

A. D. Little Establishes Interdisciplinary Chair

An interdepartmental faculty chair, titled The Arthur D. Little Professorship in Environmental Sciences and Engineering, has been established to support and encourage scholars whose environmental studies transcend traditional boundaries.

MIT President Jerome B. Wiesner said the professorship, made possible under a five-year grant from the Arthur D. Little Foundation of Cambridge, will recognize and support a younger member of the faculty who is engaged in research and teaching in environment-related areas of science and engineering and whose achievements will serve as an example to other young faculty members who are considering a career commitment to the area of environmental studies. The Arthur D. Little Foundation is sponsored by Arthur D. Little, Inc.

"The Commitments of faculty, students, and resources to prob-

lems of environmental concern are extensive and growing," Dr. Wiesner said. "The Arthur D. Little Professorship will be an important contribution toward expanding the ways in which MIT's special talents and skills can be applied to the improvement of environmental quality."

Appointment to the professorship will be for stated terms, Dr. Wiesner said, and will be made to facilitate work that requires inquiry in fields as diverse as the technology and legal aspects of environmental control or the physiological impact of environmental chemicals.

The interdisciplinary approach, Dr. Wiesner said, is essential to research and teaching in the areas of environmental studies and is in line with expanding interests of faculty and students at the Institute who increasingly are finding ways of applying their knowledge and skills to problems of society.

Weekend to Feature Concerts by Orchestra, Choral Society

Both the MIT Symphony Orchestra and the Choral Society are presenting concerts this week.

The Symphony Orchestra will perform on Thursday, December 2, at Wellesley College, and again on Friday, December 3, at MIT. The Wellesley concert will begin at 8pm in Houghton Chapel; the following evening at the Institute, the concert will start at 8:15pm in Kresge Auditorium.

Robert Freeman, associate professor of music, will conduct both performances. Pianist Gilbert Kalish, artist in residence at the University of New York at Stony Brook and associate in performance at Swarthmore College, will be featured soloist.

The Orchestra's program will include: Mozart's *Concerto in C Minor* for piano and orchestra, K 491; Brahms' *Symphony No. 3*; Hindemith's *Concert for Strings and Brass*, Op. 50; and Messiaen's *Oiseaux Exotiques*.

Both concerts are open to the public and admission is free. However, tickets are required for admission to the MIT concert. Free tickets may be obtained at the Symphony Orchestra's booth in the lobby of Building 10.

Next Sunday, December 5, the Choral Society, the Cambridge Gestival Orchestra and guest soloists will present a concert of works by Henry Purcell in Kresge Auditorium at 8:30pm.

Sponsored by the MIT music faculty and conducted by Klaus Liepmann, director of music, the concert is entitled "A Purcell Festival of Music." The program will include Purcell's *Dido and Aeneas* (the concert version) and *Ode on St. Cecilia's Day* (1692). Guest soloists will be soprano Jane Bryden, mezzo-soprano D'Anna Fortunato, contralto Eunice Alberts, tenor Frank Hoffmeister and baritone David Evitts.

Tickets for the Choral Society concert are \$3 for the reserved

section, \$2 for unreserved seats and \$1 for students with ID cards. Tickets are on sale at the Kresge Box Office, the lobby of Building 10, and the Harvard Coop in Harvard Square. Reservations may be made at Ext. 4720.

Tutoring Plus Offers Neighborhood Children Friendship, Creative Approach to Education

By Linda Omohundro

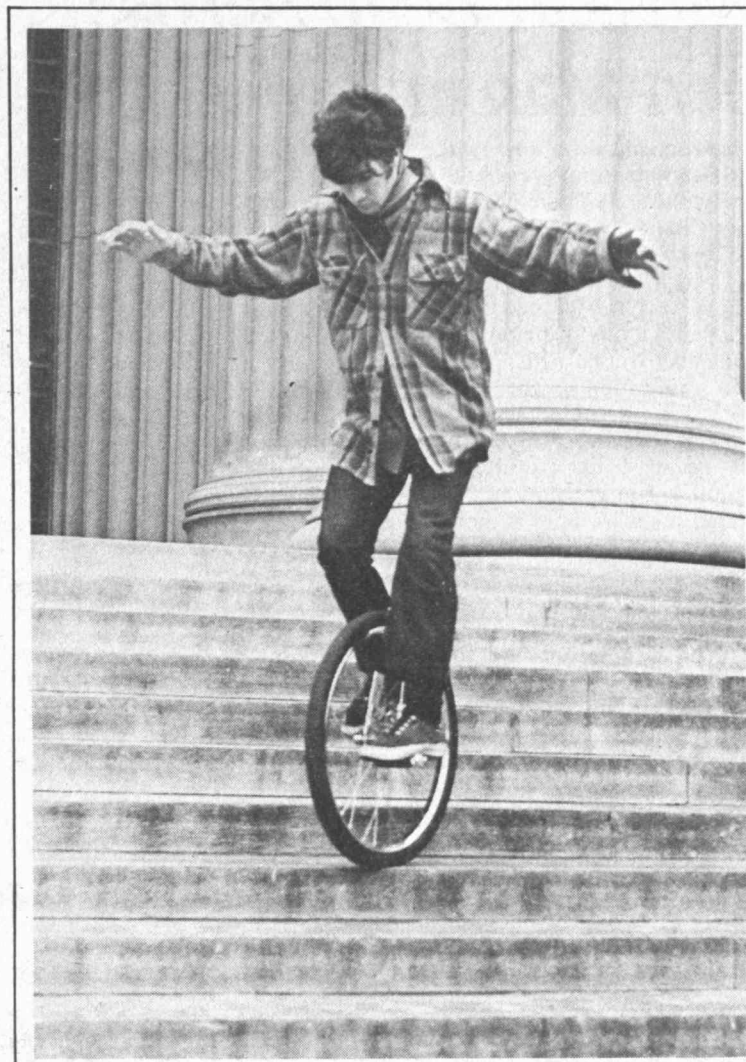
A small black boy looks up and asks, "When can I have a tutor?"

The same question is asked frequently by this little boy and many of his friends. Some are black, some are white, some are in kindergarten, some are older. But they all have one thing in common—they want to learn and have gone to Tutoring Plus for help. Unfortunately, Tutoring Plus doesn't have enough tutors to go around.

Being a tutor doesn't take a lot of time and working with the children can be very rewarding. Building new friendships, showing that someone cares, sharing the excitement of an improved report card, developing a mutual trust with a child—all provide a sense of satisfaction for the tutor as well as the child. The tutor-child relationship is not a one-way process because each learns from the other.

What is Tutoring Plus and how does it work? Basically, it's a program of tutoring plus counseling for elementary school children living in the nearby low income area of Cambridge. Organization and administration is run by parents from the Cambridge Model Cities area with major responsibility held by five parent-supervisors.

The Tutoring Plus philosophy is "to expose the student to the world, show him interesting situations in the physical world and in



Watch Your Step . . . Andy Rubel, shown here descending the steps of the main entrance at 77 Massachusetts Avenue in his own inimitable way, came to MIT last year with high hopes and a novel pastime. His enthusiasm has encouraged a small band of dedicated unicyclers to practice on the sidewalks and corridors of the Institute.

--Photo by Margo Foote

Thaw Eases Restrictions on Salaries

Recent regulations issued by the Pay Board and Price Commission have permitted the Institute to begin adjustments in the 90-day freeze on wages, salaries and prices. The new Order of the President provides that the freeze will remain in effect until revised or revoked by the Cost of Living Council or other authority. Thus, any thaw must be directed by one of the Boards or Agencies set up by the President's Order.

The Institute, in consultation with legal counsel has determined that, while no pay increases may be retroactive to the period before November 14, increases in individual salaries reviewed after a probationary period can be allowed in accordance with past practices. Salary adjustments of this nature which were caught in the Phase I freeze will now be paid effective November 14.

The Office of the Vice President for Administration and Personnel will continue to obtain clarification on other aspects of the regulations as they are issued by the Cost of Living Council or its associated Boards.

Buyer's Hotline Set up by State

Consumers across the Commonwealth will have a new advocate beginning today. The Massachusetts Office of Consumer Affairs has established a hotline to answer questions concerning consumer rights and help consumers find out if they have been cheated and what to do about it.

The hotline number in Boston is 882-1666. It is a WATS line which can be dialed free from anywhere in the Commonwealth by dialing area code (800).

The hotline will be open Monday through Friday from 9am to 9pm. An answering service will accept names and telephone numbers of callers at other hours.

Paid and volunteer workers from the Attorney General's Office, the State Department of Education and the Office of Consumer Affairs will staff the hotlines. Simple questions from consumers will normally be answered within 24 hours. More complex problems will be researched, with a solution expected within ten days.



Curtis Morrow, '73, center, works with youngsters in the carpentry shop at Tutoring Plus' After School Learning Center.

--Photo by Margo Foote

the world of interaction between people, and allow his natural curiosity to motivate him to learn."

Tutors are involved in all aspects of Tutoring Plus. They can work with students in a one-to-one tutor-child relationship. They can supervise creative educational activities for several children in the after-school Learning Center program. They can assist teachers in the Roberts School Exploration Room, an experimental classroom for underachieving students.

Tutoring Plus depends heavily on volunteers for its tutoring staff. This year there are about

100 tutors, most of whom are students and working people from MIT and Wellesley. Each tutor is matched with one child and usually spends three to five hours a week with his "tutee." Tutors aren't expected to go into the program cold—there are meetings with the parent-supervisors, discussions with other tutors, and mandatory math and reading workshops. The parent-supervisors orient the tutor to neighborhood conditions, the kinds of problems he will be facing, and any other criteria which will help him

(Continued on page 8)

Listings Needed for New Spring Compendium

Reminder: The deadline for listing subjects and seminars in the second term *Compendium* is Friday, December 3. Please send listings to the Information Center, Room 7-111.

The Muse: A Musical Leap Across the Gap Between Man and Machine

(This article, written by Bruce A. Manuel, recently appeared in *The Christian Science Monitor*.)

With slide switches engaged and blue-green indicator lights blinking -- looking like something from a lunar-landing module -- the device sits on shelves of a few hi-fi stores in the Boston area and attracts curious stares.

It gives the impression of a souped-up radio, but it's actually a unique minicomputer that uses space-age components to create and perform music.

Its marketers call it "the Muse." But co-inventor (and dreamer) Edward Fredkin, remembering its humble beginnings in his basement and a colleague's kitchen, still calls it "the box."

It could be an encouraging new sign that sophisticated technology can be geared to a human scale.

Seated in front of the box in his office at the Massachusetts Institute of Technology, where he is a professor of electrical engineering, Mr. Fredkin flipped the power switch to "on."

Patterns set

Like a cellist tuning up to play Brahms, he carefully adjusted the eight slide switches which fix the rhythm, sequence, and interval patterns he wants to use.

Right away the indicators began to flash light pictures of tunes racing inaudibly through the electronic maze inside the box. They showed which of the billions of possible note combinations available to the Muse-ician Mr. Fredkin was programming with the switches.

Finally he adjusted volume, tempo, and pitch controls, and pushed the "start" button. The box sang out a jazzy theme with intricate variations -- all in mellow, reedy clarinet tones that would have made Pete Fountain do a double take. (Later Mr. Fredkin showed that the Muse's timbre ranges all the way from metallic treble tinkles to dull bass drones, including many of the burps, screeches, and wails characteristic of synthesizers.)

30 years without repeating

The box can play as long as 30 years without repeating itself. As the piece eased to a gentle cadence, Mr. Fredkin switched it off to tell why he and MIT colleague Dr. Marvin Minsky decided to build it.

They designed the device to bridge the gap between being able to enjoy music and being able to create it.

"To perform on the Muse," said Mr. Fredkin, "you don't have to be skilled. You set up switches and listen. When you play something you don't like, you modify it slightly and eventually you get good tunes. The Muse has created the tunes. You've found them and you can repeat them on command anytime you want."

When asked how he thought the Muse would be accepted, he said: "It takes the world quite a while to get used to a new idea. Here we have a musical device that's not a

new instrument, not a new radio, not a new record player, not a music synthesizer. There has been nothing like it whatsoever with the exception of the digital computer, which can act like it. But very few people have had a million dollars to buy a digital computer to play around with."

Human Application sought

There's more behind the Muse than meets the ear. At the bottom of the flashing lights and integrated circuitry is a conviction: "All machines could be more humanizing, rather than less," as Mr. Fredkin put it.

"I wanted to see if there was some more human kind of application for high technology than computers and guided missile systems, which are normal applications.

"The brightest minds and most useful technology have gone into weapons or machines which aim at efficiency but end up producing some kind of dehumanizing effect on society," noted Mr. Fredkin.

His current post at MIT and earlier experience in Air Force defense systems work and private research in artificial intelligence have made him familiar with the usual applications for technology.

As it happens, the box is an outcome of his rebellion against some of the trends he's seen.

Transistor spotlighted

Leaning far back into his chair, he explained his belief that too many new developments do too little for people.

"Improvements resulting from the transistor, for example, have been largely marginal," he said. "The transistor made the portable radio a little nicer -- cheaper, easier to carry, usable longer on the same batteries -- but there was

no 'invention' in these improvements."

Other developments, he said, give price advantages to manufacturers. Sometimes the savings are passed along to consumers.

But there are a host of new things that go entirely unapplied to people's needs, except in the most remote and impersonal ways. Witness computerized billing systems and scientific probes to distant planets.

"The Muse is unique, I believe, because it harnesses technology for the use of the individual in a way that nothing else I know of does," he said.

Price cut sought

"I'm hoping that it won't be unique for long, the engineers will ask themselves what science and technology can do for people in a more constructive or aesthetic or artistic or just enjoyable way..."

Presently the Muse sells for \$249. But Mr. Fredkin hopes to make it more versatile and perhaps reduce the price as low as \$30 or \$40.

The Muse has made its appearance at a time when thousands of engineers and technological specialists are out of work because of cutbacks in defense spending. How many will try to follow Mr. Fredkin's lead and how successful they will be in making their wares appealing to buyers remains to be seen.

Reminder: Tech Talk has new telephone extensions. Please use the following numbers:

Editorial Office	Exts. 3277 and 3278
Institute Calendar	Ext. 3279
Classified ads	Ext. 3270

Grants Available for Summer Program in Dental Research

The American Dental Association is sponsoring a summer Program in Dental Research for College Students. Funded by the National Institute of Dental Research, the program supports undergraduate research projects for students interested in oral biology and related fields.

Selected students are assigned to various laboratories across the country where they spend the summer working with senior dental scientists. They will receive an \$825 maintenance stipend for the ten-week program, as well as air fare to and from their assigned locations. At the end of the program, a conference will be held for presentation of individual student research reports.

Because oral biology covers the whole spectrum of basic and clinical disciplines, this program should be of interest to students working toward advanced degrees in the biological, physical and behavioral sciences as well as med-

icine and dentistry.

Information and application kits are available in the Office of Preprofessional Counseling and Education, Room 10-186, Ext. 4148. The application deadline is February 15.

D-Lab Staff Member Triumphs in Annual Tennis Tournament

Rudrapatna Ramnath, a staff member at the Draper Lab, beat old man winter and 40-man singles draw to win the annual Faculty-Staff Tennis Tournament.

Ramnath, teamed with Richard Thurber of Project MAC, also won the doubles competition which was run in conjunction with the singles. The tournament, sponsored by the Athletic Department started the first week of October and was not completed until the end of November.

Ramnath won his singles cham-



Macrame is one of the arts featured at the Dames Craft Sale. Here, Mrs. Elsleda Russell, left works with Mrs. Cecilia Kausel on a lampshade during a macrame class at Westgate.

--Photo by Margo Foote

Dames to Exhibit Crafts at Annual Christmas Sale

The Technology Dames will invade MacLaurin Lobby again on Monday, December 6--this time with their colorful and creative craft sale. Scheduled from 8am to 4pm, the sale will feature hand-craft items made by student wives, including pottery, paintings, toys, candles, knitting and jewelry.

Several years ago the selection of crafts was limited, but the Dames' talents have broadened considerably. For example, some of the wives have learned how to macrame (the art of tying knots) and will exhibit this popular craft at the sale.

Because it's such a great place to find unique Christmas presents,

the sale is very popular and always crowded. Avoid the last minute rush and visit the sale early in the day.

TECH TALK

Volume 16, Number 22
December 1, 1971

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Tech Talk is published 50 times a year by the Institute Information Services, 77 Massachusetts Avenue, Cambridge, Mass. 02139, and distributed free to all members of the MIT community. Additional copies are available in the Information Center (Room 7-111) or in the News Office (Room 5-105). Large numbers of additional copies should be requested within two weeks of the issue date.

Mail subscriptions are \$7.50 per year. Checks should be made payable to Bursar, MIT, and mailed to the Editor, Room 5-111, MIT, Cambridge, Mass. 02139.

Please address all news and comment to the Editor, Room 5-111, Ext. 3277.



Guests at the ceremonial groundbreaking broke into impromptu singing and ethnic dancing in celebrating the start of construction. —Photo by Margo Foote

Construction Gets Underway on MIT Apartment Complexes for the Elderly

If construction proceeds according to schedule, the first of 684 apartments for the elderly will be ready for occupancy a year from now.

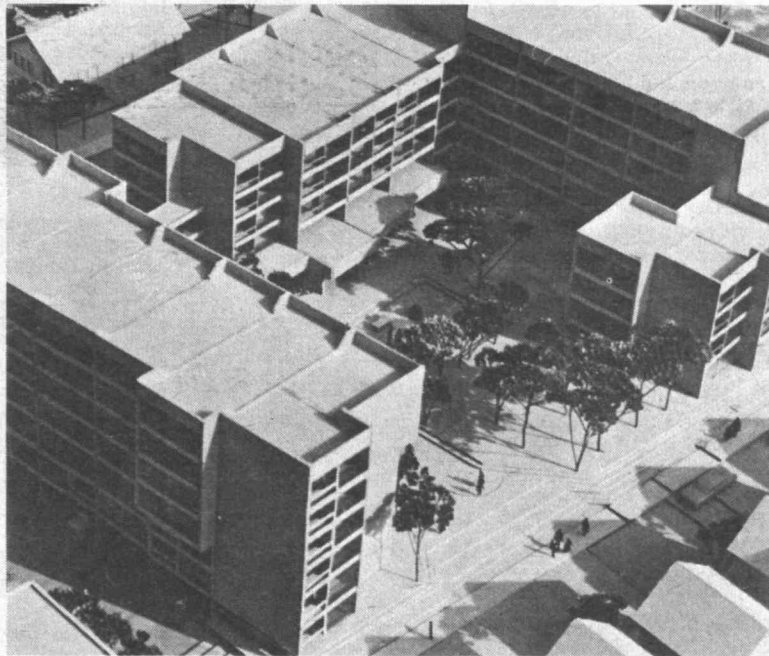
Howard W. Johnson, Chairman of the Corporation, and President Jerome B. Wiesner were hosts for a symbolic groundbreaking ceremony ten days ago at the Faculty Club. The celebration was attended by more than 100 residents of the three neighborhoods where the apartments will be built as well as city, state and federal officials.

Mr. Johnson paid tribute to the many contributions of those present. "At the time when we first offered to initiate and assist in the development of a large campus and community housing program, we were keenly aware of the many diverse requirements—including acceptance by the community, the financing of construction, zoning changes, federal, state and local approval—that would have to be met before any parts of the proposal could become a reality," he said.

"That these requirements have been met, and expeditiously as well, is, of course, the work of many hands. Because work has begun concurrently on all three sites which are located in quite different sections of the city," Mr. Johnson continued, "We thought it best to arrange a single symbolic ceremony for the start of construction for all three developments."

Dr. Wiesner also cited the broad cooperation of neighborhood people and government officials. "That unified effort was forthcoming and through it Cambridge has perhaps provided an example for all the nation of how a great city and one of its educational institutions can work together with common purpose for the common good."

Cambridge Mayor Alfred Vellucci spoke of the city's gratitude to the Institute for its initiative in tackling the housing problem. Antony Herry, director of the Institute Real Estate Office



This architect's model by Benjamin Thompson Associates, shows the 199-apartment complex at Clarendon Street in North Cambridge.

then described in some detail the features of the three complexes.

Following this, Walter L. Milne, Assistant to the Chairman and master of ceremonies for the occasion called upon a representative from each neighborhood to participate in the symbolic groundbreaking. The three men, Charles Moore of North Cambridge, Thomas Walker of East Cambridge and Vincent Panico of Cambridgeport prepared time capsules bearing the names of citizens who made "special personal contributions toward the success of 'A Housing Program in Cambridge.'"

In closing the formal program Mr. Milne presented certificates signed by Mr. Johnson and Dr. Wiesner to some 30 residents of the three neighborhoods. "We want to recognize and express appreciation to those citizens of Cambridge who have made great contributions to this program as citizens—not as members of boards and authorities, nor as professionals, nor as part of city government—but as volunteers who have cared deeply about the problems of the elderly and the problems of

neighborhoods. And who, through their leadership participation in this program, have done something about it," Mr. Milne said.

"A Housing Program in Cambridge" was first announced in April 1969 and included both housing in Cambridge and further development of student residences.

The three apartment houses now under construction comprise the largest federal Turnkey project awarded to date, and also the only one so far given to a university. When complete, the \$17.7 million project will include not only apartments but also common facilities such as lounges, crafts rooms and laundries.

Another proposal in "A Housing Program for Cambridge" was development of market-rental apartments. Planning continues for a large apartment complex at 1000 Massachusetts Avenue.

Increasing on-campus housing for students was also part of the plan. This included the renovation of Burton-Conner house which is now complete and the construction of Westgate II which is now underway.

Human Experimental Guidelines are Restated

For years there has been growing awareness of the possible dangers of using humans as experimental subjects. (Medical experimentation on humans by the Nazis in World War II brought this danger to world attention.) The World Medical Association in 1962 adopted the Declaration of Helsinki, a code of ethics for human experimentation. The Institute was one of the first educational institutions in this country to recognize and act upon the need for a committee of the investigator's peers to review the protocols of proposed research projects, in order to identify any possible dangers to human subjects involved in these projects. In 1966, the National Institutes of Health made such review mandatory for all projects funded by that agency and other granting institutions have followed suit. The policy of the MIT Committee has been to review all projects, whether federally funded or not; this has been extended to include projects in psychology and the behavioral sciences.

The advantages of peer group review are many. The most important is the welfare of the individual subject, physical and psychological. In addition, the investigator can be reasonably assured that he has not overlooked some unforeseen danger, if a peer group has reviewed his plans. Finally, the sponsoring or associated institution, in this case the Institute, can know that safeguards have been established against any harm to the individual or to itself, and that the possibility of justifiable litigation is minimal.

With these considerations in mind, the President has charged the Committee on the Use of Humans as Experimental Subjects with the review of every research project utilizing humans as experimental subjects for the benefit of others, without overriding benefit for the subject involved. Diagnosis and treatment of a diseased individual for his own direct benefit may be experimental, but is not a part of this Committee's responsibility.

Electronic Music to Be Played Today

The Music faculty is sponsoring a four-hour performance of electronic music this afternoon (December 1) in Kresge Auditorium. The program will present a variety of pieces, including musique concrete, synthesizer, computer generated, classic studio and environmental taped works. In addition, Ted Kravnik, of the Center for Advanced Visual Studies, will have his Audio-Laser, which uses the musical signal to control a projected laser beam, in operation throughout the playing. The music will continue uninterrupted from noon to 4pm, and listeners are invited to come and go as they wish. There is no admission charge and the entire community is welcome.

bility. All types of human use in research studies are within the purview of this Committee, including medicinal, radiological, physical, psychological, and nutritional. Any project however remotely connected with MIT or using any of its facilities shall be included.

It is the responsibility of this Committee to devise effective procedures to assure an adequate review of any protocol, consistent with the general principles noted previously, and to disseminate information to the Institute community concerning the use of humans as experimental subjects.

Any proposals submitted to this Committee should have prior written approval by the head of the appropriate department. The Committee will report to the investigator its approval or disapproval, and reasons therefor, as soon as possible. A copy of this report will be sent to the department head as well. The Committee cannot have supervisory powers; its principal role is advisory and educational, with the expectation that investigators will find it advantageous to make use of its advice and help.

NSF Program Has Openings

Positions are now available for young, unemployed scientists and engineers to work at federally-funded research and development installations through the Presidential Internship Program. The program is funded by \$3 million from the Department of Labor and administered by the National Science Foundation.

Each award provides a stipend of \$7,000 per year which may be supplemented by the installation concerned. Appointments are expected to be for 12 months and made only to those holding advanced degrees (master's or higher) whose qualifications are clearly superior.

Under the program, individuals should apply directly to research and development laboratories sponsored by the government. For the names of the laboratories and further information, call Ron Stone, Graduate School Office, on Ext. 4868.

Drop Date Today

The Registrar has announced that today, December 1, is the deadline for undergraduates to drop subjects simply by filing a change card. After today undergraduates must petition the Committee on Academic Performance in order to cancel registration in a subject. There will be a \$5 processing charge for any first term registration change made after today's deadline.

THE INSTITUTE CALENDAR

December 1 through December 10

Events of Special Interest

Family Day Care Meeting and Forum *

Helen Scannell, MIT pediatrics nurse, will discuss home safety and health. Also, general discussion of day care program and its problems. Sunday, December 5, 5-7:30pm, Westgate Function Rm.

Tech Dames *

Annual Christmas craft sale. Monday, December 6, 8am-4pm, Bldg 10 lobby.

Corporation Joint Advisory Committee (CJAC)

Discussion of Simplex/Northwest Area Development. Thursday, December 9, 7:30pm, Rm 10-105.

Seminars and Lectures

Wednesday, December 1

Defects in Optical Crystals

R.C. Linares, Allied Chemical. Ceramic Seminar. 11am, Rm 10-105.

The Outlook for SALT ***

Prof. George Rathjens, political science. Center for International Studies Seminar. 12n, Faculty Club.

Optimal Digital Coding of Continuous Random Processes *

Dr. Oleh Tretiak, electrical engineering. Cognitive Information Processing Group. 12n-1pm, Rm 20B-224.

Circuit Breaker Fundamentals

Dr. A.N. Greenwood, consulting engineer, General Electric Company. Electric Power Systems Engineering Laboratory Seminar. 3pm, Rm 10-105.

Phospholipids in Calcification

Dr. Irving M. Shapiro, Oral Health Research, University of Pennsylvania. Oral Science Seminar. 3-5pm, Rm E18-301.

The Supersonic Transport: A Problem for Atmospheric Ozone?

Prof. Michael B. McElroy, engineering and applied physics, Harvard University. Earth and Planetary Sciences and Meteorology Joint Colloquium. 4pm, Rm 54-100.

Thursday, December 2

SPURS Seminar

Regional Study of Metropolitan Areas in Montreal, X. Six; Growth Poles in Spain 1964-1968, **C. Ponsa**, 3pm, Rm 9-351.

The Wind System of the Classic Organ *

Charles B. Fisk, president, C.B. Fisk, Inc., organ builders. Interdepartmental Acoustics Seminar. 4pm, Rm 5-134. Coffee, 3:30pm, Rm 1-114.

Broadcast Channels *

Prof. Thomas M. Cover, electrical engineering. Research Laboratory of Electronics Seminar. 4pm, Rm 26-210.

Systems Analysis at Xerox *

Dr. Howard M. Berger, manager of Systems Analysis, Xerox Corp. 4pm, Rm 24-307. Refreshments after seminar, Rm 24-219.

Magnetohydrodynamics and Rarefied Gas Dynamics **

Fluid Mechanics Film. 4-5pm, Rm 3-270.

Clinical Scurvy and Ascorbic Acid Metabolism in Man *

Dr. Robert E. Hodges, University of California. Nutrition and Food Sciences Seminar. 4:15pm, Rm 54-100. Coffee, 4pm.

Statistics of the Retinal Photocurrent or How Bright Light Inhibits Vision

Prof. George B. Benedek, Physics. Physics Colloquium. 4:30pm, Rm 26-100. Tea, 4:30pm, Rm 26-110.

Friday, December 3

Government Policies Supporting Autonomous Housing Action in Underdeveloped Countries *

Round table discussion with special reference to the Braz de Pina redevelopment project in Rio de Janeiro, Brazil. SPURS Seminar. 2-6:30pm, Rm 10-105. (Continued on Saturday, December 4.)

Heat Effects in Trickle Bed Reactors *

D.A. Jones, chemical engineering. 3pm, Rm 10-275.

Gasdynamic Lasers

Edward Gerry, director, Avco Everett Research Laboratory. Mechanical Engineering Seminar. 3pm, Rm 3-270. Coffee, 4pm, Rm 1-114.

Continued Discussion: A Proposed Open University for Massachusetts *

Pannelists from the Massachusetts Board of Higher Education, the Education Development Center, Education Research Center, and the MIT faculty. ERC Colloquium. 12n, Rm 37-252.

Drag Reduction and Drag Increases in Turbulent Flows *

G. Keuroghlian, chemacal engineering. 2pm, Rm 10-275.

The Metal Insulator Transition in a One-Dimensional Organic Solid *

Dr. Alan Geeger, University of Pennsylvania. Materials Science and Engineering Colloquium. 4pm, Rm 4-231.

The Effects of Surface Conditions on Boiling Characteristics *

James J. Lorenz, doctoral thesis presentation, mechanical engineering. 4pm, Rm 3-343.

Saturday, December 4

Government Policies Supporting Autonomous Housing Action in Underdeveloped Countries *

Round table discussion with special reference to the Braz de Pina redevelopment project in Rio de Janeiro, Brazil. SPURS Seminar. 9am-12n, Rm 10-105.

Monday, December 6

Waves in Fluids and Generation and Propagation of Sound **

Fluid Mechanics Films. 4-5pm, Rm 3-270.

Hydrologic Frequency Distributions

Guy LeClerc, civil engineering. Water Resources Seminar. 4pm, Rm 48-316. Coffee, 3:30pm, Rm 48-410.

Nuclear Engineering Doctoral Seminars *

Nuclear Power Management: System Optimization Model, **P. Deaton**; Fuel Management of the Redesign MIT Research Reactor, **A. Kadak**; Nuclear Fuel Management Optimization, **J. Kearney**. 3-5pm, Rm NW12-222.

Tuesday, December 7

Modular Optimization of Chemical Processes *

Prof. J.P. Leinroth, chemical engineering. Chemical engineering Graduate Student Committee. 3pm, Rm 9-150. Refreshments before seminar.

Inertial Grade Laser Gyro *

Dr. Fredrick Aronowitz, staff scientist, Honeywell Inc. Aeronautics and Astronautics Seminar. 4pm, Rm 35-225. Coffee, 3:30pm, Rm 33-206.

Practical Applications of Fracture Mechanics Principle in Design

W.S. Pellini, superintendent, Naval Research Laboratory. Ocean Engineering Seminar. 4pm, Rm 3-270. Coffee, 3:30pm, Rm 5-314.

Knowledgeable Environments *

Dr. Gordon Pask, London, England. Architecture Seminar. 5-7pm, Rm 7-403.

Dedication to Ignorance: The Mass Media and Nutrition Education *

Richard K. Manoff, advertising executive pioneering in mass media nutrition education. Undergraduate Policy Seminar. 7:30pm, Rm 9-150.

Unmasking the Unknown *

Andre Kole will discuss ESP, predicting the future, the supernatural. College Life/Campus Crusade for Christ Internat'l. 8pm, Kresge. Call X3214.

Wednesday, December 8

Linguistic Considerations in Text-to-Speech Conversion *

Prof. Jonathan Allen, electrical engineering. Cognitive Information Processing Group Seminar. 12n-1pm, Rm 20B-224.

Nuclear Reactor Safety: Emergency Core Cooling in Light Water Reactors *

Prof. Norman C. Rasmussen, nuclear engineering. 3:30pm, Rm 9-150. Coffee, 3pm.

Relativistic Dirac-Flock Atomic Structure Calculations

Dr. J.P. Desclaux, CEA (Paris) and Northwestern University. 4pm, Rm 26-414.

Mixed Volatiles in Regional Metamorphism

Prof. Philip M. Orville, Dept of Geology and Geophysics, Yale University. Earth and Planetary Sciences Colloquia. 4pm, Rm 54-100.

Unidirectional Solidification of Metal Composites

Prof. M.C. Flemings, metallurgy and materials sciences. Ceramics Seminar. 1pm, Rm 10-105.

Function and Mandibular Growth

Dr. Robin M. Rankow, School of Dental and Oral Surgery, Columbia University. Oral Science Seminar. 3-5pm, Rm E18-301.

Thursday, December 9

National Policy for Local Planning in Brazil

P. Schweizer. SPURS Seminar. 1-3pm, Rm 9-351.

Future Directions of Thermodynamics *

Panelists: **Professors E.P. Gyftopoulos, G.N. Hatsopoulos, J.C. Keck, J.H. Keenan, and R.E. Stickney**. Thermodynamics Seminar. 2pm, Rm 3-370.

Some Directions for MIT Education **

Prof. Kenneth M. Hoffman, chairman, Commission on MIT Education. Lincoln Lab Lecture. 3:30pm, Lincoln Lab Cafeteria.

Fate of the Sympathetic Nerve Transmitter Noradrenaline

Dr. Julius Axelrod, chief of pharmacology, Laboratory of Clinical Science, National Institute of Mental Health, 1960 Noble Laureate in Medicine. Nutrition and Food Science Lecture. 4pm, Rm 54-100.

Tacit Assumptions in Fundamental Particle Physics

Dr. Maurice Goldhaber, Brookhaven National Laboratory. Physics Colloquium. 4:30pm, Rm 26-100. Tea, 4pm, Rm 26-110.

Man and Society in the Biblical Period

Prof. S. Talmon, Hebrew University and Brandeis University. Hillel and Morris Burg Memorial Lecture. 7:30pm, McCormick Green Living Room.

Friday, December 10

The Effect of Gibbs Adsorption on Marangoni Instability *

J. Ross, graduate student, chemical engineering. 2pm, Rm 10-275.

Enzymatic Hydrolysis of Cellulose *

B. Van Dyke, graduate student, chemical engineering. 3pm, Rm 10-275.

Some Remarks on the Hubbard Model *

Dr. Elliott Lieb, mathematics. Materials Science and Engineering Colloquium. 4pm, Rm 10-105. Refreshments, 3:30pm.

Qualitative and Quantitative Thoughts on the Relations between Science, Technology, and Society

Dr. Derrick Desolla Price, Avalon Professor of History of Science and Medicine, Yale University. Moderator: **Ascher H. Shapiro**, head of mechanical engineering. Respondents: **Robert Cohen**, professor of History of Science and dean of the College of Liberal Arts; **Boston University**; **Prof. Donald G. Marquis**, organizational psychology and management, Sloan School. Technology and Culture Seminar. 5:15pm, Rm 9-150.

Student Meetings

Student Information Processing Board Meeting

Every Monday, 7:30pm, Rm 39-200.

Thursday Staff Meeting **

Every Thursday, 8pm 2nd floor, Walker.

Technique Staff Meeting

Every Saturday, 11am, Student Center Rm 457.

Tech Engineering News Staff Meeting

Every Sunday, 5pm, TEN Office, Student Center Rm 453.

ERGO Staff Meeting

Every Sunday, 6pm, Student Center Rm 443.

MIT Club Notes

Book of the Week *

Informal discussion over dinner of *Rules for Radicals* by **Saul Alinsky**. Wednesday, December 1, 5:15-7:15pm, Ashdown Dining Hall (table near door). Call James Snell, 523-1198.

Alpha Phi Omega * †

Chapter meeting. Wednesday, December 1, 7:30pm, Student Center Rm 407. Refreshments.

Outing Club *

Bring skis, equipment you want to sell. Register on Thursday, December 2, or Monday, December 6, 5-7pm, Student Center Rm 465. Call X2988.

Chinese Students Club *

Cultural Committee meeting, discussion of "Problems of Boston Chinatown." Friday, December 3, 7pm, Student Center Rm 49. Call Ray Eng, dorm X9710 or 354-2789.

Chinese Students Club *

Informal meeting, discussion of "China through Native Eyes," and Felix Greene's movie, "China." Saturday, December 4, 8pm, Rm 10-105. Call Ray Eng, dorm X9710 or 354-2789.

White Water Club **

Pool session, Tuesday, December 7, 8-10pm, Alumni Pool.

Book of the Week *

Informal discussion over dinner of *Post-Scarcity Anarchism* by **Murray Bookchin**. Wednesday, December 8, 5:14-7:15pm, Ashdown Dining Hall (table near door). Call James Snell, 523-1198.

Hellenic Student Association ***

Dinner meeting with **Prof. Michael Athans**. Wednesday, December 6pm, Ashdown House, Fabian Rm.

Outing Club *

Used skis and equipment sale. Thursday, December 9, 11am-7pm, Student Center Rm 407. Call X2998.

Hobby Shop **

Open weekdays, 10am-4:30pm, duPont Gym basement. Fees: students, \$6/term or \$10/year; community, \$15/year. Call X4343.

Baker House SPAZ Jogging Club **

Daily, 10:45pm, Baker 2nd Floor West.

Tiddlywinks Association *

Every Monday, 8-11:30pm, Student Center Rm 473.

Judo Club **

Every Monday, Wednesday, Friday, 5pm; every Saturday, 1pm, duPont Gym Exercise Rm. Beginners welcome.

Outing Club

Every Monday, Thursday, 5pm, Student Center Rm 473.

Classical Guitar Society **

Classical and Flamenco guitar classes: private, Mondays, 7-9pm; group, Thursdays, 5-8pm, All in Rm 1-136. Call 661-0297.

Fencing Club **

Every Tuesday, 6-9pm, duPont Fencing Rm.

Table Tennis Club ***

Meeting and practice. Every Wednesday, 7:30-10pm, duPont Gym T-Club Lounge.

Living Association *
Hillel and school, first Thursday every month; general meeting, third Thursday every month. 7:30pm, Student Center Rm 473.

Science Fiction Society *
Every Friday, 5pm, Rm 1-236.

Indian Folk Dance and Lore ***
Indian Council, Inc. Every Friday, 7-11pm, Student Center Rm 407.

Student Homophile League *
Dinner and mixer. Every Friday, 7:30pm, Mission Church, 33 Adoin St, Boston.

College Live/Campus Crusade for Christ * †
Leadership training classes, lectures, seminars. Every Friday, 8:30pm. Call Prof. Paul Schimmel, X6739, or Bob Williams, X6868.

Bridge Club **
Duplicate bridge. Every Saturday, 1-5pm, Student Center Rm 473. Admission: \$2/term or 75 cents/session.

Boston Chess Club **
Chess and board games. Saturday, Sunday, 1:30-5:30pm, Student Center Rm 407.

Model Railroad Club **
Every Saturday, 4pm, Rm 20E-210.

FDL Duplicate Bridge Club **
Every Sunday, 7pm, Walker Blue Rm. Every Tuesday, 6pm, Student Center Rm 491.

Mixers

Muddy Charles Pub **
Join your friends at the Muddy Charles Pub, 110 Walker, daily 3:30am-7:30pm. Call X2158.

Friday Afternoon Club **
Music, conversation, and all the cold draft Budweiser you can drink. Featuring folk singer Rich Holloway. Every Friday, 5:30pm, Ashdown basement Games Rm. Admission: men \$1, women free. Must be over 21.

Movies

Breaking Glass War **
Dining Center. Friday, December 3, 7pm and 9:30pm, Rm 10-250. Tickets 50 cents.

Great White Hope **
Center. Saturday, December 4, 7pm, 9:30pm, Kresge. Tickets 50 cents.

Mid Angels *
SC Classic Series. Sunday, December 5, 8pm, Rm 10-250. Tickets 50 cents.

The Big Combo *
Film Society. Monday, December 6, 8pm and 10pm, Rm 10-250. Tickets \$1.

Cuba Club Film Night *
Twilight Reef presented by Dr. Edgerton on underwater timelapse photography. Wednesday, December 8, 8pm, Rm 20E-017.

Confession **
SC. Friday, December 10, 7pm and 10pm, Rm 26-100. Tickets 50 cents.

Music

Thursday Noon Hour Concert *
Featuring flutist Sharon Zuckerman and harpsichordist Sarah Brink. Thursday, December 2, 12:10pm, Chapel.

MIT Symphony Orchestra *
Featuring works by Mozart, Brahms, Hindemith and Messiaen conducted by Robert Freeman with piano soloist Gilbert Kalish. Friday, December 3, 8:15pm, Kresge.

Orchestrated Festival of Music
Choral Society, Symphony Orchestra and guest artists will perform *Orlando and Aeneas* and *Cecilia Ode*. Sunday, December 5, 8:30pm, Kresge. Call X3210.

Fixed Chorus
Informal singing group. Every Monday, 9:30pm, McCormick. Call dorm X0990.

Dance

MIT Dance Workshop *
Featuring *Dance Experiment '71*. Thursday, December 2 through Saturday December 4, 8:30pm, Kresge Little Theatre. Free.

Modern Dance Technique Class **
Elementary/Intermediate. Every Monday, Wednesday, Friday, 8:15pm, McCormick Gym.

Techno Squares *
Every Tuesday, 8-11pm, Rm 10-105. Call dorm X0888 or X92-5453.

Dance Workshop **
Modern Dance classes in McCormick Gym: elementary, Tuesdays, Thursdays, 10am, 2pm; intermediate, Tuesdays, Thursdays, 12n; general, Thursdays 7pm. Admission: \$2 for community, free for students. Call Cha-Rie Tang, dorm X0908.

Friday Afternoon Dance Break *
International folk dancing on the oval lawn in front of Kresge. Every Friday, 12:30-1:30pm.

Folk Dance Club *
International folk dancing. Every Sunday, 7:30-11pm, Sala de Puerto Rico.

Folk Dance Club *
Balkan folk dancing. Every Tuesday, 7:30-11pm, Student Center Rm 407.

Folk Dance Club *
Israeli folk dancing. Every Thursday, 7:30-10pm, duPont Gym T-Club Lounge.



The MIT Dance Workshop will present "Dance Experiments '71" on Thursday, Friday and Saturday (December 2, 3 and 4) at 8:30pm in the Little Theatre. Admission is free and all members of the community are invited to attend.

The group was formed several years ago to experiment with movement and since then has delighted Institute audiences with its imaginative interpretations to music. Among dances to be presented on the upcoming program are: Tempo di Valse, Plastic Festivals, Reflections and Chairtime, an improvisational piece in which the dancers experiment with ordinary folding chairs.

-Photo by Margo Foote

Exhibitions

Tech Model Railroad *
Fall open house. Saturday, December 4, 2-5pm, Rm 20E-214.

Art LaZar Exhibition *
Creative Photography Gallery (3rd floor duPont Gym), 12n-7pm, December 10 through mid January.

Goya's "The Disasters of War" *
Selection of aquatints exhibited in corridors outside Hayden Gallery, through December 10.

Sculpture by Lynda Benglis *
Polyurethane foam sculpture, Hayden Gallery, through December 17.

The Art of Rigging and Buoy System for Air-Sea Studies *
Hart Nautical Museum, Bldg 5, 1st floor.

Main Corridor Exhibitions *
Presented by students and departments. Bldgs 7,3,4,8.

Athletics

Varsity Indoor Track *
Boston College. Wednesday, December 1, 6pm, Rockwell.

Varsity and Freshman Squash *
Dartmouth. Wednesday, December 1, 4pm, duPont Squash Courts.

Varsity "B" Basketball *
Emerson. Thursday, December 2, 7:30pm, Rockwell.

Varsity Hockey *
Babson. Thursday, December 2, 7pm, Skating Rink.

Rifle *
Providence College. Saturday, December 4, 11am, duPont Rifle Range.

Pistol *
Air Force, Newark College of Engineering, Boston State. Saturday, December 4, 10am, duPont Pistol Range.

Fencing *
Brandeis. Saturday, December 4, 2pm, duPont Fencing Rm.

Squash *
Adelphi. Saturday, December 4, 2pm, duPont Squash Courts.

Swimming *
R.P.I. Saturday, December 4, 2pm, Alumni Pool.

Hockey *
Trinity. Saturday, December 4, 7pm, Skating Rink.

Basketball *
Norwich. Saturday, December 4, 8:15pm, Rockwell.

Freshman and Varsity Basketball *
Brandeis. Tuesday, December 7. Freshmen, 6:15pm, varsity, 8:15pm, Rockwell.

Varsity, Junior Varsity and Freshman Fencing *
Harvard. Wednesday, December 8, 7pm, duPont Fencing Rm.

Varsity Hockey *
Tufts. Wednesday, December 8, 7pm, Skating Rink.

Varsity Wrestling *
University of New Hampshire. Thursday, December 9, 7pm, duPont Gym.

Varsity "B" Basketball *
Boston University (Frosh). Thursday, December 9, 7:30pm, Rockwell.

Varsity Squash *
Pennsylvania. Friday, December 10, 7pm, duPont Squash Courts.

Religious Services and Activities

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

Hillel **
Brunch, Sunday, December 5, 11am, Rm 10-105.

Hillel Religious Services *
Monday-Friday, 8am, Rm 7-102; Fridays, 7:30pm, Chapel; Saturdays, 9am, Chapel.

Christians for Dinner *
United Christian Fellowship. Every Tuesday, 6-7pm, Walker Dining Hall (under sign of the fish).

Praying, Singing, Sharing Meeting *
United Christian Fellowship. Every Tuesday, 7-8pm, East Campus Lounge.

Christian Science Organization *
Meeting includes testimony of healings. Every Tuesday, 7:15pm, Rm 8-314.

Christian Bible Discussion Group *
Every Thursday, 12:15pm, Rm 20B-031. Call Prof Schimmel, X6739, or Ralph Burgess, X2415.

Islamic Society Prayers *
Every Friday, 1pm, Kresge Rehearsal Rm B.

Vedanta Services *
Every Friday, 6:15pm, Chapel; Discussion hour, 6pm, Ashdown Dining Hall.

Roman Catholic Mass *
Every Sunday, 9:15am, 12:15pm, 5:15pm, Chapel.

Christian Discussion Group *
Bible study and discussion of Christianity today. Every Sunday, 9:30-11am, McCormick Seminar Rm A. Call Ron Gamble, X6712 or 547-4279.

Christian Worship Service *
Every Sunday, 11am, Chapel.

Free Draft Counselling *
Hillel, 312 Memorial Drive, X2982. Call or visit 10am-5pm.

Announcements

Creative Photography 4.051
Students may sign-up from Wednesday, December 1 through Sunday, December 12, duPont Gym Rm 310. Lottery will be held Wednesday, December 15.

* Open to the Public
**Open to the MIT Community Only
*** Open to Members Only
† Freshmen encouraged to attend.

Send notices for December 8 through December 17 to the Calendar Editor, Room 5-111, Ext. 3279, by noon Friday, December 3.

Blowing in the Wind

(This story was written by Peter Spackman for a recent issue of Reports on Research. Mr. Spackman is assistant director of the MIT News Office.)

Here is a fact all but lost out of modern memory: One of the first wind tunnels was built to study — not an airplane — but a building. French Engineer Alexandre Gustave Eiffel's pioneering wind tunnel is no more. But the Eiffel Tower has withstood the winds of time since the Paris Exposition of 1889 — towering testimony, so to speak, to the benefits of research. According to MIT's Emeritus Professor of Aeronautics Jerome Hunsaker, who worked in Eiffel's laboratory for a brief period before World War I, Eiffel was not sure what to do with the wind tunnel when his building design was done, so he made it available to several youthful engineers who were intrigued with the new flying machines, and who used it to such good effect that the French words *aileron* and *fuselage* have passed into the language.

Formidable precedence, then, for a recent series of air-flow studies of buildings in the Wright Brothers Wind Tunnel at MIT. One of the first WBWT building studies was conducted on a model of the Cecil and Ida Green Building for the Center for Earth Sciences at MIT, a handsome 21-story structure through whose central arch the wind whistled with such force that it was frequently difficult to open the doors. The problem was simple enough. The building is 295 feet tall, rising a third of the way into the boundary layer, the 1,000-foot thick segment of the atmosphere next to the earth. Within the boundary layer successive streams of air move with velocities that increase with height. When wind strikes the surface of a building, its velocity is transformed into pressure (or, as Bernoulli put it, $P_t = P_s \times \frac{1}{2} \rho V^2$). This wind pressure tends to feed down the building's face until it reaches the bottom, where, unable to go further, its force is translated suddenly back into velocity when it leaves the surface around a corner or through an arch. This is what causes high velocity winds about the base of high-rise structures, and the higher a building reaches into the boundary layer, the stronger are the gusts that buffet the bottom.

Measuring velocities at various points near the ground around the base of the Green Building model, the WBWT study remedied the problem by suggesting the entrances be moved from the side walls within the archway, the point of high velocity, to the corners of the building along the stagnation surface. This is, indeed, the general solution, for since winds cannot be eliminated at the base of a high-rise, the doors should be placed where the velocity is least.

"Unfortunately, we generally study a building in the wind tunnel only after construction, when a problem has turned up," Frank Durgin, acting director of the WBWT, said not long ago. "For instance, some tenants on the top floors of high-rise office buildings get quite literally seasick from building motion in high winds. Most building codes define permissible static wind loads, but wind isn't static most of the time, naturally, and there simply are no criteria for dynamic loading and building motion. Builders have only rough estimates to rely on. All architects know their tall buildings will move, of course, and some even take advantage of the motion. The kinetic sculpture on the ground floor of the Seagram Building in New York, for instance, gets its vibration from the regular sway of the building. The classic example of how to avoid blowing people down at the base of a skyscraper is the Empire State Building, although that wasn't what the designers had in mind at the time. The base of the Empire State tower rests on a conventional structure only a few stories high, so the really strong winds are kept well above street level. The new fad

for buildings that rise abruptly from the ground can cause a good deal of grief. If you look at the Prudential in Boston, you'll see they've been tinkering with the base of the building and the plaza around it every year since it's been up. And I expect they're going to have quite a problem at the World Trade Center in New York, quite a problem," Durgin concluded with gloomy satisfaction.

Durgin thinks that more architects should use wind tunnel studies as a regular part of the design process, and he can point to happy results when they do. Recent WBWT studies have included the Calder stabile which graces McDermott Court in front of the Green Building on MIT's East campus. When a model of the stabile was "flown" in the wind tunnel to determine the anchorage needed to prevent the massive sculpture's taking off in a gale, Durgin and his colleagues reported an unforeseen problem: As originally designed the stabile would have danced in a high wind, possibly to the point of collapse. As a result, the design was modified, in admirable illustration of the art-technology interface, to include the supporting ribs and gussets that girdle the Calder today.

In an unpublished paper presented at the 3rd International Conference on Wind Effects on Buildings and Structures, held last month in Tokyo, Durgin reported on a WBWT study designed to keep a building from burying itself in a snow drift of its own making. With Peter Floyd, a partner in Wallace Floyd Ellenzweig, architects for an oil camp near Prudhoe Bay on the North Slope in Alaska designed for BP Alaska, Inc., Durgin investigated the effects of wind on the proposed camp complex.

In winds of 5 to 12 miles an hour, snow particles bounce along the ground; at 12 to 20 miles an hour, snow rises from 4 to 40 inches above the surface; and in winds greater than 20 miles an hour, snow particles can attain heights above 1,000 feet propelled by turbulent diffusion in the boundary layer. Since the BP camp's buildings were designed to stand on piles — to minimize melting of the permafrost foundation — the problem was to avoid a design that packed snow in under the buildings, rendering them inaccessible and creating walls of ice.

Velocity data for the study was taken with pitot static probes, which measure pressure differences from which velocity can be calculated using Bernoulli's equation. The turbulence of the boundary layer was simulated by placing a series of horizontal pipes, the spaces between which gradually diminished from top to bottom, upstream of the model. A series of tests indicated that the buildings could be modified in several ways to increase wind velocities and thus avoid drifting below them and in their wake, and that rounding or faceting their lower leading edges was the best design solution. Further tests showed how various configurations of the buildings in the camp complex would minimize drifting at the site as a whole.

Avoiding problems, however, is only part of the potential of using wind tunnels to study building design, Durgin thinks. "Research is useful to prevent repetition of mistakes," he says, "but there's also a large, and as yet untapped, capacity here for the architect who wants to use air movement creatively for better environmental design. One architect I'm working with just now, Burton Rockwell of San Francisco, has actually used the very effects that cause extreme wind problems for natural building cooling. Instead of simply regarding the wind as a problem, he used the pressure differential created by the wind to move air inside a high-rise science building. He placed openings in the face that could be adjusted to take advantage of prevailing winds from any direction. Pressure does it all; there's not an air conditioner in the building."

In a time of rising power consumption and pollution, Durgin thinks we need more of this sort of design.

Lees Presents Heart Findings

ANAHEIM, Nov. 11 — Sure, heart attack runs in families. But if you lose excess weight, chances are the risk of heart attack may run right past you, judging from a report delivered today at the 44th annual Scientific Sessions of the American Heart Association.

A team of Cambridge, Massachusetts, scientists told how by simply getting 18 moderately obese individuals to reduce at a rate of one to two pounds a week, they were able to achieve significant drops in excess levels of blood fats that raise the risk of heart attack. The subjects were 7 to 18% overweight at the start.

Spokesman for the group was Dr. Robert S. Lees, director of the Clinical Research Center at the Massachusetts Institute of Technology. He said that, as a bonus, weight reduction often brought about a decline in blood sugar, blood pressure and uric acid. These are factors which, in excess, also jack up coronary risk.

Obesity may be a primary contributor to the high incidence of heart disease in the United States, the scientists suggested after analyzing their work and the results of other studies.

Their subjects had inherited a predisposition to hyperlipoproteinemia—science's term for excess blood fats. Lipoproteins are fat-protein combinations. The protein part of this combination serves to ferry fats through the circulation. Five different kinds of hyperlipoproteinemia have been identified. Three of the more common types were represented in the study; the net effect of these disorders was to produce elevated levels of either cholesterol or triglycerides—or both fatty substances at the same time.

By treating the subjects as outpatients who reported to the Center on a monthly basis, Dr. Lees and his colleagues were able to steer weight reduction using ordinary solid foods.

As the patients approached "near ideal" weights, blood levels of cholesterol and triglycerides fell to normal or near-normal.

Associated with Dr. Lees were Drs. Dana E. Wilson, Christian L. Gulbrandsen, Gustav Schonfeld, Shelley Fleet, Margaret Miller, and Martha McCluskey.

Sibley Receives Dreyfus Grant

Professor Robert J. Sibley of chemistry has been awarded a teacher-scholar grant from the Camille and Henry Dreyfus Foundation. One of 16 recipients, Professor Sibley will receive a \$25,000 grant to be used at his discretion for developing new educational concepts and evaluating new research ideas.

The teacher-scholar grant program was adopted in 1970 as a means of providing young faculty members with the maximum opportunity to develop their potential as teachers and scholars early in their teaching careers. Last year 14 outstanding young faculty members in colleges across the US received the awards.

CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and extension or room number. Ads may be telephoned to Ext. 2707 or mailed to Room 5-105. The deadline is 5pm Friday.

For Sale, Etc.

Aquarium, 10 gal, partially equipped, \$30. call 646-0400 evgs.

Zenith 12" b&w tv; wooden skis; child's bed, stroller; tractor. Dave, X7811 or 861-0418.

Dynaco amps, 80w; Dynaco FM tuner; Sony tape deck; Garrard turntbl w/Heathkit spkrs, \$300 for all. Ashok, X2943 or 547-3253.

VW snows, 5.60 x 15 w/wheels; 2 reg w/2K, stud, \$12 ea; new 4 speaker R, \$35. call 965-0451, 9-10am.

GE 19" TV w/stand, exc cond, \$70; couch, \$15; old fashion steamer trunk, \$10; desk, \$19, etc. call 876-4659.

Head JR60, 120 cm w/poles and Tyrolia bindings, \$40; Rossignol Concord 195 cm w/marker tow, \$58; Dynamic VR17, 207 cm, w/Tyrolia clx 90, \$50; Barreccrafter 6 pr ski rack, etc. X6047 or X6043.

Provincial dbl dresser w/mirror; powder tbl & chr, \$150. call 484-9151 evgs.

Christmas tres, 4', w/lights and ornaments, \$10; oak sewing tbl, \$10; sm trunk, \$5; bric-a-brac. call 232-2034.

HO slot car racing set, new \$80, best offer. call 484-2735.

Zenith 23" color TV, \$300; GE stereo 4 speaker console, \$100; dinette set, \$75; Admiral refrig, \$50, etc. Joanne, 623-2472 evgs.

Hart 210 cm skis w/Tyrolia bindings, \$25; man's figure skates, size 12, \$10. Bob Goeke, X1910.

Reiker ski boots, child size 11, like new, \$14, X5331.

Lionel trains, almost antique, cast metal eng, \$35 and \$40. call 862-0160 evgs.

New heavy duty tube, fits 7.00-15 to 8.20-15, \$2. Tony, x465 Linc.

Sears cold spot refrig, yr old, \$325; 6,000 BTU air cond, \$125. call 876-8685 evgs.

BASF-LP 35 LH, low noise, high output tape, \$3.60/reel. Jay Benesch, X3161, leave message.

New 10 sp bicycle, tubular tires, alloy frame, \$110. Call 547-5145.

New Uni-Royal spare tire, fast belted, H78-14, best offer. X6464.

Kenmore gas dryer, gd cond, \$60. call 862-0964.

Various chrs, bkshelves, night tbls, travel basket for cat or dog, etc. Klaus Liepmann, 876-7927.

Dbl bed, exc cond, \$50. X6796 or 254-5142.

Kelty A-4 pack bag w/pocket, exc cond, \$15; Austrian mt boots, 7-7½, exc cond, \$12. Stephen Schuster, X3161.

VW snows, \$15; VW ski rack, \$5; Gibson 12 string guitar w/case, \$125. Phil, 628-5817 evgs.

Couch/bed, \$20; rabbit fur coat, sm size, exc cond, \$100 or best offer. Liz, X6808.

Boy's hockey skates, 4-4½, \$3. X7381.

Tamura concert guitar, rosewood and ebony, \$500. call 547-0343.

New 26" girl's Firestone bicycle, \$35. X5470.

Head Vector skis, 205 cm, \$20; M Henke buckle boots, sz 9, orig \$80, best offer. call 643-3717 evgs.

Men's bicycle, \$5; bkcase and end tbl. Charlie, X5714.

Asahi Pentax 35mm; lens: 54 mm F2 auto, 35 mm F3.5 auto, 135 mm F3.5, price negotiable. X2241 or 646-3157.

Webcor port hifi w/stand, \$25; lady's figure skates, size 9, \$15. Ray, X7235.

Multi-colored brandy glasses (8); silver plated bowls and compotes; elec hostess tray, new housekeeping cookbk in old Va reprint of 1879, \$6. call 232-0484.

Snows, H70-15, 3/8" tred w/rims, \$25 pr. Charlie, X7263.

Garrard AT6 record changer, \$15; VW roof rack, \$15; VW 1200 service manual, \$2; Phasemaster II-A sideboard xmtr, \$50. Dick, 864-8841 evgs.

Vega 6 string banjo w/case, \$135. X4075 Draper.

Muskrat coat, size 14, exc cond, \$85. Jane, X2211.

Vehicles

'61 VW bug, '63 eng, '69 overhaul, gd cond, \$150. Craig, X1823.

'62 Mercedes Benz 190 4 dr, new clutch & tires, best offer. '65 Plymouth wgn, best offer. X201 Bedford or 244-2326 evgs.

'63 Chevy, R & H, new bat, runs well, \$119. call 227-9832.

'64 Rambler wgn, 57K, gd cond, orig owner, \$225. Gus, X3939 or 963-6813 evgs.

'65 VW, new points, plugs, tires w/snows, gd cond, 30+ MPG. X7565 after 3:30.

'67 Rambler SST conv, pwr st, new tires, stud snows, orig owner, exc cond. call 963-7063 evgs.

'67 Austin 1100, stand, R & H, snows, new bat, \$550. X1866 or 547-2163 evgs.

'68 VW, exc cond, best offer. Arun, X7425 or 776-6445 evgs.

'68 Opel Rallye, 102 hp eng, full instrumentation, \$1000. Garry, X6092.

'68 Triumph GT6, 40K, best offer. X5476 or 646-5338.

'69 Chevy Malibu 4 dr, 6 cyl, stand, best offer. Mary, X5768 or 227-5606.

'69 Saab 96, 2 new Semperits, AM speakers, gd cond, best offer over \$900. Chuck, 267-0790 or 267-5761.

Housing

Boston, off Fenway, efficiency apt, \$135, avail now. call 823-1738 days or 536-1507 evgs.

Boston, lg 1 BR apt, 5 min from MIT, avail now, \$170. Angela, X4295 or 261-1994 evgs.

Eastgate, furn 1 BR apt w/riverside corner, 1/1-4/1 sublet. X7464 or 661-0442.

Gunstock, NH, chalet w/indoor pool, etc. wkly or season. call 353-2809.

Mt. Sunapee, NH, ski chalet, sleeps 8, frplce, avail for winter rental. Norm, X7354.

Animals

Free: M guinea pig. In 5 wks F guinea pig w/babies. Wesley, X7575 or Dorm X9547 evgs.

Siberian huskies, bl & wh, \$75 ea. X455 Linc or 275-6589 evgs.

Sealpoint Siamese kittens, M & F, trained. Dick, X5430 Linc or 653-8189 Natick.

Beautiful puppies of Retriever mother, wh, tan, bl. X5730 or 527-2124.

Lost and Found

Lost: Pr bl glasses in Great Court. Greg, Dorm X0818 or 547-9287.

Wanted

Couple or sgl to share old house in Camb, own R, K facilities, very reasonable. Elsie, 354-2018 evgs.

Baby car seat for VW. call 492-5623.

Companion for 10 yr old on flight to Chicago at Christmas time, w/ pay. call 734-7975.

Mimeograph machine at reasonbl price. Andy, Dorm X8223 or X3161 leave message.

Daily ride from Brockton/MIT, 9-5. Bigness, X1912 or X6760.

Garage space in Brookl, Camb, Arl for 12/30-1/31. Audrey, X1942.

Miscellaneous

Prof wants to buy land on outer cape w/marsh or water view. call 492-7680 evgs.

Wl do tech/gen typing. call 661-1929 days of X6470 evgs.

Donate bks for patients of clinical research center. deliver to Rm E18-471.

New Guidelines for Unsecured Loans Issued by Credit Union

The Credit Union has issued new guidelines on unsecured loans for its members. Employees with ten or more years of consecutive employment may now borrow up to \$2,000 on his signature alone.

Previously, the limit on signature loans was \$1,500 for employees with five or more years of consecutive service. Employees who have completed six months may borrow up to \$100 on their signatures. After a year the limit is raised to \$600 and after three years to \$1,000.

Membership in the Credit Union is open to all permanent employees on regular Institute payrolls. In order to join an employee need only fill out a membership application and invest in a \$5 share at the Credit Union Office (Room E19-601).

Members may save through the Credit Union by filling out an authorization for the Payroll Office to deposit a specified amount for each pay period. Similar arrangements are also made for repaying loans. CU now pays 5 percent dividends plus a ¼ percent bonus on the savings or "shares" held by each member. This rate compares favorably with the interest on regular accounts paid by most banks and savings and loan

Former Employees of DOD Must File Employment Report

Certain former and retired military officers and former civilian officers and employees of the Department of Defense (DOD) now employed by defense contractors are required to file a report of DOD and defense related employment under provisions of Public Law 91-121.

MIT is a defense contractor within the terms of the law. It is important, therefore, that those who are covered by the act be aware of their responsibilities because there are penalties for non-compliance.

The Office of Personnel Relations so far has received specific instructions only from the National Aeronautics and Space Administration and from the Department of the Navy. It is clear, however, that the law covers all DOD agencies and branches of the military.

The requirements are applicable to former employees and

officers of all branches. The reporting procedures which appear to relate specifically to MIT employees are as follows:

A. Any former or retired military commissioned officer who:

1. At the time of release from active duty or retirement was serving on active duty as a major or lieutenant commander or above, and
2. Had served on extended active duty for ten or more years; and
3. During any part of any fiscal year beginning with fiscal 1971:

- a. is employed by or performed services for a defense prime contractor who, during such year, received \$10 million or more in defense contract awards, and
- b. is employed by the defense prime contractor at a salary rate of \$15,000 or more per year.

B. Any former DOD civilian officer or employee (including consultants and part time employees who:

1. At any time during the three-year period immediately preceding the termination of last employment with DOD was paid at a rate equal to or greater than the minimum rate (at such time) for a grade GS-13; and
2. (See item 3 above).

Retired military officers, former military officers and former civilian officers and employees are not required to file a report of employment with a defense contractor for such employment during a fiscal year that begins three years or more after their extended active duty or employment with the DOD has terminated.

Pollution Proposals Sought by NASA

The National Aeronautics and Space Administration is requesting proposals for using space-related technology in solving domestic problems in the public sector.

Proposals should be related to four specific areas: air pollution, water pollution, solid waste management, and clinical medicine. Only technical suggestions identified with NASA-related research and development will be considered. One or more projects in each of the four areas will be selected for award of contracts up to

\$75,000.

Three NASA field centers have been named to receive the proposals. For air pollution proposals, write Dr. Glen Goodwin, Ames Research Center, Moffett Field, California, 94035. For water pollution and solid waste management, write Mr. John Aamos, Langley Research Center, Langley Station, Hampton, Virginia, 23365. For clinical medicine proposals, write Dr. S.L. Pool, Manned Spacecraft Center, Houston, Texas, 77085. Suggestions and proposals must be received by December 15, 1971.

Rohsenow Wins Jakob Award

Dr. Warren M. Rohsenow, professor of mechanical engineering and director of the Heat Transfer Laboratory, has received the annual Max Jakob Memorial Award for distinguished achievement in the field of heat transfer.

The award, made jointly by the American Society of Mechanical Engineers and the American Institute of Chemical Engineering, was presented to Professor Rohsenow during the 12th National Heat Transfer Conference in Tulsa, Oklahoma. The award honors Dr.

Max Jakob, a noted German scientist-engineer, whose original research on heat transfer problems at the Illinois Institute of Technology received wide recognition.

Professor Rohsenow was honored both for his technical contributions and as an educator. In technical areas, he has made significant contributions to the understanding of gas turbines, boiling processes, fluid flow, conduction, thermal stress, refrigeration, convection, condensation and metal-to-metal contact resistance.

Spring Registration Material Available

The Registrar reminds all regular students to pick up registration material for second term in the lobby of Building 10 on Thursday, December 2, and Friday, December 3.

Four Teams in Action This week

Winter Athletics Begin

By Peter Close

MIT's winter intercollegiate sports get into full swing this week. In basketball, the Tech five will travel to Tufts tonight and then return Saturday for their home opener vs. Norwich. Coach Jack Barry's hoopsters point toward an improved season (last year 11-10) due to a veteran starting lineup. High scoring forward, senior Harold Brown, leads Tech's front court returnees. Brown has scored 979 points in two seasons to rank fourth in the all-time MIT career scorebook. The three-year career mark is 1457 points set by Dave Jansson 1965-68. With the team playing 23 games this season, Brown has a better than average chance of breaking the old mark.

The fencers open their season on Saturday at home against Brandeis. Last year's squad posted an 11-1 mark and won their second consecutive New England championship. This year, under new coach Eric Sollee, the fencers could match last year's record.

The Tech gymnasts opened their season last week with a team scoring record of 126.63 points over the University of Bridgeport, 89.17. Sophomore, Larry Bell, broke the individual single meet total point performance against Bridgeport by scoring 40.54 points. The old mark was 38.95 set by Dick Hook in 1970. The team travels to Boston State on Saturday.

The hockey team hosts Babson on Thursday and Trinity on Saturday. Of MIT's 16 game schedule, 14 games will be played on Tech's home hockey rink. Ben Martin, now in his 24th season at Tech and dean of New England College division coaches, sees an improved campaign ahead for the MIT sextet.

MIT's defending National Collegiate International target pistol champs open their 1971-72 slate hosting Air Force, Newark Engineering and Boston State on

Saturday at the MIT range. The engineer shooters are led by All American senior, John Good.

MIT's defending New England champion rifle team is currently 2-1, defeating Rhode Island and Wentworth and losing to Providence College. The team will have a chance to avenge their only loss of the season when they host Providence this Saturday.

The squash team has a busy week as it plays three matches against Dartmouth today, at Trinity Thursday and then back home on Saturday with Adelphi.

Tech's swimmers look to another winning campaign when they host RPI on Saturday at Alumni Pool. Last year the Tech mermen were 9-4.

The Tech indoor track team, 6-1 last season, should once again field a strong dual meet squad this winter. The engineers host Boston College today and then travel to Bates on Saturday.

Tying with Boston University in last week's Greater Boston Wrestling Championship, the Tech grapplers take to the road this weekend for the annual Coast Guard Invitational Tournament. MIT had six individual champions in the GBC Tourney but had to be satisfied with an 84-all tie with the Terriers.

Recycling Project Ends Early, Was Expensive and Misused

The newspaper and can recycling project initiated by MIT Ecology Action, Alpha Phi Omega and Physical Plant officially ended last Friday, November 26. Although the project had originally called for a three week trial period, it was in operation only for the two weeks between November 5 and 19.

During the project some 37 bags of metal cans and three-and-a-half tons of newspaper were collected from recycling stations



Cathy Fanning, left, a student at Cambridge High and Latin, gets shorthand pointers from tutor Michelle Lamarre, secretary to Dr. Louis Menand, Assistant to the Provost.

--Photo by Margo Foote

Learning Center Attracts Hundreds of Kids

(Continued from page 1)

through the initial tutoring sessions.

Academic tutoring is not the only area of concern—developing a sense of community and common cause among the tutors is an equally important aspect of Tutoring Plus. Two MIT students, Anne Hayden, '72, and Scott Edwards, '73, have organized various activities to promote communication between tutors, supervisors and the children.

There are group adventures for tutor-tutee pairs including such

activities as cooking foreign dinners, mountain climbing, nature hikes and horseback riding. These group activities provide opportunities for experiences which individual tutors often cannot offer their tutee. By observing tutor-tutee pairs within the context of a group, the tutors can objectively assess each others' working relationship and gain better insight into the effectiveness of the program.

Another activity is organized just for tutors. Once a week they meet at the Urban Action office in the Student Center to discuss tutoring problems and other issues encountered in the program. Anne and Scott hope that "these meetings will help tutors become deeply involved in Tutoring Plus and join in the search for untapped resources for the further enrichment of the program."

The most popular feature of Tutoring Plus, according to the children, is the after-school Learning Center. Located on the first floor of Tutoring Plus headquarters at 183 Harvard Street, the Center is usually overflowing with children. Every day from 2:30pm to about 5pm, 25 to 30 children participate in creative educational activities—arts and crafts, carpentry, impromptu dramatics, electronics, sewing, music, science projects, and photography. More than 125 children, many of whom are not enrolled in the tutoring program, have signed up for the after-school activities, but because of inadequate staff and space, each child is limited to two days a week at the Learning Center.

According to Jean Townes, director of the after-school program, "The Learning Center has developed a great deal over the past year, but we have two urgent needs—larger quarters and additional professional staff. If we had more space, more children could enjoy the benefits of Tutoring Plus and we could offer them a greater variety of activities. The addition of trained staff would enrich the program and provide new ideas for designing activities, determining their scope, and gathering materials."

Tutoring Plus also puts great emphasis on cooperation with neighborhood schools in developing beneficial programs for Area

Four children. The Roberts School Exploration Room is one program supported by Tutoring Plus. In this special classroom tutors work with small groups of children during the regular school day. They are faced with the challenge of helping a child "turn on" to education. As in Tutoring Plus itself, the teaching technique involves creative tutoring—the children discover the process of learning rather than limiting themselves to memorization of textbook content.

A Tutoring Plus report comments, "The children in this classroom will be assigned there for only part of each day, to study the subject which is causing them difficulty. Tutors will be able to help in a very real way, and their reward will be easily realized—when the child is able to rejoin his class because he has reached the point where he is able to continue with his peers."

The first tutor-tutee pair was matched up eight years ago. Since then the Institute community has been one of Tutoring Plus' closest allies. Through the Community Service Fund, the Institute provides vital funds and is now helping incorporate Tutoring Plus as an independent, non-profit organization.

Urban Action, a student group which supports a number of off-campus activities, is also deeply involved with Tutoring Plus. When tutors are needed, Urban Action organizes a recruiting drive. Students as well as employees are urged to volunteer.

Tutoring Plus is a grassroots operation, run by neighborhood parents for their children and supported by surrounding communities. More and more people are finding out about Tutoring Plus and the number of children seeking a new approach to education is growing. If the program is to survive and meet the increasing needs of the neighborhood, it will require continuing support. In particular, more tutors are needed.

Would you like to help a child discover how exciting learning can be? Call Tutoring Plus at 547-7670 or go to the Urban Action Office, Room 437 in the Student Center, Ext. 2894. Find out about Tutoring Plus and volunteer a few hours a week to help.

Skating Classes Offered for Children

The Athletic Department will offer a series of eight elementary group skating lessons for children six years of age and older on Saturday mornings starting December 11. There will be classes both for beginners and for those who have skated before,

Marksmanship Class to Begin Next Week

The MIT Pistol and Rifle Club is offering a course in basic pistol marksmanship. The course will be held for five consecutive Thursday evenings, beginning December 9, from 6:30 to 8:30pm in the duPont Gymnasium Pistol Range. Course enrollment will be limited to the first 20 adult members of the MIT community who apply. A \$10 fee covers pistols, ammunition and targets used during the course. Anyone interested in applying should call Herald Sulahian, Ext. 3989, to sign up.

Tour Correction

Although the recent mailing for the Aloha Carnival indicated that it invited only members of the Quarter Century Club and their immediate families, it should have, in fact, invited all members of the Institute community and their immediate families. The trip is scheduled for January 9-16, 1972. For further information please call 969-4100 and ask for the Aloha Carnival.

at each of the MIT dormitories, the Building 7 lobby, and the intersection of Buildings 16 and 26. However, the cans had to be conventionally dumped, since they were still dirty and the paper labels had not been removed from many. In addition, a large amount of unacceptable materials were deposited in the newspaper receptacles despite the signs requesting that only newspapers be deposited.

The labor and trucking provided by Physical Plant during the two weeks cost more than \$450, while the credit received for newspapers at five dollars per ton was \$16.47. Because of this loss, the project was discontinued as unfeasible in spite of the high volume of recyclable material. The organizing groups hope to restart the project next April when a new trash collection process will begin, which will pick up large volumes of recyclable material at no cost from central locations.

3-Day JCL Course to Be Given at IPC

The Information Processing Center will offer a short, non-credit course on Job Control Language on December 6, 8, and 10 from 11:00am to 12:30pm. The course will provide users with a working knowledge of JCL as applicable at the Center. Preregistration is required, and there will be a five dollar fee to cover computer costs for the exercises. For more information, see Mrs. Susan Litten in Room 39-427.