Massachusetts Institute of Technology



April 17, 1974 Volume 18 Number 39

Car Thefts Jump 50% Over 1973

The Campus Patrol, urging greater care among MIT people to prevent car thefts, reported this week that 56 vehicles have been stolen from the campus and adjacent streets in the first three months of the year—a 50 percent increase over the same period a year ago.

In a special bulletin, the patrol requested the assistance of the MIT community "in reducing this spiraling increase in vehicle thefts" and also said it had put into effect its own anti-theft measures.

"We have reorganized our patrol patterns to contribute to a greater visibility factor in our preventative program," the patrol said. "Adjacent streets are not under our legal jurisdiction, but we are attempting to eliminate the opportunities of theft by a more visible patrol."

The patrol said individuals could do the following:

Make certain cars are locked and do not park in isolated areas at night.

Do not leave clothes or other property exposed within cars.

Consider the installation of vehicle alarm systems, which "while not an absolute guarantee have proved to be the greatest deterrent in vehicle thefts."

Consider the installation and use of a hidden ignition cut-off switch, "an excellent and relatively inexpensive aid."

Report observations of persons acting in a suspicious manner in campus parking areas—persons who may be tampering with vehicles, peering into vehicles or trying doors.

The patrol noted that MIT is located in an area that has a high percentage of vehicle thefts.

Of 4,403 cars reported stolen in Cambridge last year, the patrol said, 130 were stolen from the campus and contiguous streets.



IT'S NOT EVERYONE THAT GETS TO SEE A CRYOPHORUS. Spellbound faces that surround graduate student Bob Stecher at MIT Open House on Saturday were part of about 25,000 people who attended the all-day event. This exhibit in the Mechanical Engineering Projects Lab introduced

visitors to the cryophorus, an instrument used to illustrate the freezing properties of liquids. The Engineering Projects Lab was one of hundreds of exhibits arranged by a student committee to show what goes on at MIT. The next Open House is scheduled to be held in 1976.

Community Service Fund Launches Drive

Dr. Jerome B. Wiesner announced the opening of the sixth annual drive of the MIT Community Service Fund at a meeting of solicitors for the Institute wide campaign, which begins today, Wednesday (April 17).

Bruner to Lecture

Dr Jerome S. Bruner, the noted psychologist and educator, will present a public lecture, "Early Acquisition of Speech Acts," Thursday, April 18, at 3pm in the Little Theatre. Dr. Bruner, Watts Professor of Experimental Psychology at Oxford University, is at MIT this month as a visiting professor in the Division of Study and Research in Education.

"During its relatively brief existence, the Community Service Fund has established a remarkable record in its support of innovative community-based programs," Dr. Wiesner, said. "Its contributions of volunteers and financial support have been instrumental in development of several promising projects.

"For example," Dr. Wiesner said, "the tenth anniversary this year of Tutoring Plus, was a testament to MIT's involvement in the community. Tutoring Plus was started by joint efforts of MIT students and parents in the neighborhood to improve the educational outlook for children in the area. Since its inception, the Community Service Fund has provided major support for this highly successful program."

The major thrust of the fund, which was established on recommendation of the taculty, has been to provide financial support for organizations in which students and other members of the Institute community volunteer their services. The Fund recognizes the responsibility each of us has to try to improve the quality of ineer city life.

"During the past year," Dr. Wiesner said, "the Fund allocated \$45,000 to eight agencies, including MIT's own Student Summer Projects, the Just-a-Start neighborhood program in East Cambridge and the Concord Prison Project which helps inmates prepare to return to society.

"All of the programs are seeking continued support from the Fund (Continued on page 3)

Mellon to Fund New Chair

An award of \$750,000 has been made to MIT by The Andrew W. Mellon Foundation to endow a professorship in the humanities.

Announcement of the award was made by Howard W. Johnson, chairman of the MIT Corporation, who said the new chair is to be designated The Andrew W. Mellon Professorship in the Humanities.

Dr. Nathan M. Pusey, president of the foundation, said the designation is intended to imply that the chair can be used with flexibility within the structure of the humanities at MIT and need not be assigned irrevocably to any one subject matter.

"The Andrew W. Mellon Foundation and its predecessor foundations have sought over a long period of time to aid the country's stronger independent colleges and universities and have had a particular concern to strengthen the influence of the humanities in the educational programs of these institutions," Dr. Pusey said.

Mr. Johnson said the award was "a major contribution to education in science-based universities in the world."

The Department of Humanities is the largest department in the MIT School of Humanities and Social Science. With a teaching staff of 80, the department offers 206 subjects and provides required and elective programs in history, literature, philosophy, history and philosophy of science, anthropology, drama and music.

For many years the MIT department has offered opportunities to combine study in its traditional departmental programs with selected fields in science or engineering under a plan of coordinated concentration. These programs amount to "double majors" having an approximately equal number of subjects in two disciplines and

(Continued on page 8)

Today's Faculty Meeting Will Hear Report on Finances

(The following remarks on the financial status of MIT at the present and over the coming years were prepared by Chancellor Paul E. Gray for presentation at the meeting of the MIT Faculty this afternoon (Wednesday, April 17). The meeting will begin at 3:15pm in Room 10-250.

Six months ago, on October 17, 1973, I reported to this faculty on the budgetary outlook for the Institute. Since that time we have experienced the full impact of the extraordinary inflation in the cost of energy and of other materials and services. These inflationary cost increases have added significantly to the projected operating deficit for the current year, which now stands at about \$1.7 million. We have also essentially completed preparation of the operating budget for the next academic year. Therefore, this seemed to be a timely occasion to review with you the likely outcome for the current year and to describe in general terms the budget for 1974-1975.

During the present year the Institute will spend, for operating purposes, about \$220 million. If one sets aside the auxiliary activities (housing and dining services and the MIT Press, which generate costs of about \$8 million) and the direct costs of sponsored research both on-campus and at the Lincoln Laboratory (about \$140 million in all), the remaining costs, which reflect instruction, unsponsored research, and all shared support of indirect costs, amount

to about \$70 million, or approximately one-third of the operating budget. As I indicated in October, the direct costs of instruction and unsponsored research and the indirect support costs are paid by using four sources of revenue:

- 1) Tuition and fees. These total about \$27 million this year.
- Contract allowances for indirect costs. This income, which is recovered via the research overhead rate, amounts to about \$20 million

Implementation and administration of the new Institute Requirement in the Humanities, Arts and Social Sciences will be a major topic of discussion at the regular meeting of the faculty today, Wednesday (April 17) at 3:15pm in Room 10-250.

Other agenda items include the report of the Ad Hoc Committee to consider the advisability of the establishment of a Faculty Review Group for Research Contracts, a discussion of the Institute Budget by Chancellor Paul E. Gray, a Report of the Committee on Outside Professional Acitivites, a resolution on the death of Professor Samuel J. Mason, and reports from the Committee on Nominations and the Committee on Academic Performance.

this year.

- Investment income, funds, and restricted grants and gifts provide about \$21 million toward current operating costs.
- 4) Allocations of unrestricted income are used to balance the operating budget. Unrestricted income comes from patent earnings, from contract allowances for the use of Institute facilities in sponsored research, and, most importantly, from gifts and bequests. Because the source or donor of unrestricted funds places no constraint on their use, they represent the most flexible budgetary resource at our disposal. They can be used to build the principal of the Institute's endowment, to support the expansion or renovation of the Institute's physical facilities, to enhance our ability to assist students through scholarships, fellowships, and loans, and to support the cost of ongoing Institute operations.

Discussions of the Institute's budgetary situation tend to focus on the unrestricted income component of revenue for two important reasons. First, this component of revenue is used in operations only to the extent necessary to balance

(Continued on page 8)

Music Notes

New Work to Be Featured in Library Concert Today

By SALLY M. HAMILTON Staff Writer

Music for Clarinet and Piano, a recent work by Martin Farren who joined the music faculty last fall, will highlight a chamber music recital in the Music Library, today, (April 17) at 5pm.

Featured guest artist at the concert will be mezzo-soprano Patricia Miller singing two songs by Brahms

Also included on the program will be Robert Schumann's Fairy Tales, Debussy's Premiere Rapsodie and Mozart's Trio, K. 498

Musicians for the concert are William Draper, clarinet, music lecturer; Ted Eleftherakis, viola, assistant conductor of the MIT Symphony Orchestra and Philip Oliver, piano, a member of the Boston University and Boston Conservatory of Music faculties.

Composer Martin Farren, an assistant professor of music,

teaches courses in music theory. Music for Clarinet and Piano was premiered last June in California. He is now working on compositions for two pianes and music for orchestra.

Soprano Patricia Miller, a graduate student at the New England Conservatory of Music, is well known in the Boston area, having recently debuted with the Boston Symphony Orchestra and won the New England Regional Metropolitan Opera Auditions this

The concert, sponsored by the MIT Music Section, will be open to the public, free of charge.

Ms. Miller will also appear with the MIT Chamber Music Society in a concert at the Music Library, 5pm, Wednesday April 25.



Martin Farren and William Draper

New UROP Listings

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

Stop!

Students looking for summer jobs should check with the Student Employment Office. UROP does not have "job" listings. Only undergraduates whose projects are ongoing from spring semester are eligible for UROP summer funding.

Whirlpool Corporation

The Whirlpool Corporation in Benton Harbor, Michigan has a number of possible projects in the Mechanical Engineering Research area. 1) Investigate the feasibility of applying the air cycle refrigeration principle to a low-cost, part-time refrigerator; 2) Study advanced ways to reduce the power consumption of refrigerators; 3) Determine ways to operate a rotary compressor inside a rotating can using one motor to turn the can and the compressor rotor; 4) Forecast when and how solar energy will have a significant impact on heating and/or cooling of homes; 5) Determine ways to remove frost from "frost-free" refrigera-

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tor evaporators using some means other than heat; 6) Develop a method of controlling water quantity in an automatic washer as a function of wash load size: 7) Develop new methods for igniting air-gas mixtures suitable for home appliances

Massachusetts General Hospital Boston The Physics Research Laboratory at the MGH is doing work at the MIT Reactor dealing with activation analysis, in-vivo activation analysis, isotope production, and neutron capture therapy. All of these involve some aspects of biology and nuclear physics. In addition, the lab work at MGH includes utilization of a small cyclotron to produce short-lived isotopes for medical applications and development of instrumentation and computer systems for use in nuclear medicine image processing.

Massachusetts General Hospital

An opportunity exists for an undergraduate interested in participating in a research project involving human hemoglobin in solution, intact red cells and the processes that influence its relationship with oxygen. Several analytic techniques are being utilized, including a dynamic display of the complete oxyhemoglobin dissociation curves, blood-gas measurements and column chromatography for characterization of hemoglobin types. Advanced level of related laboratory experience is desirable

Foreign Studies

Dermatron Grant Aids Skin Cancer Therapy

MIT's High Voltage Research Laboratory has been awarded a two-year \$50,000 grant by the Fannie E. Rippel Foundation to continue its work on a compact 3-million-volt electron accelerator, designated Dermatron, for the treatment of certain skin cancers.

Electron beams in the 3-million-volt energy range are particularly suited for the treatment of tumors on or near the surface of the skin because of their shallow penetration characteristics.

The grant is a continuation of the Foundation's support of the project, which began in 1971. Under direction of Dr. John G. Trump, director of the Laboratory and Professor of Electrical Engineering, Emeritus, and George Costey, project engineer, considerable progress has already been made on the Dermatron.

The renewed support by the Fannie E. Rippel Foundation will enable the scientists to bring the instrument to its desired operating level in terms of electron energy and stability, and will also permit completion of important details of dosage measurement and control, field-shaping and application to

"With this additional support and time, we feel we can produce a clinically attractive instrument which

The Chamber Music Society, under the direction of William Draper, will present a program of works by Telemann, Vivaldi, Ibert, Schumann and Rudd Moore.

Kiyoko Takeuti, a young Japanese pianist who has received favorable notice from critics and audiences here and abroad, will give her second solo concert at MIT, 8pm, Tuesday, April 23, in the Music Library.

Ms. Takeuti will perform the Bach Partita in D Major, Beethoven's Sonata in A-flat Major Opus 110 and Schumann's Kreisleriana Opus 16.

Ms Takeuti began her performing career in her early teens and graduated from the Curtis Institute of Music in Philadelphia in 1971. At Curtis, she studied piano under Mieczyslaw Horszowski and chamber music with Mischa Schneider and the members of the Guarneri Quartet.

She was a soloist with the Philadelphia Orchestra in two student concerts in 1970-71 and with the Cosmopolitan Young Peoples' Symphony of New York in 1970-71. During the summers, she has been active as a participant in the Marlboro Music Festival and the Lucerne Music Fes-

Professor John Buttrick, head of the MIT Music Section will be piano soloist at a Burton House recital, Monday, April 22 at 8pm.

The Center for the Biology of Natural Systems at Washington University is sponsoring an intensive summer study course for students from developing countries to look at problems of environmental impact and the use of natural resources abroad, with an interdisciplinary and problem-oriented methodology. Room, board and travel expenses will be offered for foreign graduate students interested in the six-week course. If interested please contact Arvind Khilnani, Ext. 3-1588, for more information.

Graduate Studies

The following brief descriptions of selected graduate fellowships have been received by the Graduate School Office recently. More complete descriptions are available in the Office, Room 3-136. The Annie Ryder Fellowship

The American Association of University Women has announced the availability of the Annie Ryder Fellowship. The award, which is expected to be about \$800, is made to a worthy woman student who is preparing to enter the field of Education or who is now teaching, and who requires financial aid to begin or continue her studies in Education at the graduate level. Each applicant should furnish a complete transcript of her educational record, a letter from a professor, dean or department head who can vouch for her need of monetary assistance as well as for her sincerity of purpose, and a letter from the applicant stating why she is applying for this Fellowship. Deadline: June 1, 1974.

will improve the medical treatment of some very distressing human conditions," said Dr. Trump.

The compact Dermatron will replace a Van de Graaff research accelerator system which is 3 stories high. The production of such smaller units which fit easily into an ordinary treatment room would help make this comparatively new form of radiation therapy more generally available.

MIT's High Voltage Research Laboratory has worked for more than three decades on the production and usage of megavolt electron beams. In 1951 a Lahey Clinic patient with wide-spread skin malignancy no longer responsive to other medical approaches was the first to be treated by the direct injection of high energy electrons.

Since then, under the medical direction of Dr. Magnus I. Smedal and Dr. Ferdinand A. Salzman of the Lahey Clinic Foundation with the physical science support of Kenneth A. Wright, over a thousand patients have been treated using the research Van de Graaff accelerator at the High Voltage Research Laboratory. These accelerators were originally developed by the late Professor Robert J. Van de Graaff and Professor Trump when they worked together in the 1930s.

Commencement Activities Planning Announced

Plans are being completed for the 108th MIT Commencement, which will take place Friday, May 31 at 10:30am in Rockwell Cage.

The traditional President's luncheon for graduates and their guests will be replaced this year by a reception immediately following the exercises at 1:00pm on West Campus Mall.

According to Ernest G. Carvalho, professor of mechanical engineering and chairman of commencement week activities, this arrangement will allow faculty and teaching staff members greater opportunity to talk with parents and graduates than previous fixed seating plans could

Microphoto Lab Facility Opens

A versatile microcinematgraphy laboratory has been established in the Department of Biology to provide photographic services to members of the MIT community

The laboratory, under the auspices of Dr. Eugene Bell, professor of biology, will be supported by user charges.

Operated by cinematographer Peter Yanover, the laboratory is capable of both still photography and 16mm cinematography using a wide range of magnifications and lighting conditions. Temperature-controlled stages are available, as well as chambers for maintaining specimens under special gases. The cameras are capable of time-lapse photography, either through the microscopes or

shooting into large growth tanks. Equipment for the laboratory as donated by the Educational Development Center, Newton,

Cooney Receives Research Award

Dr. Charles L. Cooney, MIT Assistant Professor of Biochemical Engineering, has recently been awarded a \$15,950 Undergraduate Research Program grant from the National Science Foundation to support 10 undergraduates in the study of energy resource utilization for a 12-week period this summer.

Applications to the program, which carries with it a stipend of \$80 per week, are currently being accepted by Dr. Cooney's office in Room 16-229. Students with previous NSF participation experience are not eligible for the projects, which will be awarded to 1300 US college students.

Members of the Class of 1974 will assemble for robing in the David Flett duPont Athletic Building at 9:30 Friday morning. The academic procession, which will also include the Corporation, the Class of 1924, and special guests of honor, will be marked by the ringing of the MIT Chapel bell once at 10am and three times at 10:30, when the exercises will begin. President Jerome B. Wiesner is expected to confer approximately 1500 degrees, more than 100 of which will be to women.

Military commissioning exercises for 17 Reserve Officer Training Corps (ROTC) Program graduates will highlight pre-commencement activities Thursday, May 30 at 11am in Kresge Auditorium. A tri-service commissioning buffet luncheon will follow at 11:45 in the Stratton Building, with Senior Convocation scheduled for the afternoon hours in Kresge. David D. Withee, president of the senior class, is coordinating Thursday's evening of entertainment in the Student Center.

Wellesley Plans History Weekend

A "Why History?" Weekend, in which a series of discussions will explore the relationship of historical study to a number of fields, will be held at Wellesley College Friday and Saturday, April 19 and

The event is sponsored by the college's Committee on Educational Research and Development. Topics to be discussed include: "History and Society: Why Do We Study Worn-out Creeds?:" "History and Science; Is Science Necessarily Ahistorical?," and "History and Women: To What Degree is Sexuality Subject to Historical Change?"

For further information, call Wellesley x413.

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Summer Study on Technology in the Third

New Look

Colors Brighten Bldg. 7 Stairs

The new look of the Lobby 7 staircase, completed last Friday, marks only step one in an environmental "work in progress"

The colorful treatment of the staircase-an optical sequence of colors-was done from the design of William A. Chotkowski, who received the SB in art and design from MIT this winter, working under the direction of Otto Peine, visiting professor of visual design

The project was initiated by Harry P. Portnoy, senior architect in charge of programming and design review in the Planning Office, when the staircase came up for renovation on the planning office's schedule.

"Since the staircase is in the heart of the School of Architecture and Planning," Mr. Portnoy said, "I thought the staff and students in the department might be interested in doing something themselves-something different."

Portnoy approached Dr. William L. Porter, dean of the School, who received the idea enthusiastically. Dean Porter turned the project over to Professor Peine who, in turn, involved his students on an overall design scheme during the 1973 spring semester.

The money over the normal cost of a paint job was minimized by contracting the job to the lowest bidder. CRISP, the committee for space planning, allocated the extra funds. Other aspects of the project are being funded by other sources.

Students are now working on designs for the three large 16x16 foot walls on the landings of the staircase. On the third floor landing nine 4x4 foot individual paintings will be mounted to create a gallery effect.

On the first and second floor landings the nine-panel scheme will be used to create one integrated design-using strong color resolutions-suitable for the large space.

The third part of the project will be treatment of the glass walls on the landings which, Professor Peine said, will be interesting, flexible and not block the light. "Also," he concluded, "Eventually we want to think about some gallery-type lighting so people can see the work mounted there.'

Foreign Student Award Named

The Chalmers International Students Award, a newly established gift to foreign students at MIT will be presented for the first time at the annual awards convocation in

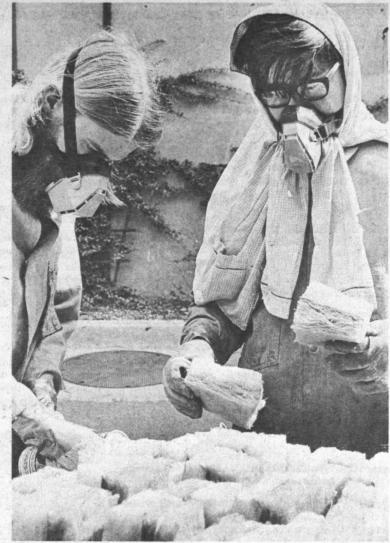
Nominations by letter, including detailed descriptions of the applicant's qualifications, are being accepted by Glenn C. Williams, Professor of Chemical Engineering, Room 12-156. The deadline for application is April 19.

Fund Opens

(Continued from page 1) this year and other, new ideas also have applied for funding. In order to meet the requests for allocations, the Fund needs \$60,000 this

"I hope each of you will contribute as generously as you can to help the Community Service Fund continue its most worthwhile activities. Contributions to the Fund are tax deductable, and all of the money given is allocated by the CSF board of trustees, a group composed of faculty, staff, employees and students."

The Fund campaign will run through April.



Herman Drees (left) and Albert Lee, graduate students in aeronautics and astronautics, glue fiber glass to fiber glass to create blocks of sound absorbent material with which they will cover the walls of the MIT anechoic chamber to make it more anechoic-free from echoes and reverberations-for acoustical tests they are now running. The face masks are for protection against fine particles of loose fiber glass.

Sound Waves through Rock Preceded Japan Quakes

Two MIT scientists have found that premonitory changes in the way sound travels through rock occurred before five of six large earthquakes in Japan over a four-year period.

Changes in sound wave velocity have been detected before earthquakes in Russia, Japan and the US. The MIT findings, however, represent the first time such changes were found before earthquakes of the strike-slip varietythose in which the motion of the earth's crust is predominantly

Sound wave changes until now have been detected only before earthquakes caused by thrust faulting-in which one block of rock slips beneath another. The San Adreas fault in California is a strike-slip fault.

The MIT scientists, Raymon Brown and George Zandt, both graduate students, reported their findings at the annual meeting of the American Geophysical Union in Washington, D.C., last week.

Even though they did find the premonitory changes, the scientists proposed an alternative explanation for the changes which, if true, might be a setback for scientists hoping to use the changes in earthquake prediction.

The technique used by the MIT scientists, as well as numerous other scientists around the world, is based on the fact that two fundamental kinds of sound

propagate through rock when it is disturbed by an explosion, earthquake or other sound source. The ratio of the velocities of pressure waves to shear waves tells scientists about the elastic strength of the material through which they

Brown and Zandt used four years of data collected in Southwestern Japan over the years 1964-68 by Japan's Disaster Prevention Research Institute. The six earthquakes they studied measured between four and five on the Richter scale. Before five of the six earthquakes they found changes in the velocity ratio.

However, the scientists proposed an alternative theory to the 'dilatancy" theory currently used to explain the changes in sound wave velocity.

The theory of dilatancy holds that tiny cracks in the rock around an earthquake fault open up as the rock comes under stress before an earthquake. These cracks change the way sound travels through the

The subsequent filling of the cracks by water weakens the rock and induces the failure which leads to the earthquake, according to the theory.

However, Brown and Zandt believe that the experimental measurements of sound waves before earthquakes in Russia, Japan and the US were done in regions where the velocity ratio changes with depth, because as the pressure on the rock changes, it displays different sound-wavecarrying characteristics.

Since earth scientists looking for changes in velocity ratio changes before earthquakes have used the tiny earthquakes before a major earthquake as their sound source, the depth of these "microearthquakes" would determine the velocity ratio.

Thus, contend Brown and Zandt, these other researchers might have recorded a series of premonitory microearthquakes which began at one depth and systematically migrated to a second depth, which would have resulted in the changes in velocity ratios they

In suggesting the alternative to the "microcrack" theory the MIT scientists pointed out that using surface explosions as a sound source to determine velocity ratios would be a way to tell whether actual changes in the nature of the rock were occurring before an earthquake. This way, the experimenters could be sure they were not actually seeing changes in sound characteristics because of the variable depth of the sound sources they were measuring.

Brown and Zandt cited two such explosion experiments by California scientists that indicate their alternate explanation may have

Scientists at the California Institute of Technology and the University of California at Berkeley have both found no changes in the velocity ratio when they used explosions to study the sound characteristics of the rock before earthquakes.

According to the MIT scientists, if their theory is correct, it may possibly represent a setback to earthquake prediction, because the changes in microearthquake depth may not occur before every earthquake.

But regardless of the cause of the earthquake effect, they said, the problem of predicting earthquakes is closer to being solved than ever before.

Secretaries Week

April 22-26 is National Secretaries' Week, and April 25 is National Secretaries' Day. **AWARE** (Association to Work for Active Reform in Employment) will have a booth in the Building 10 Lobby, with information pertinent office workers. Members of the group will staff the booth and will be available to answer questions and disinformation. The pense week's activities will culminate in a 2-hour meeting on Thursday, April 25, noon-2 in the West Lounge of the Student Center.

Black Science Is Meeting Topic

The third annual Black Science and Technology Conference at MIT, "Science, Technology and Social Implications: A Black Perspective," will be held Friday and Saturday (April 19 and 20) in the Student Center and Kresge Auditorium.

Speaking at the conference will be Percy Pierre, dean of the School of Engineering, Howard University, and William Strickland, professor in the W.E. DuBois Department of Afro-American Studies, University of Massachusetts, Amherst. Workshop discussions will include education innovation, health care systems, housing, communications, community resources and the sociology of science.

Dean Mary Hope, assistant dean for student affairs and coordinator of the conference, said, "We want to provoke critical and substantive discussion of problems as they affect the black community and how advances in science and technology relate to these prob-

"We will also focus on the role and participation of blacks in structuring approaches or solutions to these problems," she concluded.

The conference is open to the public. For more information call

Sheryl L. Handler Wins Fellowship for Women

Sheryl Lynn Handler, a doctoral candidate in MIT's Department of Urban Studies and Planning, has been named the second winner of the Collamore-Rogers Fellowship for women graduate students.

Ms. Handler, whose home town is Youngstown, Ohio, was described by her faculty nominators as "exceptionally qualified for the award on all criteria.'

Before entering the PhD program here last fall, Ms. Handler had received a BS in Design from Case-Western Reserve University in 1969 and a Master in Landscape Architecture from the Harvard Graduate School of Design in 1971.

In the years between completion of her studies at Harvard and entering the MIT program Ms. Handler was involved in several unique planning projects, including work for the World Bank projects in Djakarta, Indonesia.

At MIT she has served as a teaching assistant for Professor

Science Fair Coming Soon

More than 200 students, representing over 100 schools from across the Commonwealth of Massachusetts, will participate in the 25th annual Massachusetts State Science Fair at MIT April 26

The students, winners in six regional Science Fairs, will set up their experiments and exhibits and be judged Friday, April 26, in Rockwell Cage. The Fair is open to the public from noon to 3pm Saturday, April 27.

The award ceremony will begin at 3:30pm Saturday in Kresge Auditorium. The main speaker will be Sheila E. Widnall, associate professor of aeronautics and astronautics at MIT

The Fair-which will include 9th grade students for the first time-is sponsored by MIT, the Boston Globe and the Massachusetts State Science Fair Commit-



Sheryl Handler

Phillip David in his course Financial Aspects of Urban Plan-

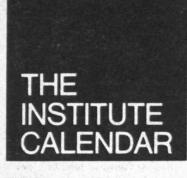
The Collamore-Rogers Fellowship was established as part of a continuing program to attract more women to the MIT Graduate School and to call attention to their contribution to graduate education. The Fellowship pays full tuition plus a stipend of \$2,700 for the academic year.

There were 15 outstanding nominees for the Fellowship, said Jeanne E. Richard, assistant dean of the Graduate School, "and we have a winner who shows great professional promise.'

Lloyd Rodwin, head of the Department of Urban Studies and Planning, said faculty members 'are persuaded that the career of Ms. Handler will amply confirm the judgment of the committee. We believe she will be an innovative force in our field throughout her career."

Marksmanship

A five week course in basic rifle marksmanship will be offered by the MIT Pistol and Rifle Club beginning Tuesday, April 23. A fee of \$12 will be charged. Those interested call George Sechen at x3-2398.



April 17 through April 28

Events of Special Interest

Corporation Joint Advisory Committee** - Meeting to duscuss proposal for Year Round Operation of the Institute: Mon, Apr 22, 7:30pm, Rm 10-300.

Kaleidoscope '74* — Annual Spring Festival Sponsored by Association of Student Activities. There is still time to get involved: join a contest, run an event, Fri, Apr 19 & Sat, Apr 20, Kresge Plaze, Cage, etc. Call UA, x3-2696.

TCA is Silkscreening at Kaleidoscope* – TCA will sell you a T-shirt and silkscreen it with the Institute Screw or the "Tech is Hell" design, or bring anything of yours to be silkscreened. Fri, Apr 19 & Sat, Apr 20, all day, Kresge Plaza.

The Third Annual Black Conference on Science and Technology* – Keynote speaker: Percy Pierre, Dean of Engineering, Howard University. Sponsored by the Dean's Office and the Black Students' Union. Workshops and lectures exploring the relationship between science and technology and the Black community. Fri, Apr 19, 2pm, to Sat, Apr 20, 7pm, Kresge and Stu Ctr. Refreshments.

Aerosmith Concert* – Sponsored by the Undergraduate Association as part of Kaleidoscope weekend. Sat, Apr 20, 8:30pm, Rockwell Cage. Tickets: \$2.50, available at TCA office. Sty. Ctr. Rm 450. Unlimited beer.

Seminars and Lectures

Wednesday April 17

Transportation Technology* – John B. Heywood, mechanical engineering. Mechanical Engineering Undergraduate Seminar. 12:15-2pm, Rm 10-105.

Reflections on Freedom in a Rocking Boat* - Sir Geoffrey Vickers, author of *Making Institutions Work*. CIS Seminar. 12:30-2pm, Rm E53-482. Bring lunch.

Collective Density Fluctuations in Dense Gases by Neutron Scattering – Dr. Chuan Teh, G. Nuclear Engineering Doctoral Seminar. 2pm, Rm 24-117.

Aesthetics of Social Science - Sir Jeffrey Vickers, former head of Coal Board, United Kingdom, Course 4.603 Aesthetic Perspectives in Science and Technology Seminar. 8pm, Rm 3-133.

The Time Lag in Mechanical and Optical Response of High Polymers – Pericles S. Theocaris, National Technical University, Athens, Greece. Polymer Science and Engineering Seminar. 4pm, Rm 3-133. Tea 3:30pm, Rm 1-114.

SALT and Detente** - Richard Perle, staff advisor, Senate Investigation Sub-Committee. MIT-Harvard Joint Arms Control Seminar. 4pm, HCFIA, 6 Divinity Ave.

Color Vision** - Israel Abermov, psychology, Brooklyn College, SFC, Electrical Engineering IEEE Branch Seminar. 4pm, Rm 3-270.

High Pressure Displacive Transitions in Carbonates and Nitrates – Dr. Leo Merrill, High Pressure Data Center, Brigham Young University. Earth & Planetary Sciences Colleguium Apm, Rm 54-100. Tea 3:30pm, Rm 54-923.

Construction Management in Public Works* - L.R. Shaffer, deputy director, CERL. Civil Engineering Seminar. 4pm, Rm 1-353.

Research of the Physics Department at MIT* – Speakers from the 4 divisions of the physics department. Undergraduate Physics Colloquium, 4:15pm, Rm 6-120.

Thursday, April 18

Progress Toward a Two-Dimensional Quantum Camera for Optical Astronomy — Patric Peterson, Center for Space Research. X-Ray Astronomy Lunch Seminar. 12n, Rm 37-696. Bring lunch.

Stable Jet Stream Dye Laser for Applications** - Shaoul Ezekiel, aero/astro, RLE. Industrial Liaison Office Seminar. 1pm, Rm 9-150.

The Hospital Adolescent Clinic – Robert Masland Jr, M.D., Children's Hospital. Course 11.547 The Human Life Cycle: Children and Adolescents Seminar. 1:30pm, Rm 7-102.

Early Aquisition of Speech Acts* – Jerome S. Bruner, Watts Professor of Experimental Psychology, Oxford University, England; visiting professor, DSRE. Division for Study & Research in Education Colloquium. 3pm, Kresge Little Theatre.

A Study of Digital Communication Systems for the Associated Press' Wirephoto Network* – Steven G. Finn, G. RLE & EE Communications Theory Seminar. 3pm, Rm 26-217.

Medicare & Medex - John Raleigh, BlueCross/Blue Shield Account Representative. Pre-Retirement Seminar. 3pm, Rm 39-400. Open to employees.

Current Meters & Other Nonsense – Introducing an Electromagnetic Current Meter Suitable for Use as a Knot Meter for Sailboats* – John Kanwisher, Woods Hole Oceanographic Institute. Ocean Engineering Seminar. 3:30pm, Rm 3-270. Coffee 3pm.

The Continuing Problem of Controlling Airline Capacity* - Melvin

A. Brenner, vice president, market planning, TWA. Flight Transportation Seminar. 4pm, Rm 35-225. Coffee 3:30pm, Rm 33-411A.

Brand X - The MIT Approach to Air Traffic Control - Mark Connelly, ESL, DSR staff. Electrical Engineering Decision and Control Sciences Group Seminar, Electronic Systems Lab Colloquium. 4pm, Rm 39-500.

Selective Techniques for Surface Analysis – Lawrence Shore, G. Analytical Chemistry Seminar. 4pm, Rm 8-105.

Morphology of Amorhpous Polymers – Phillip H. Geil, macromolecular science, Case Western Reserve University. Polymer Science and Engineering Seminar. 4pm, Rm 4-231. Tea 3:30pm, Rm 8-314.

Hadron Production with e+ e- Colliding Beams - Burt Richter, SLAC. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

Researching the Multi-Nationals: What Works?** - Harris Gleckman, seminar committee. Seminar of Foreign Students and Participation in Development. 7pm, Walker Mem Intn'l Stu Lge. Coffee

Friday, April 19

Competitive Strategies in the US Trucking Industry* – Dr. Daryl Wyckoff, Harvard Business School. Center for Transportation Studies Seminar Luncheon. 12n, buffet; speaker, 12:45pm; Stu Ctr Mezzanine Lge. Buffet \$1, lecture free.

Whales and Porpoises: Renaissance Mammals* – Dr. Ted Ducas, physics. Laboratory for Laser Physics Seminar. 1:30pm, Rm 26-414. Coffee 1pm.

Developments in Automated Structural Optimization* - Fred Moses, Case Western Reserve University. Civil Engineering Career Development Seminar. 2pm, Rm 1-350.

Carbon Formation in Premixed Flames – J. Bittner, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

Resources, Materials and the Role of Technology – S. Victor Radcliffe, senior policy analyst, Science and Technology Policy Office, Washington, DC. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

Behavior of Ash at High Temperatures During Coal Combustion — A. Padia, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 10-105.

Ship Building in Japan* - K. Masubuchi, ocean engineering. Ocean Engineering Tankard Seminar. 4pm, Rm 5-134. Refreshments.

Computer Molecular Dynamics Studies of Liquid Water Structure and Dynamic Correlations* – Dr. A. Rahman, Solid State Science Div, Argonne National Laboratory. Materials Science Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

Nineteenth-Century Asylums Revisited** – Barbara Rosencrantz, history of science, Harvard University. Commentator: Ruth Perry, humanities. Technology Studies Workshop. 4:10pm, Rm 14E-304. Coffee 4pm.

Readings* - From the diary of Max Frisch, Swiss poet. Foreign Literature & Linguistics. 8pm, Rm 105 Emerson Hall, Harvard.

Monday, April 22

A Dynamic Study of the Use of Coal as a Transition Energy Source** - Roger Naill, research associate, Thayer School of Engineering, Dartmouth College. System Dynamics Seminar Series. 3pm, Rm E52-461. Coffee.

Radiation Effects on Pressure Vessel Steels* – Len Steele, chief, reactor metals branch, Naval Research Lab. Nuclear Engineering ANS Seminar. 3pm, Rm NW12-222. Refreshments.

Recent Progress in Plastic Structural Dynamics – Tomasz Wierzbicki, engineering, Brown University; mechanics of continuous media, Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw. Aero/Astro Structural Mechanics Research Conference Seminar. 3pm, Rm 33-206. Refreshments

Planning Emergency Medical Services on a Statewide Basis — Patricia Murchie, Linda Leddy, and Charles Neave, Massachusetts Department of Public Health. Innovative Resource Planning Project Seminar. 3:30pm, Rm 10-280.

Deterministic Biogeochemical Models for Ecosystems Dynamics – Alician V. Quinlan, G. Civil Engineering Water Resources and Hydrodynamics Seminar. 4pm, Rm 48-316. Coffee 3:45pm. Rm 48-410

Confining Quarks - And Why You'd Want To - Jeffrey Mandula, mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Tea 3:30pm, Rm 2-349.

The Method of Caustics as a General Method for Studying Singularities in Stress Fields* – P.S. Theocaris, National Technical University, Athens, Greece. Mechanical Engineering Materials Processing Seminar. 4pm, Rm 37-187.

Some Recent Advances in the Development of Closed Loop Stochastic Control and Resource Allocation Algorithms* – Dr. Y. Bar-Shalom, Systems Control Inc, Palo Alto, California. Electrical Engineering Decision and Control Sciences Group Seminar. 4pm, Rm 39-500.

Citizenship and the Technological Order** – Dr. Langdon Winner, political science, University of California at Berkeley and Leiden University. Commentator: Lewis Mumford, Visiting Institute Lecturer. Technology Studies Workshop. 4:10pm, Rm 14E-304. Coffee 4pm

Tuesday, April 23

Undergraduate Opportunities in the Department of Aeronautics and Astronautics – Laser Research – S. Ezekiel, aero/astro. Informal discussion. 12n-1pm, Rm 33-206. Bring lunch, soft drinks and cookies provided.

Charge Exchange Neutral Analysis - D. Cook, G. Nuclear Engineering Doctoral Seminar. 12n, Rm 38-166.

The Role of Detectives in US Police Departments* – Dr. Jan M. Chaiken, RAND Corporation. Innovative Resource Planning Project-Operations. Research Center Seminar. 1:30pm, Rm 10-280.

Community Adolescent Health Care - Dr. A Guthrie, Massachusetts General Hospital. Course 11.547 The Human Life Cycle: Children and Adolescents Seminar. 1:30pm, Rm 7-102.

Health - Dr. Edward Rendall, medical department; Wills and Trusts - Harold E. Dreyer, Draper Lab. Pre-Retirement Seminar. 3pm, Rm 39-400. Open to faculty and staff.

The Culture of Poverty* - Carol Stack, Boston University, author of All Our Kin: Strategies for Survival in the Black Community. Anthropology/Archeology Program, Humanities Lecture. 3pm, Rm 14E-304.

Aspects of Diagnostic Errors in Radiology* – Barry Blesser, electrical engineerig; David Ozonoff, research associate, nutrition & food science. CIPG Seminar. 3:30pm, Rm 36-428. Coffee 3pm.

High-Power Radar Studies of the Ionosphere* – Dr. John V. Evans, Lincoln Lab. Meteorology Seminar. 4pm, Rm 54-100. Coffee 3:30pm, Rm 54-923.

Optimal Control of Advanced Technology Propulsion Systems – Dr. Gerald J. Michael, United Aircraft Research Labs. Electrical Engineering Decision and Control Sciences Group Seminar. 4pm, Rm 39-500.

Measurements of Vortex Breakdown Over a Delta Wing Using a

Laser Anemometer - Norman A. Chigier, chemical engineering and fuel technology, University of Sheffield, England. Interdepartmental Fluid Mechanics Seminar. 4pm, Rm 2-338. Coffee 3:30pm, Rm 2-349.

Steroid Receptor Proteins: Probes for Studies of Eukaryotic Gene Regulation – Dr. Bruce Alberts, Princeton University. Biology Colloquium, 4:30pm. Rm 6-120. Coffee 4pm, Rm 56-520.

Archeological Light on Jerusalem* – Dr. Amnon Ben-Tor, Hebrew University, visiting professor at Harvard University. Israeli-American Forum. 8:30pm, Stu Ctr Mezzanine Lge.

Wednesday, April 24

Resonance Self-Shielding Near LMFBR Blanket Interfaces — O.K. Kadiroglu, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm NW12-222.

Best Use of Power Reactors for Electric Utilities – T. Zimmermann, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

Theories of Light* - Laszo Tisza, physics, emeritus. Undergraduate Physics Colloquium. 4:15pm, Rm 6-120. Followed by social hour, Rm 6-209.

Thursday, April 25

Drug Abuse - Dr. Richard Dodds, Harvard Community Health Plan. Course 11.547 The Human Life Cycle: Children and Adolescents Seminar. 1:30pm, Rm 7-102.

Health - Dr. Edward Rendall, medical department; AARP - Nancy R. Woodman, Associate Benefits Officer. Pre-Retirement Seminar. 3pm, Rm 39-400. Open to employees.

Photometric Titration of Ascorbic Acid by Photonometric Generation of Iodine – Joseph B. Zumpano, G. Analytical Chemistry Seminar. 4pm, Rm 8-105.

High-Modulus Polymers - Roger S. Porter, head, polymer science, University of Massachusetts. Polymer Science and Engineering Seminar. 4pm, Rm 4-231. Tea 3:30pm, Rm 8-314.

The Renormalization Group: The Physicist's St. George – Kenneth Wilson, Cornell University. Physics Colloquium. 4:15pm, Rm 26-100; Refreshments 3:45pm, Rm 26-110.

Molecular Photoelectron Spectroscopy Studies of Some Compounds of Nitrogen, Phosophorous and Arsenic – Alan H. Cowley, University of Texas at Austin. MIT-Harvard Inorganic Chemistry Colloquium. 5pm, Rm 4-370. Refreshments 4:45pm, Rm 6-321.

Friday, April 26

Dray Reduction – P. Leopairat, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

Immobilized Enzyme Reactions for ATP Regeneration – M. Nemet, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 10-105.

Physiochemical Wastewater Treatment for Pollution Control and Water Reuse – Walter J. Weber, Jr, chairman, water resources program, University of Michigan. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

Community Meetings

Student Committee on Educational Policy* - Open meeting Wed, Apr 17, 7:30pm, Stu Ctr Rm 473.

HoToGAMIT* - Organizational meeting to revise & update the book. Sponsored by TCA. Thurs, Apr 18, 7:30pm, Stu Ctr Rm 450. Refreshments.

Political Science Department Open House – Orientation for perspective majors, featuring a special showing of "The Checkers" speech, with Richard M. Nixon. Thurs, Apr 18, 8pm, Rm 10-105.

Graduate Student Meetings – Activities Committee: Budget requests due; elections. Thurs, Apr 18, 7:30pm, Rm 50-110. Academic Project and Policy Committee: Elections, Equal Opportunity Program discussed. Tues, Apr 23, 5pm, Rm 50-110. Housing & Community Affairs Committee: Elections; athletics and orientation discussed. Tues, Apr 23, 7pm, Rm 50-110.

Women's Forum* - Not Me Alone, a film on preparation for childbirth, will be shown. Mon, Apr 22, 12n, Rm 10-105. Men invited.

Today's Women** - Discussion group sponsored by Technology Wives Organization. Dr. Mary Howell, pediatrician, child psychologist, Harvard Medical School, will discuss families and careers. Thurs, Apr 25, 8pm, Stu Ctr West Lge.

Preprofessional Advising & Education Office - Dr. Ralph Obler,

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UCLA Medical School, will speak to interested students, Fri, Apr 26, 12n, Rm 10-193.

Massachusetts State Science Fair* - High school winners of 6 regional fairs will display their experiments and exhibits Sat, Apr 27, 12n-3pm, Rockwell Cage. Award ceremony will be 3:30pm, Kresge Auditorium. Sheila E. Widnall, aero/astro, will speak. Sponsored by MIT, Boston Globe and Massachusetts State Science

MIT Club Notes and Meetings

Bridge Club* - ACBL Duplicate Bridge. Matchpoint pairs Thurs, 7-10:30pm; non-masters (less than 20 master points) Fri, 10pm-12m; small IMP-scored team of 4 (advance registration required) Fri, 8pm & Sat, 2pm; all Stu Ctr Rm 473. Jeff, 864-5571.

Chinese Choral Society** - Sun, 3pm, Stu Ctr Rm 473.

Goju Karate Club* - Beginners join class first week of each month. Meetings Mon, Thurs, 7-9pm, 4th fl Stu Ctr. Terry or Dick, 440-9631.

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

Israeli Student Club - Meetings Tues, 8pm, Stu Ctr Mezzanine Lge.

Judo Club** - Sport and self defense, Mr. M.H. Yanagi, 5th degree Black Belt, chief instructor. Mon, Wed, Fri, 5pm; Sat 1pm, Exercise Rm, duPont Gym. Beginners welcome. Info, Mike Portnoff, x3-7319.

MIT/DL Bridge Club** - ACBL Duplicate Bridge. Tues, 6pm, Stu Ctr Rm 473. Jeff, 864-5571.

MIT-Harvard AAU Water Polo Team* - Competition with local teams and in tournaments in NY, Virginia and Canada. If interested, attend biweekly practices, Mon & Wed, 5pm, Alumni Pool.

MIT Karate Club** - Evening classes Mon, Wed, 8-10pm, duPont Wrestling Rm. Harry Koba, x3-6232.

MIT, Kung Fu Club* - Chinese boxing, northern praying mantis. Meetings Tues, Thurs, 7:30-9pm, Call, 876-5071 or 661-8765.

MIT Outing Club* - Meetings Mon, Thurs, 5-6pm, Stu Ctr Rm 461.

MIT Scuba Club** - Compressor hours: Mon, Fri, 4-6pm, Alumni

MIT Tiddlywinks Association* - Meetings Wed, 8-11pm, Stu Ctr Rm 491. New members always welcome,

MITV News - The student operated television news organization tapes its weekly program Thurs, 8pm, CAES B&W studio, Rm 9-355.

MIT Wheelmen* - Meetings Tues, 7:30pm, Rm 1-203.

Rugby Club** - Practices Tues, Thurs, 5pm; games Sat, 1:30pm, Briggs Field.

Strategic Games Society* - Offers opponents and discounts on merchandise to members plus gaming and periodical library. Sat, Ipm-1am, Walker Rm 318. Info, Kevin Slimak, x0389 Dorm.

Student Homophile League* - Meetings 1st and 3rd Sun of each month, 4pm, Rm 14E-307; next meeting Apr 21. Info, talk, help in coming out, Hotline: 494-8227. Come on out, the water's fine!

Student Information Processing Board Meeting* - Mon, 7:30pm, Rm 39-200.

Technique* - Yearbook staff meetings Sat, 11:30am till late afternoon, Stu Ctr Rm 451. New staffers & responsible critics welcome.

Technology Community Association General Meeting** - Plans for Kaleidoscope & HoToGAMIT will be discussed. Wed, Apr 17, 7:30pm, Stu Ctr 450. Refreshments.

Undergraduate Physics Community** - Social hour for physics students and faculty. Wed, 5pm, Rm 6-209 (Physics Lge). Refresh-

Volleyball Club** - Practice, advanced level team comptetition. Sun, 1-4pm, duPont Gym.

White Water Club** - Pool session. Tues, Apr 23, 8-10pm, Alumni

Women's Gymnastics Club* - Mon-Fri, 4-6pm, duPont Gym. Info, Ursula, x3-5954.

Wellesley Events

The Ascent of Man* - A series of 13 films on the history of science as a history of man, written and narrated by Dr. Jacob Bronowski. Wellesley Centennial Film Series. This week: "The Long Childhood." Sun, Apr 21, 2pm, 7:15pm, 112 Pendleton East.

The Claude Lorrain Album* - Sixty drawings from the collection owned by Norton Simon, Inc. Museum of Art. Through Sat, June 8, Wellesley College Museum, Jewett Arts Center. Hours: Mon-Fri, 8:30am-5pm; Sat, 8:30am-12n, 1-5pm; Sun, 2-5pm.

Social Events

African Night* - Sponsored by the African Student Association. Cultural performance, art & handicrafts, films, featuring the Ablude Troupe. Sat, Apr 20, 7:30pm, Walker Memorial. Free African food. Admission: \$1. Info, x8495 Dorm or 547-3317.

Gay Dance* - Come and celebrate spring at the Student Homophile League's dance, Fri, Apr 26, 9pm, Walker Mem. Admission \$1.25, \$1 if you bring a flower. Free beer for first 100 people. Everyone welcome, gays & straights, men & women.

Hillel Coffeehouse* - Wed, 8pm. 312 Memorial Dr, basement. Refreshments.

Pot Luck Coffeehouse* - I'ri & Sat, 8:30pm-12m, Stu Ctr Mezzanine Lge, sponsored by Stu Ctr Committee. Live music, free coffee, cider, donuts. Come & listen. If you want to perform call Ernest Perevoski, 0961 Dorm, for audition.

Friday Afternoon Club** - Music, conversation, condiments, all the cold draft beer you can drink. Fri, 6pm, Ashdown basmnt. Admission: \$1 men, 50 cents women. Must be 18 or over.

Movies

Low Reynolds Number Flow; An Interview with G. I. Taylor -Fluid Mechanics Films. Thurs, Apr 18, 4pm, Rm 33-419.

Management: Matter of Survival; Management: The New Challenges; Management of Creativity - BEL Spring Film Series. Thurs, Apr 18, 5pm, Projection Rm off 10-400. Coffee.

Management: Matter of Survival; Management: The New Challenges; Management of Creativity - BEL Spring Film Series. Fri, Apr 19, 12n, projection Rm off 10-400. Coffee.

Radical Cinema: Que Hacer** - Science Action Coordinating Committee. Fri, Apr 19, 6:45pm, Stu Ctr Rm 407. Admission 50

The Devil in Miss Jones - LSC. Fri, Apr 19, 7:30pm, 10pm, Kresge Auditorium. Admission 50 cents, ID required.

Monika - Film Society. Fri, Apr 19, 7:30pm, 9:30pm, Rm 6-120. Admission \$1.

How the West Was Won - Midnite Movie Series. Fri, Apr 19, 12m, Sala. Free admission & popcorn, MIT or Wellesley ID required. Bring blanket.

Mother India* - SANGAM. Indian movie with subtitles. Sat, Apr 20, 2pm, Rm 26-100. Free with MIT or Wellesley ID only.

Cries and Whispers – LSC. Sat, Apr 20, 6:30pm, 10pm, Rm 26-100.Admission 50 cents, ID required.

Mother India* - SANGAM. Indian movie with subtitles. Sun, Apr 21, 3:30pm, Rm 26-100. Admission 50 cents with ID. Refresh-

Music* - Japanese Student Association. Sun, Apr 21, 7:30pm, Rm 26-100. Admission \$1.

Pat and Mike - LSC. Sun, Apr 21, 8pm, Rm 10-250.

Rheological Behavior of Fluids; Cavitation - Fluid Mechanics Film. Tues, Apr 23, 4pm, Rm 33-419.

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Rheological Behavior of Fluids; Cavitation - Fluid Mechanics Film. Thurs, Apr 25, 4pm, Rm 33-419.

O Pagador de Promessas - Humanities Film. Thurs, Apr 25, 4:30pm, Rm 14N-0615.

Media: This is Marshall McLuhan; "A" - BEL Spring Film Series. Thurs, Apr 25, 5pm, Projection Rm off 10-400. Coffee.

Media: This is Marshall McLuhan; "A" - BEL Spring Film Series. Fri, Apr 26, 12n, Projection Rm off 10-400. Coffee.

Spanish Earth - Humanities Film. Fri, Apr 26, 2pm, Rm 14N-0615.

Radical Cinema: Cuba Va - Science Action Coordinating Committee. Fri, Apr 26, 6:45pm, Stu Ctr Rm 407. Admission \$1.

The Ritual - Film Society. Fri, Apr 26, 7:30pm, 9:30pm, Rm 6-120. Admission \$1.

Seven Days in May - Midnite Movie Series. Fri, Apr 26, 12m, Sala. Free admission & popcorn, MIT or Wellesley ID required. Bring blanket.

A Funny Thing Happened on the Way to the Forum - LSC. Sat, Apr 27, 7:30pm, 10pm, Rm 26-100. Admission 50 cents, ID required.

Kuche Daage* - SANGAM. Indian movie with subtitles. Sun, Apr 28, 3:30pm, Rm 26-100. Admission 50 cents with ID. Refresh-

African Queen - LSC. Sun, Apr 28, 7:30pm, 9:30pm, Rm 10-250. Admission 50 cents.

Music

Music Library Concert* - Featuring Patricia A. Miller, mezzosporano; William Draper, clarinet; Ted Eleftherakis, viola; and Philip Oliver, piano, Wed, Apr 17, 5pm, Music Library. Free.

Noon Hour Concert* - Wellesley College Madrigal Singers. Thurs, Apr 18, 12n, Chapel,

Liszt Recital* - Piano solo by John Buttrick, head of Music Section. Mon, Apr 22, 8pm, Burton House. Free.

Piano Recital* - Kiyoko Takeuti. Program of Bach, Beethoven, Schumann. Sponsored by MIT Music Section. Tues, Apr 23, 8pm, Music Library.

Chamber Music Society Concert* - Featuring Patricia Miller, mezzo-soprano. Works by Telemann, Vivaldi, Ibert, Rudd More and Schumann. Sponsored by Music Section. Wed, Apr 24, 5pm, music library. Free.

MIT Glee Club* - Concert program: Cellensis Mass by Haydn, Mozart's Regina Coeli, Bach's Contata 4. Sun, Apr 28, 3pm, Kresge

Theatre

Pygmalion* - George Bernard Shaw's romance will be presented by MIT Dramashop. Apr 25-27, May 3&4, 8:30pm, Kresge Little Theatre. Tickets \$2.50 in Bldg 10 Lobby; reservations, x3-4720.

Exhibitions

Interventions in Landscape* - Major exhibition of artists' work in the environment, sponsored by the MIT Committee on the Visual Arts. More than 15 artists, including Robert Smithson, Patricia Johanson, Charles Simonds, Alice Aycock, Nancy Holt, Robert Morris and Richard Serra. Public preview Fri, Apr 12, 8pm, Hayden Gallery, Exhibit through Sat, May 11. Hours: Mon-Sat, 10am-4pm; Tues 6-9pm; Sun & holidays, 12n-4pm.

Music Library Exhibit - Chinese musical instruments.

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

Athletics

Thursday, April 18 - V Tennis. University of Massachusetts, 4pm. Friday, April 19 - V Baseball. Wesleyan, 3pm. W Tennis. Dean Junior College, 3:30pm. Saturday, April 20 - JV/F Baseball. Browne & Nichols, 2pm. W Crew. Williams, JV-12:15pm. V-12:30pm. Monday, April 22 - W Tennis. Northeastern, 3:30pm. V Lacrosse, Tufts, 4pm. Tuesday, April 23 – JV/F Baseball. New Prep, 3pm. Wednesday, April 24 – V&F Tennis. Dartmouth, 4pm. Saturday, April 27 – V Baseball. Coast Guard, 2 games, 1pm. V Lacrosse. Trinity, 2pm. JV/F Lacrosse. St George's, 2pm. Lt Crew. Geiger Cup, Columbia, Cornell, Coast Guard, F-9:45am. JV-10:30am, V-11:15am. MV Sailing Lark. WV Sailing Gerry Reed

Religious Services and Activities

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

Celebration of Holy Communion* - The Revs John Crocker, Episcopal Chaplain; Peter Johnson, Boston/Cambridge Ministries; and Constance Parvey, Lutheran Chaplain. Wed, 5:05pm, Chapel. Supper following, 312 Memorial Drive.

Christian Science Organization* - Weekly meetings, including testimonies of healing. Tues, 7:15pm, Rm 8-314.

Hillel*: Services - Mon-Fri, 8am, Rm 7-102; Fri, Traditional 5:30pm, Kosher Kitchen, Non-Traditional 8:30pm, Chapel; Sat, 9am Chapel. Classes - many interesting classes offered, for full schedule call Hillel office, x3-2982. Shabbos Meal - enjoy a traditional Fri evening meal at Kosher Kitchen, must order by Tues each week. Info and to order, Herbie Levine, x8403 Dorm.

Hillel Society* - Holocaust Memorial Service and Reflections -Joseph Boniovka, Warsaw ghetto survivor; The Rev Constance Parvey, Lutheran minister; Saib Jabbawy, G. Speakers & panel discussion. Fri, Apr 19, 12n, Rm 10-105. Faith After the Holocaust - Dr. Eliezer Berkovitz, chairman, philosophy, Hebrew Theological College, Chicago. Mon, Apr 22, 7:30pm, Stu Ctr West Lge.

Hillel-Soviet Jewry Brunch* - Brunch with students recently returned from Soviet Russia. Sun, Apr 21, 11am, Rm 10-105. Cost: \$1.25.

Islamic Society* - Juma prayers, Fri, 2:10pm, Kresge Rehearsal Rm B. Discussion on the Quar'anic Interpretations, Sat, 4pm, ISC Lge, 2nd fl Walker.

Protestant Worship Services* - Sun, 11am, Chapel.

Roman Catholic Masses* - Sun, 9:15am, 12:05pm, 5:15pm; Tues, 5:05pm; Thurs, 5:05pm; Fri, 12:15pm. Chapel.

Tech Catholic Community Programs* - Wrestling With Prayer: Lenten services lead by Fr. MacNevin, with a free, simple supper; Thurs, Feb 28-April 11. Ecumenical Bible Study: Tues, Feb 26-Apr 30, 12n-1pm, 2nd fl seminar rm, Relgious Counselors Bldg.

United Christian Fellowship* - Meet for dinner Thurs, 5pm, Walker; singing, sharing, praying meeting, 6pm Rm 6-321.

Westgate Bible Study* - Covering Revelation, last book of New Testament. Wed, 8pm, Westgate apt 1202. Info, 494-8778.

Announcements

Graduate Student Nominations - There are vacanacies for graduate students on various committees. Persons interested should contact the secretary to the Graduate Student Council, Rm 50-110, x3-2195, on or before Tues, Apr 23.

Final Examinations All students should obtain an examination schedule from the Information Ctr, Rm 7-111. Examinations not listed or a conflict in examinations must be reported to the schedules officer by Fri, Apr 26.

Summer Session - Registration material for the 1974 regular Summer Session will be available beginning Wed, Apr 17, Registrar's Office Rm E19-335. Forms must be filled in and returned to the Registrar's Office by Wed, May 8.

International Students - Opportunity to undertake paid summer work researching potential UROP-type projects related to Technology and Development in the Third World for next year. Interested, contact Arvind Khilnani, x3-1588, or Masood Ahmed, x0650 Dorm.

New Hours for Hayden Gallery - Mon-Sat, 10am-4pm; Tues evening, 6-9pm; Sun and holidays, 12n-4pm. These new hours are

BSU Tutorial Program - Black Student Union offers a full program of assistance to minority undergraduates for second semester. Teaching assistants available Mon-Thurs, 7:30-10:30pm, Rm 4-145, 146, 148 & 149 by appointment. Info, Karen Scott, x0351 Dorm.

Dining Service

Dining Specials: Thursday, April 18 - Lunch: tuna noodle casserole. Dinner: sauteed chicken livers on toast. Friday, April 19 - Lunch: bbq beef slices on bun. Dinner: shrimp creole on rice. Monday, April 22 - Lunch: hot turkey sandwich. Dinner: baked veal steak. Tuesday, April 23 - Lunch: shrimp egg rolls & rice. Dinner: beef & vegetables stew over noodles. Wednesday, April 24-Lunch: french fried shrimpos, Dinner: seafood tetrazzini.

*Open to the public

**Open to the MIT community only

***Open to members only

Send notices for April 24 through May 5 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, April 19.



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, April 19.

For Sale, Etc.

Bolex 8 mm movie camera, \$50; 3 colorful rugs, approx 6x3, \$24; Sears 3 gal humidifier, \$5; 36 lb dumbell set, \$7.50; iron brd, \$2.50. Roger, x3-6796.

'70 Stacraft tent trlr, Starmaster 8, hdtp, slps 8, 2 tbls, elec refrig, canopy, + xtras, \$1,200. Harvey, x3-6077.

Aquarium, 29 gal, w/filter, sand, thermometer, 3 angel fish. Tony, x3-5717.

Mason jars. Jim x8-1518 Draper.

Attractive couch, opens to dbl bed. \$25. Call, 494-9187, evgs, Westgate.

Waterbed, 5x7, w/frame, heater, liner, \$75 or best. x3-2270.

Color tv, 16", 2 yr gd cond, \$175 or best. Call, 494-8446.

Free 30" combo gas range/heater, fair cond, u haul 2 flights, Wellesley. Merrick, x3-3932.

Tires: 2 snow, 2 reg, 600x12, \$5/ea. George, x3-5306.

Dynaco A-50 spkrs, 5 mos, blnk wrnty, \$270/pr, firm. Call, 494-0257.

Braid rug, 9x12, \$20: Danish wd frame for LR couch, \$8. Linda, x3-6824.

Bose 901, rarely used, \$350/pr; Scotch 207 tape, nw, \$3.70/reel; Scotch 203, \$2.70. Yum, 494-8458.

Pr Ohm C spkrs, 5 mos, going home &

must sell, \$250 or best. x9498 Dorm, Ive msg A326 MacG.

Solid mpl sgl bed & matt, \$25; 21" tbl mdl Zenith b&w tv, \$20; alum crutches, \$10; wd crutches, \$5; misc elec appl to \$5; 6 mtl fold chrs, \$3; misc items to 50 cents. Call, 643-6224.

Moving, must sell all flourishing hseplants, many shapes & sizes. Marni, Rm 2-272.

Scott amp tuner, nds tube, \$25; Layfayette spkr, \$15; gd sz fan, \$15; indestructable business add mach, \$45; Reminton man typwrtr, \$12; wd & brick bkshlv, 3 lvl, 5', \$18. Jean, x3-4391.

Heath amateur transcyr, HW-100. \$225; DC supply, \$25; 80-10 Hustler coils w/mast, \$50. Don, x7606 Linc.

Realistic trntbl; Realitic stereo; 4 blk "leath" dinette chrs; best. A Scherer, x3-7722.

Sloop, 18' 1908 Classic, reblt '72, nw

sails, mooring & anchor, v gd cond, must sell. Call, 1-356-3365.

Wtrfront land, 150', Eidelwess 4 seas vac cmnty nr Conway, NH, pool, tennis, play area, ski, owner wl finance. Call, 646-7258.

B nw Topcon Super D w/1.4, \$240; Pentax Spotmatic II body, \$145; w/85 mm fl.9, \$225; lk nw Pentax H3V body, \$60; Vivitar 2x telecnvtr, \$12.50; Pentax nw 105 mm f2.8, \$90. x7611 Linc.

Gulbransen piano, lk nw. Call, 535-1324.

Maestro wa-wa pedal, \$25; 10 doz bottle rockets, \$4. Greg, 492-6983.

Easy elec mangle-type iron, exc for flat work, no reas offer refused. John, x8-2815 Draper.

Stereo equip: Dual 1215 w/Stanton crtrdg, Concord MK-10 amp, Dynaco A25 spkrs, beat; Bell mtrcycl hel, sz 7 34, \$25; sm desk & chr, best. Susan, x3-1960.

Air King 20" fan, used 1/2 seas, 3 spd,

\$10; padded fancy wd chr, \$10; 30" rnd mirror, \$10; GE shoe polisher, lk nw, \$8; f ice skates, sz 4, wht, used once, \$4. Call, 494-9336.

Tape transports, 3 motor, no electronics, "broadcast quality," \$20. Peter, x0388 Dorm, aft 5:30.

Baby playpen & swing, b nw, \$10. x384 Linc.

Philips 811 rcrvr-cassette rcrdr, 20 RMS W, 5 wavelengths, lk nw. Call, 628-0826.

Old archery equip. x8-1204 Draper.

Zenith 23" b&w tv, \$55. Call, 235-0962.

Nw Canon ftb, wrnty, great oppty. Jose, x3-5808.

Broiler King broil oven, best; Toastmaster rotisserie/broil, nvr used, best; Kodak 304 camera, top cond, \$40; Mickey Wright (Wilson) f golf clubs, 2 wds, 3 irons, putter, bag, best. Call, 484-1470, evgs.

Bogen MX6 AT mixer/preamp, \$30; 2 Shure 5155B mics, \$20/ea; Heathkit 1G 28 color bar & dot gen, \$70. Craig Latham, x8161 Dorm lve msg.

Leica M3 fl.4 Summilux (blk), meter, \$390; Iomm f2.8 Tele-Elmarit (blk), \$150. R Taylor, x3-5142.

Jaconson 6 hp, 2 stage snowblower, \$150; Westinghouse sew mach w/fold up tbl, \$30; canvas Mercedes Benz cover, \$12; Fisher TX 200 stereo, integrated solid st amp; Polaroid 80A w/acces; best reas. Harold, x7216 Linc.

Used Frigidaire washer, shakes a lot but works, best before 5/15. Daniel, x8-1438 Draper.

Playboy mag collection, '65-'74, almost compl, exc cond, best, Bob, 868-7820, evgs.

Best discounts on SLR's, Cannon f-1, Olympus OM-1, Konica Autoreflex T-3, Pentax ESII, etc. David, x3-5714.

F wht sheepskin coat, sz 11, orig \$150, sacrifice \$50; imitation leopard skin coat, \$40; camel hair coat, \$40. x9843

Baby cot & playpen, nego. Call, 547-2719, aft 7pm.

Valpak suitcase, navy, lt wt, gd cond, \$5. Charlie M, x3-4948.

Tires, 2 ww Dunlop 6,15x13, 1 nyr used, 1 w/75 mi, \$25/pr. Art, x8-4190

Nw Windsor solid st 5 band plug in batt operating port radio, \$20. x3-4523.

Sgl bed, \$5. George, 893-6800, x54;

Antique Zenith rcrvr, 78 rpm player, cab exc cond, rervr nds work, for the enthusiast. Gwynne, x3-3312.

Baby furn: playpen, \$18; walker, \$6; gate, \$6; Tidy hair dry, \$15; all b nw, exc cond. Ali, 494-8836.

VW bike rack, \$10; 6 V car radio, \$5; 250 tape rcrdr, \$25. Joe, x3-2514

Boy 5 spd Raliegh bike, hrdly used, lk nw, \$40. x3-1467, aida

Apt sz refrig, gd cond, \$15. Robin, x3-1638.

Wndw ac, 4, old, repairable, cheap. x3-7719.

All glass 30 gal aquarium w/std, heater, powerful filter, \$100 value, \$60. Leah, x 3-2669.

Chest w/5 drwrs, \$15, \$20; sofa, \$30; red 9x6 rug, \$10; wd tbl, \$12; wd chrs, 2 at \$8/ea, 2 at \$5/ea; Sunbeam vac clnr, \$15; crtns, \$10; sm stereo, \$12; draw tbl, \$25; baby feed chr, \$8. Call,

Wrought iron couch, 2 pc, best. Glenn, x8-3584 Draper.

494-8423.

Slide proj w/screen, exc cond, Argus 538, f3.5, \$45. x9633 Dorm.

Tires, 4, 6.85x15, ww, 8 ply rated hvy duty, less 4 K, fit Volvo wgn, \$25/ea, 4 for \$95, x3-3354.

US divers wetsuit, 3/16" neoprene, shirt & pants sz sm, helmet, boots, gloves, \$120 nw, ask \$80. Call, 494-9820.

Raleigh 20 fold bike, 5 spd, leath saddle, fully reflectorized, v strong & easy to transport, \$110 or best, x8762

Rolleiflex f3.5 twin lens reflex w/case & flash, exc cond, \$190 or best, x5898

Rold-down den couch, exc cond, gold, 72"x44" opened, \$50 or best. Rebecca, x3-1782.

Amfm stereo tape rcrdr, port cassette, Sony CF550A w/condenser mics, head clnr, demag, choice recorded cassettes; 12 V auto adapter, 110V cord, 3 set recharg batt. Andy, x9321 Dorm.

Marantz mdl 240 power amp, 125/125 W RMS, \$285. Stu, 524-3768.

Regrig, 5' high, \$50. Jim, x8-4488

Vehicles

'62 VW, gd motor & tires, battered body, \$100 or best. Call, 862-3072,

'62 VW bug, \$150. Greg, 521-1150, Ive

'64 Volvo, bad body rot, gd eng, nds minor repairs, best. x8-1256 Draper.

'65 MG midget, conv, compl reblt mech, 12 K, roll bar, 20-25 mpg in town, \$950 nego. x3-2241.

65 Ford Cstm 500, 80 K, car runs but eng & body nd work, a real bomb! \$100. Robert Sorrentino, x 3-2054.

65 Volvo P1800S, overdrive, 20 mpg. Call, 729-5383, aft 5.

65 Ford Cstm, 6 cyl, 70 K, nw batt, shocks, gd tires, eng nds work, price low, Call, 628-1416.

'66 Lincoln, 2 dr hdtp, full power, ac, 2 xtra whls w/snows, v gd cond, \$500. Call, 354-3128.

'67 Mustang conv. V8, auto, amfm. many nw parts, exc cond, \$890 or best. x 3-5877.

'67 Alfa Romeo GT coupe, 5 spd,

24-27 mpg, one ownr, \$950 or best. Call, 484-7084 evgs. '68 VW Sqbk, amfm long wave, gd mech & body cond, lt bl, gd Michelin

radials, nw batt, fuel inj, 30 mpg, bl book \$950, ask \$750. Larry, x8-4164 Draper, Tues & Thurs. '68 Ford ranch wgn, 8 pass, nds body work, gd mech cond, 60 K, \$500,

nego. Tom Emberley, x8-1558 Draper. '68 VW, auto stick, '69 reblt eng w/20K, gd tires, body, exc operating

cond, wht w/blk int, ask \$850. Bill, 623-1336. '68 Pontiac Bonne, V8, auto, 7 gd tires incl snows, gd run cond, moving must

'70 Dodge Challenger RT, p st & br, fully equip, raised wht letter tires, mag whls, vinyl top, ac, \$1,200. Lee,

sell, \$350 or best, Hiro, x3-1831.

'70 Subaru, 2 dr sed, 34 mpg, 56 K, gd tires, gd run cond, \$995. Steven, x3-4710.

'71 VW Super-Bug, amfm, add'l snows, best. Call, 494-9065.

'71 Toyota Corona Mark II, 4 dr, 37 K, auto, 5 b nw tires, exc cond, owner lving entry, \$1,800. Bill, x5880 Linc.

'72 Nova SS, 4 spd, amfm, blk vinyl top, gold, radials, 350 eng, 48 K, exc cond, ask \$2,000. Charles, x3-2522.

'72 Maverick, auto, 16 K, exc cond, gd gas mileage, \$1,800. Ruth, x3-2669.

'71 Harley Davidson mtrcycl, powerful 125 cc, red, perf cond, used 5x, orig \$695, \$400 or best. Call, 284-3478, aft

Housing

Back Bay, exc loc, sum sub 6/1-8/31, fully furn, nw tile B, mod K, ww, ac, BR, \$225. Donna, x3-2054.

Back Bay nr Mass Ave & Beac st. sum sub w/opt, lg BR w/sleeping loft, frpl, furn, \$200. Bill, x3-7113.

Bos, sum sub w/Sept opt, stu w/sep K, Fenway area, avail 6/1 or before, \$160. Jim, x3-5756.

Bos, Beac Hill, Mt Vernon St opposite Louisberg Sq, 5 rm + B, 2 BR, avail 7/1, yr lse, \$325 incl util. RL Jaffee,

S Bos, B'way nr L St beach, part furn, ww, BR, LR, K, B, no pets, \$185 incl util. R Hadlock, x 3-7989.

Bklne, 3 BR, avail 6/1 w/opt, \$242. Call, 232-6021.

Bklne, off Comm Ave, 2 rm, furn, \$140 incl util & parking. Call, 566-1276, aft 11pm.

Camb, Brattle St, architect remodeled apt, unfurn, 2 1/2 BR, DR, LR, K, B, dw, wash & dry, nr shops, yr beg 7/1, \$400 incl h. x3-3637.

Camb, furn BR apt avail 6/1, wd panel K + LR w/piano gd tone, blt-in wall-sz bkshlvs, 10 min walk MIT, Lechmr, Kendall, respons Indlrd, piano \$150, apt \$160 incl h. Christine, x3-4396.

Westgate effic, sum sub 6/1-8/31, furn, \$131, nego. 494-0374,

Camb, Harv St at Cent Sq. 2 BR, sub

6/1, \$238. x3-7533.

Camb, sum sub 6/15 w/opt, sunny, mod, BR, nwer Inman Sq bldg, ac, disp, frpl, mod tile B. Nancy, x3-3621.

Cambport, Northgate, sum sub, 2 BR, nr Stop & Shop, parking avail, \$185. Carl, x3-7966.

Lex-Waltham area, 2 BR apt, occupancy by older cpl, 6/1 or 7/1. x5465

Lex, 4 BR hse, furn or un, nr bus to H Sq & LL, 2 yr lse desired, avail 7/1. x7637 Linc.

Lex, chrmg ca. 1730 colonial, 11 rms, 1½ acres, dead end st, Bowman Sch, some incompl remodelling, sacrifice, \$57,000. x3-3645.

Som, Union Sq, furn sum sub w/opt, 2BR, B, lg K, LR, bsmnt, roof, nr bus, avail 6/1, \$200 + util. Call, 776-1551.

Som, BR, nw bldg, sum sub w/opt, 2 mi MIT, nr T, avail 6/1, \$185 incl h, parking. Call, 628-5236, evgs.

Lake Winnepesaukee 3 BR chalet, pool, beach, etc, \$175/wk. x8-4415 Draper.

Lake Winn, Alton, NH, wtrfrnt 3 BR sum hse, all mod conveniences, exc dock, avail June-Aug, also view, wkends. Ron, x5796 Linc.

Sum sub w/opt, 2 lg BR, lg LR, spac closets, 10 min MIT, \$187. Richard, 547-8605. morn, evg.

Animals

Free: 3 lg-haired kittens, 2 w/dbl paws, 6 wks. Call collect, 1-774-3612.

Lost and Found

Lost: mtrcycl helmet w/gloves inside, 4/4, reward, no questions. Rich,

Lost: evg 4/4, 1 blk leather ski mitt, also bl enamel on silver pin. Margaret,

Lost: blue denim jckt, lots of patches. Dave, 494-0273.

Found: 5 keys on ring, leath belt loop attach to ring, 3 MIT office keys, car key, long old fashioned door key. Bob McGahan, x3-7350.

Found: squash rckt, swim pool courts. Bill Lobar, x183-0 Bates Lin Ac.

Found: girls bike in Rm 26-100, 4/5. Tom, x3-4844.

Wanted

Riders to share driving &/or for filling U-Haul truck, Camb-Palo Alto, Calif, end of June. x3-4710.

Rmmates, m or f, lg unfurn sgls in Jam PI hse for sum, nr bus, free parking, \$75 incl util. Jim, x8733 Dorm.

Rmmate, share mod apt nr Cent Sq, own rm, \$85 + util. Steve, x3-6186.

Sm tbl, seat 4, w/chrs if possible; ride to NYC, 5/3. Liz, x3-6162. F rmmate, own BR in 2 BR apt, Harv St nr Cent Sq, parking avail, bk yard, avail 6/1, \$110. Jane, x3-2311.

P-time stu seeks painting jobs & other domestic emp, \$3/hr. Maurice Libner, 661-2981.

M seeks BR in apt or Tang, now till 6/20. x8927 Dorm.

F rmmates, 2, 24+, share beaut Ig hse, cooking, chores, w/3 m, f, Arl nr Mass Ave bus, beaut yard, garden, own rm, \$105-\$125 + util. Ellen, x3-6805.

Car to use for summer, wl take exc care of it & keep in low theft area outside Bos, arrangements nego. Stefi, x8815 Dorm.

Riders/drivers for carpool, Framingham/Saxonville area. x3-6291.

MIT stu wants 1-2 people for lg rm in mod 2 BR apt, Camb St nr Beac Hill, \$120. Call, 723-3608, evgs.

Cheap dbl bos spt & matt. Richard, x3-1368.

First sem housing for incoming fac & families. Judy, x3-1493. M, 2, bkkeeper & stu, seek 4 rm apt,

Camb area, 6/1 or 7/1 rental, also interested in Northgate. Don, x3-5204. MIT grads, 4, looking for hse or 4 BR apt, nr T, \$360/max incl h. Wink,

Rmmate for sum, Harv St behind Tech Sq 5 min MIT, own rm w/2 wndws, semi-furn, \$52.50. Jorg-Dietram,

x8534 Dorm, aft or evg.

x3-7646.

Used alum ladder, 25'-40'. x8-1286

Rmmate, own BR & B, mod 2 BR apt, ac, balc, avail 5/1, Harv St, Camb. Michel, x8-1494 Draper.

Apt space, 2-3 f, start 9/1, reas access to MIT, any under \$115 considered. x8879 Dorm.

Auto roof rack; used sleeping bag; Minolta SRT-100 camera case. Janis,

Cpl desires to rent sm plot land for garden. Jeff, x3-7301.

WI do general & thesis typing, Nina, x8-3333 Draper.

Typing: manu, theses, reports, tech,

Expert typist avail for non-tech work,

Typing, IBM Selec, theses, manu, etc,

Piano lessons for beg & intermed, New Eng Conservatory grad, studio 85 Park Dr, Bos. Call, 247-1450.

Hrdwd floors prof sanded & refinished. Christine, x3-2742.

Positions Available

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted each Tuesday

Virginia Bishop 3-1591 Mike Parr 3-4266 Phillip Knight 3-4267 (secretary - Joy. Dukowitz)

Jack Newcomb Evelyn Perez 3-2928 (secretary - Mary Ann Foti) Dick Higham 3-4278

Marketing Director - Administrative Staff at the MIT Press must have experience and skills in some or all of the following areas: direct mail, scientific/technical, international, research and planning, trade and library relations. Innovation, creativity, adaptability for goals; ability to work as part of a publishing team in a university environment. Please submit resume with educational background; accompanying letter must describe in detail

Technical Assistant - Academic Staff in Biology will assist in the study of molecular biology of mammalian cells. Grow cells in cultures; prepare samples for analytical techniques; prepare nucleic acids in proteins for analysis. BS in Biology or related science required; familiarity with general laboratory practices required; experience preferred. 74-326-R (4/17).

DSR Staff in Nutrition and Food Sciences will coordinate the specialized analytical services of the department; advise and assist in the development and application of analytical methods anage laboratory. BS or MS in Chemistry or related field and experience in operating a mass spectrometer required. 74-302-R (4/10).

Associate Director - Administrative Staff for the Council for the Arts at MIT will be responsible for the Council's major programs; work on public relations; fund-raising, new releases; act as liaison between MIT and area art groups. Background in the arts, writing skills, ability to plan and coordinate complex programs are desir-

DSR Staff in the Laboratory for Nuclear Science will participate in fundamental particle research at major accelerators and in data analysis. Candidate must have Ph.D. in high energy physics or a related field with experience in scintillation counter and spark chamber techniques and familiarity with large computer data analysis. 74-220-A (3/13); 74-221-A (3/13).

er of the MIT Food Services will be responsible for all phases of the campus services. Will reorganize the department; develop and implement policies and procedures; perform finan-

Port self-contained stove. x0458 Dorm. Tarpaulin, x0456 Dorm.

x0488 Dorm.

Miscellaneous

editing, foreign lang, transcribing, IBM Selec. Call, 491-2200.

editing. Chuck, x3-7410.

terms nego. Joan, x3-5042.

Typing, theses, reports, stat, fast, accurate. Jean, x3-7410.

preceding Tech Talk publication date on the Women's kiosk in Building 7, outside the Office of Minority Affairs, 10-211, and in the Personnel Office E19-239, on the day of Tech Talk publication. Personnel interviewers will refer any qualified applicants on all biweekly jobs Grades I-IV as soon as possible after their receipt in Personnel. Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel the qualify.

Sally Hansen 3-4275

3-4269

Pat Williams 3-1594 Claudia Liebesny 3-1595 (secretary - Dixie Chin)

New applicants should call the Personnel Office on extension 3-4251.

marketing methods and achievements. 74-313-R (4/17).

able. 74-301-R (4/10).

Administrative Staff - General Manag-

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cial planning; oversee the administration and supervise staff. Minimum, 5 years experience in college or university food services management, ability to deal with the academic community important. Degree in the food services field preferred; innovation, creativity required. 74-75-A (1/30).

Research Engineer — DSR Staff in the aerophysics laboratory will assist the Project Leader and conduct research using wind tunnel magnetic balance systems in study of magnus forces. Gather and interpret data; train and supervise graduate students and research assistants. BS or MS in aeronautics; experience in wind tunnel or other balance systems, knowledge of FORTRAN IV, experience in IBM programming required. Available 6/1/74. 74-245-R (3/37).

DSR Staff — Curriculum Developer at the Artificial Intelligence Lab will develop and write new mathematical curriculum material in the Logo language for elementary school use. The job will often require working outside normal office hours. Academic qualifications in developmental psychology and mathematics; demonstrated experience in teaching computer programming to children required. Position available 5/74. 74-153-R (2/20).

Assistant Director - Administrative Staff in the Development Office will direct developmental support of MIT's senior officers and Resource Development Staff. Participate in developing funding goals; write background briefs, memoranda, proposals, ad hoc statements; direct funding projects. Minimum 3 years formal experience in development required, preferably in a university environment. Professional individual, tactful, imaginative, skilled in writing is needed. 74-327-A (4/17).

DSR Staff in the Laboratory for Nuclear Science will participate in fundamental particle research at major accelerators and in data analysis. Candidate must have a Ph.D. with a minimum of two years experience in high energy physics. Detailed knowledge of bubble chamber techniques is essential. 74-222-A (3/13); 74-233-A (3/13).

DSR Staff Physicist in the National Magnet Laboratory will conduct original research in experimental solid state and low temperature physics with emphasis on the magnetic fields. Ph.D. in physics or related area and 3 years postdoctoral laboratory experience in magnetism and low temperature physics required. Familiarity with cryogenic and electronic instrumentation desired. Position available after 10/1/74. 74-130-A (2/13).

Assistant Dean of the Graduate School – Academic Staff will supervise the procedures; perform financial planning. Will be concerned with recruitment, financial aid as well as academic and personal counseling of all minority graduate students. Work with department and administrative representatives in developing and supervising projects designed for such students. Candidate should have a background in graduate study and/or administrative experience dealing with problems of graduate education. The position also involves travel to other academic institutions for recruiting minority students and developing cooperative educational programs. 74-190-R (3/6).

Journals Department Manager – Administrative Staff at the MIT Press will be responsible for budgets and fiscal control of the department; for daily management and supervision of staff. Will make decisions concerning production of journal subscription; act as liaison with promotion/advertising and production departments concerning implementation of policy. 2-3 years experience with journals and administrative skills required. 74-280-R (4/3).

Staff Recruiter (Admin. Staff) will report to the Employment Officer; will be responsible for coordination of well-qualified persons non-academic staff positions. Particular emphasis will be given to assisting laboratories, centers, and departments in fulfilling Affirmative Action Plans with respect to research staff openings. Person will work closely with Personnel Officers and departments in defining description of positions and qualifications required. Frequent travel will be expected; experience in Personnel and/or recruiting required. Technical background with degree in Engineering or Science preferred. Please sub mit resume. 73-643-A (7/18).

Assistant Writer/Researcher - Administrative Staff in Resource Planning will assist two staff writers in the preparation of proposals to individuals, corporations, and foundations, and of other fund-raising statements, brochures, newsletters, and supportive materials. Involves compiling and organizing a wide variety of information often obtained through interviews and discussions with members of the faculty and administration, sometimes accompanying a staff writer. Candidate must be a college graduate and have demonstrated research skills. Knowledge of MIT helpful but not essential. 74-277-A (4/3).

Assistant Auditor – Administrative Staff in the Audit Division will perform EDP internal auditing, reviews of the systems development effort, evaluate internal controls, and post-audits of computer systems. Will develop audit programs, questionnaires, write and present reports. Must have four years of working experience in EDP, a degree in Accounting, knowledge of COBOL or PL/1, and public accounting experience. 74-150-A (2/20).

DSR Staff in the Energy Lab will design, build, and operate a high performance combustion facility for fluid mechanics and materials research directed toward the development of electrodes for a high power energy conversion device. Will also handle the instrumentation of a shook tunnel driven MHD generator. Ph.D. and minimum 5 years experience in experiment and engineering hardware. Interest and ability in dealing with MIT, local and US research and engineering communities desired. 73-47-A (1/23).

DSR Staff in the Cell Culture Facility will handle all aspects of tissue culture and animal virology; grow animal cells; infect cells with viruses. BA or MS degree required; minimum of one year experience in tissue culture and animal virology highly desirable. Experience in microbiology will be considered. 74-258-A (3/27).

Systems Programmer – Administrative Staff will provide technical expertise; develop and implement methods of improving computer performance. Minimum of two years S/360 or S/370 programming experience. Knowledge of teleprocessing, and COBOL or PL/1. 73-265-R (4/73).

DSR Staff Systems Programmer at Project MAC will perform system analysis and system programming on a research version of Multics operating system. SM or EE degree required; 2-3 years programming experience in the supervision of some advanced operating system required. Ability to contribute to research and work with students important. 73-1234-R (11/14).

Applications Programmer – Administrative Staff in the Office of Administrative Information Services will translate detail program specifications into computer code; test codes and documents program for operational use; review specifications; develop program flow charts; test and debug programs; perform other duties as asigned. Minimum 2 years experience in Business applications programming required. 74-278-R; 74-279-R (4/3).

DSR Staff Member in Research Laboratory of Electronics will conduct experimental determination of sound pressure in the fluid of the inner ear. Recent Ph.D. in EE with background in physiological experimentation and acoustics. Knowledge of the auditory system, particularly the inner ear, is required. 74-120-A (2/20).

Systems Analyst — Administrative Staff in the Office of Administrative Information System will develop under direct supervision, solutions to business problems; prepare, design, and program specifications for new programs and for modifications to existing systems. Applicants should have business and administrative experience, analytical ability and familiarity with computers. 74-196-R (3/6).

Programming Analyst for the MIT Information Processing Center must have experience and knowledge of large-scale time-sharing computer systems. PL/1 and FORTRAN language. Documentation and communication skills are necessary qualifications. The User Services Group requires an individual who understands and is responsive to the needs of the Center's users.

User Assistance – assisting users by providing programming information and debugging help and tracking down special problems.

User Information – Instruction documentation and conducting seminars, workshops and short courses. 74-178 (2/27).

Night Manager – Exempt will be responsible for overseeing the operation of the Wallace Observatory (Earth and Planetary Science) and assisting observers, primarily at night. Train new observers in the operation of the telescopes, the computer control system and the auxiliary instruments. Familiarity with optical observatory operations and astronomy is highly desirable; experience and facility in handling mechanical and optical instruments, some electronic experience preferred. Ability to make decisions and assume responsibilities important. 3-11pm, 5 day/week. 73-1357-A (1/16).

Engineering Assistant – Exempt Staff for the National Magnet Laboratory will arrange and perform the day-to-day experiments in medical electronics. Work with cryogenic detectors; familiarity with low-frequency electronics required. Will often work with animal and human subjects, including hospital patients. Candidate must be available for occasional night and weekend work. 74-241-A (3/20).

DSR Staff in the Center for Space Research will analyze and interpret plasma data from satellite borne plasma experiments. Recent Ph.D. in space plasma physics or related area required. Candidate should have had direct experience with the analysis and interpretation of experimental results related to the interplanetary plasma. 73-1184-A (11/14).

Secretary IV or Senior Secretary V will handle general secretarial duties for a Vice President's office. Compose and type correspondence; prepare drafts of papers; interact with MIT's administrative and academic departments and offices and organizations outside the Institute. Excellent typing essential; ability to organize, knowledge of the Institute desirable. Occasional overtime necessary. 74-322-R (4/17).

Senior Secretary V to the Vice President, Administration and Personnel will handle standard secretarial duties in the office responsible for student, employee, and faculty service functions. Deal with a variety of Institute offices in matters relating to Affirmative Action, financial aid, placement, admissions, planning, personnel; research information and follow up on details. Excellent typing and trascribing skills, ability to coordinate areas and to deal effectively with sensitive material and situations required. Institute experience preferred. 37½ hour work week; 9-5:30, 74-296-R

Secretary IV or Senior Secretary V for the Council for the Arts Staff and the Special Assistant to the President for the Arts will coordinate office activities; do considerable typing. Excellent typing and organizational skills required; ability to work against deadlines essential; shorthand and knowledge of MIT are desirable. 37½ hour work week; 9-5:30. 74-300-R (4/10).

Secretary IV in the office of the Institute Secretary for Charitable Trusts will monitor the office budget; arrange appointment schedules and travel; type correspondence and proposals from dictaphone and handwritten copy; set up and maintain files; act as liaison between the office and other sources inside and outside MIT. May occasionally conduct research on charitable trusts and foundations. Excellent skills, organizational ability, professionalism essential. Previous experience required. 74-293-R (4/10).

Secretary IV in Mechanical Engineering will type correspondence, technical reports, proposals; monitor research accounts; set up and maintain files; may also assist with graduate office functions. Excellent typing (technical typist preferred); shorthand desirable; ability to organize and establish priorities required. 74-305-R (4/10).

Secretary IV to the Administrative Officer of Chemical Engineering will handle general secretarial duties; maintain contract, grant, personnel records; assist with a variety of headquarter's functions. Good typing, shorthand, dictaphone and organizational skills required. Maturity, tact, ability to anticipate problems desirable. May occasionally work overtime. 74-306-R (4/10).

Secretary IV in Medical will handle secretarial duties for the Psychiatry Service's Admin. Assistant and two doctors; transcribe patient case histories; maintain accurate records and schedules. Excellent typing required; maturity, ability to work under pressure, and to deal with patients important. 37½ hour work week. 74-320-R

Secretary III in Civil Engineering will handle all general office duties for a professor and a research associate. Good, accurate typing needed for proposals, class notes, correspondence, research reports. Ability to proofread own work important. 74-292-A (4/10).

Secretary IV in Mechanical Engineering will handle general secretarial duties necessary for the smooth function of this office. Type technical reports, proposals, papers, class notes; answer routine correspondence; maintain files. Previous secretarial experience, excellent typing skills required; experience in technical typing, shorthand desirable; ability to establish priorities important. 74-229-R (11/14).

Secretary IV for a professor in Earth and Planetary Sciences will handle all secretarial functions; perform some administrative chores, some library research and editing. Excellent typing (some technical); shorthand preferred. Editorial and organizational skills important. 74-8-R (1/9).

Secretary IV in the Center for Advanced Engineering Study will handle all general secretarial duties for the manager of video operations. Monitor office accounts and handle billing; maintain office records; coordinate schedule of recording and editing sessions; answer questions regarding video services. Ability to work with figures, bookkeeping background helpful; accurate typing and organizational skills required. 74-270-R (4/3).

Secretary IV in the Harvard-MIT Program in Health Sciences and Technology will handle secretarial duties for

the Executive and Business Officers. Assist in the preparation of proposals and budgets; transcribe and type correspondence; conduct occasional library research; maintain program files and student records. Excellent typing (including technical); some editorial and accounting experience and familiarity with library research techniques desirable. Maturity, organizational ability important. 40 hour work week. 74-274-A (4/3).

Secretary IV in the Dean for Student Affairs Office will type correspondence, maintain busy appointment schedule for a Dean. Will work with other secretaries in performing general office functions. Excellent typing skills required. Ability to establish priorities and to work in a busy office required. Maturity, tact and sensitivity to students and faculty is essential. 74-275-R (4/3).

Secretary III-IV to the Electrical Engineering Executive Officer will handle general secretarial duties dealing with administrative matters. Type faculty and staff appointments; maintain personnel file and management records in an on-line computer system. Accurate typing, dictaphone or shorthand required; ability to work independently, willingness to learn the use of a computer system for records important. 74-284-R (4/3).

Secretary III-IV in Aeronautics and Astronautics will handle general secretarial dufies for several faculty members. Good typing needed for class notes, correspondence, technical papers. Previous office experience, knowledge of English grammar important. 74-308-R (4/17).

Secretary III in Earth and Planetary Sciences will assist with general secretarial duties for a professor and research group and handle all office duties for another staff member. Excellent typing needed for heavy typing load (technical typing helpful); will compose some correspondence, arrange committee meetings. Ability to handle details essential. 74-321-A (4/17).

Secretary III in Electrical Engineering headquarters will maintain personnel and management records using an online interactive computer system; maintain mailing lists, files; type correspondence. Accurate typing, ability to work with details required. Experience in using computers advantageous. 74-316-A (4/17).

Secretary III to an Industrial Liaison Officer will assist with the Institute publication distribution, symposia and faculty travel, research of briefings, handle all other general secretarial duties. Good shorthand (speedwriting) and typing skills necessary. 74-99-R (2/6); 74-100-R (2/6).

Secretary III in Chemical Engineering will type quizzes, reports, technical manuscripts, proposals for three associate professors. Will arrange appointments, file, act as receptionist for the office. Dictation from tapes; technical typing experience preferred. Prompt, dependable, able to accept supervision and follow through on details. 74-162-R (2/20).

Secretary III — Temporary in Cambridge Project will perform on-line typing of documentation of programs, program routines, manuals, reports, etc., from rough drafts, Will also do some transcribing. A Good Atyping required; familiarity with on-line work (Multics) important, Job ends 6/30/74. 74-168-R (2/27).

Secretary III will work with an Industrial Liaison Officer in providing services to approximately 15 companies; research briefings, institute publication distribution, schedule symposia travel, handle general secretarial duties. Good typing, dictaphone, shorthand or speedwriting skills necessary. Previous experience or schooling helpful. 74-214-R (3/20).

Secretary III in the Sloan School of Management will handle all the general secretarial duties for three professors in a one-person office. Will also need some experience in technical typing for course material, reports, manuscripts. Previous office experience helpful. 74-238-R (3/20).

Administrative Assistant V in Architecture will handle a wide range of administrative and secretarial duties necessary to the success of a large HEW grant. Prepare budget reports, monitor accounts; purchase equipment and supplies; assist with personnel allocations. Compose and type correspondence; handle other clerical aspects of the project. Good administrative and secretarial skills required; ability to work independently and to organize essential: knowledge of MIT accounting procedures helpful. Some experience or background with social researchers and their terminology is of value. 35 or 40 hour work week. 74-297-R (4/10).

Editorial Assistant V at the MIT Press Editorial Department will edit manuscripts; establish relationships with authors; be responsible for proofs. Experienced book editor with a degree in math or science required. Graduate study desirable. 74-317-R (4/17).

Technical Assistant in the Development Office will be avolved in fundraising activities. Analyze and process various types of information relating to philanthropic foundations; maintain central records; identify and write evaluations of prospects; coordinate the work of an assistant. Accurate typing, excellent organizational skills, ability to establish priorities and work with deadlines essential, 74-328-A (4/17).

Senior Clerk III will take and process orders at Graphic Arts. Price and schedule Xerox work, handle requisition details. Knowledge of reproduction processes helpful; previous customer service experience desired. 74-286-R (4/10).

Technical Statistical Typist III in the Research Laboratory of Electronics will type and proofread technical proposals, correspondence, and budget material; maintain files. Excellent typing and command of the English language required. 74-287-R (4/10).

Senior Clerk III for the Athletic Department will act as equipment room attendant and generally control admission to men's dressing room at the swimming pool, check identification, assign lockers and issue equipment. Other duties include the sale of athletic cards, guest tickets and the keeping of accurate records and files; accept telephone and over-the-counter reservations for squash courts. Candidate must be a male capable of working independent of full-time supervision following job training. Must be dependable, courteous and helpful in response to a variety request from guests and regular patrons, 74-261-R (3/27).

Senior Clerk III to the Work Control Coordinator, Physical Plant will receive and dispatch service requests; assist with scheduling; monitor requisitions; perform other clerical assignments. Ability to learn details of procedures; good office skills required. 74-16 (1/16).

Accounting Clerk III will work in the Grants and Contracts Section of the Comptroller's Accounting Office; prepare various financial and fiscal reports. Recent business school coursework required; ability to communicate efficiently is important in dealing with departments regarding their month's expenditure statements. 74-204-R (3/13).

Senior Clerk III in the Research Laboratory of Electronics will type purchase orders, correspondence; maintain office files. Ability to work with figures; accurate typing required. 74-319-R (4/17).

Senior Clerk III in the Sloan School of Management will maintain accounts, handle faculty travel arrangements, monitor requisitions, perform a variety of other clerical duties. Ability to work with detail, organize own work, and work in a busy office essential. Previous office experience, accurate typing required. 74-314-R (4/17).

Senior Clerk III in the Comptroller's Accounting Office will type con espondence and bills for Institute benefits; maintain data logs for the computer system. Good typing, knowledge of 10 key adding machine required. 74-215-A (3/13).

Senior Clerk II in the Student Accounts Office will maintain accounting records of students supported by government and industry, and assist in the accounting controls of the SAR system. Individual must be able to compose own correspondence and work well with administrators and students. Good typing and knowledge of accounting required. 74-310-R (4/17).

Senior Library Assistant IV will assist the Lindgren Librarian in all aspects of library work: circulation; catalog card changes; bindery collection; record maintenance; typing book orders, lists and letters. Library experience, college background, accurate typing required. Knowledge of German and Russian helpful. Winter hours: 8:30-4:30; summer hours: 9-5, 74-303-R (4/10).

Senior Library Assistant IV will handle the acquisition of current serials for the MIT Libraries. Process serials; anotate invoices; assist with claims investigation; compose and type own correspondence. Previous library experience essential; office experience desirable; knowledge of foreign languages valuable. Ability to work with details important. 74-290-R (4/10).

2nd Class Engineer must have a Mass second class Engineer's license or higher. Individual must be willing to work on any shift. 73-182-R (11/24).

Kitchen Man will wash pots, pans, small and large scale equipment at Baker House. Sweep and mop floors; empty trash; perform general cleaning. Must be willing to work an irregular schedule if necessary. Hours generally 10am-7pm Mon-Fri. 74-318-R (4/17).

(Continued on page 8)

Today's Faculty Meeting Will Hear Report on Finances

(Continued from page 1)

TABLE 1
UNRESTRICTED INCOME AND THE OPERATING BUDGET
FY71 THROUGH FY73
(in millions of dollars)

Year	Total Receipts of unrestricted income	Unrestricted funds used in operations	Additions to (use of) accumulations from prior years	Additions to capital
1970-71	3.9	5.4	(1.5)	
1971-72	5.4	2.9		2.5
1972-73	3.8	2.7	1.1	

income and expenses. Second, the possible alternative uses of unrestricted income, particularly as a means of building our endowment for the future, gives to this component of income high visibility and leverage.

The situation for the past three fiscal years with respect to the use of unrestricted income is shown in Table 1. In 1970-71 the need for unrestricted funds in operations exceeded receipts by about \$1.5M. This shortfall was accommodated by using the small balances of unrestricted funds received in prior years and set aside for potential use in operations. In each of the following two years the need for unrestricted funds in operations decreased, which allowed us to add to the principal of endowment nearly half of the receipts of unrestricted income in FY72 and to set aside, as a reserve for future needs in operations, \$1.1 million last year.

The present year is one which places extraordinary demands on the funds of the Institute. This situation results primarily from the divestment, on July 1, 1973, of the Draper Laboratory. That divestment has two consequences for the Institute's budgetary situation.

First the concomitant reduction in the direct costs of sponsored research requires that the shared indirect costs of Institute operations be spread over a smaller direct cost base. Consequently, both the overhead rates for sponsored research and the share of indirect costs paid by the general funds of the Institute have increased. This reduction in the direct cost base has added about \$1.0 million to the need for unrestricted income.

Secondly, and much more important, we are operating in this

first post-divestment year under an agreement with the federal government in which indirect cost rates for sponsored research are frozen at levels agreed upon two years ago. Thus, with the possible exception of the extraordinary and unforeseen increase in the cost of energy where new negotiations may be possible, no portion of the inflation in operating costs that has occurred this year can be recovered from research sponsors. The true rate is now six to seven percentage points greater than the contractually-fixed indirect cost rate (58% of direct salaries and wages for on-campus research). The corresponding shortfall in recovery of indirect costs from sponsors will be in the range of \$3.0 to \$3.4 million, all of which must be met by a call on reserves accumulated in the past for such purposes.

Our present view of the situation is that approximately \$9.9 million in discretionary reserves and unrestricted funds will be required to balance the operating budget for the current year. This compares with \$2.7 million required last year and is \$2.8 million greater than the estimate of \$7.1 million which we made last fall and which I discussed in my remarks to the faculty last October.

Much of this sharp increase in the need for unrestricted funds in the operating budget is a direct consequence of inflation in the cost of energy. The original budget for this year allowed for a 15% increase in the cost of purchased energy. That budget assumed, for example, that fuel oil would cost \$4.80 per barrel. In fact, the Institute is now paying about \$14 per barrel for residual fuel oil. This astonishing growth in the cost of oil has a close parallel in the

growth of unit costs for electricity, as the power company passes through to us its increased costs for oil. As a result, and in spite of heroic energy conservation measures which have reduced our use of energy by one-quarter, our budget for energy has grown from \$3.2 millon to \$4.5 million, an increase of 40%. Unless partial relief can be negotiated, as mentioned earlier, the \$1.3 million increase falls entirely on the general funds of the Institute because the indirect cost rates are frozen this year.

Our present estimate is that even with the cost of oil somewhat less than the peak levels it has reached this winter, a full year of operation in 1974-75 will cost about \$1.9 million more than the original energy budget for the year. However, a portion of this increase will have to be recovered from research sponsors through increased indirect cost rates, and the portion attributable to the operation of Institute houses and apartments will have to be recovered through increased rental charges. The portion of the increase which must be borne next year by general funds will be about \$0.6 million.

These distressingly large energy cost increases, coupled with severe supply restrictions such as those we experienced this winter and may see again in the future, underscore the crucial importance of continued attention to energy conservation. Substantial new savings can be achieved if all of us continue to support efforts to reduce energy use.

While increased energy costs represent the largest single component of the \$2.8 million increase in the demand for unrestricted funds used in operations that has developed since last fall, there are two other significant non-recurring costs that affect this year's budget:

- 1) The MIT Press, which operates as an auxiliary activity, moved abruptly in 1973 to a deficit position. Revenues fell below costs in 1973 and will be below costs again in 1974; the cumulative deficit of about \$0.9 million must be met this year with unrestricted funds. These problems are now under intensive review.
 - The \$17 million Turnkey Housing for the Elderly project in Cambridge, which was turned over to the city last winter, was intended to be a no-gain, no-loss development. In fact, because of design changes and delays in construction, costs have exceeded reimbursements from the Department of Housing and Urban Development by about \$0.5 million. This loss must be met out of unrestricted funds, and we must this year add \$0.3 million to a reserve to cover that loss.

The situation for the current year is summarized in Table 2. The estimated operating deficit of \$1.7 million is about 0.8% of estimated expenses for the year. The current year is the first time in recent history that there has been an imbalance in the operating budget of the Institute. The operating deficit will require use of discretionary reserves that have been accumulated in prior years by allocation of unrestricted funds to reserve accounts. The use of reserves in this manner is, while necessary, undesirable on at least two counts:

 The reserves available to us are not large in comparison with the anticipated deficit of \$5.1 million, and would quickly be exhausted were such an imbalance to continue.

 The reserve funds are themselves earning assets, and their expenditure to balance the operating budget reduces the annual flow of investment income.

In view of the likely outcome this year, the financial prospects for the next two or three years are crucially important to the Institute. It is of the utmost importance that we bring the operating budget into balance as soon as possible. Toward this end we decided last fall to increase tuition for the 1974-75 year by \$250 rather than by \$200. We have kept a close hold on expense increases and have reduced budgets in certain academic and support areas. Allocation of funds for curriculum development has been suspended for a year or

On the other side of the ledger, the pressures of inflation have caused us to increase salaries during the current reviews by larger fractions than last year or the year before that. Even so, the cost of living has risen faster during the past year than salaries, with the result that everyone in the MIT community has experienced a loss in real income. We are very much aware of the painful consequences for individuals and families of those extraordinary increases in living costs.

The net effect of these changes, coupled with a return to full recovery of the portion of the shared indirect costs allocable to sponsored research, is such that we now anticipate a residual operating deficit, after application of unrestricted income, of about \$2.9 million which is obviously unsatisfactory. Therefore, we are plan-

ning now for strenuous efforts aimed at both reducing expenses and increasing income. Clearly we must reduce operating expenses even more significantly than we did in preparation of the budget for FY73, when gross budget reductions totalled about \$3.5 million. This task will require a careful review of all operating areas, and the planned reduction or elimination of activities that are not central to the Institute's mission. At the same time we must increase income, and this objective is likely to require planned modest growth in the number of students we enroll. Some of this growth can occur in the undergraduate ranks, some in selected areas in the Graduate School, and some through expanded use of our facilities during the summer. We must redouble our efforts to increase the flow of gifts to the Institute and to expand our endowment. It now appears that the total of new income generation and cost reductions must approach \$4.5 million in order for the Institute to operate with a balanced budget in the 1975-76 year. While there will be much difficulty and hard work involved in the achievement of this goal, there is no alternative course of action available to us if we want to continue our essential programs with unimpaired vitality and to have the ability to grow in important new areas. It is essential to bring expenses in line with income, and we must do so, at the latest, by the 1977 fiscal year.

TABLE 2

NEED FOR, AND SOURCE OF, UNRESTRICTED FUNDS IN 1973-74 (in millions of dollars)

unrestricted funds in opera	ate of total need for tions	\$7.1
Increases since September		articul reton, such Colum
Energy inflation	\$1.3	
MIT Press	0.9	
Turnkey Housing	0.3	
Other budget changes	0.3	"相称"的""。"如果我
		2.8
April 1974 budget estimate of	total need in operation	S
for unrestricted funds and r	eserve funds	9.9
Use of Research Reserve to f	fund shortfall in indirec	t englishmen
cost recovery		(3.4)
Sources of unrestricted funds		ement of the thickers. The way of explaining the
Patent royalties	\$1.2	CONTRACTOR AND
Use of facilities	Section of the Court of the	AND THE PARTIES.
allowances	1.2	and the state of
Unrestricted gifts,		
Unrestricted gifts, grants, and bequests		All Super Visit Helici
Unrestricted gifts, grants, and bequests 1973 Receipts set aside		ed and the part of the second
Unrestricted gifts, grants, and bequests	1.3	(4.8)

Positions Available

(Continued from page 7)

Kitchen Man at the Faculty Club will sweep, mop kitchen floor; empty trash; wash pots and pans; clean serving table, range and broiler; strain grease in fryers. Steady work record desirable; experience in kitchen helpful. 4:00pm-12:00pm, Mon-Fri; some weekends. 74-285-R (4/10).

Dishwasher at the Faculty Club will wash dishes, glassware and silverware; clean dish machine and dish-table; set up dishroom; replace clean dishes in pantry. Steady work record desired; some experience helpful. Mon-Fri. 12:00-9:00pm; some weekends. 74-203-R (3/13).

Campus Patrolwoman/Patrolman Minimum 10 years experience required in all phases of law enforcement to include knowledge of court procedures and case preparation, investigation of criminal and other complaints and reporting on same. Rotating shift/40 hour work week. 74-94-A (2/6).

Systems Analyst - Administrative Staff in new Resource/Alumni Data Systems group in Resource Planning will take on responsibility for existing computer systems and develop new applications for the Alumni Fund, Alumni Association, and Resource Development. Must have experience with university alumni data processing services. Knowledge of PL/1 desirable. 74-329-A

Programmer/Analyst— Administrative Staff in new Resource/Alumni Data Systems group in Resource Planning will take on responsibility for existing DOS PL/1 computer systems and develop and program new applications for the Alumni Fund, Alumni Association, and Resource Development. Must have experience with university alumni data processing systems. Three to four years PL/1 programming essential. 74-330-A.

The following positions have been filled since the last issue of *Tech Talk* and are no longer available:

74-239-A	DSR Staff P.T./Temp
74-281-R	Secretary III
74-267-R	Secretary IV
74-257-R	Sr. Secretary V
74-228-R	Secretary IV
74-29-R	Kypch Oprtr II
74-151-R	Asst Auditor
74-245-R	DSR Staff-Cancel
74-1315-R	Syst Analyst
74-240-R	Secretary III-IV

The following positions are on HOLD pending final decision:

74-264-R	Microfilm Asst
74-57-R	Secretary IV
74-159-R	Locksmith
73-1227-R	Tech B
74-129-R	DSR Staff
74-294-R	Secretary III-IV

Mellon Fund Endows Chair

(Continued from page 1) lead to the degree of Bachelor of Science in Humanities and Engineering or the degree of Bachelor of Science in Humanities and Science.

Students enrolled in these courses during the last decade have entered a great variety of careers, including engineering, journalism, publishing, law, theology, music history, writing and the theater.

Under a more recent plan, students may concentrate entirely in humanities after having fulfilled Institute requirements. "This humanities major has

opened up a new kind of liberal education in which the ratio of humanities to science is roughly three to one," Mr. Johnson said.

Mr. Johnson said, "MIT offers what is very likely the most diversified and most experimental humanities curriculum of its kind anywhere in the country. The overall program in humanities and social science at MIT provides a variety of disciplines comparable in scope to the programs offered at most liberal arts colleges, and larger by far than the liberal arts program of any other science-oriented university in the United States."