



CLASSIC SCENE: Registration day, last Monday, in duPont Gymnasium.

—Photo by Marc PoKempner

Secretarial Handbook Now Being Distributed

The *Secretarial Handbook*, a guide to office procedures for secretaries at the Institute, is now being distributed.

The new handbook contains descriptions of accounting, payroll,

Faculty to Meet

The MIT Faculty will hold its regular September meeting in Room 10-250 starting at 3:15pm today, Wednesday, September 13.

During the first part of the meeting, the Faculty will approve the lists of September candidates for both advanced degrees and bachelor's degrees and will consider a motion to continue arrangements for non-faculty to attend Faculty meetings during the coming year.

If the vote is for the latter motion, as it has been in past years, the meeting will be opened for the remaining agenda items—final action on certain rule changes recommended by the Committee on Educational Policy and concluding remarks by President Jerome B. Wiesner.

purchasing, DSR and personnel procedures as well as illustrations of the forms used for various transactions. Tips on thesis and technical typing and a list of Graphic Arts services are also included. The handbook is assembled in a loose leaf folder so that individual departmental forms or procedures may be inserted.

Distribution of the *Secretarial Handbook* is being handled within each department by the administrative officer. Requests for the handbook exceeded the supply, so first preference is being given to secretaries in Grades III and IV. Funds to produce 500 copies were provided by the Comptroller's Accounting Office, the Division of Sponsored Research and the Office of Personnel Relations.

The Secretarial Handbook Committee began work nearly two years ago under the chairmanship of Jim Grayson, formerly of the Urban Systems Laboratory and now with the Sea Grant Project Office. Members of the committee represented academic, administrative and research departments.

The committee included: Grace Kelly of mechanical engineering,

(Continued on page 8)

Affirmative Action Plan Due Soon

A new Affirmative Action Plan for the Institute is in the final stages of preparation for submission to the federal Department of Health, Education and Welfare (HEW), according to James C. Allison, MIT's Equal Opportunity Officer.

"We expect that the revised Plan will be completed, and approved by HEW, by the end of October," Mr. Allison said.

A preliminary draft of the revised Plan was submitted to the HEW Regional Office of Civil Rights in July for review and comment.

"We submitted a preliminary draft for two reasons," Mr. Allison said. "First, we wanted to facilitate acceptance of the final Plan with little or no delay, and second, to be sure that the final Plan would incorporate all of the many recent changes in federal equal opportunity regulations."

AFTER review of the preliminary draft this summer, HEW requested certain modifications and additions to the revised Plan.

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Bishoff Takes New Medical Position

Laurence H. Bishoff has been appointed Assistant Director of the Medical Department for Administration effective September 15th. Dr. Albert O. Seeler, Director of the Medical Department, has announced.

While Mr. Bishoff will be concerned with the overall administration of the Medical Department, his major responsibility will be the further planning and implementation of a prepaid comprehensive health care program which the Medical Department hopes to offer to MIT personnel next year on a limited optional basis.

Mr. Bishoff, who received his S.B. in management from MIT in 1959, is now Assistant to Philip A. Stoddard, Vice President for Operations. Before that, he served successively as Assistant to the Dean of Student Affairs and as Director of Housing and Dining Services.

A comprehensive health care program has been under consideration for a number of years, Dr. Seeler said. "The pilot program will seek to enroll 1,000 Institute families from all areas of the Institute. Through an insurance system, probably with Blue Cross-Blue Shield, the Medical Department will provide full medical care for the family, including periodic health check-ups, office visits, stressing preventive medicine."

"Because of Mr. Bishoff's wide experience at the Institute, we feel he will be particularly qualified to help implement the comprehensive health care program," Dr. Seeler said.



Mr. Bishoff. —Photo by Margo Foote

Olympic Rainbow Was Glowing Hit

Otto Piene, formerly a fellow at the Center for Advanced Visual Studies, and Institute physicist Walter Lewin were principals in the group that designed the 1,500-foot-long plastic rainbow that arched 400 feet above Munich's Olympic Lake to signal the end of the Olympics Monday night. Piene's Charles River rainbow, which spanned the river for a day last spring, was a prototype of the Olympic one.

Inside This Week's Issue

A roundup of some of the happenings at the Institute during the summer appears on page 7.

Recent additions to the list of the Undergraduate Research Opportunities Program projects are given on page 8.

A brief synopsis of voter registration information will be found on page 2.

Plans for this year's activities and a brief history of the Women's Forum are in an article on page 3.

Menhaden Used in Study

Fishing Industry Mathematical Model Reported

WASHINGTON, D.C., Sept. 12—MIT researchers have created a mathematical model of the Atlantic menhaden fishing industry that may one day help maintain maximum yields of the fish without exhausting the supply.

In a paper presented at the eighth annual Marine Technology Conference here Tuesday, Peter S. Weissman of MIT's Charles S. Draper Laboratory said that by changing various factors in the computer simulation of the fishing industry one can determine in minutes what would happen over decades in the real world.

Weissman, and the co-authors of the paper, George Kalan and David Platts, used the menhaden fishing industry as a case study to

demonstrate the application of a method of analysis called systems dynamics to a natural resources management problem.

Systems dynamics was originally developed by a group at the Sloan School of Management led by Professor Jay W. Forrester for use in solving corporate management problems. The approach is also being used to study such problems as urban decay, drugs in the community, and the world population and resource crisis.

Menhaden, which are herring-like fish caught in east coast waters from Massachusetts to Florida, were selected for the case study for a number of reasons. They are economically important sources of oil and fertilizer, have

been well studied, and are better understood than many other commercially harvested species.

Using a computer language called DYNAMO, the researchers developed a computer program to describe the many interrelated loops and variables that compose the menhaden life cycle. The program begins with a certain number of freshly hatched fish, called fry, and passes all those fish that survive the decimations of mathematically simulated predators and fishermen from one stage of the life cycle to the next. At the same time, the program adds fry to the pool of young fish at a rate determined by the number of mature fish it computes would be able to reproduce. The computer

program must also simulate the life cycles of predators, those fishes and birds that feed on menhaden.

When the model was constructed, the researchers first ran an experiment to see what would happen if there were no regulation of the menhaden fishery. Because of the great number of fish available initially, the size of the fishing fleet in their simulated industry quickly increased and the fishermen caught as many fish as they could. The computer indicated that one result of less than ten years of such concentrated fishing would be a drastic reduction in the menhaden population, followed by several decades of extremely low annual catches.

Gradually, as the fishing fleet of the simulated industry became smaller because it could not support itself with such meager catches, the number of fish would once again start to increase.

The researchers also performed experiments on their model to see what would happen if the fishing industry were carefully regulated, with a limit put on the annual catch. The simulation again indicated that a large fishing fleet would be attracted by the great number of fish available initially. The program indicated that although this fleet would reduce the total number of fish, the reduction would be gradual. When the fishing fleet became smaller, in

(Continued on page 5)

Community Aids Successful Energy Conservation Effort

The Institute's energy conservation program, which has been in effect for over a year, continues to show outstanding results, according to Thomas Shepherd, Physical Plant Superintendent of Utilities.

Implemented in March 1971, the program set out to conserve both heat and electric energy and in turn to cut down the increasing costs of utilities. The program has succeeded on both accounts.

According to Mr. Shepherd, the electric energy conservation program has been the most successful.

EE Appoints J. Samuels

A professor and former chairman of the Department of Electrical Engineering at Howard University in Washington, D.C., has been appointed a Visiting Professor of Electrical Engineering at MIT for the 1972-73 academic year.

He is Dr. J. Clifton Samuels who was chairman of Howard's Electrical Engineering department from 1966 to 1970 and who more recently has been organizing and expanding the predominantly black university's program in graduate studies.

At MIT, Dr. Samuels will pursue research on wave scattering in inhomogeneous media and stochastic systems.

Professor Samuels received his bachelor's degree in electrical engineering from the Polytechnic Institute of Brooklyn in 1948, his master's degree in applied mathematics and physics from New York University in 1950, and his Ph.D. in engineering science from Purdue University in 1957.

ful. He says, "One of the greatest savings results from cooperation within the community. People have become very conscious of electrical waste—they turn off lights when they leave their offices, shut off electric typewriters not being used, and respond quickly to emergency situations like the brownout in late August."

Reduction of electric consumption at the Institute since March 1971 has been dramatic. Purchased electrical power has decreased by an average of 165,000 KWH per month. For the first time in ten years, the Institute's annual growth rate in energy consumption, which has been averaging 5 percent per year, actually declined by 2.1 percent in 1971 and 1972. This represents an actual savings to the Institute of some \$150,000.

Conservation of heat energy has been successful too. During the first year of the program, there was a net decrease in steam consumption of 52,523,000 pounds. The use of building heat was reduced by 13.1 percent while total use decreased by 6.5 percent. At the rate of \$1 per thousand pounds fuel cost, the Institute saved roughly \$52,000.

"There is much more that we can do," Mr. Shepherd said. "We feel that we've just scratched the surface." He then offered several suggestions for conserving electrical energy: keep all heating, cooling, water-handling and air-handling equipment in good operating condition; turn off air conditioners in unoccupied areas especially at night and on weekends; turn off lights in empty offices, labs and classrooms; windows that are exposed to the sun should be shaded to avoid putting an

extra load on air conditioners; water faucets should be closed tightly to avoid wasting hot water; keep all doors and windows in air conditioned areas closed.

Fuel heating costs may be reduced by controlling air ventilation after hours and on weekends in buildings where such procedures are feasible. In addition, the community can contribute to substantial savings by operating laboratories and offices at a cooler temperature. Toward this end, the weather will be watched closely to avoid turning on the Institute's heating system too soon. Overheating the main group in the fall can cause as many problems as underheating.

Philip A. Stoddard, vice president of operations, concludes: "These gross savings represent a good and worthwhile effort on the part of many people. We must all work during the coming years to sustain what we have accomplished."

October 7 Is Deadline for Voter Registration

All persons aged 18 and over who have been residents of Massachusetts for a minimum of 31 days are reminded that Tuesday, October 7, is the deadline for registering to vote in the national presidential election to be held on Tuesday, November 7.

Cambridge residents may register at Cambridge City Hall in Central Square from 8:30am to 4:30pm every Monday through Friday or at the Roberts School on Harvard and Windsor Streets every Monday and Thursday from 6pm to 9pm and every Saturday

Seminar Program Attracts Freshmen

I would dream that when a freshman enters the university he would become at once a member of a small group; perhaps of about ten men. He would be associated at once with a mature, established scholar whose first interest is the education—I use the word in its broadest sense—of this incoming group...

—Edwin H. Land, Arthur Dohon Little Lecture, 1957

The MIT Undergraduate Seminar Program has attracted a record number of incoming freshmen to a record number of elective seminars on subjects ranging from the structure of molecules to the recycling of materials.

Some 745 freshmen, or better than 70 percent of the incoming class of 1,050 freshmen—the largest in MIT's history—have enrolled in 67 undergraduate seminars, according to Nancy J.

Wheatley of the Undergraduate Seminar Program.

The undergraduate seminars are designed to present a relatively small group of freshmen, typically 12 to 15, with a combination of intensive study, relaxed, informal atmosphere, and a high degree of faculty-student interaction.

The Undergraduate Seminar Program was established in 1961 by Professor Edward Gilliland, Institute Professor and Warren K. Lewis, Professor of Chemical Engineering, as one of the first alternatives in the regular freshman curriculum at MIT. In recent years, the program has been placed under the auspices of the Freshman Advisory council, and student interest in the program has increased. In the fall of 1969, 441 students enrolled in 50 seminars; in 1970, 479 students were placed in 42 seminars; and last fall, there were 508 students in 40 seminars.

The seminars vary according to faculty and student interest. Some involve mainly discussion; others have extensive lab work or field trips; most require an independent project of the student's choosing. A random sampling of seminar titles indicates the range of subject matter available: "How the Body Works, from an Engineering Point of View," Professors Michel Jaffrin and Igor Paul, Department of Mechanical Engineering; "Sound Sculpting, Computer Aided," Professor William L. Henke, Department of Metallurgy and Materials Science; "On Molecules and Anemia," Professor Isaias Raw, Department of Biology; "Clean Energy Sources," Professors Jack Howard and Hoyt Hotel, Department of Chemical Engineering; "Students and the Law," Dr. Joseph Vittek, Jr., visiting lecturer, Department of Aeronautics and Astronautics; "African Political Thought," Professor Willard Johnson, Department of Political Science; "Being and Nothingness," Professor Gian-Carlo Rota, Department of Mathematics; "Environmental Measurement and Control," Dr. Philip N. Bowditch, Draper Laboratory.

from 10am to 2pm through October 7. A voter registration session is tentatively being planned for October 4, from 11am to 3pm, in the MIT Student Center West Lounge.

Students living in Cambridge will need proof of residency to register. Those living off campus may use a lease or notarized statement from their landlords, a cancelled check or rent receipt showing a Cambridge address, or show their names on the police list or in the telephone book.

Boston residents may register at the Election Department, Room 241, Boston City Hall, Monday through Friday from 9am to 5pm through October 7. Additional voter registration sessions will be held in each Boston ward and Little City Halls from September 23 through October 7. Boston requires a person only to swear that he is a resident. Fraternity residents are eligible.

Brookline residents may register at Brookline Town Hall, 333 Washington Street, from 8:30am to 5pm through October 7. Somerville residents should register at Somerville City Hall from 8:30am to 4:30pm through October 7.

For more information about voter registration, call: the Cambridge Election Commission at 876-9828; Boston Election Department at 722-4100, Ext. 214; the Brookline Voter Registrar at 232-9000; or the Somerville Election Commission at 625-6600.

Obituaries

Chester Dolber

Chester Dolber, 78, of Cambridge, formerly a foreman in the mechanical engineering shops, died on Saturday, September 2.

Mr. Dolber came to the Institute in 1936 and retired in 1960.

He is survived by his wife Dorothy.

George Reed

George Reed, 69, of Dorchester, a former MIT employee, died on Tuesday, September 5.

He joined the Institute in 1941 and retired in 1968. He was on the housing staff at Burton House.

Mr. Reed leaves his wife Roberta and a daughter, Midred Taylor.



Nice weather makes the Student Center steps an ideal place for a game of chess.

—Photo by Margo Foote

Renewed Interest in Chess Seen at MIT

Chess has been the popular topic of discussion recently and the renewed interest in the sport is evidenced by games springing up spontaneously all over the campus.

The Tech Coop reports an increased demand for chess sets

and chess books this summer. Manager Allan Powell says "sales have been tremendous in this area. Chess sets in all price ranges have been selling, from our \$5 sets to the \$25 ones. Books have been selling, too, mainly the paperbacks."

Powell says that there were

several times this summer the Coop was out of stock on chess related items but they quickly ordered more. Sales peaked about three weeks ago, according to Powell, and the Coop is now fully stocked with chess sets and books for those who still have chess fever.

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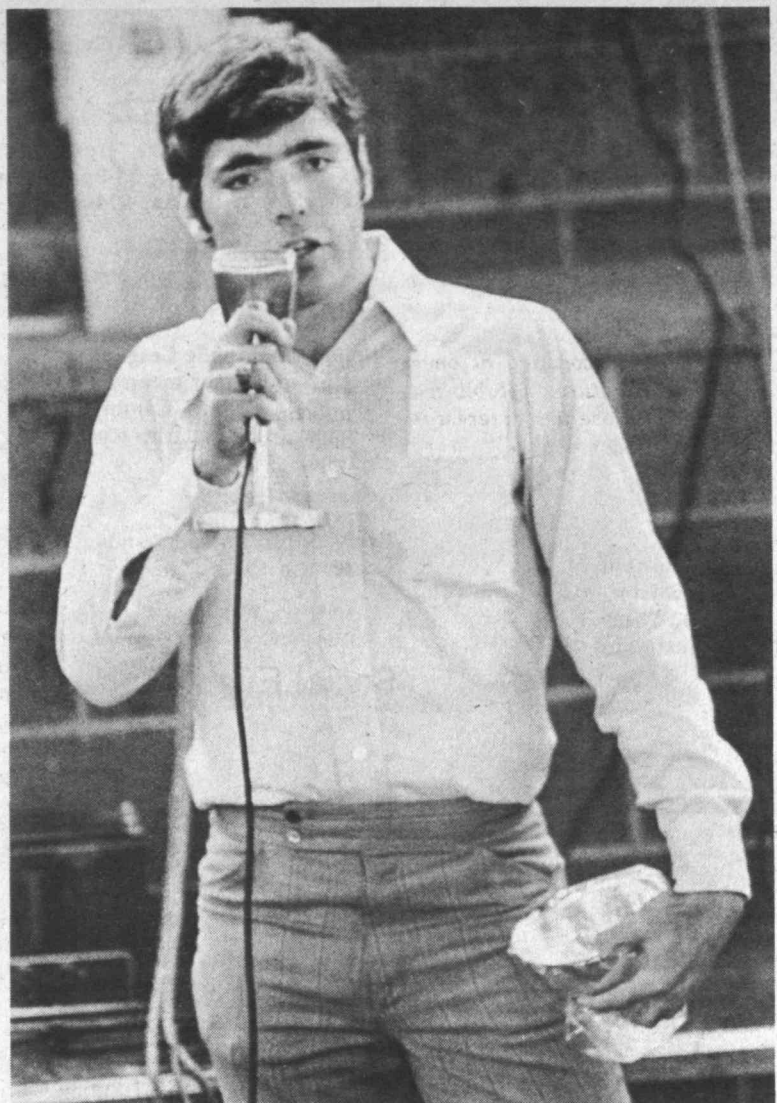
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Please address all news and comment to the editorial office, Room 5-111, Ext. 3-3277.



Al Dopfel speaking at the Athletics Midway after receiving a Sports Illustrated Award. —Photo by Marc PoKempner

Dopfel's Visit Highlights Annual Athletic Midway

A highlight of the Athletic Midway for freshmen last Friday was the appearance of Al Dopfel, the first MIT graduate to become a professional athlete.

Dopfel, who was drafted by the California Angels four days after graduating last June, has been pitching for the Shreveport, Louisiana, farm club in the Double-A Texas League.

At the Midway, Peter M. Close, MIT sports information director, presented Dopfel with a cup from *Sports Illustrated* for having been selected for the magazine's "Faces in the Crowd" section.

Dopfel praised his experience at MIT and said that when he came here he had no idea he would be playing professional baseball. "Ninety percent of my development took place here," he told the freshmen. "If you have the ambition, you can do it."

Phone Locks Stop Misuse

The Telecommunications Office has received over 150 requests for telephone locks designed to prevent the unauthorized use of unrestricted or Class A telephones, according to Morton Berlan, director of the Telecommunications Office.

The locks are available to all departments at no charge and operate by depressing one button on the telephone switch-hook, thus preventing the use of the telephone whether it has a standard rotary dial or Touchtone service.

Although this lock can only be used on desk type telephone sets the Telecommunications Office can also provide departments with dial locks for wall type or call director telephones.

Locks may be ordered individually keyed or keyed alike, allowing one key to operate a number of locks in a specific area. Requests for locks should be directed to the Telecommunications Office, Ext. 3-3651.

Angels, Dopfel has compiled a 2-8 won/lost record and a 4.50 ERA. Dopfel is not entirely satisfied with this performance but he has been changing his pitching style which, he says, accounts for some of his trouble.

"I was pitching a curve ball," Dopfel explains, "and the coaches told me that this would kill my arm in two years. I'm changing my style to a fast ball."

Earlier in the day, Freshmen were introduced to the wide variety of activities offered at MIT during the Activities Midway.

The well attended event in the duPont Gymnasium featured 57 groups ranging in interest from politics and religion to education and the media. The Tiddlywinks Association demonstrated their 1972 championship style while the MIT Peace Coalition showed the American Friends Service Committee's slide series "The Automated Air War."

Unicyclists circled the floor advertising the Unicycle Club and a member of the Outing Club demonstrated climbing techniques by scaling the wall of the gym. The Students for a Democratic Society, the New Right Coalition, Ecology Action and the Student Homophile League were just a few of the organizations represented at the Midway.

Freshmen were encouraged to sign up for activities they were interested in.

Engineering Library to Hold Tour Series

The Barker Engineering Library will hold a series of orientation tours next week.

The tours, which will be identical, will be held on Tuesday, September 19 at 3:15pm, Wednesday, September 20 at 10:15am and Thursday, September 21 at 5:15pm. Each orientation meeting will consist of a tour of the library, a description of its collections, an

Women's Forum to Discuss Objectives of Fall Meetings

Expanded membership and wide ranging programs of general interest to women are major objectives of the Women's Forum as it begins its first full academic year at the Institute.

All women at MIT are invited to the first general meeting of the Forum on Monday, September 18, from noon to 1pm in the Bush Room (Room 10-105). The meeting will focus on issues for discussion during the year.

"The Forum has served, and hopes to serve again this year, as a place where any woman will feel welcome and encouraged to express her views on any issue," explained Roberta Kurland, a secretary in architecture and planning, who has been active in the group during the summer.

"The Forum has built its strength on the common concerns of all women. It will continue to serve as a lively open-ended gathering place for personalities and ideas of all kinds," she said.

Some topics already planned for fall meetings include the latest changes in the Athletic Department, career development, day care, benefits and tuition assistance. The Forum will continue its practice of inviting Institute officials and outside authorities who are knowledgeable to address these and other topics as they arise.

The Women's Forum began as an Independent Activities Period experiment organized by Professor Mildred Dresselhaus of electrical engineering, Professor Emily Wick of nutrition and food science, and Mrs. Dorothy Bowe of the Financial Aid Office. Originally intended for student women, the gatherings quickly became an open forum for all women at the Institute.

Response to the IAP experiment was widespread throughout the campus and the group decided to continue to meet through the

Party Honors Szilard Works

Senator and Mrs. Albert Gore will open their home in Washington, D.C. for a cocktail party celebrating the publication of *The Collected Works of Leo Szilard: Scientific Papers*, on Friday, September 22.

The papers, edited by Gertrud Weiss Szilard and MIT Professor Bernard T. Feld, are being published by the MIT Press. The Council for a Livable World and the MIT Press are joint sponsors of the reception.

A native of Budapest, Hungary, the late Professor Szilard was a pioneer in atomic energy, working with Enrico Fermi in developing the first nuclear chain reaction at the University of Chicago. He received the Atoms for Peace Award in 1959.

introduction to catalog searching techniques, and an explanation of some of the services offered by the library. The tours will start from the orientation room on the fifth floor of the Barker Engineering Library. Each tour will last from 30-45 minutes. Although the emphasis will be on an introduction to the library for new users, all members of the MIT community are invited to attend.

spring term. In addition to the main body, several subcommittees were established to consider issues confronting particular groups of women at the Institute. At the same time an Ad Hoc Committee on the Role of Women Students at the Institute, composed of faculty and students, was also functioning.

During the spring the Ad Hoc Committee and the Forum continued to work in close alliance with one another. The association resulted in two proposals to the administration regarding the needs of women at the Institute. One specific request in each proposal was for the appointment of women who could represent the interests of all women at policy-making levels.

The Ad Hoc Committee's request for a woman in the Dean for

Student Affairs Office with primary responsibility for women students, resulted in the recent appointment of Anne Ellison. Candidates for the position of Special Assistant to the President and Chancellor for Women's Affairs, a post proposed by the Forum, are now being screened. Members of the Women's Forum are assisting in the screening process.

"As the new year begins, we want very much to add fresh outlooks and new ideas to our growing group," Roberta Kurland summed up. "Although we have made some substantive progress, the main value of the Forum lies in uniting women at MIT who have found that they have much in common despite their broad and varied backgrounds and professional training."

LIS to Offer Special Courses Next Month

The Lowell Institute School will offer three special courses starting in early October.

The first is "COBOL Programming I" taught by Donald E. Stone, systems analyst in the MIT Office of Administrative Information Systems. Course content will include general principles of COBOL, logical sequence and interrelationships of commonly used COBOL elements, and the application of the language to basic business data processing problems. Applicants should have some knowledge of programming. Classes will meet Tuesdays from 6:30pm to 9:30pm starting October 3. A \$45 fee will cover the course plus computer charges.

"Physics for Everyone" will explain the physical principles that govern common events in our daily lives with discussions and experiments ranging from seesaws to satellites. Prerequisite for the course is elementary algebra and a fee of \$17 will be charged. Taught by Robert J. Shillman, and MIT graduate student in electrical

engineering, the class will meet Wednesdays beginning October 4, from 7pm to 9pm.

Students will need some knowledge of algebra to take "Introduction to FORTRAN IV Programming" which will be taught by Richard Gardner, a computer component developer at Children's Museum. The course will concentrate on the fundamentals of writing a computer program in the FORTRAN IV language on the IBM 370 computer. A \$25 fee will cover classes and computer time. This course will begin on October 10 and meet on Tuesdays from 7pm to 9pm.

All of the above courses will meet for a total of 15 sessions. Application for admission may be made by calling the Lowell Institute School on Ext. 3-4895. Applications for the COBOL and physics courses must be received by September 27; the deadline for applying to the FORTRAN course is October 3. Notification of acceptance and registration details will be mailed.

Handbooks Describe Preprofessional Study

The Committee on Preprofessional Advising and Education has prepared three handbooks which answer some of the questions commonly asked by student interested in law, education and medical careers.

The handbook for students interested in law covers such topics as prelaw curriculum, guidelines for applying to law school, the Law School Admissions Test, financial aid, law school opportunities for minority group students, admission to the bar, and the wide range of roles for lawyers.

The handbook for students interested in a career in education offers guidelines for student teaching requirements for secondary teacher certification in Massachusetts, full year programs, summer teaching programs, volunteer opportunities at MIT, and career planning and placement.

The premedical handbook for MIT students presents basic information on premedical requirements, paramedical extracurricular activities, application to medical schools, the premedical advisor, foreign medical schools, the Harvard-MIT Joint Program in Health Sciences and Technology,

and allied health professions.

Susan P. Haigh, advisor on preprofessional education, says, "These handbooks touch in a general way the many facts which are important to students considering the preprofessional areas. We hope that the handbooks will familiarize students with the many available opportunities and sources of information as well as the services offered by the Office of Preprofessional Advising and Education."

Copies of the three handbooks are available in the Preprofessional Advising and Education Office, Room 10-186.

Window Reminder

Members of the community are asked to close office and laboratory windows before leaving the Institute at the end of the week. Physical Plant maintains a skeleton crew on weekends and, in case of a rainstorm, does not have enough men to check all the windows in the Institute.

THE INSTITUTE CALENDAR

September 13
through
September 22

Events of Special Interest

Student Art Association

Registration for evening classes continuing through Friday, September 15. Student Center Rm 429. For information call Mimi Luft, X3-7019.

You're A Good Man Charlie Brown *

Musical Theater Guild performance. Saturday and Sunday, September 16-17, 8pm, Kresge Little Theatre. Tickets at the door: \$2 general public; \$1.50 MIT students. Free performance for freshmen, Sunday, September 17, 3pm, Kresge Little Theatre.

Spirit in Flesh*

Concert sponsored by Undergraduate Association. Friday, September 22, 8pm, Kresge. Tickets \$2.25/person.

Seminars and Lectures

Thursday, September 14

Dynamic Compliance of Railroad Tracks*

Dr. Leonard Kurzweil, Transportation Systems Center, Acoustics and Vibrations Group, Department of Transportation. Interdepartmental Acoustics Seminar. 4pm, Rm 5-134. Coffee, 3:30pm, Rm 1-114.

Friday, September 15

Decoding Electrical Artifact from Large Nerve Bundles "In Vivo" *

Ronald D. Rothchild, doctoral thesis presentation, Dept of Mechanical Engineering. 1pm, Rm 3-446.

Acoustic Holography

Byron B. Brenden, vice president engineering, Holosonics, Inc. Mechanical Engineering Seminar. 3pm, Rm 3-270. Coffee, 4pm, Rm 1-114.

Monday, September 18

Design and Construction of a New Respiratory Protective Device for Firefighters*

David Janssen, thesis presentation, Aeronautics and Astronautics. 2pm, Rm 33-206.

Tuesday, September 19

Barker Engineering Library Tour**

Tour of library, description of its collections, introduction to catalog searching techniques, explanation of some services offered. Tuesday, September 19, 3:15pm; Wednesday, September 20, 10:15am; Thursday, September 21, 5:15pm. Tours start in orientation room on fifth floor of Barker Library.

Design and Operation of Oil Pollution Control Barriers*

Prof. J.H. Milgram, ocean engineering. Ocean Engineering Seminar. 4pm, Rm 5-217. Coffee, 3:30pm, Rm 5-314.

Wednesday, September 20

Hart Nautical Museum†

Guided tour of Hart Nautical Museum and the Museum research room sponsored by Dept of Ocean Engineering. 12n and 1pm, leaves from lobby of Bldg 5.

Nuclear Physics before the Atom Bomb, An Eyewitness Report*

Concourse Forum with introduction by Prof. Brian Schwartz of physics and guest speaker Prof. Irving Kaplan of nuclear engineering. 3pm, Rm 10-105. Discussion and coffee, 4pm.

Thursday, September 21

A Man-Interactive Simulator System for Above-Knee Prosthetic Studies*

Woodie C. Flowers, doctoral thesis presentation, Dept of Mechanical Engineering. 1pm, Rm 5-217.

Friday, September 22

Synthetic Diamonds

Rodney E. Hanneman, manager, Inorganic and Structures Branch, General Electric Co. Research and Development Center. Mechanical Engineering Seminar. 3pm, Rm 3-270. Coffee, 4pm, Rm 1-114.

Women's Forum

Women's Forum**

Every Monday, 12n, Rm 10-105.

Student Meetings

Premedicine†

Preprofessional Advising and Education Office will meet with students interested in a career in medicine. Wednesday, September 13, 4pm, Rm 9-150. Chairman of the Premedicine Council will be available to answer students' questions.

Prelaw†

Preprofessional Advising and Education Office will meet with students interested in a law career. Thursday, September 14, 4pm, Rm 10-250. Chairman of the Prelaw Council will be available to answer students' questions.

Education†

Preprofessional Advising and Education Office will meet with students interested in an education career. Friday, September 15, 4pm, Rm 10-250. Chairman of the Education Council will be available to answer students' questions.

Student Information Processing Board Meeting*

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

MIT Club Notes

Plant Club Open House*†

Wednesday and Thursday, September 13-14, 7pm, Rm 24-608.

Alpha Phi Omega*

Chapter Meeting. Wednesday, September 13, 7:30pm, Student Center Rm 407.

MIT Club of Boston Luncheon***

Prof. John Collins of management, president of the Greater Boston Chamber of Commerce and former mayor of Boston, will discuss "Urban Affairs." Thursday, September 14, 12n-1:30pm, Aquarium Restaurant, 100 Atlantic Avenue, Boston. Tickets \$3.60 at the door. For reservations, call Mrs. Terri Crossley, X3-3878.

Outing Club Slide Show*

Introduction to Peru with slides and music followed by mountaineering in the Cordillera Blanca. Thursday, September 14, 6:30pm, Student Center Rm 407.

APO Open Project**†

Come find out what Alpha Phi Omega is all about as we attack the wilds of New Hampshire. Saturday, September 16, 9am, meet at Student Center Rm 415. Call X3-3788.

APO Open Meeting**†

An attempt to give an overview of Alpha Phi Omega service fraternity. Wednesday, September 20, 7:30pm, Rm 10-105. Refreshments.

APO Open Project**†

Come find out what Alpha Phi Omega is all about as we attack a local Boy Scout camp. Saturday, September 23, 9am, meet at Student Center Rm 415. Call X3-3788.

Hobby Shop**

Open weekdays, 10am-4:30pm, duPont Gym basement. Fees: students \$6/term, community \$10/term. Call X3-4343.

Tiddlywinks Association*

Every Monday, 8-11:15pm, Student Center Rm 491.

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.

Nautical Association**

Basic Sailing Shore School, repeated every Monday and Thursday throughout the fall, 5:15pm, Sailing Pavilion. Non-members welcome.

MIT/DL Duplicate Bridge Club**

Every Tuesday, 6pm, Student Center Rm 491.

Rugby Club

Rugby practice. Every Tuesday and Thursday, 5pm, Briggs Field.

Classical Guitar Society**

Classical guitar lessons, group and private. Wednesdays and Thursdays, 5-8pm, Rms 1-134, 1-136. Call Vo Ta Han, 494-8353.

Science Fiction Society*

Every Friday, 5pm, Rm 1-236.

Student Homophile League*

Meeting and mixer meets Fridays, 8pm, O'Connell Hall, 536 Mass Ave, Cambridge. For gay (anonymous) at MIT, call the student gay tutor 478-7871 anytime.

Chess Club**

Every Saturday and Sunday, 1:30-5:30pm, Student Center Rm 491.

Social Events

Mixer*

East Campus Social Committee. Friday, September 15, 8-12pm, Sala de Puerto Rico. Admission: men, 50 cents women.

Mixer*

Chinese Students Club. Saturday, September 16, 8-12pm, Sala de Puerto Rico. Admission \$5.

Muddy Charles Pub**

Join your friends at the Muddy Charles, 110 Walker, daily 11:30am-7:30pm. Call x3-2111.

Friday Afternoon Club**

Music, conversation and all the cold draft beer you can drink. Every Friday, 6pm, the Theater in Ashdown basement. Admission: men \$1, women 50 cents. Must be over 21.

Movies

Simon of the Desert and Chaplin Shorts

Film Society. Friday, September 15, 7pm and 9:30pm, Student Center Rm 407. Tickets \$5.

City Symphony Film Series*

Films on cities, sponsored by Dept of Urban Studies and Planning. Wednesday through Friday, September 20-22, 7:30pm, Rm 9-150. Free.

Blood on the Balcony

Film Society. Friday, September 22, 7pm and 9:30pm, Student Center Rm 407. Tickets \$5.

Music

Festival Jazz Band

First rehearsal. Wednesday, September 15, 5pm, Kresge.

Concert Jazz Band

First rehearsal. Sunday, September 17, 10am, Kresge.

Choral Society

Rehearsals of Haydn's Creation have been arranged. Interested singers may attend open rehearsal on Friday, September 18, 8pm, Kresge. Auditions are arranged. Performance is planned for early September.

Theater and Shows

Musical Theatre Guild*†

Auditions for Camelot by Lerner and Loewe. Auditions by Nancy Rainier. Monday through Thursday, September 18-21, 7:30-10:30pm, Kresge Room Rm B. Call 253-6294 or 354-7795.

Dance

Dance Workshop*

Discussion of year's activities, some dancing. Wednesday, September 13, 7-8pm, McCormick Gym.

Turkish Students Association*

Folkdancing. Every Sunday, 4-7pm, Student Center Rm 491.

Folk Dance Club*
International folk dancing. Every Sunday, 7:30-11pm, Sala de Puerto Rico (exceptions to be posted).

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

Tech Squares†**
Western-style square dancing. Every Tuesday, 8-11pm, Sala de Puerto Rico. Admission: \$1; first time free.

Folk Dance Club*
Every Thursday, 7:30-11pm, Sala de Puerto Rico.

Friday Afternoon Dance Break*
International folk dancing on the Kresge Oval, every Friday (weather permitting), 12:30-1:30pm.

Exhibitions

MIT Collection*
Selection of recent American painting and sculpture from the MIT Collection, sponsored by the Committee on the Visual Arts, through October 1, Hayden Gallery, 10am-4pm Monday-Saturday.

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

Religious Services and Activities

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

Hillel High Holy Days*
Yom Kippur—Sunday, September 17: Minchah, 4:30pm, K kosher Kitchen; Kol Nidre, 6:40pm, Kresge. Monday, September 18: 8:30am, Kresge; Yizkor, 11:55am, Kresge; Minchah, 4:45pm, Kresge; Ne'elah, following Minchah. Meals will be served following services on all days; call Hillel, X3-2982.

Roman Catholic Masses*
Every Sunday, 9:15am, 12:15pm, 5:15pm. Every Wednesday, 5:05pm, and every Friday, 12:05pm. Chapel.

Protestant Worship Service*†
Every Sunday, 11am, Chapel.

Divine Light Mission*
Discourses on the direct experience of Truth given by Guru Maharaj Ji. Every Monday, Wednesday, Friday, Rm 1-132. Call 369-1603 (Concord).

Christian Bible Discussion Groups*
Every Thursday, 1pm, Rm 20B-031. Call Prof. Schimmel, X3-6739, or Ralph Burgess, X3-2415.

Ananda Marga Yoga Society*
Yoga classes, every Thursday, 4pm, beginning September 14, Student Center West Lounge. For information call X3-3664.

Islamic Society Prayers*
Every Friday, 12:15pm, Kresge Rehearsal Rm B.

Chinese Christians Fellowship*
Bible study, hymn singing, praying, sharing. Every Friday, 8-11pm, Student Center Rm 491. (Begins September 15)

Announcements

Society of the Sigma Xi certificates may be picked up daily from 2-5pm in Rm 5-230.

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

Send notices for September 20 through September 29 to the Calendar Editor, Room 5-111, Ext. 3-3279, by noon Friday, September 15.



Mrs. Nancy Holomon demonstrates theatrical make-up techniques on Jane Howard at the Community Players booth in the Maclaurin Lobby.

—Photo by Margo Foote

Community Players Recruit New Members

The MIT Community Players (MITCP), an organization of persons interested in the theater, has been conducting a recruiting effort for the last two weeks to increase the club's membership.

According to Jane Howard, MITCP treasurer, the group is particularly interested in recruiting more members from the MIT community. Membership is open to faculty, staff, employees, graduate students, resident visitors, alumni, and members of their families. A small number of special memberships are available to non-MIT individuals who are properly voted into the organization.

The first major production of MITCP's 1972-73 season will be Arthur Miller's *After the Fall*. In addition, three experimental theater productions are scheduled, beginning with *Who's Afraid of Virginia Woolf*, in Kresge Little Theatre on October 5, 6 and 7.

Besides major productions and the experimental theater series, novice and student directors will have an opportunity to direct brief one-act plays for the group's monthly meetings. For those interested in acting, the MITCP holds open try-outs for all major shows. An acting workshop is also planned which will concentrate on the techniques of acting ranging from bodily movement and exercises to vocal exercises and actual acting in scenes.

Those interested in the technical

aspects of the theater will find many opportunities in the MITCP—production, stage management, lighting and sound, costuming, stage construction, make-up, set design, publicity, ticket sales, etc.

The MIT Community Players, originally named the Drama Club, was organized in the early 1930s by Professor Henry G. Pearson, then head of the Department of English and History. Under the auspices of the MIT Matrons, the Drama Club performed one major production a year. After World War II, the group changed its name to The Staff Players of MIT and turned to more serious drama.

Shortly after Kresge Auditorium opened in 1955, the group became the MIT Community Players. Their first performance in Kresge was Arthur Miller's *The Crucible*. Over the year the MITCP productions have included *The Hairy Ape*, *The House of Bernarda Alba*, *Rosencrantz and Guildenstern Are Dead*, the first Boston productions of *Camino Real* and *Rhinoceros*, and several plays by such playwrights as Ibsen, Shaw, Chekhov, Pirandello and Shakespeare.

For more information about the Community Players, attend one of their open meetings (see the Institute Calendar for notices) or call one of the officers: Lewis Morton, chairman, Ext. 3-5687 or 491-8709; Steve Ivester, vice-chairman, 242-4783 or 864-6000, Ext. 2839; Jane Howard, treasurer, Ext. 3-2311 or 492-6832.

Fish Study Reported

(Continued from page 1)

response to the diminished annual catch, there would still be enough reproductively mature fish so that the population would quickly recover.

Weissman said that one major advantage of the systems dynamics approach is the ease with which mental models can be translated directly into mathematical computer models. People use mental models whenever they balance one possibility against another to arrive at some decision, he said. However, with extremely complex decisions involving many factors, a computerized model is preferable, he said, because the human mind is incapable of consistently including all constraints and handling the immense number of variables.

Although the model they have produced is a crude one, Weissman noted, it provides realistic results and could be easily refined by adding more factors as new data about the menhaden industry is obtained. The model comprises the numerous cycles typical of living systems, their relationships to each other, and the effect that the fishing industry has on them.

The model can be described as a series of interconnected loops relating causes to effects. For example, one such loop simulates the relation between the food supply and the number of fish. If nothing else affected menhaden, Weissman said, then when food was plentiful they would multiply in great abundance. When they became too plentiful—and needed more food than could be obtained—malnutrition and starvation would reduce the number of mature menhaden, and consequently the number of menhaden hatched, and the population would fall off drastically. Gradually, as a result of the smaller menhaden population, the food supply would have a chance to grow back to its original level, the menhaden population would again increase, and the cycle would be completed.

Who's New in the News

Institute Professor Emeritus Roman Jakobson is the author of an article on verbal communication in the September, 1972 issue of *Scientific American*.

Professor Rene Miller of the department of aeronautics and astronautics is a featured speaker at the up coming National Academy of Engineering symposium, "Transportation and the Prospects for Improved Efficiency" to be held October 12-13.

Make-up Exams

Students requiring information regarding make-up examinations and assignment deadlines for subjects in which they received incomplete grades last spring should contact the faculty member in charge of the subject. This information will also be available in the Information Center (room 7-111, extension 3-4795).

All make-up work relating to Incomplete grades for the spring term 1972 must be completed by October 25, 1972. (Extension from October 22 due to the holidays on October 23 and 24.)

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. 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. The deadline is noon Friday.

For Sale, Etc.

Sofa w/2 match arm chrs, \$80; DR tbl w/4 chrs, \$20; 2 closets, \$30 & \$10; dbl bed, \$20; twin bed, \$15; GE stereo, \$60; Whirlpool dish, \$110; grn rug, 9x12 w/matt, \$80. Shigeru, X3-3703.

Baby carriage, \$10; GE hatbox hair dryer, \$5. Jerry, X3-7404.

Twin bed w/box spr & frame, \$35; Zenith 18" TV, \$30. Bruce, X3-7080.

Lg desk, gd cond, \$30. Hans, X3-1874.

K tbl, \$10 w/4 match chrs, \$2 ea; end tbl, \$3; telephone tbl, \$3; tbl lamp, \$2; sofa, \$20. Gustavo, X3-7114.

Girl's 26" lightweight bike, \$25. Tom, X8-1532 Draper.

Refrigerator, exc cond, \$50. Don, X3-3697.

Polaroid Swinger camera w/3 rolls film, \$9; 4 fiberglass curtains, 72" long, \$7. Joe, X3-7075.

Several lg wh metal cabinets, \$15 ea; hvy wooden typist chr, \$15. John Wenk, X3-4982.

Std metal office desk, drawers on 1 side. Fred Afrikian, X8-3476 or 8-3472 Draper, lv msg.

Must sell br new Teac 4010 SL tape deck w/remote control attach & access kit, \$395; br new Sansui 4000 amp stereo tuner w/mahog case, \$325; br new profess Sansui trntrl, \$140; or best offers. Welch, X3-2991.

Twin bed, firm matt, box spr, frame, \$30; tbl, 7 1/2"x16"x17", gd for stereo, \$7. Ron, X3-4162.

Lg box spr & matt, 5 mo old, \$50 or best. E. Hicker, X3-1919.

Regency tbl model WT-4 radio, AM 50-1600 kc, SW 1.6-30Mc, exc cond; Tonneau cover, '65 MG Midget, nvr used; 49mm filter, 85B; 4 post dbl bed frame. X3-3297.

New hvy duty tent, slps 5, easy to set up, \$55; Coleman gas stove, \$12; snow sled, \$5; Thermos, \$3; v gd cond. David, X3-4710.

Halicrafters SW receiver, SX62A, wide cvr, 0.54 MHz, AM/FM/SW, new tubes, gd cond, \$125. Stan, X3-4288.

LR chrs, 2, match, wht vinyl, \$10 ea. Call 354-6193.

Nikon photomic FTN, new, body w/FTN finder, TTL exp mtr; 50mm f1.4 lens w/uv filter, case, \$350. Ishii, X3-4840.

Bkcase, \$10; coffee tbl, \$4; 1/2 circle end tbl; misc. Sally Boyson, X3-6746.

Craig mini calculator, 8 digits, 5"x3"x1", floating dec, recharge, all operations, constant, almost new, warr, \$150; KLH stereo phono w/spkr, \$100; SCM port elec typewriter, pica, \$70. David, X3-3857.

Roberts 770X tape rcdr, gd cond, \$175. John, X3-6212.

Leica lenses for M1-M4 bodies, f3.5, 35mm Summaron, \$90; f1.5, 50mm Summarit, \$125, will consider trade for Autofocus slide proj & compensat, or 1-1 for Sony 12" color TV. Jack, X3-6174.

Motorola AM/FM stereo radio w/4 spd rcd plyr, \$60; 3 new air matts, \$15; GE hair dryer, \$8; kid's baking oven, \$5; 2 camping stools, \$2. X3-5710.

Canon FT-QL w/135mm, f2.5 Canon & 28mm, f2.8 Soligor lenses, cases & hoods, \$225. Walt, X3-7234.

Presto broil oven, nvr used, \$18; sgl beds, \$10; brass refin iron sgl bed, \$30; rocking parlor & K chrs. X8-4095 Draper.

Paperbacks for 21.017, 10-30% off Coop price, exc cond. Randy, Dorm X8565.

Pool tbl, 8x4, gd cond, best. Dick, X3-5806.

Twin bed, \$15. X3-1944.

Couch & 2 chrs, \$60; 1 gold chr, new, \$45; grn couch, \$60; 2 lamps, \$7 ea. Lloyd, X3-2215.

Aquaria, 100gal set up, \$150; 40gal set up, \$75, hi qual stainless steel frame, iron stds, fluorescent hoods, pwr filter, hter, exc cond. X3-7595.

Manual lawnmower, new, nvr used, \$10. Betty, X7482 Linc.

K cab, wht, steel, 36x36x20, formica top, 2 drawer, 2 doors & 2 shelves. Robin Waldren, X3-5961.

Firestone Town & Country studded snows, 2, mounted on 14" rims, \$25. Joe, X8-1234 Draper.

Nikkormat FT w/auto Nikkor f/2 lens, sun shade & filters, \$150; folding bed, \$20. Joseph Kutchmanich, X8-2847 Draper.

King size, new, unused, stained wtrbed frame, 8" hi, \$20 or best. Lawrence Isaacs, Dorm X9637.

Lg gold couch, \$10. Gilbert Hawkins, X3-4817.

Film & paper for 4.051. Margaret, Dorm X9219.

Mosley TA33 tri-bound beam w/rotor & 100' control cable, \$135 or best. Judy, X8-3328 Draper.

Sears 12v Die Hard batt, yr old, \$10 or best. Cathy, X3-6792.

Wh pine custom sideboard 61 1/2" long, \$85; Queen Anne occas chr, \$20. Irvine, X3-1802.

Twin bed w/frame, matt & spr, \$70; old RCA 15" TV, \$10; Roto-Broiler, \$15; Ecology game, \$4. Mark, X3-5319.

Kodak Instamatic M67 proj for super 8 & 8mm, used twice, \$55 or best. Jay Benesch, X3-3161, lv msg.

Vehicles

'59 Corvette, body mint, 2 tops, 327, 4 spd, new tires, chrome wheels, extra parts, asking \$1200 or best; also 4 1/2 mo old orphan colt, well-bred, exc dispo, cared for by 6 yr old boy, nds gd home in country, asking \$250 or best. John, X3-7286.

'60 Rambler American, everything works, still runs, \$50 or best offer. X3-5846.

'62 Mercedes 220S, 74K, gd cond, \$950. Peter Gil, X3-7166.

'63 Chevy Impala, 4 dr sedan, new ball joints, rad & muff this year, 283 std eng, exc run cond, mounted snows, \$200. McEwen, X8-3422 Draper.

'63 Valiant, 70K, new eng & tires, gd run cond, \$200. Pu, X8-1431 Draper.

'64 Dodge Polara 2 dr convert, p st, auto, 8 cyl, R, new wires, 4 new tires, v gd body & work cond, nds little br work, \$200. Said, X3-6276.

'64 Ford Custom 500, 4 dr, V-8, p st & br, auto, new carb, batt, R & heater. Bruce, 494-2013.

'64 Lincoln, 4 dr convert, 72K, nds body work, \$250 as is. X3-2202.

'64 Valiant convert, auto, rebilt eng, \$150. John, X3-5550.

'64 Volvo, 4 dr, \$200, gd mech cond, body rusty. X3-7195.

'65 Buick Skylark 4 dr V-8, p st & br, auto, 58K, v clean, \$700. Brad, X7430 Linc.

'65 Mustang, 6 cyl, 3 spd, nds work, special paint, \$300 or best. David, X3-5676.

'65 VW, v gd run cond, new br & muff, 91K, \$350. Jose, X3-1691.

'66 Ford Falcon, 2 dr sedan, V-8, 4 spd, v gd cond, 4 new belted tires, 2 spares w/rims, \$250; top carrier fits all cars, \$17; 3 air mattresses, \$20; Coleman stove, \$10. Jan, X3-4170.

'66 Sunbeam Minx, new clutch, starter, batt, tires, water pump, must sell, best offer. Yves, X3-4233.

'66 VW, runs well, body dents, \$350 or best. Hoch, X8-1420 Draper.

'66 VW bus, gd work cond, \$500. X8-1357 Draper.

'67 Fiat 850, R, gd cond, std, asking \$1000. Frances, X3-6733.

'67 Ford Galaxie 500 convert, exc cond, Firestone belted tires, 289 V-8, p st, R&H, auto, \$850 or best offer. Call 494-8412.

'67 Pontiac 4 dr hrdrtp, \$300. X3-3753.

'67 Pontiac Tempest, 2 dr, 326 V-8, auto, p st, new tires, exc cond, 52K, orig owner, avail late Sept, \$850. John, X7657 Linc.

'67 Pontiac Tempest convert, 326, 4 spd Hurst, exc cond, new rear window & exhaust system. Dorm X8748.

'67 VW sqback, gd mech cond, body slightly damaged, 4 gd tires, 86K, \$250. X7221 Linc.

'68 Chrysler Newport, 4 dr, V-8, 63K, exc mech cond, v gd body, \$995 firm. Cheri Kate, X3-7051.

'68 Ford Country Sedan wgn, new tires & snows, v gd cond, \$750. Carol, X3-4710.

'68 Int'l van, exc cond, low mi, \$100 or best. John Leone, X8-3566 Draper.

'68 Mustang convert, 6 cyl, rebilt eng, auto, p st, AM radio, asking \$680. Reinhold, X3-3241.

'68 Olds Delmont 88, 55K, 2 tone, 4 dr hrdrtp, auto, air cond, p st & br, 2 mtd snows, regular gas, recent br, muff & shocks, \$1200. Bill Bartlett, X8-3546 Draper.

'68 VW bus, \$875, 2 snows, truck type side mirrors, 55K, nds rear end body work. X7785 Linc.

'69 Dodge Polara, 9 psgr wgn, 318 eng, auto p st & br, new ww's & batt, \$1495 or best. X8-1415 Draper.

'69 Fiat 124 Spyder, Colorado yel w/chrome luggage rack. Call 646-9475 evgs.

'69 Ply Roadrunner, 65K, 4 gear shift, gd cond, \$1100. X3-3694.

'70 Opel, 102 hp, R, new tires, gd cond, \$950. X3-7078.

Honda CA-160 touring cycle, 3.8K, exc cond, easy maintain, \$195. Ted, X428 Linc.

'64 Vespa, gd cond, w/2 helmets, \$95. X3-1547.

'65 Honda 150, v gd cond, \$125 firm. Mike, X3-4319.

'69 Kawasaki 500, gd cond, must sell, \$700 or best. Harvey, X3-6066.

'71 Yamaha 360 Enduro w/21" fr wheel knobbies, 42K, gd cond. X3-2541.

'71 BMW R75/5 cycle, 12K, Avon fairing, new tires, exc cond, many extras, \$1600. Jim Deckert, X8-1518 Draper.

Peugeot 10 spd bikes: woman's UE-18, blk, yr old, super cond; man's U-08, wh. Beth, X3-1801.

Man's 10 spd bike, extras; '71 Yamaha R5B, 350cc, street; '70 Yamaha CT1B, 175cc, trail, exc cond, low mi, extras. Myron Frommer, X3-3242.

Trailer, 6'x9' utility & camping, canvas cover w/dining & door canopy, 2 spares mounted, fender mirrors, screen winds, jacks & alum poles, \$350. X3-2720.

Housing

Allston, lg 4 BR apt, w-w, delux bldg, pkgng, on car line, \$300, heated. Jeff, X3-5181.

Camb, walk to MIT, 2 BR apt, furn, htd, 1st flr. X3-2739.

Malden/Medford line, newly renov 4 rm apt, 1BR, 2 porches, ground flr, off st pkgng, \$150+util. Don, X3-7539.

Rox, 2 rms in fam home for students, reas prices. Ray, X8-4488 Draper.

Hingham, 6 rm Cape, asking \$28.9K, 3 BR, frplc, LR, 1 1/2 B, mod K w/dish, breezeway w/attached gar, full cellar, town sewer, gd neighborhood, priced for quick sale. Steve, X8-3685 Draper.

NH ski chalet, avail wkly or monthly for winter. X8-4415 Draper.

Animals

Puppies, Heinz 57 variety, mostly German Shepherd, free to gd homes, exc w/kids. George, X3-4472.

Free: b&w male kitten, 8 wks old. X8-1392 Draper.

AKC reg min Schnauzer, f, no shedding, gd watch dog, affectionate pet, comp hse broken, best offer. Hank, X326 Linc.

Kittens, 4 playful, healthy, great w/child, avail now. X3-4826.

Please save sm grey striped kitten, v friendly, free. Michele, X3-7053.

M wh Siamese, 10 mos, all shots, fixed, v friendly, loves potato chips, used to children, avail now. Pierre, X3-6654.

Free blk kittens, m, f, 8 wks old. Frank, X3-2270.

Lost and Found

Found: MIT '71 class ring, approx size 8, identify at Lost & Found, E18-210, X3-4741.

Found: 3 books & 2 pcs of music, found 9/1. X3-4791.

Wanted

Refrigerator, any size, w/consider all offers. David or Aristotle, Dorm X0230.

Fem, 21+, to share lg 2 BR apt w/same in Watertown, \$125, w-w, AC & heat. Peggy, X3-6229.

Ride between Arling & MIT daily, will share exp. Bob Brooks, X3-7154.

Canon Pocketronic batt charger no. 10A or 20A to buy or rent. X3-3147.

Used postage stamps, US & world wide, also interested in meeting other stamp collectors. H. Greenburg, Eastgate 15H.

Saxophone, suitable for beg student. Bill, X3-6041.

Fem rmmt to share apt w/wom & child, quiet dead end st, \$115/mo incl util & phone. Sam, X8-4989 Draper.

Golf clubs. X8-2479 Draper.

Piano in gd cond. Steven Madden, X3-1927.

Rmmt for 2 BR Somm apt, split \$195/mo. Tom, Dorm X9274.

Free phonograph for youngster to take apart. Bob, X3-1420.

Graduate cpl, no children, w/ care for and maintain sm house for owners for 1-2 yrs, beginning spring 1973. Call 354-2830.

Fem staff or grad stu to share spacious Lex house w/acre of trees & grass w/3 men & woman, \$85+utils. Tony, X3-7575.

Rmmate, male or fem, to share 3 BR apt on Mass Ave nr MIT, must be MIT affiliated, \$100/mo. Rick Gumperts, 491-6300, X243.

Ride to NYC area (Stamford, Conn) lvng 9/15, return 9/17, w/ share driving & exp. Betsy, X3-2011.

Foreign student wife or mother's aid to help w/housework & 3 children (2 in school) in Belmont, 20 hrs/wk, can live in, minimal English nded. X3-5356.

Fem, 24, nds Camb or Bos apt to share w/other women, w/ pay up to \$100. Myra, X3-6321.

SIPB seeks student for clerk/typist position, must type well, be able to work 3-5, Mon-Fri. Apply 39-200 or call Tavares, X3-7788.

Piano, reason priced, will move. Anne, X8-3551 Draper.

Bike, 3 spd which works or can be made to work, pref cheap & grungy. Richard, 876-5961.

Carpool, MIT-Fram nds people or drivers. Mike, X3-7169.

Miscellaneous

Albany pkgng sticker wanted in place of West. Bill, X3-5732.

Nurse will babysit in her home 5 days/wk. X3-3604.

WI translate French-English or English-French, efficient, inexpensive. Anne Recchio, X3-2768.

WI do gen or thesis typing on IBM Selectric. X3-4561.

Theses, manuscripts, tech papers typed at my home, reas rates. Barbara, X3-6256.

WI do foreign auto repair. Jack, X3-4560.

WI do gen typing, reas, mod elec typwr. Bill, X7414 Linc.

Positions Available

The Office of Personnel Relations each week lists a sample of the available opportunities at the Institute. Interested employees are encouraged to call the appropriate extensions for further information about these or other current jobs.

Secretary IV to work in the administrative area of a research group involved in world and urban population studies. Typing from longhand and dictaphone technical and general manuscripts, correspondence, etc. Receives phone calls and visitors. Responsible for all office supply purchasing, petty cash, some supervision of office personnel, distribute and return all work to Graphic Arts, handle computer fund distribution, setup and maintain correspondence files.

Biweekly, Ext. 3-4251

The Summer of '72

Some of the News You May Have Missed

Research Forecast

The Division of Sponsored Research has forecast sponsored research at the Institute in excess of \$200 million, for the first time, for the 1972-73 year. The forecast said that 1972-73 would be the second year in a row in which the increase in research funding has exceeded the increase in inflation, thus marking the second consecutive year in which real research growth has occurred. The DSR annual forecast, made just before the start of each fiscal year to assist MIT in financial planning and management, is based on detailed reports and estimates from each of the departments, interdepartmental laboratories and centers, and the special laboratories. (Tech Talk, August 9)

New Women's Post

A new post, Special Assistant to the President and Chancellor concerned with the status of women at MIT, was announced by Chancellor Paul E. Gray. The incumbent will be principally concerned with enhancing the employment and educational opportunities for women at the Institute. Candidates are now being sought to fill this position. (Tech Talk, August 2)

Sea Grant Is Funded

The MIT Sea Grant Program became a formally designated Sea Grant institution and received a \$600,000 institutional grant for 1972-73 from the National Oceanic and Atmospheric Administration. (Tech Talk, August 2)

Preprofessionals Rise

Growing numbers of MIT graduates are seeking careers in law and medicine. Professor J. Daniel Nyhart, former Dean for Student Affairs who has taken on the job of organizing formal preprofessional programs at MIT, reported that almost a quarter of last June's graduates sought admission to medical or law schools, with a high percentage of them accepted. (Tech Talk, July 19)

Consumer Research

Researchers at the Institute started a two-year \$378,000 study aimed at improving the servicing, reliability and maintenance of consumer durables. The program, sponsored by the National Science Foundation, is being carried out in the newly-formed Center for Policy Alternatives and the Charles Stark Draper Laboratory under the direction of Dr. J. Herbert Hollomon. (Tech Talk, June 21)

Convention Analysis

Three MIT students flew to Miami Beach this summer to study the Democratic National Convention and analyze the effects of the stringent reforms the party made on the delegate selection process in the last four years. The students returned with praise for the reforms and in the words of one, the new delegates had "a refreshing impact on the convention." (Tech Talk, June 28 and July 26)

Employee ID's

The Institute initiated the use of identification cards for all employees during the summer. The cards, bearing the name and Social Security number in embossed letters, will be used to facilitate a number of administrative processes in addition to serving as Institute identification. (Tech Talk, June 7)

Tuition Increase

President Jerome B. Wiesner announced this summer a tuition increase of \$200, from \$2,900 to \$3,100 per year, beginning with the summer session of 1973. "The decision to

raise tuition was made only after the most careful forecast of our anticipated costs and other sources of income," Dr. Wiesner said. He also noted that the Technology Loan Fund is being modified "first, to take full advantage of the Federally Insured Loan Program, and second, to provide a new program for loan repayment rates related to future income." (Tech Talk, August 30)



Angels Sign Dopfel

MIT athletics reached a high point when graduating senior Al Dopfel was signed by the California Angels baseball club. Dopfel, chosen the Most Valuable Player in the Greater Boston League, is the first MIT athlete to be signed by a professional club. (Tech Talk, June 14)

Draper Divestment

The Charles Stark Draper Laboratory will become an independent, non-profit corporation next July, if terms of an agreement between the Institute and the Navy Material Command, representing all federal agencies sponsoring research at MIT, are met by that time. The agreement, signed July 5, was the result of more than a year of negotiation aimed at implementing the decision to divest the Draper Laboratory. (Tech Talk, August 2)

Staff Search

A procedure which will help insure full consideration of minority and women candidates for staff positions at MIT was announced by Chancellor Paul E. Gray. The procedure—which will be reviewed weekly by a subgroup of the Academic Council—requires all department, laboratory and office heads to demonstrate that a serious search for such candidates has been conducted before any offer of appointment is made. (Tech Talk, July 26)

Summer Session

Over 2,000 students were enrolled in MIT's regular Summer Session for 1972. In addition to the regular classes offered, MIT sponsored one- and two-week special semester courses designed to help professionals keep abreast of developments in their fields. More than 1,300 people attended these special courses. (Tech Talk, July 12)

Student Summer Projects

The development of low income housing, the transportation crisis and the treatment of juvenile offenders are a few of many social problems tackled this summer by 54 MIT and Wellesley students participating in MIT's Student Summer Projects in Community Affairs. Student salaries were provided by MIT and outside agencies.

Timothy Bird, a special assistant in the Office of the Provost, coordinated the summer projects program.

Centrex Switch

The Institute telephone system was converted to Centrex August 12. The new system requires the use of five digits when dialing within the Institute and gives the Institute and Draper Laboratory new main telephone numbers. Centrex allows direct inward dialing to all Institute telephones and allows expanded outward dialing capacity. (Tech Talk, August 16)

Faculty Policy

Changes in faculty policy were announced that bring them into line with previous decisions on equal employment opportunity. The changes dealt with certain faculty appointments, rules of tenure and leaves of absence, and with the definition of years of service. (Tech Talk, June 28)

Alumni Gifts Soar

The Alumni Fund announced another record breaking year, both in terms of total gifts and in the number of donors to the Fund. Contributions amounted to \$2,792,363, nine percent above last year's figure and participation by alumni climbed to 44 percent. (Tech Talk, August 2)

Appointments

Natalie N. Nicholson was appointed Acting Director of the MIT Libraries, effective July 1. Miss Nicholson, who has been associate director of the libraries since 1958, succeeded Professor William N. Locke who earlier had asked to be relieved of his administrative responsibilities. (Tech Talk, July 26)

On September 1, Peter H. Richardson became Director of Admissions, succeeding Professor Roland B. Greeley. Mr. Richardson, a member of the MIT Class of 1948, had been associate director of admissions since 1964. Professor Greeley, who retired at the end of August, was also a professor in the Department of Urban Studies and Planning in addition to his Admissions post. (Tech Talk, August 26)

Also effective September 1 was the appointment of Anne Ellison as Assistant Dean for Student Affairs. She will have primary, but not exclusive, responsibility for women students and in addition, serve as an advocate for women in the Dean for Student Affairs Office. (Tech Talk, August 30)

A new post, that of Assistant Dean for minority students, has been created in the Graduate School office. Dr. Clarence G. Williams, formerly assistant to the Dean of Hampton Institute and a counselor in the Dean's office at the University of Connecticut, was appointed to the new position on September 1. (Tech Talk, September 6)

Walter L. Milne, assistant to the chairman of the Corporation was named to the additional post of Special Assistant to the President for Urban Relations. He will serve as the chief coordinator for the Institute's urban relations and as an administrative resource to assist in MIT's many urban interfaces. (Tech Talk, July 12)

After serving for five years as director of the MIT Industrial Liaison Program, Jack W. Christensen was appointed secretary of the recently formed MIT Development Foundation, Inc. (Tech Talk, June 14) Mr. Christensen was succeeded in the ILO by Charles J. Sheehan, who had been an officer in the program for more than two years. (Tech Talk, June 28)

Alice M. Seelinger, after many years as secretary and administrative assistant to

Recycling

A report submitted this summer by two students involved in MIT's Ecology Action organization was the first step toward initiating an Institute wide recycling effort. The students' report estimates that there is the potential for recycling up to 90 percent of all MIT's waste and a pilot program will begin soon. (Tech Talk, August 23)

1,270 Graduate

Some 1,270 seniors and graduate students received degrees at MIT's 106th Commencement Exercises, June 2 and heard Dr. Jerome B. Wiesner present his first commencement address as President of the Institute. Dr. Wiesner called for the control and constructive use of science and technology. "We have learned a basic lesson—that we can't charge along, applying technology blindly and capriciously, without getting into serious trouble," he said. "But...our society is learning how to deal with these problems." (Tech Talk, June 7)

NSF Grant

MIT's Center for Materials Science and Engineering this summer received a grant totalling \$2,220,000 from the National Science Foundation. The Center, which investigates the basic properties of solids and liquids under varying temperature, pressure and other conditions, was one of 12 Materials Research Laboratories to receive a grant from NSF. (Tech Talk, June 14)

Vice President Kenneth R. Wadleigh, was appointed to the new post of administrative officer in the Dean for Student Affairs Office. (Tech Talk, August 9)

The Libraries also established a new post, Assistant Director for Business Operations. William J. Duggan, formerly assistant comptroller for the Institute was named to the position, effective September 6. (Tech Talk, August 30)

Lillian Giuliani, formerly administrative assistant in the Office of the President and Chancellor, has become administrative assistant to Chancellor Paul E. Gray. (Tech Talk, August 23)

The Alumni Association also announced three appointments during the summer:

Allan S. Bofford '59, has become associate director of the Alumni Fund, where he will coordinate Fund programs for the 20 youngest classes, the Graduate School, parents and administration of telethons. (Tech Talk, August 16)

New associate secretary of the Alumni Association is Richard A. Knight, '47, who assumed the post last week. He will be primarily concerned with expanding the Association's continuing education program. (Tech Talk, September 6)

Michael D. Feirtag, '72, was appointed assistant editor of Technology Review, effective August 1, succeeding O. Reid Ashe, '70, who accepted an editorial position with the Charlotte Observer. (Tech Talk, July 26)

Five changes were announced in the Physical Plant Department: Miles P. Cowen, formerly superintendent of building maintenance, is now assistant Director of Physical Plant for special services. Paul F. Barrett is head of the recently-formed construction division in the department. He was formerly construction manager. Henry J. Leonard, formerly personnel officer for the department, was named superintendent for support services, including the department's West Campus operations. Theodore M. Doan, Jr., formerly assistant superintendent of building services, has been named manager of building services. Connor Moran has become manager of the Student Center, Kresge and the Chapel. He had earlier been manager of Kresge Auditorium. (Tech Talk, August 9)



The Charlie Brown cast (left to right): James V. Czaka (Schroeder); Sherry H. Arell (Lucy); Ed Wischmayer (Charlie Brown); David C. Simen (Linus); Susan M. Lynch (Peppermint Patty); and Peter J. Fitzgerald (Snoopy).

—Photo by Marc PoKempner

Musical Guild Announces Auditions

Auditions for instrumentalists and actors for the musical "Camelot" will be held in the rehearsal rooms of Kresge Auditorium September 18-21 from 7:30pm to 10:30pm.

The production is sponsored by the MIT Musical Theatre Guild and will be directed by Nancy Rainer. "Camelot" will be presented in early November.

The Musical Theatre Guild will

begin this year's theatrical activities with "You're a Good Man Charlie Brown" on September 16 and 17. Further information on either production is available by calling Ext. 3-6294 or 354-7795.

Catalogue Delivered, Uses New Composition

The MIT General Catalogue came to the Institute this year by way of modern technology although, ironically, at the expense of extra effort and time in production.

Nearly 6,000 copies were given out Monday as students and faculty returned to the campus for the beginning of the fall term. Some 12,000 copies were delivered to the campus late last week and another 43,000 are expected by mid-September. Catalogues were mailed to faculty and distributed to students at the Information Center, Room 7-111.

This year the Catalogue was produced by computer-aided composition rather than by the hot metal typesetting process used in the past, according to William T. Struble, director of publications.

The new process, which uses optical character recognition equipment as input and a cathode ray tube device for typesetting, promises several advantages. In

the future some changes in text will be easier to handle because the text is stored on magnetic tape, and some savings in production time and costs are anticipated. Changing the composition process did, however, require the complete resetting of all copy of the 500-page book.

Other efforts were made this year to control the size and expense of the Catalogue, according to Mr. Struble. They included centralizing the editorial functions by academic schools and administrative departments. Subject descriptions were prepared by the faculty and assembled and coordinated by the Registrar's Office. Susan C. Knight of the Publications Office was in charge of final editing and production.

According to Vice President Constantine B. Simonides, "The Committee on Educational Policy has the formal responsibility for the presentation of the Institute's academic program which is, of course, the primary purpose of the Catalogue. There is further reform of the Catalogue planned for next year, under the aegis of the CEP."

UROP Lists Additional Sources

The Undergraduate Research Opportunities Program (UROP) invites MIT undergraduates to participate with MIT faculty and staff members in a wide range of research and independent study activities both on and off campus.

Ground rules and procedures for participating in UROP are contained in the "MIT Undergraduate Research Opportunities Directory" which can be obtained from the Information Center (7-111) or the UROP office (20C-231). Coordinators for Institute departments and laboratories are listed under each directory entry. These people are prepared to assist undergraduates in their search for an interesting activity. Students should be prepared for a certain amount of footwork in order to arrange satisfactory relationships.

The following listings have been received since publication of the directory.

J. B. Thomas Hospital

Peabody

A psychiatric day care hospital located on the north shore, the J. B. Thomas Hospital is interested in having a student participate as a member of its therapeutic community. Specific projects will be handled individually depending on the mutual interest of the student and the hospital staff.

UROP, 20C-222, x3-5049.

Human Resource Institute

Brookline

The Human Resource Institute is a private psychiatric hospital looking for 3-5 undergraduates who are interested in the following topic areas: (1) psychology of abnormal behavior (with emphasis on the family) family interactions; video taping as a tool to be used in therapy; study of brain waves and their correlation to psychiatric illness and physical illness in psychotic patients. Other topics are possible depending on the mutual interest of the student and HRI.

UROP, 20C-222, x3-5049.

Beth Israel Hospital

Boston

Opportunities are available for undergraduates at the new Beth Israel Ambulatory Center. Possible areas for student projects are: maintenance of medical records on a computer; looking into improved logic and the problem of effective storage; determination and evaluation of the center's effectiveness and design of a health care system in which patients "have a say". Other topics may come up as the center develops.

UROP, 20C-222, x3-5049.

Bolt, Beranek, and Newman

Cambridge

Division 3 (the Behavioral Science Division) of BBN has suggested these 3 topic areas for student participation. 1) Speech-training aids for the deaf, 2) Basic research on human information processing, 3) Experiments on tactual tracking displays.

Professor Kenneth Stevens, 20F-004, x3-3209, or 20C-231, x3-4849.

Appalachian Mountain Club

Boston

One of the problems facing those interested in the management of recreational use of back country locations is how to dispose of human waste. The AMC is looking for 1 to 2 students with interest in the problem of on-site disposal of human waste in isolated areas.

Mr. Peter H. Richardson, 3-108, x3-4791; or UROP, 20C-231, x3-4849.

Education Development Center

Cambridge

The EDC group working at the Social Science Curriculum Project (SSCP) near Harvard Square will be able to take on a student or two in these on-going efforts: 1) "Exploring Human Nature" 2) "Man in the Man-Made World," 3) "Exploring Childhood: A course of study and work with young children, 4) "Conflict and Change": A course which undertakes a study of the

values and political behavior in Ancient Greece and Rome.

Also, an anthropologist at EDC-SSCP has indicated a willingness to teach a seminar here this semester if there are any takers.

UROP, 20C-231, x3-4849.

New England Aquarium

Boston

The New England Aquarium is interested in two students to participate in the NEA Project 2000. The first phase of the project includes the following modules of work: water supply, water-borne waste disposal, solid waste disposal, demography, and industrial effects. NEA would also consider a student who is interested in the land use analysis, in a power analysis, or in the transportation analysis, to initiate a project in one of these areas.

Professor Stephen Moore, 48-427, x3-1771; or UROP, 20C-231, x3-4849.

Massachusetts Legislators

Boston

Undergraduates interested in locating an "internship" through UROP with a Massachusetts Senator or Representative should contact Professor James Annable of the Sloan School, E52-453D, x3-4427.

Sperry Rand Research Center

Sudbury

The Digital Techniques Laboratory has a new PDP-11 Model 10 and three Uniscope 100 CRT terminals, but no interface for the 3 terminals to converse with the computer simultaneously. An enterprising student or two could use this project as an excellent spring-board into one of the larger corporate R&D labs near Boston. For more information, call Mr. Hoo-Min Toong, 10-397, x3-2116; or UROP, 20C-231, x3-4849.

Department of Transportation

Cambridge

The DOT Transportation Systems Center is looking for 1-2 undergraduates to assist in soil mechanics and foundation engi-

Department of Transportation

Cambridge

1. The DOT Transportation Systems Center is looking for 1-2 undergraduates to assist in soil mechanics and foundation engineering for both a) subways, and b) tunneling as an art/science. 2. A group at the DOT Transportation Systems Center is participating in a program of development for new automated forms of transportation. These can be categorized as the "dual-mode" systems (manual and automatic), and the "Personal rapid-transit", PRT, systems (fully automatic).

Some suggested research topics include: a) Automatic Control: from analytic techniques to precision control, b) Safety: from passive restraint systems to human factors, c) Systems Management: from the human operator to data management.

UROP, x3-4849.

3. The DOT Transportation Systems has an opportunity to engage an undergraduate for 12 to 20 hours per week on a software project to prepare an information storage and retrieval system on a Honeywell DDP 516. The software package, when completed, will be used by the National Highway Traffic Safety Administration (NHTSA) to record, sift, and analyze highway safety/data statistics.

UROP, 20C-231, x3-4849.

4. A research group at the DOT Transportation Systems Center has suggested projects in six areas in which one or more undergraduates could get involved. The six topic areas include: 1) Rail Transport and Recycling, 2) Transportation Energy, 3) Transportation and Communications, 4) Transportation and Environment, 5) Transportation Systems and National Growth, and 6) Auto Parking Study.

UROP, 20C-231, x3-4849.

New HEW Plan Nears Completion

(Continued from page 1)

These points will be discussed with the Academic, Administrative and Faculty Councils during the next few weeks. Mr. Allison said that a final draft, incorporating the modifications and additions should be completed by mid-October.

Preparation of the new Plan followed an HEW survey carried out at the Institute which found inadequacies in the existing Affirmative Action Plan, adopted in October 1969. The survey called for the Institute to make further improvements in employment opportunities for women and minorities.

Child Care Programs In Flux

The information about Institute child care services reported in the September 6 issue of Tech Talk is outdated. The child care programs at MIT are in a state of flux and are now being re-evaluated. Questions about child care services should be directed to Margaret Sand of the Office of Personnel Relations, coordinator of day care services, on Ext. 3-1592. For information about the Technology Nursery School, please call 484-1697.

Secretarial Guide Out

(Continued from page 1)

Barbara McCarthy of the Research Laboratory of Electronics, Frances Jones of electrical engineering, Ruth Goodwin of the Registrar's Office, and all members of the Office Biweekly section of the Personnel Office.