match. Call X0453 Dorm.

Chess Club

Sat and Sun, 1:30-5:30pm, Student Center Rm 473.

Classical Guitar Society

Classes, group or private. Mon & Thurs, 5-8pm, Rm 1-132, 134, 136; Sat, 8am-12n, Rm 5-231, 232. Vo Ta Han, 494-8353.

Staff meeting. Sun, 7pm, Student Center Rm 443.

Goju Karate Club*

Open to the Cambridge Community. Mon, Wed, Fri, 7:30pm, Stu Ctr Rm 407. Call 253-2018.

Hobby Shop**

Mon-Fri, 10am-6pm, Rm W31-031. Fees: \$6/term for students; \$10/term for community. Call X3-4343.

H. Yanagi, 5th degree black belt, chief instructor. Mon, Wed, Fri, 5-6:30pm; Sat, 1-3pm; duPont Exercise Rm. M. Portnoff, X3-5954.

Northern Praying Mantis. Tues, Thrus, 7-9pm, T-Club Lge. H.C. Wong, 876-5071.

White S. S. State of State of the State of t

All aspects of bicycles and bicycling discussed, events planned, advice and help given. Thurs, 7:30pm, Rm 1-246. Call Harry,

MIT/DL Duplicate Bridge Club**

Tues, 6pm, Student Center Rm 473. Call X0453 Dorm.

Practice sessions; Tues, Thurs, 5pm, Briggs Field; Sat, 1pm, meet in DuPont Gym.

Student Homophile League*

Meeting and coffee hour. Sun, 4-6pm, Rm 14E-307. All men and women welcome. For gay help (anonymous) at MIT, call student gay tutor, 492-7871, anytime.

Science Fiction Society*

Fri, 5pm, Rm 1-236.

Scuba Club

Compressor hours, Mon & Fri, 4-6pm, Alumni Pool.

Strategic Games Society

Sat, 1pm, Walker Rm 318. Club offers opponents and discounts on merchandise to members plus gaming periodicals library. Kevin Slimak, X0389 Dorm.

Student Information Processing Board Meeting*

Mon, 7:30pm, Rm 39-200.

Tae Kwon Do Club

Tues, Thurs, 5-7pm; Sat, 11am-1pm. duPont T-Club Lounge, Call Jae Kim, X9212 Dorm.

Tech Engineering News**

General staff meeting, Sun, 5pm, Rm W20-453.

Technique

Staff meetings. Sat, 11am, Student Center Rm 451.

Tech Squares***

Western style square dancing. Tues, 8-11pm, Sala de Puerto Rico. Admission: \$1, first time free.

Tiddlywinks Association*

Wed, 8pm, Student Center Rm 491.

Unicycle Club*

Activities and beginners' session, Sun, 1pm, in front of Student Center.

White Water Club**

Pool Session. Tues, May 8, 8pm, Alumni Pool.

Community Meetings

Honorary Matrons Spring Luncheon

Wed, May 2, Student Center West Lounge. Sherry hour, 12:15pm; lunch 1pm.

Student Committee on Educational Policy

Meeting on SCEP. Wed, May 2, 7:30pm, Stu Ctr Rm 400.

Association for Women Students

Drs. Carola and Leon Eisenberg will speak on "Mutuality in Love and Work." Tues, May 8, 4pm, Rm 3-310.

MIT Pistol and Rifle Club**

Course in basic pistol marksmanship begins Thurs, May 3, 6:30-8:30pm, duPont Pistol Range. Limited to first 20 adult applicants. Fee \$10. call Range Master, Thomas McLennan, X3-3296.

Women's Forum

Dr. Joan Bissel, assistant professor, Laboratory of Human Development, Harvard Graduate School of Education, will speak on "Child Care Arrangements-Their Effects on Children, Families and Communities." Mon, May 7, 12n, Rm 10-105.

Association of MIT Alumnae

Prof. Heather Lechtman, departments of humanities, metallurgy and materials science, MIT, will discuss "Styles in Pre-Columbian Metallurgy." Wed, May 9, 7:30pm, MIT Faculty Club. Dinner 6:30pm, reservations, Margaret Coleman, 926-1350.

MIT Club of Boston

Cmdr. George K. Gowans, deputy director, Management Information Center, Office Oceanographer, US Navy, will discuss "New Directions in Oceanographic Research and Development." Thurs, May 10, 12:15pm, Aquarium Restaurant, 100 Atlantic Ave, Boston. Lunch \$3.60 at door. Reservations: Miss Kiirats, X3-3878.

MIT Silver Club***

Spring meeting of members and all women who have worked at MIT for 25 years. Fri, May 11, 5:30pm, MIT Faculty Club.

Social Events

Friday Afternoon Club**

Music, conversation and all the cold draft you can drink. Fri, 6pm, the Thirsty Ear, Ashdown basement. Admission: \$1 men, 50 cents women. Must be over 18.

Muddy Charles Pub**

Join your friends for music, beer, wine, snacks, conversation at the Muddy Charles Pub, 110 Walker. Hours: Mon-Fri, 11:30am-2pm and 4-7:30pm; Sat, 7-12pm. Nightly specials will include: Mon, all wines 25 cents; Tues-Thurs, free pretzels and chips. Call GSC, X3-2195.

SCC Pot Luck Coffeehouse*

Live entertainment Fri-Sat, 8:30pm-12m. Student Center Mezzanine Lounge. Free coffee, cider, doughnuts. Sponsored by Student Center Committee. Volunteers to perform or otherwise help out, call Paul Mailman, X9626 Dorm, or Doug Fried, X8767 Dorm.

Movies

World Without Sun (Jacques Cousteau)

Scuba Club. Wed, May 2, 8pm, West Lge, Stu Ctr. Admission: \$.25 for non-members of Scuba Club.

Film and Lecture Series

Architecture 4.097. Stan Brakhage, experimental filmmaker will lecture and show his films. Wed, May 2, 2pm and again at 7pm, Rm

Bringing Up Baby and The Thin Man

Humanities 21.012. Wed, May 2, 7pm, Rm 10-250.

Portnoy's Complaint

LSC. Fri, May 4, 7pm & 9:30pm, Rm 26-100. Tickets 50 cents, MIT/Wellesley ID.

The Bank Dick

Student Center Committee Midnight Movies. Fri, May 4, 12m, Sala de Puerto Rico. MIT/Wellesley ID.

The Frogs

LSC. Sat, May 5, 7 & 9:30pm, Rm 26-100. Tickets 50 cents, MIT/Wellesley ID.

Mark of Zorro (1941) LSC. Sun, May 6, 7pm, Rm 10-250. Tickets 50 cents, no ID's.

Romeo and Juliet (Castellani) Humanities 21.014. Mon, May 7, 7pm, Rm 10-250.

The Decameron

Humanities 21.014. Tues, May 8, 7pm, Rm 10-250.

Film and Lecture Series

Architecture 4.097. Stan Brakhage, experimental filmmaker, will show his films. Wed, May 9, 2pm and again at 7pm, Rm

Blood of the Condor (Yawar Mallku) Humanities 21.492. Wed, May 9, 7pm, Rm 10-250.

The Prime of Miss Jean Brodie

Humanities 21.03. Thurs, May 10, 9pm, Rm 10-250.

The Andromeda Strain LSC. Fri, May 11, 7pm & 10pm, Rm 26-100. Tickets 50 cents, MIT/Wellesley ID.

The Hunchback of Notre Dame (silent)

Student Center Committee Midnight Movie Series. Fri, May 11, 12m, Sala de Puerto Rico, Stu Ctr. MIT/Wellesley ID.

Music

Noonhour Concert

Music by Mozart for Winds; trio, sextet and octet. Thurs, May 3, 12n, Chapel. Free.

The Concert Band

Works by Schoenberg, Jacques Casterede, William Schuman and Elie Siegmeister. Sat, May 5, 8:30pm, Kresge.

MIT Glee Club and the Douglas College Glee Club

Mozart's Vesperae De Dominica and Schubert's Mass in C. Sun, May 6, 3pm, Kresge. Tickets at the door, \$1.50.

Zamir Chorale of Boston

Honoring Israel's 25th anniversary. Featuring Bernstein's Chichester Psalms. Sun, May 6, 8:30pm, Kresge. Tickets: \$3-\$6 with \$1 discount for students, available Hillel Office, 312 Mem Dr.

Noonhour Concert

The Wellesley Madrigal Singers. Thurs, May 10, 12n, Chapel. Free.

Rehearsals. Works by Mozart and Schubert. Tues, Wed, Thurs, 5pm,

Theater and Shows

The Good Woman of Setzuan/Brecht

MIT Community Players. Thurs-Sat, May 10-12, & May 17-19, 8pm. Sun, May 20, 4pm, Kresge Little Theater. Tickets \$2.50. Discount to MIT students. Reservations, X3-4720.

Community Players

Monthly meeting with presentation of "On the Death of Kings" by Dean Whitlock, playwright. Mon, May 14, 7:30pm, Mezzanine Lge, Stu Ctr. Refreshments.

Dance

Dance Workshop

Courses in Modern, Afro-American and M/J/B dance. For information Chris Peterson, 492-6983.

Folk Dance Club*

International, Sun, 7:30-11pm, Sala. Balkan, Tues, 7:30-11pm, Student Center Rm 491. Israeli, Thurs, 7:15-10:15pm, duPont T-Club Lounge. Afternoon dance break, Fri, 12:30-1:30pm, Bldg 7 Lobby.

Yoga Class Beginners class. Fri, 5:45pm, Bldg 10-340. For information, call, Ei

Turchintz, 862-2613. Kundalini Yoga Classes: beg, Mon & Fri, 1pm, duPont Wrestling Room, Tues &

Thurs, 3pm, McCormick Green Lge; intermed, Mon, 6:30pm,

McCormick Green Lge. Enis Singh Vlug, 436-3753.

Exhibitions

Fritz Scholder's Paintings and Lithographs of American Indians Hayden Gallery and Hayden Corridor Gallery. April 13-May 5. Hayden Gallery is open 10am-4pm, Mon-Sat; Corridor Gallery is open all the time.

Photo Exhibit

course, Creative Photography Gallery (120 Mass Ave) April 23 thru May 5, open daily 10am-6pm. Photos by Donald Blumberg

Exhibition of portraits of students sponsored by the Committee on

the Visual Arts, May 5-21, Hayden Corridor Gallery. Gallery is open

Photographs by graduate students in Minor White's photography

all the time.

19th Century Italian Paintings Paintings selected from American Collections. May 11-June 9.

Mon-Sat, 10am-4pm, Hayden Gallery.

Music Library Exhibit Photographs of early instruments up to 1600. Daily, Rm 14E-109.

Hart Nautical Museum* Exhibits include "Ocean Engineering Summer Laboratory Projects 1971 and 1972," and "Tugs and Towing." Bldg 5, first floor.

Athletics

V Baseball Northeastern, Wed, May 2, 4pm, Briggs Field.

V Lacrosse Harvard. Wed, Apr 2, 4pm, Briggs Field.

Tabor Academy. Wed, Apr 2, 4:30pm, Pierce Boat House.

Outdoor Track

Coast Guard. Thurs, May 3, 4:30pm. Briggs Field. V Baseball

Bates. Fri, May 4, 4pm, Briggs Field.

Dinghy Invitational. Sat, May 5, 12:30pm, Sailing Pavilion.

JV/F Lacrosse

Lawrence Academy. Sat, May 5, 2:30pm, Briggs Field.

V Baseball Tufts. Mon, May 7, 4pm, Briggs Field.

Amherst. Wed, May 9, 4pm, duPont Tennis Courts.

JV/F & V Baseball

Trinity. Fri, May 11, 4pm, Briggs Field.

Religious Services and Activities

The Chapel is open for private meditation from 7am to 11pm every

Campus Crusade for Christ/College Life*

Family time, fellowship and teachings from God's Word. Fri, 7-9:30pm, Rm 1-132.

Christian Bible Discussion Group*

Thurs, 1pm, Rm 20B-031. Call Prof. Schimmel, X3-6739, or Ralph Burgess, X3-2415.

Christian Study Group

Meeting to study God's Word and the lives of Christian men. Sun, 9:30am, McCormick Green Room. For information, 494-8778.

Christian Science Organization*

Tues, 7:15pm, Rm 8-314. Meetings include testimonies of healing.

Divine Light*

Discourses on the knowledge of Shri Guru Maharaj Ji. Mon, Wed, Fri, 7:30pm, Rm 4-159.

Hillel Services*

Mon-Fri, 8am, Rm 7-108; Fri, 8:15am, Chapel; Sat, 9am, Chapel.

Hillel Classes

Hebrew, Wed: Beg 6pm; Intermed 5pm, Rm 1-203; Adv 1pm, Rm 5-231. Basic Judaism, Kathy Green, Wed, 8am, Hillel Library. Yiddish, Thur, 7pm, Rm 1-242. Mekhilta lectures, Fri, 12n, Hillel Library. Talmud, Beg, Mon-Tues, 8pm; Adv, Sun, 12n, Wed, 8pm.

Islamic Society

Prayers, Fri, 12:15pm, Kresge Rehearsal Rm B. Discussions on the Qur'anic interpretations of various aspects of life, Sat, 4pm, ISC Lounge, Walker 2nd floor, coffee served.

Protestant Worship Service* Sun, 11am, Chapel.

Roman Catholic Masses

Masses: Sun, 9:15am, 12:15pm, 5:15pm; Wed, 4:30pm; Fri, 12:05pm. Chapel.

Vedanta Society*

Services, Fri, 5:15pm, Chapel. Followed by discussion hour, 5pm, Lobdell Dining Room.

Westgate I & II Bible Study

Wed, 8pm, Westgate I, apt 1202. For information, 494-8405 or 494-8778.

United Christian Fellowship*

Christians for dinner, food, fellowship. Wed, 5pm, Walker (at sign of the fish). Followed by singing, praying, sharing meeting, 6pm, Rm 14E-303.

Zen Society*

Meditation meetings. Mon through Fri, 8-9am, Chapel. Call 492-4945.

Announcements

The Big Screw Contest

Vote for the professor most deserving. Proceeds to go to charity. Final balloting, Fri, May 4 at Kaleidescope.

Softball Games

The Campus Patrol challenges any Dorm or Fraternity to a game of softball. Contact: Officer Elderd, X3-2997.

Wellesley-MIT Exchange

Applications for the Fall '73 term are due Fri, May 4. Applications and information are available at the Information Center, Rm 7-111, and the Exchange Office, Rm 7-101.

Registration for the Centennial Convocation

Weekend of panels and workshops covering issues of current and future international and national concern, as well as questions relating to career selection, education and personal development. Sat-Sun, June 2-3, Kresge. Registration, including meals, \$25 before May 5, \$30 after that date. Information, Alumni Association,

Dormitory Council R/O Planning

Volunteers are needed to help out during the 10 days prior to fall registration day. If you are returning early and would like to assist at the inter-dorm level, please contact Bob Greenberg, X8539 Dorm.

Prelaw Student Meeting

General meeting to discuss the law school application process and other related issues. Thurs, May 3, 4pm, Rm 3-133.

Dining Service

Wed, May 2

Lunch: Beef burgundy over rice Dinner: Oriental Night

Thurs, May 3

Lunch: Beef stew over rice

Dinner: Roast Canadian bacon w/mustard sauce Fri. May 4

Lunch: Cheese strata

Dinner: French fried fish w/tartar sauce Mon, May 7

Lunch: Escalloped chipped beef and noodles

Dinner: Chopped sirloin steak w/gravy

Tues, May 8

Lunch: Roast beef sandwich w/gravy Dinner: Roast chicken w/celery dressing

Freshmen are encouraged to attend departmental lectures and seminars. Even when these are highly technical they provide students one means to learn more about professional work in a department and field.

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

*** Open to members only

Send notices for May 9 through May 18 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, May 4.

CLASSIFIED

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 noon, Friday, May 4.

For Sale, Etc.

Sony CF-300 cass recrd & AMFM R, less than a yr, \$80; 20 cass, \$1 ea. Karen, X8726 Dorm or Burton hse, Ive

Hand lawn mower, \$10. Pat, X8-4080

Pr of 7-75x15 tires, \$15 both. X3-4748

Uprite piano, gt cond, \$225; McIntosh FM tuner, list \$650, now \$275; Dual 1218 trntbl, shure cart, \$120. Phil Mandel, X3-3161 lve mesg.

Raleigh "Super Course," 54 cm, TA alloy cranks, br new simplex derailleur, \$135. J. Barnes, X3-2710;

Beaut Ig hvy round thl w/leaves, \$40; dresser w/5 drwrs, \$15. 547-9737.

Pr of BW TVs, 9", 12", nd repair, both \$25. Steve X0155 Dorm.

Pr Delta gl belted E78-14 snos w/rims. orig \$80, now \$35. Dennis, X3-6712.

Bost to Paris air ticket, \$100 or best; hi fi amp trntbl, spkrs, \$150. Robert,

TC-540 t rcrdr, \$180. John, Sony X9455 Dorm.

Hoover port cloth washer, perf cond, 2 yrs, ecologically reusable wash water, orig \$165, now \$65. Jo, X3-2723. GE electric flr polisher and scrubber,

almost new, \$18. John, X8-2006 Draper. Lded st glass window hangings, fruit,

mushrooms, etc, reas. Nick Pascouchi, Atala 10 spd bike, gd cond. A. Katz,

X3-3161 lve mesg. Zenith 17" port, BW TV w/stand, gd cond. Mary, x3-1830.

Chest of drw, \$25; blkbrd, 6x4, \$25; Encycl Brit, leat bound, \$275; shop card, \$5; 5 panelled rm divider screen, \$20. X3-3866.

Stereo: Realistic STA-36 FMAM recvr, 2 solo-1 spkrs, lab 6, record changer w/base, dust cover, exc cond, \$210 orig, now \$120. Richard Schechter, X8326 Dorm.

Scott sprks, rated to 50 w, list \$120, make offer. Tom, X8357 lv mesg.

Johnson o/borad mtr, gas tank and spare prop, lk new, \$150 or best; sit down mower, new last sum, orig \$340, now \$200. Ray, X7573 Linc.

Acoustic research tuner, 5 mo, warr still, \$135; reconditioned Royal elec typwtr, uses carb or ribn, \$210. Dan, X0801 Dorm.

GE 15" BW TV, 2 mo old, \$65. 489-0470.

Zenith sol st, port stereo phono mod x560-1 and ass't LP's; 7x13 gr wool rug; oven broiler & hot plate; 5 gal fish tank and accessories; girls 26"

Heater for '65 Baracuda, perf cond. \$8: R for same car, \$9. X8-3666 Draper.

Pr of Sears nylon snos, 8:25-15 or 800-14 on Chevy rims, \$20. Bob, X3-3887.

Janssen upright piano, reg tuned, sound cond, \$75 firm. Wallace, X3-5525.

Rug, 9x15 beige tweed wool rug, v gd cond, just cleaned, \$45. Dave, X8-1194.

Humidifier, bikes, washer/dryer, baby car seat, barbeque, bkcases, wl negot. Don, X3-1636.

Classical music library, 250 78 rpm records, exc cond, includes Beethoven, Bach, Chopin, Wagner etc, best offer. Howie, X5466 Linc.

Pr VW rims w/delta 5.50x15 tires mtd, 5 hole rims, \$15. Max, X3-4368.

Danish anaraks, 3, fit any sz, dungaree denim, \$7.50 ea; pewter jewelry. Bill, X8-1568.

650 Carousel slide proj, \$70. Andrew, 494-9036.

Persian rug, 5x7, \$255. Fred, X3-3831.

A & Fitch, gold shoes, nv used, sz 6. \$20. Nina. X3-7400.

Stamp collection, US & foreign, singles & sets. Ken, X3-6385. Wheels and snos for Volvo 122, cheap

to needy. Robert, 965-0293 evgs. Triumph men's bike 3 spd, \$70. Lew Felton, X3-3537.

Full fuel cartridges, 8 of them for a Gerry ministove, plus spare parts from ministove, \$10. Everett, 861-5275.

Presto humidifier, \$25; baby's walker, \$3; lo coffee tbl, \$3. Pete, X3-5272.

Eclipse conv love seat, \$75; ivory sum wed gown, sz 6, \$50; Proctor iron bd, \$5. Elliott, X7231 Linc.

Smith Corona, port, elect, manual retn, exc cond, \$75 or best. Kathy, X3-4701.

Pr of B78-13 Delta sure trac st snos, 600mi, \$32. Eve, X3-5924.

Smith-Corona 250 secty typewrtr, perf cond, \$150; GE 21" BW TV, gd shape, \$75. Larry, X3-3733 or X3-6614.

Cookware: club alumn, 1,2,3, qt saucepans, 5 qt dutch oven, 4 covers, avocado, 2 mos old, orig \$45, best offer. Myron Silver, X3-2636.

Attache case, \$6; GE elect alarm clock \$3. Nick, 494-9120 evgs.

Rm humidifier, yr old, puts 3 gal water p/day in my Eastgate apt, \$20; 4.8 cu ft Romex under counter freezer, wht w/wood grain top, 2 yrs old, \$90. 494-8240.

Aquarius scuba regulator, used 6 times, best. Anita, X3-2049.

Vehicles

'40 antique Ford sedan, new paint, gd run cond, is registered & used daily, best offer. Bill, X366 Linc.

'51 Chevy yellow pickup truck, exc eng, powerful, durable, \$400 or best. Bob, X3-2701.

'53 Mercury, blk 4 dr sed, all orig, 3 sp st w/over dr, V8, all new elect sys, gd tires, orig paint, exc run cond, \$550 or best. Rich, x5845 Linc.

'58 Sunbeam Rapier conv, 60 K, w/ Mich X tires, gd cond, some body rust, orig owner, best offer this month takes it. X3-6809.

'60 Rambler American, gd gen cond, \$60. Robert, 492-4282.

'61 VW bug, runs, nds work, body rough, recent br, clutch, front end, radical, conis, \$100. Bob, X8-1558 Draper 7.

'63 Chevy Impala, v gd cond, lo K, Mike X3-2422.

64 Pontiac Catalina, 4 dr, new snos, rims, 10 K. Ruth, X3-3545.

'64 Pontiac Catalina st wgn, \$250. Al J., X5581 Linc.

'64 Chevelle Malibu, 66 K, a c. Bob Warner, X8-1195 Draper 7.

'64 Olds F-85 st wgn, V8, exc cond, \$300. Philip, 742-0738 evgs.

'64 Blue Chevy Nova, v gd run cond, \$225. Dennis, X8905 Dorm.

65 Ply Belv, 106 K, new clutch, br, balljoints, nds some repair, \$100. Trudy, X3-7004.

'65 Olds, F85, V8, 4 dr sed, auto, p st. R, recent tune up, tires & batt gd, gd cond, avail 5/31, \$375. Singh, X3-7796.

'65 Mustang auto, pw st, a c, R, 61 K, \$450; port TV, Sony, 7", operated w/plug, Song batt or auto/boat batt, v gd cond, \$30. Call X3-2929.

'65 Chevrolet Bel-Air, 4 dr, std equip, new br, exc cond, Jean Pierre, 492-0067.

'65 VW, gd running cond, w/spring sticker, \$350 or best. Susan, X8-3311.

'65 VW bus body, plus sunroof, windows, gd shape. \$175. Santoro, X7787

'66 Chevy carry-all, suburban, exc cond, 327-V8, at auto, pr br, R, w/extras. 261-8637.

'66 Chrysler New Yorker, h t, 2 dr, pwr br & st, a c, spring sticker, new br, gd cond. Phil, X8-1504 Draper.

'66 Mustang, V8, 90 K, new trans, snos, \$300. Xavier, 491-6857.

'68 Dodge Polara, 61 K, exc cond. a c.

new brakes, \$1,000. Steve, 267-4935. '67 VW sedan, eng just reblt & purring beautifully, body exc, \$700 or best

'68 Pontiac Tempest, 6 cyl, std tr, \$450 or best. Tony, X3-3241.

offer. Bob, X3-2701.

'69 Chrysler New Yorker, beige, new auto tr, pow windows, a c, R, 2 new snos, exc cond, \$2,100. Nina Robinson, X8-3333 Draper.

'69 Mustang, exc cond, 6 cycl 250 cid, new tires & shocks, \$1,400. Charles, X3-6355.

'70 Renault 16, 4 dr hatchbk wgn, std, 4 spd, frt whl dr, 30mp gal, v gd cond. X8-1354 Draper.

'70 Chevelle SS 393/50 hp, 34 K, exc cond, best offer. Judi, X3-3914.

'70 Volvo 145, 38 K, exc cond, all service papers avail. \$2,800. Gundersen, X3-6085.

'70 Pinto Runabout, 4 spd, stnd, a c, R, deluxe int, mag wheels, 32 K, v gd cond, \$1,550. Don, X5404 Linc.

'71 Dodge Dart, blue, auto, 4 dr sed, p st & br, 6 cylc, \$225, 29 K, exc cond, \$1,800 or best. Martin Weienshienk, X5470 Linc.

'72 Datsun, 240z, 9 K, perf cond, under warr, 4 snos, \$4,095. X3-4223. '65 Susuki, 150cc, 5 K, w/helmet, best offer. Lloyd, X3-7220.

Linc. '70 Yamaha 350cc, 3½ K, in storage for 2 yrs, \$500; pr of Fisher XP-65 sprks, yr old, orig \$200, now \$135.

'70 BMW, mc, r75/5, 11 K. Bill, X7720

'70 Honda 450 cb, disc brk & bates bags, exc cond. Drake, X3-3603.

Sherman, X9630 Dorm.

'71 Honda CB450, exc cond, new batt, extras, \$795. Henrique, 494-8868 morn & evgs.

Nimrod Camelot Supreme, tent trlr, w/add-a-room and pwr top, pull out K, w/hot wat sys, dbl sink, 3 burn stove, oven, hter, shower, everything, used 2 yrs, \$1,200 or best. Steve Brannan, X5740 Linc.

Fiberglass sailboat "Rebel" 16' long, 6'6" beam, alum mast + s s, dacron sails, new trler & o/board, \$950 firm, ready to sail. X3-2933.

Housing

Arl Hgts, 2 BR, LR, DR, mod K, terrace, ww carp, n T, avail 6/1, \$265/mo. Joe, X56117 Linc.

Ben Hill, BR, furn or un, patio, frpl, sublet 6/1-8/13 w/opt, n shopping & 5 min to E. campus, rent nego. Hugh, X3-3640.

Belmont, 4 BRs, on water, w/priv dock, \$60's. X3-4141.

Bost, Kenmore Sq, sum sub 6/1-8/31, 2 BRs, mod K+B, elevator, \$200. plus secur. X3-3809.

Bost, Bcn st/Mass ave, sum sub, studio, avail 5/1 or 6/1. Brian, 536-6922.

Brighton, sum sub 6/1, 2 BRs mod, LR, B, K, a c, n T, \$240/mo. Nazar,

Brookhaven, L Island, Stoneybrook

Univ area, w/front hse on L Island Sound, avail '73-'74 rental school yr.

Brkline, quality BR apt, n Cleveland Circ, lg K, disp, porch, tile B, n T, pets, pking, 6/1 sub w/opt. \$185 incl heat. Ted, 738-8047.

Brkline, n Cool Corn & T, sum sub, Ig 4BRs, furn, \$325/mo. Peter, X3-7530. Camb, n MIT, 2/3 BRs, sum w/opt, a c,

carp, full furn, \$210/mo.

492-2937. Camb, 3 BRs, lg K, LR, n MIT, 6/1,

\$235/mo; Robert, 492-4282.

Camb, 3 BRs, Ig K, LR, n MIT, 6/1, \$235/mo. Robert, 492-4282.

Camb, Columbia St, 3 BRs, K, LR, pking, furn, sum sub 6/1-9/1, \$200. Louis, X3-6467.

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Camb, n BU bridge, 2 BRs, furn, pking, sum sub, \$210. 354-5727.

Camb, MIT campus, sum sub, 1 BR, furn. 494-8396.

Camb, avail 6/1, n Tech Sq, 4 BRs, LR, new B, K, \$275/mo incl ht. John, 354-8705.

Camb, sum sub, 5/26-8/31, mod BR, furn, a c, laundry, pool, pking, n T, \$190/mo. Rich, X3-6036.

Camb, 3 blocks fr MIT on Mass Ave, 2 BRs, LR, frpl, new B, mod K, sum sub fr 6/1-9/1, \$230/mo incl util. Arnold, 492-3186 evgs.

Arl, 6 RMs, basement & attic, n Mass Ave, 5 blocks fr Camb line, avail 6/1, \$265/mo plus util, pking inc. Susan, X5583 or X459 Linc.

Fens area, 3 BRs, sum sub w/opt, new paint, new w w carp. \$235. Joseph, X3-4822.

Lex, sum sub, lg 7 Rm hse, June-Aug, furn, mod K, \$300, pref MIT prof. X3-5084 or X3-2876.

Melrose, 8 Rms, colonial w/3/4 acre wooded lot, mod K, 4 lg BR, 2 frpl, 11/2B, mid 40's. Mike, X8-3316 Draper

Needham, summer, 3BRs cape hse, 6/23-9/4 flex, \$600/mo. Travis Merritt, X3-2408.

Som, n Porter sq, 2 BRs, furn, lg porch, \$145/mo. Dan, X3-7787.

Wellesley, ranch hse, n Wellesley Ctr, 3 BRs, LR, DR, mod K, dwnstrs family Rm w/frpl, 2 B, garage, avail 7/1, \$375/mo. Gisela, X3-4772.

Woburn, sublet 6/1 opt renew, mod 2BRs, a c, w w carp, n routes 93, 128. Len, X3-3857.

Eastgate, sum sub, 6/1-9/1. Call:

Westgate II apt w/view of Bost, sum sub to single fem, part furn. Rosalia, X3-5110.

Westgate II, Apt 21D, avail 5/25 as sum sub w/opt. Jeff, 494-8949.

Canadian Ik/side hse, on 200 mapled acres, lk Memphremagog, 4 hrs fr Bost, 5 BRs, 2 lg frpl parlors, incl boat, \$180/wk plus util. Denny, X3-5606.

Dennisport, sum sub, lovely home, walk to beach, all conveniences, \$195 per wk. Dave, X8-2036 Draper.

Nantucket/sconset, simple fisherman cottage, all conveniences, n ocean, slps 5, May-Sept, full or part season. Kitty, X3-6466 after 4:30pm.

N H, 1% acres, in Wakefield n lk and \$35,000. Caroline Stitson, X3-6966.

South N. Hampshire, 3 BRs cottage, in sm village, n lk & mts, rent \$ incl maint util only, avail immed to 8/15. X3-4776.

Lk Winnipesaukee chalet, \$175/wk. X8-4415 Draper.

Lk Winipesaukee, lots and cottages on Bear Island, superb location and view. Mayo, X8-4408, Draper.

Maine, sum hse on Kezar Lk, 2 BRs, frpl, all conveniences, canoe, view of Wht mts, June-July, pref 2 wk rentals, 3 hrs fr Boston. Mrs. Morton, X3-2285.

Vt, Weston, 3 BRs, log chalet, w/comp mod facil, on quiet rd, n many recreational activities, wkly or monthly rent thru summer. X477 Linc.

Animals

Germ shep pups w/papers, best offer. Pat, X8-4591 Draper.

Pr of 2 adorable wht kittens for gd home. Marty Davidoff, X9269 Dorm, X3-1461 ly mesg.

Lost and Found

Found: yellow & brown girl's scarf, Great Court, mo ago. Dave, 261-8848.

Wanted

Hse in Lex, for visiting prof, 2 BRs or 3, begin 9/1 for yr. Hedy, X3-7719.

Hse, w/in 25-30 mi of MIT, for 4 MIT stu, pref semi-secluded area, responsible but lk loud music & openspaces, interested in exl lease thru nxt yr. Daryl or Andy, 494-8228.

Rmmate to sub for sum in Allston, own rm, mod K, \$91/mo. 783-9390

Rmmate for Brkline furn apt, w/own rm, nx to tennis courts, \$80/mo, util inc. Mark Brooks, X3-6613.

Refrig, gd, cheap. X3-7844.

Rmmate for Westate II, 6/1-8/31, own rm, \$70/mo. 494-9249.

Rmmate, must be grad student, to take BR in 4 BR apt, avail 6/1. Mark, 494-8932.

Marr couple, mid 20's to shr hse in Wellesley, 3 BRs, beaut location, part furn, avail 6/1, wl split rent \$400/mo plus util. Bob, X3-4836.

Rmmate, 4th person in Som. apt, n H Sq, for May to end of Aug, own rm, \$60/mo. George, X3-3304.

Driver for U-Haul to Wash D.C. 5/28-6/1. Phyllis, X3-7445 or

Used camera, pref Nikromat, or Nikon w/wide angle lens/photo lens. Stanley,

Rmmate for v nice Brkle apt, 3 mi fr MIT, n T, \$61/mo plus util. Joe, 232-5272.

Tools, non-electric, for clearing land. Jane, X3-5640.

Fem rmmte, pref student, to shr wonderful apt w/2 others plus cat, 5 min to MIT, avail 6/1. Sherry, 547-2863.

Someone who wants to hitch west to Calif? w/me. June or Mike, 492-5614.

Rmmate to sum sub 5/25, in Ige Camb coed hse, own lg furn rm w/frpl, w/beaut yard, porch, piano, congenial non-MIT rmmtes, quiet str. n Harv & Rad, \$110/mo util inc. X3-6876.

Ride w/car pool from Pelham st exit, Metheun area daily, X8-1153 Draper 7.

Rmmtes, 2 fem. for sunny, 3 BR ant own rm, Bcn Hill, avail 9/1, \$100/mo inc ht. Ursula, X3-7719.

Apt, 2 BRs, w/encl yard, after 6/1, for two yrs. 491-4873.

Passengers to Cincinnati, Ive 5/10 or 11, ret 5/13. Jeff, X3-4841 lve mesg.

Camb apt, no rmmtes, rent \$150 max, \$25 reward for person who can give info about. Meg, X3-7051.

Miscellaneous

Ideal couple wl live-in and care for yr hse, beg 9/1, no children or pets. X5809 Linc.

Typing theses, reports, statistical. Jean,

Expert bike repairs on campus by fully equip fact trained mech, specialty: 3/10 spds. 494-9142.

Desperate undergrad nds lawn mowing and/or yard jobs for sum. George, 646-5049 evgs.

Experienced all round driver for moving, chauffering, driving instruction, references. Ribero, X3-7557.

WI do theses & gen typing on IBM Selectric. X3-4678.

German translations, also tutoring for Ph.D. requirements, exper instructor w/references. X3-4471.

Positions Available

These are some of the new positions received since the last Tech Talk ad. The Personnel Office is seeking individuals from within the Institute to fill these openings. Other available positions are posted in the Personnel Of-fice, E19-239.

Industrial Hygienist (Academic Staff) will work in the Environmental Medical Service to study and control occupational disease and other environmental factors such as noise, heat, pressure and toxic materials that may be physically or chemically hazardous to employee health. Will work closely with physicians, depts., supervisors. in Chemical Engineering is required. 73-336

Systems Analyst-Admin. Staff for the office of Administrative Information Systems will design financial and/or administrative applications to be run on a medium-sized computer. Duties include making feasibility studies, system flowcharting, defining programming specifications, conducting system tests, implementation, documentation and client education. Experience in designing financial applications, teleprocessing applications, data base management systems and a working know-ledge of ANS, COBOL and/or PL/1 is desired. 73-330

Auditor - Admin. Staff Internal Audit Group is seeking an Assistant Auditor for its staff to develop audit programs and questionnaires; perform audits, direct junior staff members and write and present reports. Two or more years of diversified experience in public accounting or internal auditing required.

Application Programmers Admin Staff The Office of Administrative Information Systems is seeking two Application Programmers to take program specifications and translate them into an efficient computer program. The process includes the evaluation of specifications, flowcharting, coding, testing, debugging and final program documentation. Knowledge of IBM DOS ANS COBOL and/or PL/1. Know-ledge of 360 Assembler Language desirable; experience with university accounting or teleprocessing applications helpful, 73-340, 73-341

Senior Secretary V will work for a Dean; answer some correspondence, arrange meetings, appointments and travel; maintain confidential files. Excellent typing and shorthand skills needed, previous experience in an academic atmosphere preferred. Poise, tact, good judgment, ability to estab lish priorities in work most important. 73-253

Research Assistant will assist in the study of the natural gas and oil indus tries. Familiarity with the concepts of basic economics; ability to manage a large computerized data base and to organize and coordinate the activities of other part-time research assistants; strong background in applied econometrics is required. Masters degree preferred; Bachelor's degree acceptable. 73-173

Secretary IV will type reports and correspondence; schedule meetings and appointments, make travel arrangements, handle account records, responsible for student records. Experience needed to coordinate the office workload and set priorities. Much contact with students and faculty. 73-324

Secretary IV in high level Institute office will coordinate extremely busy appointment calendar, type correspondence, maintain records of several office accounts. Excellent typing skills, shorthand preferred, knowledge of basic accounting required. Ability to set priorities and work with details important, 73-343

Secretary IV to four professors will need good skills of shorthand, dictaphone and typing to handle technical reports and journal articles. Will maintain student records and answer re quests for information associated with

Sr. Clerk IV will be responsible for efficient procurement of books for laboratory, generate invoices, handle requests by phone and mail, maintain statistics. Excellent typing and clerical skills, knowledge of library catalog and reference systems. Previous office experience required, 40 hour work week.

Secretary III - IV two openings in an academic department working for 2-3 professors. Good skills of shorthand and typing, organizational ability and experience required. 73-323, 73-322

Secretary III to department business manager will maintain files and records; act as department receptionist. Good typing skills, shorthand or speedwriting, knowledge of basic book-keeping important. 73-333

Technical Typist III will work in laboratory publications department typing thesis, technical reports, memos, proposals, journal articles. Ability to work quickly and accurately when under pressure of deadlines is important. Will train a strong typist who is looking for an opportunity to learn technical typing. 72-564

Clerk-Typist II will perform reception duties for the office; handle call director, greet visitors, and file. Good typand dictaphone skills needed.

Secretary III in publications office will collect and prepare copy of classified ads for typesetter. Will assist with reception and other office duties. Good typing skills and the ability to work under time pressures important. 73-345

Secretary III will be receptionist for publications office; assist Senior Secretary with office functions; maintain systems. Good typing skills needed, 73-346

Campus Patrolmen/Patrolwomen Recruits will become proficient in all phases of law enforcement: traffic control, patrol of buildings and grounds. Administer first aid; participate in emergency procedures, investigations; write reports and other general police duties. Ability to learn all phases of law enforcement: court procedures, case preparation, investigation and re porting of complaints. Prior experience as mobile radio operator, first aid worker or a familiarity with the use of firearms is desirable. A valid driver's license, honorable discharge for any earlier police service, ability to work long hours on occasion and rotating shifts is required. Must be able to handle top level public relations. Physirequirements: Height: 5 feet, 8 inches.

For an appointment please call, 3-4251.

Talk Planned By Columnist Ann Landers

Noted columnist Ann Landers will come to MIT Thursday, May 10, for an informal discussion on women in traditionally male professions, at 1pm in Kresge Little Theatre.

Miss Landers the most widely syndicated columnist in the world. Her column appears in nearly 800 newspapers and reaches 54 million daily read- Ann Landers ers.



A trustee of the Menninger Foundation and member of the Founders Committee for Mayo Medical School, Miss Landers is the only female member of the American Medical Association Advisory Committee. She received the President's National Citation for her work on alcoholism from President Lyndon B. Johnson.

In private life, Ann Landers is married to Jules Lederer, an executive with an automobile rental firm.

Hebrew Music Concert Marks 25th Anniversary

The Zamir Chorale of Boston, a group of students from universities and colleges in the greater Boston area, will present a concert of Hebrew music honoring the 25th anniversary of Israel's independence on Sunday, May 6, at 8:30pm in Kresge Auditorium.

The concert will feature Leon-Bernstein's Chichester Psalms for chorus and orchestra. Directed by Joshua Jacobson, the Zamir's repertoire includes music from the Hassidic to modern Israeli and from liturgical to Hebrew rock

The group has performed throughout New England and New York and will represent the US in Israel's International Zimriyah (choral festival) this summer.

Tickets for the concert are \$3, \$4. \$5 and \$6 with a \$1 student discount and may be purchased at the MIT Hillel office, 312 Memorial Drive,

Group Asks New Funds For Fusion

Against a background of cautious optimism that the feasibility of controlled fusion can be demonstrated by the early 1980's, the Research Program Study Group of the Atomic Energy Commission (AEC) has recommended a doubling of research funds in the years just ahead. The recommendation was made at a meeting of the Standing Committee of the AEC's Division of Controlled Thermonuclear Research held at MIT Thursday and Friday, April 26 and 27.

Edward A. Frieman of the Princeton Plasma Physics Laboratory, Chairman of the Study Group, reported that the group recommended increasing the amount spent by the AEC on research from the current level of \$7 million a year to \$17 million from fiscal 1975 on. The group is made up of eight scientists representing institutions with active programs in fusion physics and includes Ronald R. Parker, associate professor of electrical engineering at

"The research program has suffered from budget stringencies during the past several years," Professor Frieman said. "We believe the time scale for feasibility will be affected unless there is a significant increment in funding for research."

The meeting, held in Room 9-150, was presided over by Alvin W. Trivelpiece, assistant director for research of the AEC's CTR Division. The AEC's fusion effort is divided into three overall categories-confinement, development and technology, and research. The meeting, one of three program reviews, was held at MIT in accordance with the ACE's custom of meeting at places where fusion research is being conducted. MIT's fusion project, Alcator, was toured by those attending the meeting Friday afternoon.

Professor Frieman emphasized the view of the Study Group that the augmented funds for research should not come at the expense of the other two programs. "But we need expanded research programs," he said, "partly to provide the trained people through the universities, where most of the research is based, and partly to provide the general conceptual underpinnings for the entire confinement program."

"Advances in confinement systems have often been made pragmatically, based on intuitive notions of 'how things ought to work," "he said. "In the future, as pragmatic notions become too expensive, a firmer basis for some of the confinement decisions will be

"It is likely that the first fusion reactor will not be the last fusion reactor....There will probably also be serious plasma physics questions of a general nature involved in such decisions which will certainly entail a viable and expert research program existing into the

Tucker to Speak

John A. Tucker, executive officer for student affairs in the Department of Electrical Engineering and director of Course VI-A, will be speaker and guest of honor at the initiation banquet of MIT's Chapter of Eta Kappa Nu on

Proposed Cambridge Truck Route Called 'Disastrous'

(Continued from page 1) highway inner belt which was so strongly rejected by citizens and city in 1970.

The report said that non-city streets, and especially the Massachusetts Turnpike Extension, of-fered a "viable alternative" for through truck traffic.

It noted that tanker trucks carrying flammable and explosive material presently are barred from traveling beneath the Prudential Center on the Turnpike Extension. But it said it believed that such "legal and administrative roadblocks" could be removed without compromising

The report also suggested that better use could be made of existing city ordinances and regulations-such as those providing for trucking bans at certain hours-to alleviate the effects of truck traffic that must use Cambridge streets.

Another major recommendation was that the BTPR "conduct a thorough study of the truck

Year-Round Center Open For Day Care

(Continued from page 1)

both the TCC nursery school and day care programs. She brings to the programs wide experience and background in early childhood development and pre-school edu-

The space was designed and renovated by Other Ways for Educational and Environmental Development of Cambridge.

The objectives, according to Ms. Margaret Sand, Child Care Coordinator for MIT, were two-fold:

To create a warm and inviting place where children will want to be, and to organize the center in such a way "that as the needs of the children might change, so might the environment.'

Ms. Sand said that the design of the center "reflects the philosophy of TCC-that a child be allowed to discover himself and others in an environment that allows freedom of choice while being both supportive and radional."

Ms. Sand has coordinated all the activities involved in setting up the center-hiring staff, the design and development of space, and the recruiting and admission of children. She will continue to serve as an advisor to TCC's board of trustees for the MIT programs.

The result of this work is the child care office, the day care center and a companion Family Day Care Program for those whose children are too young for center care or who need temporary, emergency or part-time care and the child care office.

The TCC's Eastgate and Westgate nursery school programs will continue to operate on a 32-week calendar to provide nursery education for 212 to 5 year olds, with a variety of classes available.

A limited number of spaces are available in the day care center. For information on all child care programs, call Ms. Sand at Ext.

Plans were coordinated with the Student Financial Aid Office, with support from the Office of the Dean for Student Affairs, the Graduate Student Council, Technology Wives Organization and the Association of MIT Alumnae.

The original proposal for the day care center was developed by Marilyn Swartz Lloyd of the MIT Planning Office.

problem for all streets now affected by truck traffic."

The report said there was no basis at present "to compare truck traffic congestion in various parts of the city, nor have any studies of truck origin and destination been undertaken."

The Planning Office said the information it had compiled indicated that "many" sections of the city have problems caused by truck traffic and that shifting those problems from one area to another would not be in the interests of Cambridge as a whole.

special-purpose road through East Cambridge had been proposed originally by a group of mid-Cambridge residents who called their organization "HALT." That proposal was subsequently opposed by the Chamber of Commerce and other citizen groups, particularly in East Cambridge.

The proposed truck route would be between the Massachusetts Turnpike Extension (near the B.U. Bridge) and Commercial Avenue

In the vicinity of MIT, a road would be built on either side of the railroad tracks parallel to Vassar Street. The plan envisions several underpasses and overpasses along the route, including an underpass at Massachusetts Avenue.

O. Robert Simha, Director of Planning for MIT, said that faculty, students and student residents had joined in an unusual cooperative endeavor to gather information about traffic in the East Cambridge-MIT area in 1972.

The investigation, he said, included noise and vibration measurements, truck counts, traffic surveys and interviews with residents.

As a result of the study, he said, there was now "good data" for the first time on the impact of existing traffic on the academic and residential communities at the north end of the Institute.

Simha said the Institute had undertaken the comprehensive study because the BTPR's review process "includes broad participation by all involved communi-

A detailed investigation into the pattern of truck movements in the area also was needed, the Planning Office report said, because such information was not available, "to help develop a basis for study of all Cambridge" and to suggest alternatives for serving heavy traffic going through the

According to the MIT report, truck traffic even now presents serious problems to residents and researchers

Research work is disturbed, it said, "due to electromagnetic interference (because of the electrical ignition systems of trucks), vibrations and noise. the report added, "many sensitive

Student's Death Ruled Suicide

Raoul P. Lamp, 19, an MIT sophomore from Hinsdale, Ill., majoring in mathematics, died Thursday at Massachusetts General Hospital from injuries received in a fall from an East Campus dormitory building.

Dr. Michael A. Luongo, Suffolk County medical examiner, ruled the student's death a suicide. Cambridge police said that Lamp, a Hayden resident, was found on the sidewalk outside the building and apparently had fallen from the

experiments" are deferred until after midnight to reduce interference from the effects of truck

Responses to individual questionnaires, the report said, "indicated various levels of inconvenience ranging from uninhabitable rooms to a general increase in tension and anxiety because of noise, air pollution and

The report said that the proposed road would "compound present problems and force restrictions or termination of affected research programs."

Grade changes in the vicinity of MIT's research facilities," the report said, "would require increased power output from truck engines which creates even more noise, more vibration and more

Construction of the road, the report said, also would jeopardize continuity of research at the Draper Laboratories, the National Magnet Laboratory (which would lose use of its main waterline for cooling water), the Nuclear Reactor, the Hydrodynamics Laboratory, the Center for Space Research and the Electrical Engineering Building.

The report continued:

"Additional truck volume in the Westgate area will make living conditions intolerable...The effects of noise, vibrations, dirt and continuing construction will not only make living there impossible, but dangerous to the many young children who reside there...

"In addition, the truck route will physically detach MIT from the munity with which it has been building closer relations over the

The road also would be a "major cause of traffic congestion" at Kendall Square, the report said, and would be in conflict with proposals for a circumferential rapid transit line in the area.

Simha said the report on the proposed truck road had been sent to Secretary of Transportation Alan A. Altshuler, who would make recommendations to the governor on this and other controversial transportation matters.

He said he understood the governor would "reach conclusions about what the transportation system for the Commonwealth should look like" in May or

Academies

(Continued from page 3)

Nevin S. Scrimshaw, professor of human nutrition and head of the Department of Nutrition and Food Science and Killian Award Lecturer. Claude E. Shannon, Donner Professor of

Science in the Department of Electrical Engi-

Ascher H. Shapiro, Ford Professor of Engi-

John C. Sheehan, professor of organic chemistry in the Department of Me-chanical Engineering. John C. Sheehan, professor of organic chemistry in the Department of Chemistry. Isadore M. Singer, Norbert Wiener Pro-fessor of Mathematics in the Department of Mathematics

John C. Slater, Institute Professor Emeritus and Harry B. Higgins Professor of Solid State.

Emeritus.
Cyril S. Smith, Institute Professor Emeritus, professor of metallurgy emeritus in the Department of Metallurgy and Materials Science, and professor emeritus of the history of science and technology in the Department of Humanities.

Humanities.
Carl R. Soderberg, Institute Professor
Emeritus and professor emeritus of mechan-

ical engineering in the Department of Mechanical Engineering.

Robert M. Solow, professor of economics in the Department of Economics.

Henry M. Stommel, professor of oceanography in the Department of Meteorology.

Hans, Lukes Teuber, professor of nyschol. Hans-Lukas Teuber, professor of psychology and head of the Department of Psychology.

Steven Weinberg, professor of physics in the Department of Physics.
Victor F. Weisskopf, Institute Professor and

head of the Department of Physics.

George W. Whitehead, professor of mathematics in the Department of Mathematics.

Jerrold R. Zacharias, Institute Professor

Emeritus, professor of physics emeritus, and director of the Education Research Center.

Previously selected members of the Na.

Previously-elected members of the Na tional Academy of Engineering who hold MIT faculty or staff appointments or are members

of the Corporation include: Leo L. Beranek, lecturer in the Department of Electrical Engineering.

Gordon S. Brown, Dugald C. Jackson Pro-fessor of Electrical Engineering, former head of the Department of Electrical Engineering. and former dean of the School of Engineering. Jay W. Forrester, Germeshausen Professor and Professor of Management in the Sloan

Antoine M. Gaudin, Richards Professor of Mineral Engineering Emeritus and senior

School of Management.

Mineral Engineering Emerica and Senior lecturer in the Department of Metallurgy and Materials Science.
Robert C. Gunness, president of the Standard Oil Co. of Indiana and a life member of the MIT Corporation.
J. Herbert Hollomon, Visiting Professor of Professor and directors of the MIT Control.

Engineering and director of the MIT Center for Policy Alternatives.

Arthur T. Ippen. Institute Professor and professor of civil engineering in the Department of Civil Engineering.

ment of Civil Engineering.

Alfred H. Keil, dean of the School of Engi-

neering and professor of ocean engineering in the Department of Ocean Engineering.

James R. Killian, Jr., honorary chairman of

the MIT Corporation, and former chairman of the Corporation and former president of the T. William Lambe, Edmund K. Turner Pro-fessor of Civil Engineering in the Department

of Civil Engineering. Rene H. Miller, H. N. Slater Professor of Flight Transportation and head of the Depart-

ment of Aeronautics and Astronautics Louis D. Smullin, professor and head of the Department of Electrical Engineering.

Rep. McCormack To Be Speaker

US Rep. Mike McCormack of Washington will be the speaker at the monthly Electrical Engineering Department colloquium Thursday, May 10, at 8pm in 9-150.

McCormack serves on the House Committee on Science and Astronautics. He is chairman of the Subcommittee on Energy.

His topic will be, "Filling Some Holes on the Energy Front."

World Meeting to Explore Single Cell Protein Foods

Scientists from throughout the world will explore the use of single cell protein (SCP) as a food source at an International Conference on SCP at

The first international symposium devoted exclusively to the use of microorganisms such as yeast, algae, bacteria and molds as food and feed was held at MIT in 1967.

"A great deal of progress has taken place in the intervening years and the problems and prospects have become more clearly outlined," said Associate Professor Steven R. Tannenbaum of MIT's Department of Nutrition and Food Science.

The purpose of the conference, he said, will be to bring together approximately 200 experts in the SCP field from universities, industry and government.

Financial support for the conference has been provided by the Alfred P. Sloan Foundation and the Lord Rank Research Center. Also a sponsor is the Protein Advisory Group of the United Nations, which helped plan the meeting. The conference will be an official activity of the International Biological Program, which also provided a grant.

The conference will be held in Kresge Auditorium.

Members of the organizing committee, with Professor Tannenbaum, are Professor Nevin S. Scrimshaw, head of the Department of Nutrition and Food Science, Associate Professor Daniel I.C. Wang of MIT, and Dean Arthur Humphrey of the University of Pennsylvania.

Obituaries

C. L. Phillips, 73

Charles L. Phillips, 73, of Quincy, a retired Physical Plant employee, died suddenly on Friday, April 13.

Mr. Phillips came to MIT in 1946 and retired in 1967. He leaves his wife, Ann Folan (Russell), three step-children, Donald J. Folan of Marlboro, John F. Folan of Quincy and Mrs. Maureen A. Babcock of Hanover, and seven grandchildren.

M. E. Berryman, 59

Meade E. Berryman, 59, of Roxbury, a member of the Baker House operations staff, died on Friday, April 13.

Mr. Berryman had been employed at MIT since 1946. He leaves his wife Gwendolyn (Williams) and a daughter, Mrs. Jacqueline Wallace of Angeles, California.

Young Alumni Are Nominated To Corporation

(Continued from page 1) Harvard Law School and a former Corporation representative of recent classes.

James E. Wallace, PhD in urban studies and planning in 1972, manager for design and analysis of HUD's Housing Allowance Demand Experiment, Abt Associates, Cambridge.

The bylaws of the MIT Corporation were revised in 1971 to provide positions on the Corporation for younger alumni. The new membership category allows for five Representatives from Recent Classes. Each new member in this category is elected to a five-year term with one term expiring each

Those eligible to vote include undergraduates who expect to receive the SB degrees, and graduate students who will receive their terminal graduate degrees during calendar 1973 and those who received degrees during the 1971 and 1972 calendar years.

The ballot is preferential. The name of the winning candidate will be submitted to the secretary of the Corporation for election by the Corporation.

Nominees for five-year term memberships on the Corporation

James M. Ewell, '37 Edward O. Vetter, '42 Denman K. McNear, '48 Harry B. Duane, '57 James E. Turner, '33 Angus N. MacDonald, '46.

Names of the three candidates receiving the most votes will be submitted to the Corporation.

William S. Edgerly, '49, financial vice president and director of the Cabot Corporation, has been nominated as president of the Alumni Association.

Nominated for vice presidents of the Alumni Association, of which two will be elected, are: Susan E. Schur, '60; Norman B. Leventhal, '38; Hugh W. Schwarz, CH '42; and Joe F. Moore, '52.