



## IAP begins

IAP got off to a good start Monday and one of last year's successful innovations—Cafe 13—will return Monday, Jan. 11. In addition to food and conversation, it offers an opportunity for members of the community to perform daily 11am-2pm in Lobby 13. If you'd like to sign up, call Yichen Mao, 621-0743, x5-8593.

The IAP Timetable is this week's pullout centerfold. Additions and changes for January 16-27 Timetables are due in the IAP Office, Rm 7-103 by 5pm tonight (Wednesday, Jan. 6).

## Looking ahead

Tech Talk will not be published on January 27 because of the minivacation between IAP and the second term. The Institute Calendar in the January 20 issue will cover the period from January 20 through the first week in the second term (February 7).

The deadline for listings in the January 20 Calendar will be noon Thursday, Jan. 14. Please plan ahead and get early second term listings submitted.

## Practice lab

Starting in February, the Information Systems' Microcomputer Training Lab will be open for practice sessions on Thursday evenings from 5-8pm and on Friday afternoons from 1-4pm. If you wish to use the Lab for practice during January, we ask that you consult the bulletin board poster outside Rm 11-206 for available times. To ensure that a computer will be available for your use during the practice sessions, advance sign-up is recommended. For more information on Lab Practice Policies and Procedures, contact Tawney Wray, Rm 11-314, x3-7685.

## LIS enrollment

The Lowell Institute School is now accepting applications for the 1988 spring term courses listed in the green poster everyone has received. Application deadline is Friday, Jan. 22, and classes start Monday, Feb. 1.

Catalogues and application forms are available in Rm E32-105 or by calling x3-4895.

## United Way status

As of December 31, the United Way campaign had raised \$241,000—92 percent of its goal—at MIT. Some 2,260 members of the community were contributors in the 1987 drive.

Ann P. Brazier, coordinator of the drive, says returns are still coming in. Those who still wish to contribute may send their pledge cards to her, Rm 20A-023.

## University Park wins initial city approval

By KENNETH D. CAMPBELL  
Staff Writer

The Cambridge City Council on December 28 voted 6-1 in favor of initial approval of a smaller University Park proposal which contains 400 housing units, including 150 for low and moderate income residents.

The development, by a private developer, Forest City Development, is on a 27-acre parcel of land MIT owns in Cambridgeport, the former Simplex property.

The proposal, which includes unprecedented sequential zoning restrictions, is expected to come up for a final vote in the council next Monday, Jan. 11, before the January 20 expiration date.

The council action "represents a major breakthrough in the frustrating, decade-old stalemate over development of the Simplex property," according to a news article in the December 31 Cambridge Chronicle.

The latest council action expands the

number of total housing units by 100; doubles the number of low and moderate-income housing units to 150; cuts more than 400,000 square feet of space off the earlier proposal for University Park; and limits the retail space to 150,000 square feet.

The zoning amendment given initial approval by the City Council, according to the official notice by the Cambridge City Clerk, "reduces the amount of  
(continued on page 4)



MIT President Paul E. Gray and Professor David N. Wormley, head of the Department of Mechanical Engineering, flank Dr. George N. Hatsopoulos, president and chairman of Thermo Electron Corp., which has endowed a junior faculty chair in honor of Dr. Hatsopoulos. —Photo by L. Barry Hetherington

## Hatsopoulos Chair established

A \$500,000 commitment by Thermo Electron Corp. of Waltham has established the George N. Hatsopoulos Junior Professorship in Thermodynamics at MIT.

The chair, located in the Department of Mechanical Engineering, honors Dr. Hatsopoulos, an MIT alumnus and former faculty member, who founded Thermo Electron in 1956. Dr. Hatsopoulos is chairman of the board and president of Thermo Electron.

Thermo Electron develops, manufactures and markets environmental and analytical instruments, custom-engineered and prepackaged cogeneration systems, equipment for industrial processes, biomedical materials and products, and

fabricated biomedical and aerospace components. The company also provides metallurgical, heat-treating, water-quality engineering, and analytical laboratory services.

Publicly traded on the New York Stock Exchange, Thermo Electron has about \$400 million in annual sales. It has 4,000 employees in the United States and abroad.

Dr. Hatsopoulos, a member of the Class of 1949 at MIT, was a professor in mechanical engineering from October 1956 until July 1962 when he became senior lecturer. He received the SB in 1949, the SM in 1950, the engineer's degree in 1954 and ScD in 1956.

(continued on page 4)

## Modigliani et al. lament economy

Nobel Laureate Franco Modigliani, his MIT colleague, Professor Rudiger Dornbusch, and Professor Richard N. Cooper of Harvard were among the 33 economists who called attention at December news conferences here and in Washington to the dangerous state of the global economy.

Acting under the aegis of the Institute for International Economics (IIE), the group of 33 announced its strategy for resolving the global economic crisis at simultaneous news conferences December 16. Professors Modigliani and Cooper met the press at the briefing held at MIT. Professor Dornbusch was out of the country. In Washington, C. Fred Bergsten, director of the IIE, chaired the news

conference. He is former assistant secretary for international affairs, US Treasury Department.

They warned that continued failure to correct the underlying problems "courts the risk of a slide into recession throughout most of the world."

The economists outlined steps they believe must be taken at once in various nations.

The most critical single requirement, they said, is for the United States to free up resources to enable it to expand net exports, by holding the growth of domestic spending to one-and-one-half percent below the growth of output for the next four to five years.

## Lorenz symposium explores diversity of chaos

By EUGENE F. MALLOVE  
Staff Writer

No unexpected blizzard or meteorological chaos kept more than 200 participants from a symposium that honored the pioneering research of Professor Edward Lorenz of Earth, Atmospheric and Planetary Sciences. The Bartos Theater in the Wiesner Building brimmed with enthusiastic attendees at a conference about chaos last month.

The diversity of the speakers' subjects evidenced a growing awareness that chaotic processes underlie many phenomena that once seemed, in principle, deterministic—from biological population dynamics to meteorology.

A chaotic process is governed by non-linear differential equations that are so mathematically sensitive to initial conditions, that extremely small changes can produce widely diverging results. For

example, in meteorology—the field in which Lorenz in the early 1960s first recognized chaos—it may be impossible to predict weather beyond two or three weeks with a reasonable level of accuracy.

Physicist turned zoologist Professor Robert May of Princeton University began the program by questioning whether chaotic processes underlie wild fluctuations in the populations studied  
(continued on page 4)

## CRLS to join in King event

An idea that came to a black Cambridge high school student as she attended last year's Martin Luther King Day observance at MIT has led to a planned joint observance this year—during Black History Month in February—by MIT and Cambridge Rindge and Latin High School.

It was Ida E. Jones, a senior at the high school and a participant the past three summers in the MIT-Wellesley Upward Bound Program, who was the catalyst for the collaboration.

She and two other Rindge and Latin students, Jennifer Longmire and Tony Barnes, attended last year's King observance in Kresge Auditorium with Ronald Crichlow and Evette M. Layne, director and assistant director of the Upward Bound Program. The program provides tutorial assistance to high school students during the school year and during a six-week summer session at Wellesley.

"I had been interested in the MIT observance," Ida recalls, "and when I compared it to the one at our school,  
(continued on page 4)

## Sloan Foundation makes unusual gift

In a rare exception to its policy of not making endowment grants, the Alfred P. Sloan Foundation of New York City has approved a \$250,000 award to MIT in honor of MIT Professor Robert M. Solow, winner of the 1987 Nobel prize in economics. Dr. Solow has been the principal economics advisor to the Foundation for the past 15 years.

The Foundation's trustees voted on December 8 to approve the grant, which will be used to provide an annual fellowship for a graduate student in MIT's Department of Economics.

Professor Solow was awarded the Nobel Memorial Prize in Economic Science in October for seminal work he had done in the 1950s on the role of technology in economic growth.

"In the 30 years since the work that led to the prize," said Arthur L. Singer Jr., Foundation vice president, "Solow has  
(continued on page 4)



# Massachusetts Institute of Technology



January 6, 1988

MIT Personnel Office, E19-239  
400 Main Street  
Cambridge, Massachusetts

## MIT POSITIONS AVAILABLE

**SMOKING PROHIBITED BY LAW**  
IN CONJUNCTION WITH THE CITY OF CAMBRIDGE ORDINANCE #1046, EFFECTIVE MARCH 7, 1987. SMOKING IS PROHIBITED IN ALL MIT ACADEMIC AND SERVICE BUILDINGS LOCATED IN CAMBRIDGE.

It is Institute policy not to discriminate against individuals on the basis of race, color, sex, sexual orientation, religion, handicap, age or national or ethnic origin in the administration of its programs and activities.

MIT is an equal opportunity/affirmative action employer.

This list includes all nonacademic jobs currently available on the MIT campus. Duplicate lists are posted outside Room 10-215 and in the Personnel Office (E19-239).

Information on openings at Lincoln Laboratory (Lexington, MA) is available in the Personnel Office (E19-239).

Persons who are NOT MIT employees should call the Personnel Office at 253-4251.

Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel they qualify.

Carl Belforti 253-4278  
Ken Hewitt 253-4267  
Cynthia Froeber 253-1591  
Appointments:  
Rose Rizzo 253-4274

Sally Hansen 253-4275  
James McCarthy 253-4269  
Maureen Wolfe 253-1594  
Appointments:  
Leslie Bowden 253-4268

Kim Bonfiglioli 253-4076  
Appointments:  
Debbie Roebuck 253-4263

### ADMINISTRATIVE AND ACADEMIC STAFF

**OPERATIONS ADMINISTRATOR**, Biology Department, to coordinate/resolve all building systems issues (electric power, ventilation, plumbing, telephones, renovations and space changes, etc.). Will contact MIT Physical Plant as necessary; follow through on all service calls to ensure that work is complete and correct; oversee any outside contractors working in the Department; inform faculty in advance of any activities affecting research operations; install major equipment in research and teaching labs; serve as liaison with MIT Property Office for equipment records, storage, and transfer, etc.; during the planning and construction of the proposed new biology building, will serve as liaison between the Department's Faculty Building Committee and all other Departments, Institutes, and outside groups; and coordinate activities of the Biology Safety Committee. Requirements: bachelor's degree in Mechanical Engineering and/or related field preferred, in addition to 2 or more years of direct/related experience. Good interpersonal skills necessary. A87-223

**NIGHT SUPERVISOR**, Physical Plant, to assist in the supervision of primarily evening activities for the Campus Activities Complex (CAC) and other Institute facilities for set-ups and event coordination and management. Will make periodic maintenance checks in Kresge Auditorium and the MIT Chapel for structural damages, lighting fixtures, fire extinguishers, and locks; coordinate the cleaning and maintenance of W2 while working closely with the student groups housed in the building; perform all administrative paperwork to complete above tasks; supervise stage-hand/custodians, night cleaners, and student employees; comply with safety regulations and enforce them as appropriate to the MIT community; work closely with other event managers to communicate the status of events; and assist in the supervision of the cleaning of the buildings in the CAC. Requirements: bachelor's degree and/or one to three years direct/related experience. Must be familiar with concert, theatre, conference, event preparation, and breakdown. Knowledge of cleaning and building maintenance necessary. A87-222

**ADMINISTRATIVE OFFICER**, Foreign Languages and Literatures, to assist the Section Head in all matters pertaining to administration of the department. Responsibilities include the preparing and administering of the budget; compiling of promotions, tenure, and reappointment dossiers; preparing of statistical reports; providing administrative support for faculty searches; preparing of materials for foreign visitors; advising faculty and staff on Institute procedures; supervising of support staff; and serving as liaison with personnel, payroll, accounting, purchasing, and physical plant. Requirements: bachelor's degree required as well as 3-5 years of administrative and financial experience. Previous MIT experience highly desirable, preferably in an academic area. Lotus 1-2-3 in place, on IBM/XT. Superior organizational ability and judgment desirable. Knowledge of word-processing important. A87-219

**AREA DIRECTOR**, Alumni Fund, Alumni Association, to be responsible for the management of the Visit Program throughout an extensive territory during the period of the "Campaign for the Future". Will conduct meetings and process correspondence with alumni and senior officers; ongoing communication and exchange of information with the Regional Directors and Office of Resource Development staff; identifying, cultivating, and recruiting solicitors; training solicitors so that they are motivated and empowered; manipulating of data available from database to identify key geographic areas and prospects within those areas; screening and rating prospects; and having team visits with solicitors. Requirements: three to five years of experience in an educational administration, alumni relations, fundraising, or public relations necessary. A bachelor's degree or equivalent combination of education and experience important. Excellent communication skills and ability to work with the Institute's other field staff members and in complement with other existing geographic programs essential. Enthusiasm, creativity, and initiative important. Position requires extensive travel (50% - 60%). A87-218

**CHIEF OF VETERINARY SURGICAL RESOURCES**, Division of Comparative Medicine, to supervise the administrative and operational activities of the research operating rooms. Will instruct investigators on proper surgical techniques, anesthetics, and post-operative care; provide technical support for surgical and clinical activities; serve as a member of the Committee on Animal Care; conduct research; oversee equipment maintenance and purchase of major laboratory items; supervise operating room technician; arrange operating room schedules; prepare monthly bills to recover costs of supplies and technician's time; perform experimental surgical procedures; and instruct postdoctoral veterinary fellows in surgery and anesthesia. Requirements: D.V.M. with a minimum of two years experience in veterinary anesthesia and surgery. Must have strong interpersonal skills and the ability to develop a rapport with research investigators. Supervisory experience and knowledge in laboratory animal medicine preferred. A87-217

**CONSULTANT 1**, Information Services/Microcomputer Center, to provide pre-sales advice, information, and post-sales support on microcomputers to academic, administrative, research staff, employees, and students. Will demonstrate hardware, software, and take orders for microcomputers and related products; provide assistance in supervision and training of student staff; use judgement in dealing with both routine and non-routine customer service situations, interpret and make exceptions to policies; follow-up on problems with customer orders (cancellations, refunds, and delivery problems), including contact with warehouse, Office and Lab Supply, PC Repair, and vendors; contribute to product line decisions; research and/or evaluate new products; and share other duties related to overall maintenance and improvement of technical references and display facilities. Requirements: bachelor's degree and/or equivalent combination of education and experience. Technical background preferred. Several years' experience using personal computers important. Knowledge of major personal computer applications (wordprocessing, spreadsheet, database, graphics, and communications) essential. Familiarity with Apple and IBM personal computers and third-party peripheral products highly desirable. Teaching or customer service experience preferred. Excellent oral and interpersonal skills necessary. A87-216, A87-215

**FINANCIAL STAFF ASSISTANT**, Biology, to assist the administrative officer in departmental and research account matters by providing financial information for management decisions. Will act as specialized resource to faculty and staff for a broad range of purchasing and accounting matters; prepare a variety of complex financial reports using spreadsheet software on a personal computer and produce extensive monthly forecasts; review forecasts prepared by support staff for compliance with sponsor/MIT policies, and compile data for analysis; authorize expenditures, prepare journal vouchers, resolve purchasing/payables problems, and conduct account close-outs with CAO-audit; perform various administrative duties related to the smooth operation of the Finance Office such as maintenance of account files from pre-award through close-out, distribution of OSP and CAO materials; orient support staff to financial duties; and work on special projects. Requirements: must be able to set priorities, coordinate information, make decisions, and follow through to resolution within area of responsibility. A minimum of two year's education in business or related field if combined with solid experience, or a four year program (B.S.) in business or related field important. Must have some administrative experience and an interest in figure aptitude. Must possess good judgement in a variety of situations. Writing and interpersonal skills very important. Applicants with MIT experience, grant/contract experience, and exposure to Lotus software preferred. Should be eager to work in a busy office and enjoy working on several projects simultaneously. A87-214

**ADMISSIONS AND DEGREE PROGRAM COORDINATOR**, Media Arts and Sciences Section, to report directly to the Media Arts and Sciences Section head. Will coordinate and manage all administrative aspects of the Media Arts and Sciences degree program from student orientation through graduation - including admissions, registration, orientation, monitoring student progress, counselling students, and providing information about the program to potential applicants, students, and the general public. Requirements: bachelor's degree or equivalent combination of education and experience, and a minimum of 4.5 years of direct/related experience. Sensitivity and ability to interact effectively with students from diverse backgrounds essential. Knowledge of MIT academic policies and procedures important. Wordprocessing and database management experience necessary. A87-213

**PUBLICITY MANAGER**, The MIT Press, to be responsible for publicizing MIT Press books by keeping reviewers and media informed of forthcoming books on a regular basis. Will send out review copies of books; prepare and send out news releases; arrange for radio and TV interviews; select contacts for endorsements; supervise award nominations; and maintain contact with MIT publications. Requirements: book publishing experience necessary. Must be able to develop and maintain good working relationships with a variety of people. Ability to coordinate many projects simultaneously necessary. Must be able to work well under pressure. A87-212

**SPACE ANALYST**, Office of Facilities Management Systems, to provide a central source of information about all MIT physical facilities by maintaining accurate and timely space inventories. Will gather and interpret information about room function, intensity of use, and physical configuration by field checking all facilities and by tactful contact with departmental faculty and administrators; following the field audit, will code all data relevant to MIT space use; input it into the INSITE system; learn to use IBM's job control language required to run the system; produce all output from the system, interpreting information requests to determine what regular or ad hoc reports are needed; provide historical statistical analysis of the space data and special analyses upon request from senior management; do special field audits for the Space Committee and the Comptroller's Office, and space utilization studies; creating, room numbering and timely updating of MIT's scaled floor plans, with drafting assistance, and mastering a 2D CAD system that will eventually replace all manual drafting; and supervision of a full-time Architectural CAS Technician. Requirements: bachelor's degree or equivalent experience, including a basic college math course. Some experience in facilities management and a mainframe DBMS highly desirable. Ability to learn to use a large DBMS and a 2D CAD system, and provide appropriate audit trails and historical data without gaps necessary. Ability to interpret construction drawings important. Some drafting knowledge and skill to communicate well in written and graphic summary forms with data users essential. A87-211

**SR. ANALYST PROGRAMMER**, Comptroller's Accounting Office, to analyze user systems problems to determine application needs. Will develop external specifications for new computer systems of modifications and/or enhancements to present systems to meet user needs; provide structured techniques for analysis, design, implementation, documentation, and testing of new or modified systems according to prevailing standards; work with Data Control and Computer Operations to insure proper execution of programs; direct development or updating of all manuals for implemented plans or changes to new or modified systems; interpret systems to clients/users assuring understanding of systems and their use; and provide functional supervision and leadership for Systems Analysts assigned. Requirements:

bachelor's degree or equivalent combination of education and experience. Reasonable experience in systems analysis of computer related activities necessary. At least five years' experience desirable, three of which are in financial systems. Cobol or PL/1 experience preferred. A87-210

**ANALYST PROGRAMMER II**, Comptroller's Accounting Office, to analyze user systems problems to determine application needs. Will develop external specifications for new computer systems of modifications and/or enhancements to present systems to meet user needs; provide structured techniques for analysis, design, implementation, documentation, and testing of new or modified systems according to prevailing standards; work with Data Control and Computer Operations to insure proper execution of programs; direct development or updating of all manuals for implemented plans or changes to new or modified systems; interpret systems to clients/users assuring understanding of systems and their use; and work under the direction of Senior Analyst Programmer. Requirements: bachelor's degree or equivalent combination of education and experience. Reasonable experience in systems analysis of computer related activities necessary. One to three years' experience necessary. Experience in financial systems preferred. Cobol experience essential. Knowledge of PL/1 or ADABAS/NATURAL, as well as IBM/CMS desirable. A87-210

**FISCAL OFFICER**, Office of the Vice President and Treasurer, Resource Development, to be responsible for central office budgets and monitoring and reconciling of all accounts for Resource Development and Treasurer's Office. Will develop a fiscal management system for both departments; participate in development of budget recommendations and prepare analyses at regular intervals of spending to determine budget/actual status; serve as primary source of policies and procedures for accounting, purchasing, and physical plant; and perform special projects as requested. Requirements: bachelor's degree or equivalent combination of education and experience. Knowledge of computer software to develop fiscal management system helpful. At least 3-5 years financial administrative experience, preferably university-related, preferred. Ability to deal effectively with all levels of personnel and service vendors important. Knowledge of fund accounting and financial reporting desirable. A87-207

**ASSISTANT TO THE BURSAR - LOAN COLLECTION**, Bursar's Office, to collect student loan accounts and student accounts receivable in compliance with federal, state and Institute regulations and procedures. Will communicate with delinquent borrowers to develop acceptable means of loan repayment; exercise judgment in evaluating financial statements and personal information furnished by borrowers or other sources to resolve repayment problems; counsel borrowers in financial matters; and conduct exit interviews with graduating students and loan counseling interviews for current students. Will also interpret credit information, skip-trace "lost" borrowers, communicate with government agencies, law firms and collection agencies as needed; interpret truth-in-lending, privacy of information and consumer protection regulations; and learn and interpret complex MIT, state and federal guidelines, laws and regulations. Requirements: Bachelor's degree or equivalent combination of education and experience. Experience in debt collection, financial management and office procedures preferred. Must possess excellent interpersonal and communication skills (verbal and written) and must demonstrate initiative and ability to work independently. A87-205

**FISCAL OFFICER**, Applied Biological Sciences, to do reconciliation of departmental research, fund and general accounts on a monthly basis; process payrolls for hourly, student and support staff weekly; assist Administrative Officer in providing projections of accounts monthly; post award administration; oversee project spending; identify financial and operational problems and develop solutions; provide support to P.I.'s in implementation of solutions; supervise action taken by Staff Accountants in C.A.O. in regard to close-out of accounts; interface with other MIT administrative offices; and assist Administrative Officer in preparing monthly SANDI and DINDI reports. Will also maintain department records for ILP and Photocopying Facility Accounts; process and supervise the disbursement of petty cash; supervise accounting staff within the Department Administrative Fiscal Office; and perform other duties as assigned in the area of financial and administrative departmental support services. Requirements: minimum of successful completion of High School education or equivalent. Good oral communication skills and the ability to interact with staff at all levels with openness and empathy important. Supervising skills and experience required. Familiarity with the MIT account systems would be helpful. Knowledge of IBM PC AT or XT, Lotus 123 and/or Final word a plus. A87-204

**ASSISTANT TO THE BURSAR/CONTROL AND ACCOUNTING**, Bursar's Office, to provide control and accounting support for an in-house student receivables system and a vendor-operated student loan system. Will develop and implement control procedures relative to the exchange of Bursar's Office accounting systems data with Wachovia Services, Inc., Cash Receiving,

Financial Aid, Payroll, and the Institute's General Ledger; perform periodic checks of systems integrity; evaluate and recommend new accounting procedures as needed; generate quarterly and annual reports to Institute offices, government agencies, and lenders concerning performance of certain programs. Will also compile and produce management reports using PC spreadsheets on the IBM PC AT and the Macintosh Plus; evaluate and interpret data and make recommendations to managers; interface with internal and external auditors to assist them in filing their reports; and work with the Bursar and the Associate Bursar/Executive Officer on financial projections, setting of interest rates, and similar policy matters. Requirements: bachelor's degree in accounting; and one to two years experience in general or control accounting in an automated environment. Attention to detail and ability to control several simultaneous accounting applications necessary. Familiarity with computer terminals desirable. Experience with or willingness to learn personal computer spreadsheet applications helpful. **AB7-132**

**ROUTE SUPERVISOR**, Building Services, Physical Plant, to supervise the cleaning and support operations for Institute Academic Buildings. Will receive direct supervision from shift supervisor and general supervision from Building Service Operations supervisor and Manager of Building Services. Will assist the shift supervisor in carrying out the policies and procedures of the department; perform periodic inspections of facilities and equipment to insure performance of the service staff is of the highest level; coordinate and respond to requests, including emergencies from the MIT community, such as fire, flood, chemical spills, elevator shutdown, etc.; coordinate activities with shift supervisor and other route supervisors to accomplish the goals of the Service Department; follow up on all assignments delegated to service staff; coordinate and implement disciplinary actions according to MIT policies when violations occur from personnel assigned to shift; and monitor cleaning supplies and equipment used by service staff to insure proper utilization. Will also keep all records posted and up to date; provide suggestions to meet higher standards; insure service staff personnel are kept up to date with any changes involving cleaning equipment or other matters affecting the goals of department; provide support to other shifts including West Campus and Physical Plant operations. Must be available to work rotating schedules to include weekends, holidays on all shifts within Department and become knowledgeable and familiar with those duties. Requirements: three years supervisory experience and knowledge of Building Services equipment, supplies, and areas of responsibilities. Must be able to motivate subordinates in all functions related to the Building Services operation to perform efficiently, effectively, and develop them to qualify for higher rated positions. Will communicate and cooperate effectively with a variety of people. **AB7-200**

**ASSOCIATE DEAN OF THE GRADUATE SCHOOL**, Dean of the Graduate School Office, to be responsible for the development and implementation of administrative procedures within the ODGS, with special emphasis on those which relate to graduate admissions, curricula, programs, requirements for advanced degrees, tuition, and financial support. Will advise graduate students and Institute departments on Graduate School policies and procedures; responsible for operation and expansion of computer systems within the ODGS, and the interaction of those systems with the Registrars, Admissions, departmental, and other data bases; serve on Institute Committees as appropriate; write and review various publications of the ODGS; prepare research reports and statistical data; direct other special studies as requested by the Dean; and attend national conferences and represent the dean at various meetings. Requirements: a Master's degree or the equivalent combination of education and experience. Five to eight years of experience in academic administration essential. Prior MIT experience highly desirable. Must be able to work effectively with a diverse group of students, faculty, and staff. **AB7-196**

**ADMINISTRATIVE COORDINATOR**, Sloan School of Management, to report to the Associate Dean for Finance and Administration, and perform administrative duties relating to Student Financial Aid/Graduate Student Employment, Computer Information Systems, and financial analysis. Will oversee the schools' financial aid disbursements including research and teaching assistantships and fellowship awards; draft informational materials relating to school policy and guidelines and act as liaison with faculty, students and other depts. in providing information relating to this topic. In the Information Systems area: will participate in efforts to improve and enhance the schools' databases of operation and personnel related information; assist in instructing staff and support staff in the understanding and effective utilization of personal computers; act as liaison with technical staff in installing and maintaining hardware and software; prepare financial reports and analyses on student financial aid and computer expenses; participate in research projects as required in response to senior level administrative requests for information; and perform other related duties as necessary. Requirements: bachelor's or

master's degree with a focus on research/analysis and at least 5 years of administrative experience. Knowledge in the use of personal computers in automating business tasks, including several years experience with use of spreadsheet and database software and development of applications essential. Should be familiar with information system concepts and approaches to database management systems. Familiarity with graduate student financial aid helpful. Experience in financial analysis and project techniques highly desirable. Individual must possess strong organizational, communication, and interpersonal skills. **AB7-197**

**ANALYST PROGRAMMER II**, Administrative Systems Development, to assist in the development of external system specifications and translate into internal system specifications and computer programs under the supervision of programming coordinator. Will prepare program logic diagrams and overall data flow; test and document programs for operational use and future maintenance; assist applications programmers in programming, testing and debugging techniques; prepare program modification or enhancement specifications for approval by senior systems analyst; establish file requirements and processing techniques; perform all the functions of applications programmer; assist users with program problems; attend classes, seminars and be able to develop and maintain knowledge of currently accepted programming standards and techniques; and may exercise functional supervision over applications programmers. Requirements: at least 2 years experience with IBM VM/CMS and COBOL essential. PL/1 NATURAL and ADABAS experience are desirable. Degree in computer science or comparable experience necessary. **AB7-193**

**DIRECTOR OF COMPUTING**, Whitaker College, to be responsible for directing all matters related to the effective and efficient operation of computer resources. Responsibilities include maintenance of current facilities and planning, budgeting, and implementing systems for further expansion. Maintenance needs include the supervision of file system backup; hardware and software maintenance; systems programming and installation of new equipment; substantial interaction with users which includes faculty, staff, and students from the MIT Community. Will be encouraged to participate in the research programs which includes work in biological imaging; neurobiology; and systems and computational neuroscience, including motor control and vision. Requirements: bachelor's degree in computer science or related field. Higher degree (M.S./Ph.D.) strongly preferred. Experience in VAX hardware and VAX/VMS operating system; SUN hardware and UNIX (Berkeley 4.2) operating system; Symbolics LISP Machine hardware and software; image processing and image analysis; and computer based real time control of machines desired. Three to five years experience in computer system management required. Must be able and willing to work well with others. **AB7-192**

**INDUSTRIAL HYGIENE CHEMIST**, Environmental Medical Services, to perform various functions such as recognizing, evaluating, and controlling of exposures of personnel to toxic materials. Responsibilities will include conducting industrial hygiene surveys of workplaces, collecting, and analyzing air or biological samples. Requirements: experience with atomic absorption, gas and HPL chromatography, spectrophotometry, and wet chemistry. Must have undergraduate degree in chemistry or biochemistry. Some training or experience in industrial hygiene and environmental chemistry desirable. **AB7-190**

**PURCHASING AGENT - FURNITURE AND FURNISHINGS**, Purchasing and Stores - Office of Laboratory Supplies, to purchase all standard furniture for warehouse stock and non-stock furniture and furnishings, carpeting, and draperies, etc., for space changes, renovation projects, new buildings, dormitories, and other living arrangements. Responsibilities include installation arrangements using Stores personnel and/or outside contractors. Requirements: experienced furniture, furnishings, and carpet buyer possessing a high level of product knowledge. Experience in materials management, control materials usage analysis, and requirements planning necessary. A degree in business, accounting and/or related field, or the equivalent combination of education and experience essential. Excellent negotiating and administrative skills important. Good written and oral communication skills necessary. **AB7-189**

**ASSISTANT TO THE REGISTRAR**, Registrar's Office, to assist the Registrar in undertaking special projects and in fulfilling various office management and operational functions. Duties include undertaking specific research projects on the student data base; maintaining liaison with academic departments to help define and meet needs; working with section supervisors to streamline and document the flow of work through the Registrar's Office; helping develop training programs for new support staff; helping update all job descriptions to reflect current responsibilities; helping to examine space utilization and furnishings to improve working environment; assisting with budget preparation and development of long-range plan; advising students on the function of the Office and related academic matters, responding to inquiries from inside and outside the Institute; and undertaking special projects as assigned. Requirements: bachelor's degree or equivalent combination of education and experience necessary. Two years of experience

dealing with academic records/registration/scheduling and related educational issues necessary. Strong supervisory and organizational skills essential. Strong written, verbal, and human relations skills necessary. Ability to work under pressure, using tact, discretion, and independent judgment important. Should be able to deal with sensitive information. **AB7-184**

**CHIEF MEDICAL TECHNOLOGIST**, Medical Department, to select and supervise technical staff; participate in equipment purchasing decisions; phase-in testing as staff training completed; and assist in the implementation of an automated information system and have a key role at each step in the development of the laboratory. Will assist the Laboratory Director in ensuring the maintenance of high quality laboratory work and participate in an active quality assurance program. Must be able to develop and manage the laboratory budget and demonstrate the ability to analyze cost and utilization data as well as to suggest and implement effective control strategies. Requirements: four years experience as a registered MT (ASCP) in a recognized hospital or clinical laboratory. One year of experience in a supervisory capacity necessary. Excellent communication skills and proven strengths in management important. **AB7-170**

**DISTRICT DIRECTOR**, Resource Development, National Campaign Office, to be responsible for the identification, qualification, cultivation and solicitation of individual donors for significant gifts to the Institute. Shall become acquainted with existing alumni volunteers; recruit additional volunteers; manage the implementation and coordination of volunteer fundraising efforts within a specific geographic area of the country; support senior officers and volunteers for MIT; provide background information on prospective donors; evolve solicitation strategies; and arrange for proposals, acknowledgements, campus visits and meetings related to development objectives. Requirements: bachelor's degree or higher, or a combination of both education and experience, and three or more years experience in development work with individual donors. Must have initiative and creativity to inspire and motivate volunteers. Should have ability to work alone and at a distance from MIT for extended periods of time necessary. **AB7-164**

**ANALYST PROGRAMMER I**, Comptroller's Accounting Office, to translate external specifications into internal program specifications for new or modified programs. Responsibilities will be to analyze, design, program, and test computer programs using structured techniques; prepare program logic and data flow diagrams; document new programs or changes in existing programs within prescribed standards; assist users with program problems and answer questions. Requirements: bachelor's degree or equivalent combination of experience and education. Experience in business applications necessary. Knowledge of Cobol in a DEC environment highly desirable. **AB7-159**

**SOFTWARE DISSEMINATION MANAGER**, Information Services, coordinates the processing of software acquisition and distribution, including developing and implementing business and support plans for acquired products and conducting appropriate market research and vendor negotiations. Duties will be to conduct primary market research on an ongoing basis to determine the Institute's needs for computer software and to evaluate the effectiveness of vendor software purchase agreements; develop and maintain an online database of Institute computer hardware and software, and make this information available as appropriate to MIT; negotiate site licenses, quantity discounts and other special purchase arrangements for software with software vendors and monitor MIT and vendor compliance with the terms of the purchase agreements; develop software distribution and support plans, including pricing and cost-recovery models, for new software products and coordinate the implementation of these plans; develop mechanisms for responding to user requests for software and financing the acquisition and distribution of software needed by the MIT community; work with Publication Services, etc. Requirements: bachelor's degree, preferably in business, essential. Considerable knowledge of the negotiation of business contracts and marketing - market research, pricing, promotion, communications, as well as a minimum of 4 years of directly/related experience. Excellent interpersonal and communications skills, and experience in the software or computer industry necessary. **AB7-155**

**ASSOCIATE NETWORK MANAGER**, Telecommunications Systems, to plan and enhance the operation and maintenance of the Institute's campus-wide information network and related facilities. Responsibilities are to develop and maintain software for the operation of the campus computer network; help debug software and hardware problems encountered on the network. Requirements: bachelor's degree, preferably in electrical engineering or computer science, and 3 to 5 years experience in networking or a combination of education and experience. Programming knowledge required. Familiarity with UNIX operating system, and "C" programming language helpful. Working knowledge of the Department of Defense Standard Internet Protocol desirable, as well as the familiarity with the operation of Ethernet. Ability to work independently required. **AB7-152**

**SYSTEMS PROGRAMMER II**, Operations and Systems, to work for MIT's Information Systems in the VM/OS Systems Group, which supports a network of three processors (a 3083, a 4381, and a 4341) running VM/SP, VM/SP HPO, and VS1. Primary languages used are BAL, REXX, and PL/1. Duties include installing and tailoring packages; problem analysis; applying fixes; and writing documentation. Requirements: bachelor's degree, and 2 to 3 years of programming knowledge in a time sharing environment. A combination of education and experience, and knowledge of the CP and CMS commands and REXX language are desirable. Experience in either application, or systems programming in VM CMS environment preferred. **AB7-151**

**ASSISTANT DIRECTOR**, Student Financial Aid Office, to assist in the management of financial aid and other related activities. Duties include counseling; research; need analysis; donor relations; student employment; Federal program management; fund assignment; and other special projects at the graduate and undergraduate level. Requirements: bachelor's degree or equivalent combination of education, plus 1-3 years direct experience, or 3-5 years related experience. A demonstrated high level of analytical skills as well as written and oral communication skills necessary. Facility with computer applications. Knowledge of SPSS and Macintosh personal computer desirable. **AB7-149**

**POSTDOCTORAL ASSOCIATE**, Applied Biological Sciences, postdoctoral opportunities in the chemistry and biochemistry of carcinogens. Isolation and characterization of protein-carcinogen adducts, naturally occurring carcinogens. Requirements: Ph.D. degree. **CB7-239**

**COORDINATOR OF OBSTETRICS/GYNECOLOGY SERVICE**, Medical Department, will be reporting to the Director of Nursing and Chief of Obstetrics/Gynecology Service. To be responsible for daily administration of the Service including provider and patient scheduling; supervising medical assistants; coordinating support staff in daily operations of the Service, surgical bookings, and obstetricians' on-call time; will care for the patients in the nurse practitioner role in regularly scheduled clinical sessions and serve as a backup to provider(s) on-call. Requirements: Massachusetts registered nurse, who has completed a nurse practitioner program and is certified as an OB/GYN nurse practitioner. Master's Degree preferred, and at least two years direct/related clinical experience required. Some experience as a clinical coordinator or administrator in OB/GYN setting preferred. **CB7-230**

**COMPARATIVE PATHOLOGIST**, Division of Comparative Medicine, to provide diagnostic pathology and research support for the laboratory animal program at MIT and other Boston biomedical facilities. Will participate in the teaching and training of postdoctoral students in comparative medicine and pathology; and collaborative research is encouraged with emphasis on recognizing and defining abnormal physiologic conditions and comparative diseases of interest to biomedical researchers. Requirements: a D.V.M. with 2 to 4 years in a pathology training program or graduate school. ACVP board certification or eligibility and demonstrated research ability necessary. Interest in comparative medicine and experimental pathology essential. **CB7-238**

**POSTDOCTORAL ASSOCIATE**, Applied Biological Sciences, to assist in a research project aimed at developing improved adjuvants and novel immunization systems, with particular emphasis on applications to sub-unit vaccines. Requirements: Ph.D. or M.D. degree with an immunology background necessary. **CB7-236**

**POSTDOCTORAL ASSOCIATE**, Applied Biological Sciences, three positions available for individuals with interest in mechanisms of chemical carcinogenesis for projects relating to chemically-induced DNA damage to oncogen activation, mutagenesis, gene rearrangement, and expression. Duties include development of methodologies for detection of DNA damage in human tissues collected in epidemiological studies. Requirements: educational background and/or experience in molecular biology-genetics or virology preferred. **CB7-234, CB7-233, CB7-232**

**INDUSTRIAL HYGIENE TECHNOLOGIST**, Medical Environmental Medical Services, to conduct field evaluations to assess potential exposures to toxic substances, particularly asbestos. Will perform required laboratory analyses; and special hazard control programs; advise departments and contractors regarding institutional as well as governmental regulations relative to environmental controls; assist in all department activities, including rotation in emergency "on-call" program. Requirements: associate degree in physical science or a combination of education and experience. Must be able to climb ladders to secure samples of suspected material for asbestos analyses. Should have normal eyesight (corrected) to perform required microscope analysis. **CB7-231**

**COORDINATOR OF OBSTETRICS/GYNECOLOGY SERVICE**, Medical Department, will be reporting to the Director of Nursing and Chief of Obstetrics/Gynecology Service. To be responsible for the daily administration of the Service including provider and patient scheduling; supervising medical assistants; coordinating support staff in daily operations of the Service, surgical bookings, and obstetricians' on-call time; will care for the patients in the nurse practitioner role in regularly

scheduled clinical sessions and serve as a backup to provider on-call. Requirements: Mass. registered nurse, who has completed a nurse practitioner program and is certified as an OB/GYN nurse practitioner. Master's Degree preferred, and at least two years direct related clinical experience required. Some experience as a clinical coordinator or administrator in OB/GYN setting preferred. C87-230

**TECHNICAL ASSISTANT**, Physics, to assist scientific staff in laboratory maintenance and development of physics experiments in the laboratories for Physics majors. Responsibilities will include dealing with students in all aspects of work; assisting students with laboratory experiments; constructing, operating, and repairing experimental and technical equipment; assisting in various physics teaching labs as needed. Requirements: familiarity with glassblowing, vacuum systems, electronic circuit boards, oscilloscopes, multichannel analyzers, drill presses, lathes, etc., desirable. Knowledge of IBM PC preferred. College degree or direct-related experience required. C87-227

**SOCIAL WORKER/DISCHARGE PLANNER**, Medical Department, to provide comprehensive social work services, with particular emphasis on discharge planning responsibilities to students, employees, staff, faculty and their dependents in a JCAH accredited 18-bed inpatient facility and 125,000 annual visit multi-specialty group practice. Responsibilities include direct clinical social and community work services as well as functioning as a member of an interdisciplinary health care team supporting the provision of comprehensive health care to members of the MIT community. Requirements: MSW from an accredited school of social work and/or direct related experience. Will also be eligible for level one licensure by the Mass. Board of Registration: ACSW preferable. Should have a comprehensive experience in discharge planning, and a background of working with clients from diverse ethnic and socio-economic backgrounds. Will have the ability for autonomous casework and groupwork practice of at least two to three years duration. C87-223

#### SPONSORED RESEARCH STAFF

**TECHNICAL ASSISTANT/EDUCATIONAL SOFTWARE PROGRAMMER**, Media Laboratory, to be part of the Epistemology and Learning Group. Responsibilities include designing, programming, and documenting Logo software for educational research projects; reporting of the analysis and application of new products for learning environments; overseeing the implementation of all software developed for the research group; preparing and presenting of demonstrations of software concepts and products to sponsors and academic visitors; coordinating all activities for the local networks (LAN-Novell Netware and Apple Link); and serving as an information resource for group and project members. Requirements: a B.S. in computer science or equivalent combination of education and experience. Extensive Logo programming knowledge, including experience with Logo environments, and with Logo microworld design and construction necessary. Knowledge of 2D and 3D graphics software and environments, interpreted computer languages and interactive computer environments important. Ability to program in Logo, Assembler, LISP, and C essential. Ability to design and construct hardware interfaces between microcomputers and various computer products important. R87-443

**TECHNICAL ASSISTANT**, Center for Cancer Research, to carry out procedures in molecular cloning and studies of gene expression and structure in an immunology laboratory. Will also oversee ordering and reagent preparation. Requirements: bachelor's degree in biology and significant experience with molecular biological techniques and with cell culture. R87-225

**ASTROPHYSICIST** - Sponsored Research Staff, Center for Space Research, will form part of a team of scientists planning activities for the X-Ray Timing Explorer, a NASA-sponsored satellite for research in X-ray Astronomy. Will be responsible for providing an X-ray all-sky monitor and an on-board digital data system compressing data from the sky monitor and a large-area Proportional Counter Array; planning for MIT's participation in mission operations and data analysis, scientific oversight of the development of the on-board digital data system, and writing the software management plan; administering of the computers and computing network of the MIT X-ray Astronomy Group. Requirements: experience in computer systems, communications, and a working knowledge of the time-variability properties of cosmic X-Ray sources and of X-ray astronomy instrumentation essential. Capability to carry out a program of research in X-ray astronomy important. Knowledge of computer hardware and software necessary. Ability to specify, organize, and write project plans and function as part of a team essential. A Ph.D. in Astronomy, Physics, or a related field necessary. R87-440

**ADMINISTRATIVE OFFICER** (Sponsored Research Staff Administrator), Center for Transportation Studies, to take responsibility for financial management as well as personnel and space administration in this interdisciplinary research and educational body. Will oversee monitoring of research contracts; prepare and submit all proposal packages; and work closely with MIT faculty and staff, numerous MIT departments, and professionals from outside agencies.

Requirements: a bachelor's degree and a minimum of 3 years of direct/related experience. Excellent interpersonal and organizational skills necessary. Familiarity with PC's and spreadsheets essential. MIT experience preferred. R87-422

**SPONSORED RESEARCH TECHNICAL STAFF**, (Computer Programmer/Electronics Technician), Brain and Cognitive Sciences (part-time), to program and maintain three DEC II/73 minicomputer computer systems and electronic equipment in a neurophysiology laboratory. Duties will be to design and maintain electronic hardware; modify existing and develop new software; consult with scientific staff on technical implementation of experiments, development of data analysis program, and statistical analysis of neural data. Requirements: bachelor's degree in electrical engineering, computer science, or related field preferred. Experience in computer programming and electronics necessary. Knowledge of or willingness to learn RT II operating system, Fortran, and rational Fortran computer language necessary. R87-256

**TECHNICAL ASSISTANT**, Center for Cancer Research, to perform segregation analyses of new markers on human chromosomes using molecular biology techniques such as construction and screening of recombinant DNA libraries, subcloning of single copy fragments, and DNA sequencing. Requirements: previous experience in molecular biology techniques. Should have a B.S. in basic science and a working knowledge of current research in mammalian genetics. Experience in research in a modern biological laboratory would be helpful. R87-435

**ELECTRICAL ENGINEER**, Plasma Fusion Center, to be responsible for specification and coordination of design, procurement, installation and startup of multimegawatt magnet power systems including 1500 volt 300 kiloampere thyristor power supply and several smaller multimegawatt power supplies. Also responsible for extensive modification of existing 225 MVA alternator power source. Modifications include addition of large flywheel and upgrade of alternator excitation and drive systems. Requirements: B.S. degree in Electrical Engineering or equivalent. Extensive experience in heavy electrical machinery. Experience with large industrial motor drive systems and/or electric utility generating systems desired. R87-434

**RESEARCH SPECIALIST/PHOTOLITHOGRAPHY**, Electrical Engineering and Computer Science, Microsystems Technology Laboratories, to be responsible for the sustaining and development of processes in the photolithography, mask making, and wet etch areas of MIT's Integrated Circuits Laboratory. Duties will include process monitoring, process and equipment troubleshooting, preventative maintenance scheduling, preparation of documentation for training, equipment operation training and other tasks relating to sustaining this area. Will also be required to develop linewidth measurement techniques using both optical and scanning electron microscopes; maintain procedures regarding the safe handling and cleanliness of chemicals and gases used in this area; train and instruct graduate level students and other staff members when necessary; and interact with other staff members and students for the development of other related processes. Requirements: Bachelor of Science degree in engineering or science and two to five years experience in positive resist photolithography processes. Should be familiar with all, and have direct experience in at least one, of the following areas: optical pattern generation, direct step-on wafer exposure systems, plasma photoresist stripping equipment, wet processing stations, or other equipment necessary for photolithographic operations. Experience in scanning electron microscope operation and evaluation a plus. R87-433

**TECHNICAL ASSISTANT**, Brain and Cognitive Sciences. Position involves molecular and developmental genetic work with *Drosophila*. Will carry out mutagenesis, crosses, and participate in the developmental/molecular characterization of mutants. Also responsible for maintaining fly stocks, media preparation, and general laboratory maintenance. Requirements: bachelor's degree in science and some experience in basic laboratory techniques. Experience with either *Drosophila* genetics or molecular biology preferred. R87-431

**TECHNICAL ASSISTANT**, Harvard-MIT Division of Health Sciences and Technology (part-time 20 hrs/week), to prepare plasmid DNA; do restriction enzyme digestion; run agarose gel electrophoresis; help with constructing recombinant plasmids and maintain cell cultures. Requirements: B.S. or M.S. in biochemistry and prior experience with, or knowledge of, recombinant DNA technology preferred. R87-430

**TECHNICAL ASSISTANT**, Department of Brain and Cognitive Science (part-time), to assist a team working on *in vivo* studies of amino acids and neurotransmitters. Will be trained in a variety of bioanalytical techniques, including gas chromatography and HPLC with fluorescence and coulometric detection. Experiments will require the handling of small animals and human cerebrospinal fluid and plasma samples. Requirements: bachelor's degree in Biochemistry or related field. A good foundation in biochemistry and some laboratory experience strongly preferred. R87-429

**RESEARCH SCIENTIST**, Artificial Intelligence Laboratory, to develop computer software for the Utah/MIT Dextrous Hand project using Sun workstations and Ironics 68020 VME single

board computers. Programming tasks will include porting a development system to the Ironics processor; programming an Ironics to Sun memory mapped bus interface; and writing a Sun-based user interface for the Ironics processors. Requirements: UNIX and C programming experience. Good working knowledge of the UNIX kernel and device drivers important. R87-387

**RESEARCH SPECIALIST**, Earth, Atmospheric and Planetary Sciences, to perform various functions in the ocean-bottom seismology laboratory. Responsibilities include maintenance and operation of existing ocean-bottom seismic instruments; construction and testing of new seismic sensor packages; maintenance and operation of laboratory electronic and machine shop equipment; and some electronic and mechanical design work required for development of the new sensor packages. Requirements: experience with both electronic and mechanical subsystems essential. Will participate in oceanographic cruises on which the seismic instruments are used to conduct seafloor experiments. While a full-time schedule is preferred, a qualified individual seeking part-time work would be considered. R87-427

**WINDOW SYSTEM PROGRAMMERS (UNIX)**, Laboratory for Computer Science, to maintain and evolve the X Window System in an environment to include Apollo, DEC, HP, IBM, and Sun workstations. Responsibilities to be shared among a small team, include maintaining all system components (graphics device layers, servers, fonts, language interface libraries, toolkits, applications, demos) documentation, producing periodic software releases; handling contributed software; responding to electronic mail about the system, and participating in the design and implementation of new extensions, toolkit components, and applications. Significant action with a wide variety of industrial sponsors necessary. Requirements: bachelor's degree or equivalent combination of education and experience. Must be proficient in C programming in a Unix Environment. Should be familiar with some modern window system and principles in general. Ability to work as part of a team while also being an effective participant in the national multi-industry-university development group. Experience with the X Window System, graphics implementation methods, and large-system maintenance very desirable. Familiarity with Common Lisp, Ada, and Fortran a plus. Experience with network protocols, and with graphics standards such as PHIGS very helpful. R87-426

**FISCAL ADMINISTRATOR**, Center for Materials Science and Engineering, to report to the Director and Administrative Officer and provide assistance in fiscal planning and supervision of financial matters. Will assist in the design, development, and presentation of financial monitoring. Will include implementation of the strategic plan for administrative computing, generating reports on an existing computer assisted financial planning, and control system; keep track of financial activities on a daily basis and inform superiors about financial matters; prepare account balance statements. Will also be responsible for all financially-related duties of a major block grant research volume of 5 million dollars; manage accounting transaction including petty cash, purchase orders, requisition-control, and prepare requests for payment; maintain chart of accounts; manage the bookkeeping; handle travel expenditures, travel vouchers, payroll documents, journal vouchers, and approval of all invoices; attend to other financial matters as instructed; analyze space needs, coordinate space changes, and assignments; arrange for the purchase of equipment and furnishings; and supervise support staff. Requirements: bachelor's degree and/or equivalent combination of education and experience. At least two years' administrative financial experience necessary. Knowledge of MIT financial systems preferred. Knowledge of Lotus, 1,2,3, and/or Microsoft Excel important. Excellent communication skills essential. Interest in a team management environment a plus. R87-422

**RESEARCH SCIENTIST**, Artificial Intelligence Laboratory, to perform duties under the direction of one associate professor. Will contribute to the development, integration, and maintenance of laboratory developed software for the support of intelligent applications in organizational systems. Requirements: Ph.D. and/or equivalent industrial experience necessary. Must have several years experience in dealing with LISP environment software including compilers, editors, debuggers, and window systems. R87-420

**TECHNICAL ASSISTANT**, Brain and Cognitive Science, to perform various functions for a molecular neurobiology laboratory. Responsibilities include preparation of reagents, tissue culture, and tissues from animals (rats and mice); and participation in projects that involve biochemical purification and analysis (chromatography, electrophoresis). Responsibilities also include lab administrative chores, such as ordering supplies. Requirements: B.S. degree and/or a combination of education and experience. Some laboratory experience necessary. Biochemistry background highly desirable. Also desirable would be skills in tissue culture and animal dissection. Must be comfortable working with animals. R87-419

**RESEARCH SCIENTIST**, Artificial Intelligence Laboratory, to perform functions under the direction of one associate professor.

Will integrate vendor hardware and software to create an integrated open system architecture to support intelligent applications in organizational systems. Requirements: M.S. degree and/or equivalent industrial experience. Extensive knowledge of integrating system software for IBM personal computers, LISP Machines, and their local area networks. Familiarity with the technology and architecture of large-scale concurrent multicomputers necessary. R87-417

**TECHNICAL ASSISTANT**, Applied Biological Sciences (1 year position), to assist with on-going research in controlled release during delivery from polymers. Responsibilities include preparing and performing of experiments in polypeptidic drug delivery systems; preparing of devices for the release of peptides; and monitoring of the releases' kinetics using HPLC, size exclusion chromatography (GPC), UV-spectrophotometry, gel electrophoresis, isoelectric focusing, and Lometry (Bio-Rad) protein assay. Requirements: a bachelor's degree in Biological Science. Some experience in drug delivery laboratory technique, and familiarity with above techniques necessary. R87-413

**RESEARCH SCIENTIST/RESEARCH SPECIALIST**, Sloan School of Management, to develop software for computer-supported cooperative work. The primary initial project will involve major extensions to the Information Lens, an intelligent system for information sharing and coordinating in organizations. The extensions will include (1) integrating the existing support for electronic messages with an object-oriented database, and (2) developing advanced computational "agents" to help people process various kinds of electronic communications. Will also design and have primary responsibility for developing major components of the software projects in this laboratory. The work will emphasize user-interface design, artificial intelligence programming, and some interaction with network protocols for mail and database access. Most programming will be done in Common Lisp and Interlisp-D. The position may include supervising several part-time research assistants. Requirements: B.S. or M.S. in computer science or equivalent combination of education and experience. A minimum of 2 years LISP programming experience necessary. Advanced degree or additional experience (especially with artificial intelligence programming and programming in a Xerox or other Lisp machine environment) highly desirable. R87-409

**MECHANICAL ENGINEER**, Artificial Intelligence Laboratory, a talented engineer needed to help develop the fastest, most agile legged robots in the world. Will involve design and construction of light-weight linkages and mechanisms, hydraulic servo-actuators, hydraulic power supplies, sensor mechanisms, and assorted instrumentation. Will be responsible for specifying detailed designs, producing fabrication drawings, and overseeing fabrication by working directly with shops, machinists, technicians, and contractors. Requirements: substantial design, implementation, and test experience necessary. R87-406

**SYSTEMS/APPLICATIONS PROGRAMMER**, Artificial Intelligence Laboratory, to help develop the fastest most agile legged robots in the world and conduct laboratory research. Work involves real-time programming, software instrumentation for experiments, operating system modifications and maintenance, 2D and 3D computer graphics, and writing utilities for data analysis and data presentation, computer simulation and animation of mechanical systems. Requirements: UNIX and C environment on VAX/785 and several SUN/3s. Substantial experience with real-time and operating systems essential. R87-405

**RESEARCH ENGINEER**, Artificial Intelligence Laboratory, to perform under the direction of one associate professor. Will design and fabricate special-purpose CMOS microprocessor boards, analog servos, memory systems, communications interfaces, laser light strippers, infrared proximity sensors, and other sensors as needed for research on mobile robots; and write and de-bug (via LISP machine hosts) the real-time software for the microprocessors in assembly language. Requirements: experience with LISP machine/LISP programming language as well as fluency in assembly language and an interest in VLSI design. Must have extensive knowledge of logic analyzers, lay out and fabrication, digital and analog design. Some experience with servo-controlled mechanical systems essential. R87-400

**RESEARCH TECHNOLOGIST**, Division of Comparative Medicine, to be responsible for carrying out experimental techniques detailed in research protocols. Will perform biological, biochemical, and immunological assays and records and carry out limited interpretation of data; maintain and order supplies for research projects, and keep records of amounts sent and grants charged; carry out immunological assays, including ELISA, immunodiffusion, immunofluorescence, and hemagglutination; perform microbiological procedures, including use of aseptic technique and lyophilization or freezing of stock cultures; carry out tissue culture techniques, including maintain routine cell lines, plating standard number of cells, and carrying out assays for

cytotoxic effects; carry out biochemical purification procedures detailed in research protocols, including chromatography, gel electrophoresis, and ultrafiltration; carry out a variety of manipulations on laboratory animals; and participate in writing research grants and progress reports, and will be encouraged to participate in publication of scientific data and present data at scientific meetings. Requirements: B.S. or equivalent combination of education and experience. Must have experience working with animals and be skilled in techniques for catheterization, blood collection, and fluid administration in animals. R87-393

**TECHNICAL ASSISTANT**, Center for Cancer Research, to perform research in molecular biology and animal viruses. Will be in charge of maintaining animal cell lines in tissue culture; responsible for preparing and titering virus stocks; collaborate in experiments on the molecular biology and biochemistry of animal viruses and mammalian cells; and responsible for ordering laboratory supplies and maintaining some laboratory equipment. Requirements: B.S. degree in basic science and a working knowledge of current research in molecular biology. Experience in research in a modern biological laboratory helpful. Previous experience with tissue culture techniques, nucleic acid, or protein biotechnology desirable. Ability to work with others helpful. R87-353

#### LIBRARY STAFF

**LIBRARY ASSISTANT**, MIT Libraries - Catalogue Dept. LC Cataloguing/Retro-spective Conversion Section (part-time, 17.5 hours/week), to process monograph records being converted from manual to machine-readable form under the direction of the Head. Responsibilities include maintaining files of records to be converted (charge cards); photocopying Union shelflist cards; organizing photocopies in preparation for conversion; maintaining files of printouts of converted records; mailing barcode labels with appropriate bibliographic information to Divisional/Branch Libraries; compiling conversion backlog statistics; pre-cataloguing search, both online and offline, for materials to be recatalogued/reclassified; and performing auxiliary assignments as needed. Requirements: high school graduate or equivalent necessary. Minimum of one year of direct/related experience important. Accurate typing (40 wpm) desirable. Attention to detail essential. Experience using PC terminal preferred. The work schedule for this position is from 9:00 am - 12:30 pm, but is negotiable). L87-566

**OFFICE ASSISTANT**, The Libraries - Microreproduction Laboratory (part-time, 20 hours/week), to receive requests on the telephone, at the counter, and process them accordingly; type invoices describing the request and the service for submission to the Accounting Department; compute costs of requests; respond to routine written inquiries; tabulate various statistics; and enter and proofread data in a computerized microfiche titling system. Requirements: a high school diploma or the equivalent. A minimum of one year of direct/related experience, post high school education may count towards experience. Fast and accurate typing (50 wpm) necessary. Acquaintance with basic accounting procedures desirable. Should be able to set priorities and allocate time effectively (hours are 1-5 pm, M-F) L87-388

**LIBRARY ASSISTANT**, Catalogue Department (part-time, 17.5 hours/week, hours negotiable), to perform a variety of functions as needed. Will catalogue MIT publications (thesis/technical reports) directly online according to AACR2 catalogue code, OCLC bibliographic input standards, and cataloguing policies; assign OCLC field and subfield codes and indicators; barcode publications; verify personal names and series and online authority files, and create new authority records for personal names; resolve personal name heading conflicts and initiate correction to bibliographic records and authority files to reflect AACR2 rules of entry; and maintain statistics of number of items catalogued. Requirements: high school graduate and a minimum of 2.5 years of direct/related experience. Some college study preferred. Working knowledge of the MARC format, preferably in the OCLC Cataloguing Subsystem highly desirable. Experience using AACR2 catalogue code desirable. Knowledge with CRT operations highly desirable. Accurate typing (40 wpm) and attention to detail essential. The schedule for this position is 9:00 a.m. to 12:30 p.m., Monday through Friday; hours negotiable. L87-494

**SR. OFFICE ASSISTANT**, MIT Libraries - Administrative Service, to perform tasks under the general supervision of the Staff Administrator for the daily operations of the Delivery Services Section, the Libraries consist of 26 departments at various Institute locations and interacts with several on/off campus delivery services. Duties include coordinating priorities to assure adequate coverage for peak loads and absences; scheduling, directing work, training, and/or overseeing the training of assistants; processing mail and other materials in accordance with established guidelines and policies;

operating, adjusting, and maintaining equipment and facilities in top operating condition including neat and orderly work environment and adhering to security/safety procedures; requesting and anticipating repairs; instructing staff on and maintaining up-to-date information on current postal and shipping regulations/procedures; preparing monthly reports and compiling statistics; ordering supplies and equipment; maintaining and answering inquiries; advising/assisting in updating procedures; and performing other assignments as necessary. Requirements: high school graduate and 2.5 years of direct/related experience. Post high school education will count toward experience. Good communication, problem-solving, and interpersonal skills essential. Ability to handle changes in schedules, variable flow of materials, set priorities, meet deadlines, and perform detailed work accurately and with reasonable speed essential. Must have 3 years of driving experience and an excellent driving record (current Registry clearance) and be capable of operating a delivery van. Some out-of-state driving may be required. Good arithmetic skills and command of the English language essential. Physical strength required for carrying and lifting materials 50 lbs., pushing heavily loaded book trucks, and 2-wheelers essential. Some knowledge of automobile/van maintenance important. Experience in customer relations helpful. Willingness to learn or use computer desirable. L87-472

**LIBRARY ASSISTANT III**, The Libraries-RetroSpective Collection (part-time), 17.5 hours/week, to work under direction of the Section Head. Duties will be to perform circulation routines; receive requests via telephone for materials, retrieve materials from shelves, charges and discharges materials using both automated and manual circulation procedures, renew materials, collect statistics, assist on-site library patrons; perform general stacking routines, and other related duties as necessary. Requirements: minimum one year of direct/related experience. Post high school education may count toward experience. Ability to organize a variety of tasks and duties, and work with minimum supervision important. Familiarity with keyboard and a PC is desirable. Punctuality and regular attendance are essential. Physical stamina needed for stacking duties. The hours for this position are 9:00 a.m. to 12:30 p.m., Monday through Friday. L87-330

**LIBRARY ASSISTANT III**, Libraries-Hayden Circulation (part-time), to perform various shelving, patrolling, and office tasks as needed. Duties include shelving library materials. Maintenance and control of current periodicals in Humanities, newspapers in basement, and indexes and abstracts in Science; monitor user activity on all floors of the library; enforce no eating, drinking, or smoking policy; keep statistics such as head-counts and items picked up during shelving; respond to urgent need of repairs; possibility of being trained for follow-up of GEAC related routines, with total involvement with all GEAC functions, including charging, discharging, recalling, renewing, placing holds, etc., and other related duties as assigned. Requirements: minimum one year direct/related experience. Post high school education can count toward experience. Ability to work independently important. Should be able to work with a variety of people. L87-318, L87-317

**SR. STAFF ASSISTANT**, Libraries - Rotch Library, responsible for administrative, personnel, and clerical services for the librarian and support staff of the Rotch Library of Architecture and Planning and Rotch Visual Collections. Will prepare payroll forms for support staff and students; sort and distribute mail; maintain internal procedures, using word processing and typewriter equipment; order and maintain inventory of office supplies and departmental forms; monitor operating-expense budget; activate student workers and monitor student payroll expenditures; assist staff in setting up PC files on LOTUS, etc., and train in the use of word-processing software; and coordinate displays and library signage and other tasks as needed. Requirements: minimum 2.5 years direct/related experience required. High school graduate or equivalent necessary. Ability to organize and set priorities important. Some experience with word processing and other software packages essential. Average typing skills required for moderate amount of typing. Ability to work well with other staff members important. L87-308

#### SECRETARY/STAFF ASSISTANT

**ADMINISTRATIVE SECRETARY**, Electrical Engineering and Computer Science, to provide secretarial and administrative support for one Institute Professor and research group. Duties include typing and editing scientific manuscripts and class notes; preparing grant proposals and reports; handling a variety of correspondence and phone calls; making complex travel arrangements; coordinating complex appointments and meetings; maintaining and reviewing files and records on purchasing transactions; and reviewing monthly accounting statements comparing actual expenditures to budgetary restrictions. Requirements: good typing and organizational skills and a minimum of 4.5 years of direct/related experience. Ability to work with frequent interruptions important. Knowledge of computer word processing (Latex) desirable and/or willingness to learn. B87-563

**ADMINISTRATIVE SECRETARY**, Resource Development, to work with District Director in managing flow of work from initial planning to completion. Will coordinate the activities of the National Campaign Office staff as it identifies, qualifies, and solicits MIT gift prospects; type, edit, proof (and occasionally draft) correspondence, memos, and reports, etc.; maintain District Director's calendar; make travel arrangements, prepare itineraries and trip reports, and complete travel reimbursement vouchers, etc.; assist in planning meetings and preparing agendas; be a source of information on various activities for the department; provide telephone coverage for District Directors and others within the work area; prepare and maintain management reports reflecting progress of geographic responsibilities; and with other support staff, provide coverage of general office functions. Requirements: a minimum of 4.5 years of direct/related experience. Post high school education preferred. Must be able to organize, set priorities, and carry out detailed tasks with minimal supervision and instruction. Ability to assume responsibility and work independently. Must be able to remain calm under pressure of constant deadlines, exercise tact, and good judgment. Good interpersonal skills necessary. Knowledge of wordprocessing, personal computer, and use of dictating equipment and/or willingness to learn essential. B87-555

**ADMINISTRATIVE SECRETARY**, Mechanical Engineering, to prepare and monitor support staff, hourly, and student payrolls. Will review and monitor general accounting records, statements, purchase orders, and requisitions; establish and maintain files; schedule department lounge; open and sort mail; provide information on departmental and Institute procedures; handle student UROP financial arrangements; and answer telephone inquiries. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Ability to organize tasks and accomplish them independently in a busy office necessary. Knowledge of MIT preferable. Willingness to learn IBM PC essential. B87-315

**ADMINISTRATIVE SECRETARY**, Industrial Liaison Program, to perform complex and diverse secretarial duties for two Liaison Officers in the ILP within the Computer and Electronics Group, including working for the group leader under minimal supervision. Will maintain extensive telephone and personal contact with individuals from ILP corporate members from the U.S., Europe, Japan, and MIT faculty and staff; provide timely responses to officers' requests; anticipate future actions needed; set priorities; take responsibility for carrying out special projects; assist group leader in all administrative and operational aspects of the Computer and Electronics Group; composition and typing of correspondence, reports such as summaries on member company activities, and visit and travel agendas; assist in scheduling of appointments and company research briefings; obtain travel advances; maintain files; assist when needed at occasional office-sponsored symposia and seminars, such as registration; participate in the interviewing of support staff personnel for working group and assist in training (including temporary assistance); and assist in computer input and retrieval on various member company statistics and publication information. Requirements: excellent secretarial, interpersonal, and organizational skills, and a minimum of 4.5 years of direct/related experience. Ability to work both independently and as part of a team important. Flexibility necessary. Experience with and/or willingness to learn word processor and take initiative essential. Familiarity with MIT helpful. Ability to prioritize work load important. B87-228

**SR. STAFF ASSISTANT**, Center for Advanced Visual Studies, to support director and project director for project and academic activities. Duties include interacting with other MIT offices; providing academic support for graduate program; maintaining files for purchasing transactions; assisting in preparation of grant proposals and monitoring of grant funds; assisting in checking monthly accounting statements; typing; answering telephones; interacting with graduate students, fellows, and the public; and performing some editorial duties. Requirements: typing skills (55 wpm) and 3-4 years of office experience. Knowledge of foreign languages, particularly German or French desirable. Familiarity with arts administration and MIT preferred. B87-541

**ADMINISTRATIVE SECRETARY**, Environmental Medical Service, to serve as personal secretary to Physician/Director. Will type correspondence on DecMate III, including confidential information; schedule appointments; keep calendar; make travel arrangements; and serve as liaison with Medical Department regarding patient schedule. Responsibilities also include administration of EMS Medical Screening Program (10) which includes updating personnel, offering appropriate lab tests, and follow up on worker response. Requirements: minimum of 4.5 years of direct/related experience. Word processing skills (preferably DecMate) helpful. Strong interpersonal, organizational, and communication skills necessary. Ability to work independently important. B87-525

**ADMINISTRATIVE SECRETARY**, Center for Transportation Studies, to provide administrative and secretarial assistance to the Director. Will coordinate activities, meetings, and travel itineraries; answer phones; type correspondence; maintain files; provide reception to visitors;

work closely with the Administrative Officer with respect to certain financial information; and perform occasional typing services to transportation faculty and staff, and other responsibilities as assigned. Requirements: minimum of 4.5 years direct/related experience as well as excellent typing and organizational skills. Ability to use or learn DECmate III wordprocessing system important and ability to work well with a variety of people in a busy environment essential. English Fluency necessary. Familiarity with MIT desirable. B87-453

**ADMINISTRATIVE SECRETARY**, Resource Development - Major Gifts, to manage flow of work from initial planning to completion for the Major Gifts Officer and Coordinator of Donor Relations. Duties include working with members of Resource Development, National Campaign Office, Campaigning Systems, School Development Officers and others; performing a variety of secretarial functions; and maintaining computer tracking system for donor/prospects. Requirements: minimum 4.5 years of direct/related experience and ability to set priorities and carry out detailed tasks. Must be willing to assume responsibility and work independently. Should be well organized, able to exercise good judgment, and use discretion and tact. Knowledge of word processing (MAC or IBM PC) or willingness to learn necessary. B87-446

**ADMINISTRATIVE STAFF ASSISTANT**, Office of the Registrar, to perform diverse administrative/support duties for the Registrar and Associate Registrar. Assists with determining whether undergraduates have met the Institute's academic requirements for the S.D. degree, consulting with students and faculty to resolve discrepancies. Assists with budget preparation and monitoring; responds to telephone and in-person inquiries regarding undergraduate requirements, petitions, and Institute procedures; earns/uses computer and word processor to generate basic data output and reports; assist with purchasing office supplies, exercising signatory authority; helps prepare official Institute notices; advises Registrar on matters of work flow organization; reviews mail, independently responding to correspondence when appropriate; gathers information, types/proofs reports and correspondence; and performs other administrative/support duties as necessary. Requirements: desire to work with students, excellent organizational and human relations skills, meticulousness, typing/proofreading skills, willingness to assume responsibility, knowledge of word processing and personal computer systems, and ability to work independently. Ideal candidate to have long-term commitment, for promotion to staff. College education helpful, 3-5 years administrative/secretarial experience working in a college or university setting desirable. B87-420

**ADMINISTRATIVE SECRETARY**, Residence and Campus Activities, Office of the Dean for Student Affairs, to perform various secretarial duties for the Assistant Dean, Advisor to Fraternities, and Administrative Officer. Duties include responding to considerable and complicated telephone and in-person inquiries; coordinating priorities and determining the needs of a variety of people wishing to communicate with RCA staff members directly; serving as the primary source of information on established office and institute policies and procedures related to residence issues, including housing assignments, fraternity relations, housemasters and graduate residents; and assisting with other duties as assigned. Requirements: high school graduate and 4.5 years direct/related experience. Typing (65 wpm), and knowledge of word processing, (DECmate or IBM) preferred. Should possess excellent organizational and interpersonal skills. Ability to handle detail and work under pressure necessary. Knowledge of MIT helpful. B87-382

**SR. SECRETARY**, Aeronautics and Astronautics, to perform full range of secretarial duties for five professors and laboratory staff. Duties include word processing, typing correspondence, class materials, and travel vouchers; maintaining files; and acting as a source of information on laboratory staff. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Ability to organize tasks and set priorities necessary. Word processing and technical typing preferred. B87-569

**SR. SECRETARY**, Technology Licensing Office, to share secretarial responsibilities with three other secretaries in the office working for the Director and seven Technology Licensing Officers. Duties include typing, filing, photocopying, and some answering of incoming calls. Requirements: high school graduate with a minimum of 2.5 years of direct/related experience. Word processing on PC important, will train if necessary. Good organizational and communication skills necessary. B87-565

**SR. SECRETARY**, Brain and Cognitive Sciences, to perform complex and diverse secretarial duties for several faculty members in the department. Responsibilities will include the preparing of teaching materials, manuscripts, proposals, and correspondence; coordinating of purchasing needs and travel arrangements; answering telephones; opening and directing mail; maintaining files and calendar; and other office management and maintenance tasks; performing special projects as assigned; and serving as liaison with administrative headquarters. Requirements: excellent secretarial, interpersonal, and organizational skills and a minimum of 2.5 years of direct/related experience. Must be willing to assume responsibility and work independently as well as part of a team.

# i/s

News about information systems throughout MIT

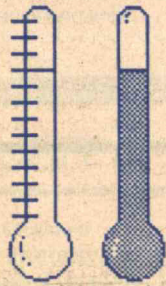
## IAP Takes Off Again

Lee Ridgway • Information Services

Once again IAP is here with a cornucopia of activities. This article highlights three in which computers play a significant part.

### Sssssteam Heat

The OPEC oil embargo of 1973-74 made energy conservation a hot topic. Skyrocketing petroleum prices drove administrators to seek bold approaches to cutting energy costs. In 1976, in conjunction with Hamilton Standard, MIT developed and installed an innovative, computerized approach to heating and cooling. The Institute is now on its second computerized system dedicated to energy management.



Today (January 6, not January 7, as listed in the original IAP Guide), Physical Plant begins a three-part look at MIT's energy management program. Carl Hagge, environmental engineer and supervisor of Physical Plant's operations center, will discuss energy conservation on campus and in general. His talk, from 1:30 to 3:30pm in Room 4-145, is the warm-up for two events tomorrow.

On January 7, from 9:30 to 11am, Michael Taub, Manager, will lead a tour of the Central Utilities Plant on Vassar Street (Building 42). The tour will feature boilers, water chillers, cooling towers, and the like.

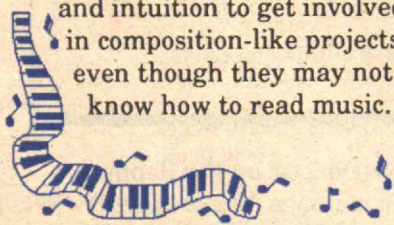
Immediately after the tour and lasting until noon, Andrew MacDougall, Facilities Control System Manager, will demonstrate the plant's microprocessor-based hardware for building control and the central computers that tie the whole system together. This complex network of local and central computers enables 40 mechanics to service almost 9 million square feet of buildings.

### Any Budding Composers Out There?

Down Vassar Street in 20C-108, Jeanne Bamberger, Associate Professor of Music & Theater Arts, and her research assistant, Armando Hernandez, have created the Project Athena Music Cluster, a group of 10 specially configured workstations.

Hernandez first developed an Apple Macintosh version of the Music Workstation for his senior thesis. The adapted Athena version consists of an IBM PC/AT interfaced with a Casio keyboard synthesizer and headphones or speakers. All the hardware is off-the-shelf.

Bamberger has long been interested in helping students understand how music works. With the Music Workstation, her students rely on their ears and intuition to get involved in composition-like projects, even though they may not know how to read music.



Using easily learned commands, students manipulate short melodic motives and rhythmic patterns by writing sentence-like procedures. Students can immediately hear what they've created, choosing from 32 synthesized sounds including a variety of percussion instruments. A graphics module that draws melodic contours and rhythmic patterns on the screen gives students a visual image of their music as well.

To try out a workstation, stop by the Music Cluster during one of the open workshops scheduled for January 12-14, 3 to 5pm.

### Games People Play

The Systems Dynamics Group has prepared a week of IAP events – on topics ranging from the AIDS epidemic to the stock market crash – to spread the word about their approach to studying complex social and economic systems. Hands-on simulation games, discussions, lectures, and workshops are scheduled for January 19-22; check the IAP Guide, Activity #307, for a complete listing.

Systems dynamics is probably best known for computer simulation models of actual business or economic situations. For example, the People Express computerized case study (to be discussed at the January 19 session) examines the factors that contrib-

uted to the airline's meteoric rise and later demise.

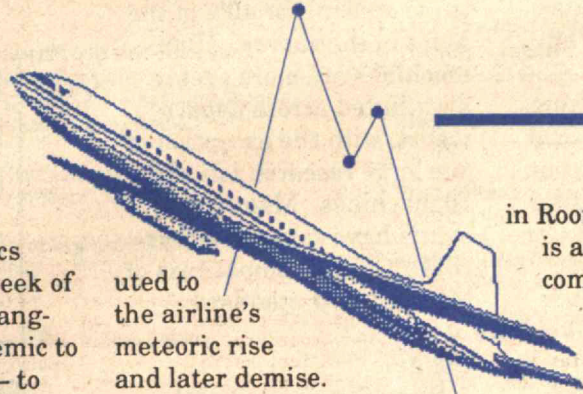
The group's researchers first model a case in STELLA, a Macintosh modelling environment developed for systems dynamics. The many aspects of a case study and the variables for the model are represented in STELLA by graphics and equations.

Simulations based on STELLA models are then developed in *HyperCard*, an innovative information environment for the Macintosh (to learn more about *HyperCard*, attend the Hyperfest, January 13 from noon-2pm

in Room 10-250). *HyperCard* is an ideal medium for complex, non-linear simulation games such as the People Express case.

While the game-playing is fun, the goal of systems dynamics researchers is to create a learning environment for management education. Their games let players make decision rules and find out how these affect a system, or are affected by it.

The Systems Dynamics Group IAP series is open to everyone; no previous computer – or business – experience is needed. Just bring your intuition; the presenters will supply the background. ●



## Getting Along With Your Microcomputer

Phyllis Galt and Tricia Kellison • Information Services

So now you have a personal computer to help you do your work. But some days you find that your micro is much more of a hindrance than a help. Computers are still at "that awkward age." No matter how experienced you are, problems are something you can count on.

For new users, frustrations can run very high. How can you minimize problems with your computer when you don't even know its capabilities?

During IAP "Things to Try Before Throwing Your Computer Out the Window" will attempt to alleviate some of those frustrations. This seminar, led by Phyllis Galt and Tricia Kellison of Information Systems, will be held January 8 from noon to 1:30pm in Room 4-132.

"Things To Try..." will start with some reassurance therapy (you are not alone), followed by tips for managing your computer, troubleshooting techniques, and suggestions on where to go for help. Class handouts will give you some guidance when you're back in your office.

Below are some tips for managing your personal computer. These will be dis-

cussed at greater length in the class.

- Get the details: note the brand name, type, and vendor of each hardware item; identify all software programs and their version numbers; determine hardware and software settings. Set up a notebook with this information and update it as needed.

- If you're inheriting a computer, try to contact the previous caretaker. Get the above details and as much history as you can.

- Locate the manuals for each hardware item and the manuals and master disks for each program on your computer.

- If you share a computer with others, know what each person is doing. Keep a log to avoid the problems that can arise when people use different settings, or share software or files.

- If other staff are involved in maintaining your system, keep informed of any changes they make.

- Create a procedure for backing up your work, and use it often. This is your only insurance against losing your work.

- Identify sources of technical support for hardware and software problems. It's important to know where you can go for help before a problem arises.

One source of help within MIT is IS Consulting Services (x3-0001). This group has a number of software and hardware specialists on staff who can answer a quick question or help you get out of a computer jam. And don't forget the many user groups on campus. A listing of MIT user groups is posted in the Micro Center, Room 11-209.

- Get training if your experience is limited. While courses cost money and take time, in the long run they are cost-effective. With training, you're far less likely to get stuck or go about things in the wrong way. To find out more about IS-sponsored microcomputer courses on campus, call Tawney Wray at x3-7685.

If you've come close to throwing your computer out the window, mark January 8 on your calendar. And watch *i/s* for a follow-up article on some of the trouble-shooting techniques covered in the class. ●

### IN THIS ISSUE:

- New Linotronic Service
- Virus Alert
- IS IAP Calendar
- RedRyder for the Mac

# 1987 Administrative Workstation Survey Reveals Trends on Campus

Cecilia d'Oliveira • Information Systems

In September, Information Systems surveyed MIT's administrative officers to determine what personal computer hardware and software they and their staffs are using. Surveys were mailed to 138 departments. Eighty academic departments, laboratories, and centers and 39 central administrative departments responded, resulting in an 86% return rate.

Of a total of 488 machines reported in the survey, IBM PCs and compatibles account for 62%; Apple Macintoshes, 20%; Digital Equipment Corporation (DEC) machines, 13%; and a variety of other manufacturers, 5%.

## Distribution By Departments

The computers reported in the survey are distributed among academic departments and labs (56%) and central administrative de-

partments (44%). About 65% of the departments reported between one and four machines. Two departments reported no personal computers in administrative use.

The distribution of Macintosh machines by department is skewed heavily by large concentrations in three central administrative offices: these account for 40% of the Macs in the survey. IBM machines are more evenly distributed across departments, with the exception of one large research lab with 16 machines. Many departments have selected either IBM PCs and compatibles or Macs as their standard.

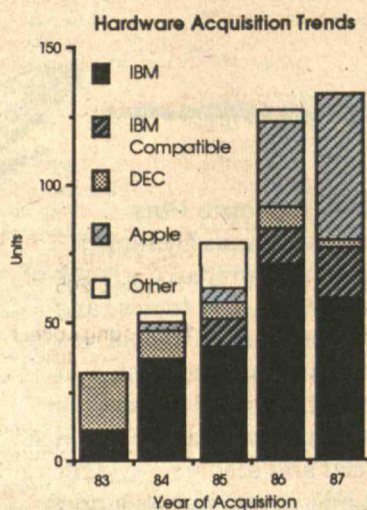
## Usage

Sixty-five percent of the machines are used by one person. Text processing (77%), financial administration (54%), electronic mail (35%), and personnel administration (26%) are the most

common applications. On average, the machines are in use between 10 and 30 hours a week.

## Hardware Acquisition

Survey data show that administrators are buying micros in greater numbers. Over half were acquired during the last two years.



From 1983 to 1987, Apple computers made significant

gains in administrative areas, accounting for 0% of the machines acquired in 1983 and 34% in 1987. IBM PCs and compatibles accounted for 33% of machine acquisitions in 1983 and 58% in 1987. DEC represented 66% of the machines acquired in 1983 and 2% in 1987. Although DECmates account for 10% of the machines now in use, most of these were acquired before 1984.

## Software Favorites

On DOS machines (such as IBM XT, AT, and compatibles), 1-2-3 (56%) and WordPerfect (30%) are the most popular packages. On Macintoshes, Excel (84%) and Word (94%) are the clear favorites.

Although almost half of the computers are equipped with software for database management, no one package dominates. Nor has a clear favorite emerged for terminal emulation software.

## Communications

Respondents use 50% of the machines for login or file transfer to another computer, usually located within the department. About 30% are hardwired, while 22% use a telephone and modem for communication.

About 20% of the computers in the survey are connected to some form of local area network. A small number (7%) are connected to the campus computer network.

Information Systems thanks those who participated in the survey for their assistance and responsiveness. The information provided will be used for planning by IS, the Administrative Work Station (AWS) Committee, and other groups involved in activities related to the AWS.

For more information on this survey, call Cecilia d'Oliveira at x3-0893. ●

# Get the Facts on Fax – and Telex

Brian Herr • Telecommunications Systems

Your proposal needs to get to Japan – today. What to do? Use the MIT Message Center. Located in E19-741, the Center transmits messages to destinations around the world by telex or facsimile (fax). Messages received by 3pm are sent the same day.

Telex is the traditional network for international communications. Your message is entered on a specially configured microcomputer, checked for accuracy, and then sent to its destination via the telex network. After connecting with a given remote machine, MIT's ma-

chine requests an "answer-back" to ensure that the right machine has been reached.

The remote telex machine receives the message as it is sent, character by character. Once transmission has been verified, your message is time- and date-stamped by the machine, then printed out and sent to you as confirmation.

While telex transmits files a character at a time, a fax machine scans an image and transmits it over phone lines to another fax machine. Sending a fax is equivalent to feeding a document into a copier here that has a copy

tray in another location, even in another country.

Fax machines transmit images, in black and white only, at a speed of about 20 seconds per page. Resolution is grainier than regular photocopier output.

One advantage of fax is that you can send anything that can be expressed on a piece of paper. Artwork, diagrams, and messages in non-Roman characters, including those with involved formulas, are problematic for telex but perfect for fax.

To send a fax from MIT, you need to come to E19, but you can send and receive

telex messages electronically. To transmit a message, send it via e-mail to telex@telecom.mit.edu. Since Message Center staff don't have to retype these messages, they are sent at a reduced charge.

To receive messages electronically, call the Center to register your e-mail address. Center staff will route your incoming messages to your electronic mailbox and, as with all inbound messages, will notify you by phone when a message arrives.

Because telex and fax access are common worldwide, many find these services a

fast, convenient way to transmit short documents. Each month the Message Center handles about 5000 pages of fax messages and 1000 telex messages.

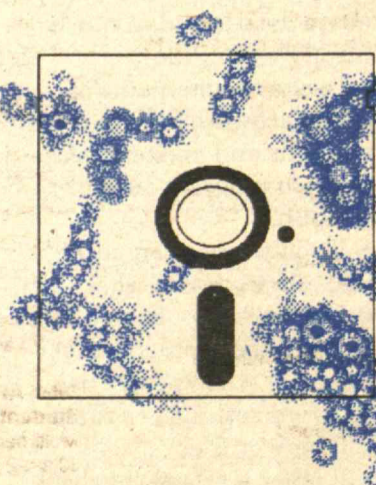
Prices vary according to the length of your message and its destination. For example, a one-page business letter sent via telex to Japan costs \$11.00; as a telex submitted electronically, \$9.50; and as a fax \$5.00.

For more information on Message Center services, call the Center at x3-3690 or talk to Brian Herr, Operations Manager, at x3-3651. ●

# Watch Out For Virus Programs

Computer users, be on the lookout for "virus" programs that can damage your files. Also known as "trojan horses," they are the creations of malicious programmers. Virus programs damage information or otherwise sabotage computer operations. Disguised as freeware, these programs spread in various ways — as electronic mail, as files on a disk, or as downloadable files on electronic bulletin boards.

A recently reported virus program is a corrupted version of COMMAND.COM, the program that boots IBM personal computers and compatibles. If you boot from an infected disk, the



virus COMMAND.COM will copy itself to existing floppy or hard disks, overwriting your good COMMAND.COM files. Using DOS commands will cause the virus program to erase all the files on every disk on your computer.

To avoid infecting your IBM PC or clone, follow these guidelines:

- Don't boot from an unknown floppy disk; boot only from your own disk with COMMAND.COM on it.
- Make a note of the date on your authentic COMMAND.COM file. If this date changes, it could indicate a virus version.
- If you must boot from an unknown disk, after starting up place an uninfected boot disk with a write protect label in the floppy drive and access the disk (for example, get a directory of files on the floppy). A virus program will try to overwrite

COMMAND.COM on the floppy. The message "WRITE PROTECT ERROR" indicates that the file you used to boot your micro is infected. Check all versions of COMMAND.COM on your disk drives (floppy or hard) to be sure they haven't been overwritten by the virus program. If you find an infected COMMAND.COM — check the date — replace it by copying COMMAND.COM from an uninfected disk.

While COMMAND.COM is the most virulent strain making the rounds, watch out for other viruses. You can best protect your work by locking your disks, using write protect labels, and exercising care with unknown disks. ●

Starting in February, the IS Training Lab (11-206) will be open for practice on Thursdays from 5-8pm and Fridays from 1-4pm.

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## Using the Timetable

Use the Timetable as a companion to the Guide. When you locate an activity you are interested in attending, refer to the Guide for details about it. To find the complete listing, simply match the number that precedes the title of the activity in the Timetable with the number of the listing in the Guide. Activities appear in the Guide in numerical order.

New listings, changes, and cancellations appear at the end of the Timetable.

Preregistration dates of activities have been left in as a reminder to people who have signed up for them. These activities may be closed. They are listed under the dates that they are being held, not under the preregistration dates. If you are interested in attending an activity whose preregistration date has passed, we suggest you call the contact person listed in the Guide to see if there is any room.

Activities which in the Guide stated "schedule to be arranged" and which were not scheduled by the Timetable deadline, do not appear here. If you find an activity in the Guide with no schedule, contact the organizer directly for details.

Last-minute cancellations and schedule changes should be submitted to the IAP Office, 7-103, x3-1668, so that the office can post the information and handle inquiries.

## Thurs, Jan 7

**3005 The Power Of Music**  
8 am, E15-001

**52 Solid-Modeling For Architectural Design**  
9 am-12 noon, 9-551 (plus labs to be arranged). Regular attendance expected. Preregister by Dec 21.

**587 Urban Development And Design In China's Pearl River Delta Region**  
9 am-5 pm, Marlar Lounge, 37-252

**780 Scanning Electron Microscopy**  
9 am-12 noon, 13-2101

**785 Machine Shop Course**  
9 am-12 noon, 13-2055. Regular attendance expected. Preregister until filled.

**1650 Central Utilities Plant Tour**  
9:30-11 am, front entrance, building 42

**155 Die Brucke: Bridge Design Competition**  
10 am-12 noon, 1-235; Wed, Jan 27, 10 am, lobby 10. Preregister by Dec 15.

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**1252 Machine And Tool Making**  
10 am-12 noon, 44-022

**1803 The New-Wave No Wave Contest**  
10 am, 5-217.

**2078 Yiddish**  
10:30 am-12:30 pm, W2a. Regular attendance expected. Preregister by Jan 4.

**366 Math Music And Silliness**  
11 am, 4-182

**460 Design Competition For OTEC Turbines**  
11 am-12 noon

**508 Physics Flicks**  
The Great Conservation Principles  
11 am-12 noon, 4-339

**1126 Tour Of Haystack Observatory**  
11 am-3:30 pm, meet in Lobby 34

**1414 Contact Lenses: Problems and Solutions**  
11 am-12 noon, 1-150

**1651 Demonstration Of MIT's Energy Management System**  
11 am-12 noon, building 42

**87 Turning Genes On And Off In Yeast And Humans**  
11 am-12 noon, 66-160

**856 History Of Urban Real Estate Development And Planning**  
12 noon-4 pm, W31-301. Preregister by Dec 18.

**1178 Packing A Visual Punch**  
12 noon-1 pm, 10-250

**1415 Menopause**  
12 noon-1 pm, 1-150

**1729 Project Athena Minicourses**  
12 noon-1 pm, 11-124a

**2052 Post-Graduation Immigration Options**  
12 noon-1:30 pm, 9-150

**4013 Technology And The Free Market: Is Nuclear Power Safe?**  
12 noon-2 pm, 4-153

**4059 Course Evaluation Guide**  
12 noon-2 pm, 400 Student Center

**509 Topics In Modern Quantum Theory**  
1-2:30 pm, 2-390

**1416 Radon: How Dangerous?**  
1-2 pm, 1-150

**1734 What's In A Name: Hesiod, The Athena Name Service**  
1-2 pm, 11-124a

**1987 The Magic Of Postscript**  
1-2pm 36-372. Regular attendance expected. Preregister by Dec 15.

**55 Goerthert's Guidelines For Rapid Layout Assessment**  
1-5 pm, N52-480

**1777 Engineers, Scientists, And Public Controversies: A Case Study Of The Challenger Disaster**  
1:30-3:30 pm, 4-231

**1 Highlights Of Aeronautics And Astronautics**  
Turbulence In Fluid Mechanics And Your Life  
2-3 pm, 33-206

**61 Built Collage Installation And Workshop**  
2 pm, N51-313. Preregister by Dec 21.

**397 Frontiers In Mechanical Engineering: IAP Lecture Series**  
Engines For The Future  
2-3 pm, 3-133

**507 Frontiers In Astrophysics**  
Birth Of The Cosmos  
2 pm, 4-370

**1254 Configuring Computers: A Look Under The "Hood"**  
2-4 pm, N10 library. Preregister by Dec 10.

**1417 Year Of The Condom**  
2-3 pm, 1-150

**1950 Art Classes And Facilities At The Student Art Association**  
The Mask Ritual  
2-4 pm, 425 Student Center

**3083 Electric And Solar Cars**  
2 pm, 20C-221

**1285 Graphics At The LNS VAX Computing Facility**  
2:30 pm, 26-414 Regular attendance expected.

**531 Women And Politics**  
3-5 pm, E53-482

**1130 Lecture Series On Health Sciences And Technology**  
3:30-5 pm, E25-111

**1280 Current Research In Nuclear And Particle Physics At The MIT Lab For Nuclear Science**  
Medium Energy Physics With The Electron At The MIT Bates Linear Accelerator  
3:30 pm, 26-414

**1950 Art Classes And Facilities At The Student Art Association**  
Explorations  
4-7 pm, 425 Student Center

**1950 Art Classes And Facilities At The Student Art Association**  
Oil Painting  
4-7 pm, 425 Student Center

**1950 Art Classes And Facilities At The Student Art Association**  
Flash Photography  
5-7 pm, 425 Student Center

**2043 Practical And Intellectual Aspects Of Survivalism**  
5:30 pm, 20A-002,

**2039 Making Of A Table**  
6-8 pm, W31-031. Regular attendance expected.

**2082 Introduction To New Testament Greek**  
6-7:20 pm, 66-319

**3053 Liberation Theology Discussion Group**  
6 pm-8:30 pm, Catholic Chaplaincy. Preregister by Jan 4.

**3033 I Could Have Danced All Night**  
Foxtrot I  
7-8:30 pm (workshop), location to be arranged

**3060 Seekers 7-at-7 Dinner Club**  
7 pm, Lobby 7

**4030 Reading Group And Informal Conference On Education**  
7-10 pm, ESG 24-612. Regular attendance expected. Preregister by Dec 4.

**4060 Fix The Freshmen Year**  
7-9 pm, 400 Student Center

**4002 Grassroots Student Organizing**  
Nuts And Bolts  
7:15 pm, 8-205

**290 Young Love: A Film Series**  
Romeo And Juliet  
7:30 pm, 66-110

**2003 Chinese Games**  
7:30 pm, 439 Student Center (CSC Library)

**2057 Subversion Of Democracy In India**  
7:30 pm, 4-163

**2063 Elements Of Indian Classical Music And Dance**  
Essentials Of South Indian Classical (Carnatic) Music  
7:30 pm, 9-150

**3032 Roller Skating**  
7:30-10 pm, du Pont gym

**3051 Introducing The New Testament**  
7:30 pm-9 pm, 66-319

**3062 The Baha'i Faith: What Is It?**  
The Baha'i Faith: An Introduction  
7:30-9 pm, 10-280

**12 Our Future In Space**  
Outlook For Private Ventures In Space  
8-9:30 pm, NE43-512A

**3033 I Could Have Danced All Night**  
Foxtrot I  
8:30-10 pm (general dancing), location to be arranged

## Fri, Jan 8

**462 The Great MIT Boat Race**  
9-10:30 am, 5-234. Regular attendance expected.

**587 Urban Development And Design In China's Pearl River Delta Region**  
9 am-5 pm, Marlar Lounge, 37-252

**850 Statistics For Real Estate Analysis**  
9:30 am-12:30 pm, W31-301. Preregister by Dec 18.

**81 Undergraduate Life In The Biology Department**  
10-11am, 66-160. Preregister by Jan 4.

**503 Canonical Transformation Theory**  
10-11 am, 4-270. Regular attendance expected.

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**1502 Neutron Radiography Of Flowers**  
10 am-12 noon, NW12-112. Preregister by Jan 7.

**2044 How To Make A Video**  
10 am-4 pm, 9-450 (CAES TV Studio) Preregister by Jan 1.

**83 What's New In Structural Biology?**  
10-11 am 66-160

**156 Cork, Leaves, And Wood**  
11 am, 1-350

**1418 Eye Care: What's Old And What's New?**  
11-12 noon, 5-134

**3078 Progress And Human Dignity**  
11 am-12 noon, 2-132

**10 Think It'll Fly? Give It A Try!**  
12 noon-2 pm, 37-232, labs to be arranged. Regular attendance expected. Preregister by Dec 12.

**134 A Novel Approach To Beginning Labwork**  
The Color Purple  
12 noon-4 pm, 4-440. Preregister by Jan 15.

**700 Defensive Driving: Drinking And Driving**  
12 noon-1:30 pm, 4-149. Preregister by Jan 6.

**1179 Things To Try Before You Throw Your Computer Out The Window**  
12 noon-1:30 pm, 4-231

**1419 The Navajo Indians and Health Care On The Reservation**  
12 noon-1:15 pm, 5-134

**1952 Counting Stitches**  
12 noon-1 pm, 4-145. Preregister by Jan 5.

**3052 What Do Mormons Believe?**  
12 noon-1 pm, 66-148

**4059 Course Evaluation Guide**  
12 noon-2 pm, 400 Student Center

**502 To Neptune And Beyond: The Voyager Mission**  
1-3:30 pm, 10-250

**1420 Women And AIDS**  
1:15-2:45pm, 1-150

**853 How To Purchase Construction Services**  
1:30-4:30 pm, W31-301. Preregister by Dec 18.

**1 Highlights Of Aeronautics And Astronautics**  
Chaos Or How A Butterfly In Florida Can Change The Weather In Boston  
2-3 pm, 33-206

**61 Built Collage Installation And Workshop**  
2 pm, N51-313. Preregister by Dec 21.

**175 Special Lectures In Earth And Planetary Sciences**  
The Earth's Magnetic Field: What We Know And What We Don't Know  
2 pm, 54-915

**287 Lectures In Philosophy**  
Moral Issues Posed By AIDS  
2-4 pm, 37-212

**397 Frontiers In Mechanical Engineering: IAP Lecture Series**  
Principles Of Design  
2-3 pm, 3-133

**1253 An Intelligent Robot: The MicroMouse Challenge**  
2-3 pm, 34-101

**1376 The MIDI Cube**  
3-5 pm, E15-401. Regular attendance expected. Preregister by Jan 7.

**3054 Raja Yoga: The Science Of Unified Consciousness**  
Integration of Personality  
5:15 pm, Chapel

**4053 The Permanent Floating Science Fiction Seminar And Comedy Shop**  
5:30-6:30 pm, 473 Student Center

**1000 Art: A User's Guide, Vol. 2**  
Boston Chamber Music Society  
6 pm, E15-283

**1250 Science And Culture: Field Trips To Boston Museums**  
6-9 pm, meet at Au Bon Pain, Kendall Sq. Preregister by Jan 6.

## Sat, Jan 9

**2042 CPR Instructor Certification Courses**  
9 am-5 pm, 4-339

**3029 Learn To Skate With Us**  
9-9:30 am, Skating Rink

**1950 Art Classes And Facilities At The Student Art Association**  
Multimedia Collage  
10 am-2 pm, 425 Student Center

**2041 Automotive Engines**  
10 am-1 pm, location to be arranged

**2000 The One-Day IAP Mystery Hunt 1988**  
12 noon, lobby 7

**4059 Course Evaluation Guide**  
12 noon-2 pm, 400 Student Center

## Sun, Jan 10

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**410 For Flutes Only**  
2-5 pm, 4-156. Preregister by Dec 12.

**4060 Fix The Freshmen Year**  
7-9 pm, 400 Student Center

**4066 Chinese Movies**  
7:30-9:30 pm, 4W Lounge, 500 Memorial Drive

## Mon, Jan 11

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
Mechanical Engineering  
9-11 am, 5-231

**781 Introduction To A T.E.M. Facility And How To Operate A T.E.M.**  
9 am-1 pm, 13-1034. Regular attendance expected. Preregister by Jan 4.

**850 Statistics For Real Estate Analysis**  
9:30 am-12:30 pm, W31-301. Preregister by Dec 18.

**5 Some Problems in Nonlinear Vibrations of Structures**  
10-11:30 am, 33-418

**107 Artificial Intelligence In Process Engineering**  
10 am-12 noon, 66-110

**396 Robotics And Manufacturing Applications**  
10 am-2 pm, location to be arranged

**503 Canonical Transformation Theory**  
10-11 am, 4-270. Regular attendance expected.

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**1576 UROP: How To, When, Why?**  
10 am-12 noon, 66-110

**1780 Watching The Ring Of Truth**  
10 am-12 noon, E40-382

**1800 Human-Powered Submarine**  
10-11:30 am, 5-217

**2079 Beginning Hebrew**  
10:30 am-12:30 pm, W2a. Regular attendance expected. Preregister by Jan 4.

**125 Practical EPR Spectroscopy**  
11 am-12 noon, 18-490

**1328 New England Maritime History**  
11 am-12 noon, 5-234. Regular attendance expected.

**1421 Your Gums: Ignore Them And Your Teeth Will Go Away**  
11am-12 noon, 5-134

**1180 Introduction To Supercomputing**  
12 noon-1:30 pm, 4-231

**1422 Chocolate Cravings**  
12 noon-1 pm, 5-134

**1729 Project Athena Minicourses**  
12 noon-1 pm, 11-124a

**3052 What Do Mormons Believe?**  
12 noon-1 pm, 66-148

**4025 Love, Sex, And Power: Part II**  
12 noon-1 pm, 24-619

**4037 Women's Image And Advertising**  
12 noon-1 pm, 10-340

**126 Basic Machine Shop**  
1-3 pm, Chemistry Machine Shop, 6-023

**132 Design Lab Kits for 5.11**  
1 pm, 2-325

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
Civil Engineering  
1-3 pm, 5-231

**651 Management Of High-Technology Entrepreneurship**  
1-5 pm, 9-150 Regular attendance expected.

**1423 Enlarging The Surrogacy Debate: Surrogate Motherhood, What Does It Do For Women?**  
1-2:30 pm, 1-150

**1735 You Can Get It There From Here: Notification In A Public Workstation Environment**  
1-2 pm, 11-124a

**1852 New Developments In Statistical Graphics**  
1-2:30 pm, E40-153

**(new) Parallel Processing In Computational Fluid Dynamics**  
1-4 pm, 3-243

**853 How To Purchase Construction Services**  
1:30-4:30 pm, W31-301. Preregister by Dec 18.

**3055 The New Age Movement: Underlying Cause of World Turmoil Today**  
1:30-3 pm, 8-119

**1 Highlights Of Aeronautics And Astronautics**  
Is Computational Fluid Dynamics Just Pretty Pictures?  
2-3 pm, 33-206

**175 Special Lectures In Earth And Planetary Sciences**  
Determining Satellite Orbits By Radio  
2 pm, 54-915

**287 Lectures In Philosophy**  
Kant On Knowledge And Morality  
2-4 pm, 37-212

**397 Frontiers In Mechanical Engineering: IAP Lecture Series**  
Creep Resistance Of Superalloys  
2-3 pm, 3-133

**513 Frontiers In Particle And Nuclear Physics**  
How Many Nucleons Does It Take To Scatter A Pion?  
2 pm, 4-370

**3075 Nanotechnology: The Molecular Machines Of Tomorrow**  
Hypertext Publishing And The Evolution Of Knowledge  
2 pm, 16-310

**361 Talks On Topology**  
3 pm, 2-131

**413 The Soul Of An Old Machine**  
3-5 pm, 4-152.

**1102 Writing Workshop**  
3-5 pm, 24-619. Regular attendance expected. Preregister by Jan 8.

**1550 Creative Event Programming For Your Living Group**  
3-5 pm, location to be arranged

**1779 Challenges For Science Journalists**  
3-5 pm, E40-382

**7 Instrument Pilot Ground School**  
4-6 pm, 33-418. Regular attendance expected.

**8 Airplane Private Pilot Ground School**  
4-6 pm, 33-419. Regular attendance expected.

**412 Concert Band Tour '88**  
5:30-7:30 pm, Kresge. Regular attendance expected. Preregister by Dec 12.

**2038 Making Of A Cabinet**  
6-8 pm, W31-031. Regular attendance expected.

**2082 Introduction To New Testament Greek**  
6-7:20 pm, 66-319

**2085 Mandarin (Chinese) Conversation Table**  
6-7 pm. Regular attendance expected.

**2029 Glider Pilot Ground School**  
7-9 pm, 33-422. Regular attendance expected.

**4064 Putting A Newspaper Together In 24 Hours**  
7 pm-12 midnight, Student Center 483

**3051 Introducing The New Testament**  
7:30 pm-9 pm, 66-319

**3075 Nanotechnology: The Molecular Machines Of Tomorrow**  
Nanotechnology And The Limits Of The Possible  
7:30 pm, 66-110

## Tues, Jan 12

**3031 Winter Kayaking and Canoeing**  
8-10 am, Alumni Pool

**52 Solid-Modeling For Architectural Design**  
9 am-12 noon, 9-551 (plus labs to be arranged). Regular attendance expected. Preregister by Dec 21.

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
TPP Program And Nuclear Engineering  
9-11 am, 5-231

**781 Introduction To A T.E.M. Facility And How To Operate A T.E.M.**  
9 am-1 pm, 13-1034. Regular attendance expected. Preregister by Jan 4.

**83 What's New In Structural Biology**  
9 am-12 noon, 66-160 Preregister by Jan 8.

**785 Machine Shop Course**  
9 am-12 noon, 13-2055. Regular attendance expected. Preregister until filled.

**851 Strategic Planning for Development Firms**  
9:30 am-4:30 pm, W31-301. Preregister by Dec 18. Key: 12 10.00 5

**5 Some Problems in Nonlinear Vibrations of Structures**  
10-11:30 am, 33-418

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**1252 Machine And Tool Making**  
10 am-12 noon, 44-022

**1780 Watching The Ring Of Truth**  
10 am-12 noon, E40-382

**1978 Plugging In To On-Line Research**  
10 am-12 noon, 14S-M48

**3061 What You Always Wanted To Know About Islam But Were Afraid To Ask: An MIT Islamic Society Open House.**  
10 am-3 pm, lobby 13

**4026 Assertiveness Training: Dealing with Power and Powerlessness**  
10 am-12 noon, 24-619. Preregister by Jan 4.

**355 Phase II Mathematical Writing**  
10:30 am-12:00 noon, 2-139

**2078 Yiddish**  
10:30 am-12:30 pm, W2a. Regular attendance expected. Preregister by Jan 4.

**3077 Ship Design Competition**  
10:30 am-12 noon, 5-428. Preregister by Dec 15.

**125 Practical EPR Spectroscopy**  
11 am-12 noon, 18-490

**460 Design Competition For OTEC Turbines**  
11 am-12 noon

**508 Physics Flicks**  
The Law Of Gravitation, An Example Of Physical Law  
11 am-12 noon, 4-339

**1424 Acne**  
11 am-12 noon, 5-134

**3026 Beginning Israeli Folk Dance**  
11 am-12:30 pm, 3-343

**1181 The Case Of The High-Speed Vector**  
12 noon-1:30 pm, 4-231

**1425 A New Look At The Epidemiology Of AIDS**  
12 noon-1 pm, 1-150

**1500 Practice Of Operations Research In Industry**  
12 noon-1 pm

**1729 Project Athena Minicourses**  
12 noon-1 pm, 11-124a

**1741 LaTeX: An Alternative To Scribe**  
LaTeX for Beginners  
12 noon-2 pm, 37-312

**2062 Practical Training For International Students**  
12 noon-1 pm, 37-252

**3058 John Paul II in the US**  
12 noon-1 pm, 2-132

**72 Introduction To Rowing**  
1-3 pm (B); MIT boathouse

**126 Basic Machine Shop**  
1-3 pm, Chemistry Machine Shop, 6-023

**212 How To Write A Course VI Undergraduate Thesis**  
1-2:30 pm, 34-101

**509 Topics In Modern Quantum Theory**  
1-2:30 pm, 2-390

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
Aeronautics And Astronautics  
1-3 pm, 5-231

**651 Management Of High-Technology Entrepreneurship**  
1-5 pm, 9-150 Regular attendance expected.

**1281 Just For The Hell Of It**  
1-2 pm, 26-414

**1426 Back Surgery**  
1-2 pm, 1-150

**1737 Take Me To Your Leader: Service Management In A Complicated Environment**  
1-2 pm, 11-124a

**2060 Chinese Calligraphy**  
1-3 pm, 1-203. Preregister by Jan 8.

**(new) Department of Economics Open House**  
1-4 pm, building E51

**1 Highlights Of Aeronautics And Astronautics**  
Automated Scheduling Systems For Airlines  
2-3 pm, 33-206

**288 Is Economics Science?**  
2-4 pm, 37-212

**397 Frontiers In Mechanical Engineering: IAP Lecture Series**  
Landslide Of Slurries: Do We Understand How A Concentrated Suspension Behaves?  
2-3 pm, 3-133

**501 Frontiers In Condensed Matter Physics**  
Pure Magnetic Traps For Atomic Hydrogen  
2 pm, 4-370

**1427 Sun And Its Effects On The Skin**  
2-3 pm, 5-134

**1728 Inside Athena: A Behind-The-Scenes Look Into How The Project Athena Workstation System Works**  
2-3:30 pm, 3-370

**1853 Life On The Street After The Crash: Views On Programmed Trading**  
2-3 pm, E40-153

**2028 Preparing Your Thesis: An Explanation Of Specifications For Thesis Preparation**  
2 pm, 4-145

**3083 Electric And Solar Cars**  
2 pm, 20C-221

**1285 Graphics At The LNS VAX Computing Facility**  
2:30 pm, 26-414. Regular attendance expected.

**413 The Soul Of An Old Machine**  
3-5 pm, 4-152.

**417 What Makes Music Tick?**  
3-5 pm, 20C-108

# Cafe 13

Come to IAP's own eating and gathering spot.  
Relax with friends and faculty or perform on "stage"  
(even see your professors do a few star turns).

LOBBY 13

MON-FRI, JAN 11-29, 11 am- 2 pm

(If you want to help organize it,  
Contact Yichen Mao, 621-0743, x5-8593.

**1102 Writing Workshop**  
3-5 pm, 24-619. Regular attendance expected.  
Preregister by Jan 8.

**1779 Challenges For Science Journalists**  
3-5 pm, E40-382

**1130 Lecture Series On Health Sciences And Technology**  
3:30-5 pm, E25-111

**690 Opportunities For MIT Graduates In Finance And Consulting**  
Management Consulting  
4pm, 4-153

**4009 Eyes On The Prize: A Documentary Film And Lecture Series On Civil Rights**  
4-6 pm, 4-231 or 4-163

**4020 After The Crash: What Is The State Of The US Economy?**  
4 pm, 153

**1200 Cellular Automata As Modeling Tools**  
5:15 pm, NE43-374

**11 Design Your Own Mars Base**  
5:30-6:30 pm, 33-206

**4003 MIT And Military Research: 1945-1988**  
Overview: How Does The Pentagon Affect Universities?  
6 pm, 8-205

**414 Let's Go To The BSO**  
7-9 pm, 4-160

**3002 Madrigal Singing**  
7-9 pm, 54-915. Regular attendance expected.  
Preregister by Jan 4.

**4008 Marriage Preparation**  
7-9 pm, 3-133

**4060 Fix The Freshmen Year**  
7-9 pm, 400 Student Center

**4064 Putting A Newspaper Together In 24 Hours**  
7 pm-12 midnight, Student Center 483

**12 Our Future In Space**  
The NASA Space Station  
7:30-9 pm, 35-225

**290 Young Love: A Film Series**  
Wuthering Heights  
7:30 pm, 2-390

**2063 Elements Of Indian Classical Music And Dance**  
Essentials Of North Indian Classical (Hindustani) Music  
7:30 pm, 9-150

**3062 The Baha'i Faith: What Is It?**  
Baha'i Consultation And Peacemaking  
7:30-9 pm, 10-280

**3075 Nanotechnology: The Molecular Machines Of Tomorrow**  
Nanotechnology And The Limits Of The Possible  
7:30 pm, 66-110

**4066 Chinese Movies**  
7:30-9:30 pm, 4W Lounge, 500 Memorial Drive

**4006 Einstein's Ideas On Peace And Disarmament And Their Relevance Today**  
8 pm, 8-205 (first meeting)

## Wed, Jan 13

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
Ocean Engineering  
9-11 am, 5-234

**781 Introduction To A.T.E.M. Facility And How To Operate A.T.E.M.**  
9 am-1 pm, 13-1034. Regular attendance expected. Preregister by Jan 4.

**785 Machine Shop Course**  
9 am-12 noon, 13-2055. Regular attendance expected. Preregister until filled.

**1251 Practical Electricity**  
9-11 am, N10 Preregister by Jan 6.

**534 Take Me To Japan**  
9:30 am, meet at North Station

**850 Statistics For Real Estate Analysis**  
9:30 am-12:30 pm, W31-301. Preregister by Dec 18.

**1950 Art Classes And Facilities At The Student Art Association**  
Chinese Calligraphy  
9:30-11 am, 425 Student Center

**2037 Dovetail Joinery**  
9:30 am, N51-160

**5 Some Problems In Nonlinear Vibrations Of Structures**  
10-11:30 am, 33-418

**354 Infinite Series**  
10 am-12:30 pm, 2-390

**503 Canonical Transformation Theory**  
10-11 am, 4-270. Regular attendance expected.

**610 The Writing Center's Individual Consultations**  
10 am-4 pm, 14N-317

**784 Introduction to the Polymer Central Facility**  
10-11:30 am, 13-1011

**975 The Concourse Hacking Workshop**  
10 am, Concourse Lounge. Regular attendance expected.

**1327 MIT Pranks And Hacks: A Mischievous History**  
10 am, N52-200

**1500 Nuclear Research Reactor Tour**  
10 am-12 noon, NW12-202. Preregister by day before the lecture.

**1780 Watching The Ring Of Truth**  
10 am-12 noon, E40-382

**1800 Human-Powered Submarine**  
10-11:30 am, 5-217

**2028 Preparing Your Thesis: An Explanation Of Specifications For Thesis Preparation**  
10 am, 4-145

**4065 Simple Acupressure Techniques For Headaches, Backaches**  
10 am-12 noon, 66-148. Preregister by Jan 4.

**2079 Beginning Hebrew**  
10:30 am-12:30 pm, W2a. Regular attendance expected. Preregister by Jan 4.

**125 Practical EPR Spectroscopy**  
11 am-12 noon, 18-490

**508 Physics Flicks**  
The Relation Of Mathematics To Physics  
11 am-12 noon, 4-339

**1328 New England Maritime History**  
11 am-12 noon, 5-234. Regular attendance expected.

**1950 Art Classes And Facilities At The Student Art Association**  
Chinese Brush Painting  
11 am-12:30 pm, 425 Student Center

**3 Considerations Of Human Evolution In Mathematics Pedagogy: A Demonstration**  
12 noon-2:30 pm, 35-225

**1182 Hyperfest: A HyperCard Show-and-Tell**  
12 noon-2 pm, 10-250

**1429 What Do Babies See?**  
12 noon-1 pm, 5-134

**1729 Project Athena Minicourses**  
12 noon-1 pm, 11-124a

**3052 What Do Mormons Believe?**  
12 noon-1 pm, 66-148

**4019 What Do Men Want?**  
12 noon-2 pm, 4-153

**1551 Management Skills For Effective Leadership**  
12:30-4:30 pm, 37-252

**33 Introduction To Applied Biological Sciences**  
1-3:30 pm, 16-318

**126 Basic Machine Shop**  
1-3 pm, Chemistry Machine Shop, 6-023

**211 How To Find A Course VI Undergraduate Thesis**  
1-3 pm, 34-101

**589 Microcomputer-Based Data Collection For Planning Research**  
1-4 pm, 9-536

**612 Workshop On Engineering Writing: A Review For Graduate Students**  
Open Session  
1-3 pm, 5-234

**651 Management Of High-Technology Entrepreneurship**  
1-5 pm, 9-150 Regular attendance expected.

**953 Children's Introduction To The Media Lab**  
1-3 pm, E15, Media Lab lobby Preregister by Jan 4.

**975 The Concourse Hacking Workshop**  
1 pm, Concourse Lounge. Regular attendance expected.

**1430 Childbirth Practices, The Whats And The Whys**  
1-2:30 pm, 1-150

**1733 Berkeley UNIX On 1000 Workstations: Athena Changes To 4.3BSD**  
1-2 pm, 11-124a

**2059 Chinese Chess**  
1-3 pm, E51-032

**354 Infinite Series**  
1:30-3:30 pm, 2-390

**853 How To Purchase Construction Services**  
1:30-4:30 pm, W31-301. Preregister by Dec 18.

**1377 The LEGO/Logo Creativity Workshop**  
1:30-4:30 pm, E15-305 (Media Lab). Preregister by Jan 11.

**3055 The New Age Movement: Underlying Cause of World Turmoil Today**  
1:30-3 pm, 8-119Key: 13 14.00 1

**1 Highlights Of Aeronautics And Astronautics**  
History Of Rockets  
2-3 pm, 33-206

**106 The Consulting Business**  
2-4 pm, 66-110

**175 Special Lectures In Earth And Planetary Sciences**  
Finding The Oceanic Circulation From Space  
2 pm, 54-915

**287 Lectures In Philosophy**  
Framers' Intent And Other Styles Of Constitutional Interpretation  
2-4 pm, 37-212

**397 Frontiers In Mechanical Engineering: IAP Lecture Series**  
The Quest For The Least Wear  
2-3 pm, 3-133

**507 Frontiers In Astrophysics**  
Ripples In The Universe  
2 pm, 4-370

**1553 Your One And Only: A Survival Guide For Relationships**  
2-3:30 pm, 1-132

**2031 The Reserve Packet And Automation**  
2 pm, Dewey Library

**1431 Sexually Transmitted Diseases**  
2:30-3:30 pm, 1-150

**157 Engineering Properties Of Offshore Arctic Silts**  
3-5 pm, 1-350

**413 The Soul Of An Old Machine**  
3-5 pm, 4-152

**417 What Makes Music Tick?**  
3-5 pm, 20C-108

**1102 Writing Workshop**  
3-5 pm, 24-619. Regular attendance expected.  
Preregister by Jan 8.

**1779 Challenges For Science Journalists**  
3-5 pm, E40-382

**1802 Behind The Scenes At The New England Aquarium**  
3 pm, New England Aquarium. Preregister by Jan 11.

**2027 Patents: Where And How To Begin**  
3 pm, Map Room, Science Library

**180 A Short Course In Nonlinear Waves And Vortices**  
3:30-5 pm, 54-1411

**1280 Current Research In Nuclear And Particle Physics At The MIT Lab For Nuclear Science**  
Search For The Quark-Gluon Plasma With Relativistic Heavy Ions At Brookhaven National Lab  
3:30 pm, 26-414

**7 Instrument Pilot Ground School**  
4-6 pm, 33-418. Regular attendance expected.

**8 Airplane Private Pilot Ground School**  
4-6 pm, 33-419. Regular attendance expected.

**51 Renaissance Gardens In Europe: Analysis And Model-Making For Use In Contemporary Design**  
4-6:30 pm, 7-437. Regular attendance expected.  
Preregister by Dec 21.

**363 The Big Bang: Fact Or Fancy**  
4-5 pm, 2-190

**4009 Eyes On The Prize: A Documentary Film And Lecture Series On Civil Rights**  
4-6 pm, 4-231 or 4-163

**4027 Ancient Africa**  
4-5 pm, location to be arranged

**1327 MIT Pranks And Hacks: A Mischievous History**  
5:30 pm, N52-200

**2085 Mandarin (Chinese) Conversation Table**  
6-7 pm. Regular attendance expected.

**4003 MIT And Military Research: 1945-1988**  
MIT And The DOD: World War II To Vietnam War Riots  
6 pm, 8-205

**1875 Stargazing Party**  
7-9 pm, 54-511. Preregister by Jan 11.

**2029 Glider Pilot Ground School**  
7-9 pm, 33-422. Regular attendance expected.

**3037 Environmental Maladies Of Humans**  
7 pm, 2-390

**4035 Getting The Job You Want In Industry: A Women's Guerrilla Guide To The Pin-Striped World**  
7-9:30 pm, 8-105

**3032 Roller Skating**  
7:30-10 pm, du Pont gym

**3075 Nanotechnology: The Molecular Machines Of Tomorrow**  
Nanotechnology And The Limits Of The Possible  
7:30 pm, 66-110

**4029 Asian American Issues Seminars**  
7:30-9 pm, 439 Student Center, CSC Library

**412 Concert Band Tour '88**  
8-10 pm, Kresge. Regular attendance expected.  
Preregister by Dec 12.

**675 Application Of Algorithmic Complexity To Problems In AI**  
8pm, eighth floor playroom, NE-43

## New Activities

### A Postmodern World And Religion

Dr. H. Frederick Reisz, Jr.  
Mon, Jan 4, 11, and 25, 4 pm, W2a library

Are we in a "postmodern" world, and what might this mean for the Christian faith? Definition, views of God, and science and ethics. Sponsor: Lutheran Campus Ministry. Contact: Dr. Reisz, W2a, x3-2325.

### Student Combinatorics Seminar

Tom Roby  
Tues, Thurs, Jan 5-26, 12:30-2 pm, 2-151

Talks on papers in combinatorics. Sponsor/contact: Vic Reiner, 2-088, x3-7579.

### Biomechanics: How The Human Motor System Works And How To Fix It When It Doesn't

Prof. Robert W. Mann  
Tues, Thurs, Jan 5-26, 1-2 pm, 3-133

Presentations and demonstrations of research on human skeletal-joint-muscle system in health and disease. Designs in software and hardware to rehabilitate humans with musculoskeletal problems included. Sponsor: Prof. Robert W. Mann. Contact: Marie Stuppard, 3-144, x3-6256 (technical questions: Prof. Mann, x3-2220).

### Magic For Beginners

H. Frederick Reisz, Jr.  
Tues, Jan 5, 12, 19, 2-3:15 pm, W2a basement

Card magic, card-and-rope magic, and magic of esp and coins. Demos and teaching by professional magician. Sponsor: Lutheran Campus Ministry. Contact: Rev. Fred Reisz, x3-2325.

### Magic: Intermediate Or Advanced

H. Frederick Reisz, Jr.  
Tues, Jan 5, 12, 19, 3:30-4:30 pm, W2a basement

Playing-card magic workshop for persons with beginning-level experience. Techniques and tricks: Shuffles and lifts, counts and cuts, and forces and switches. Sponsor: Lutheran Campus Ministry. Contact: Fred Reisz, W2a, x3-2325.

### Wu Tang Martial Arts

Jeff Cohen  
Tues, Thurs, 8-10 pm, Sat, 9 am-12 noon, Athletic Center

Beginners learn long fist, traditional Chinese martial art. Advanced students study weapons and throwing techniques. Sponsor: Jeff Cohen. Contact: Kris Kreutzer, Ashdown 415A, x5-9787.

### Parallel Processing In Computational Fluid Dynamics

Prof. Anthony Patera and Daniel Dewey  
Mon, Jan 11, 1-4 pm, Fluids Lab. computer room, 3-243.

In this open house two promising parallel computer architectures will be interactively demonstrated and discussed: Intel Vector Hypercube and our own prototype Geometry-Defining Processors. Sponsor: Prof. Patera and Daniel Dewey. Contact: Prof. Patera, 3-264, x3-8122.

### Department of Economics Open House

Tues, 1-4 pm, building E51

### Our Future In Space

NASA Space Station  
Robert Seamans  
Tues, Jan 12, 7:30-9 pm, 35-225  
Report by the chairman of the National Research Council Study on the space station. Sponsor: Bruce Mackenzie. Contact: Ted Theodosopoulos, W20-445, x3-8897.

### Yoga Massage And Body Work Class

William T. Kennedy  
Tues-Thurs, Jan 12-14, 19-21, 8-10 pm,  
Registration: Jan 4, 10:30 am, Rockwell.

Training in partner techniques of relaxation massage, acupressure, shiatsu, vital energy system. For credit. Sponsor: Athletics Department. Contact: Clare, W33-125, x3-4291.

### Archaeology As An Avocation

Dr. Donald Keller  
Fri, Jan 8-29, 5:30-6:30 pm

History and techniques, archaeology as a career and avocation, pitfalls of amateur archaeology. Sponsor/contact: Dr. Keller, 623-0361, x3-5296.

### Technology And Development

Daljit Singh  
Thurs, Jan 14, 1:30-4 pm, E51-140

A World Bank professional will give agency's view of role of technology in economic development in third world countries. Sponsor/contact: Kaljit Singh, 10-007, x3-2011.

### Making Miniature Furniture

Reid Simmons  
Jan 12, 7-9 pm, Jan 19, 20, 7-10 pm, NE43-773

Introduction to world of miniature (doll house) furniture. Creativity and patience only needed. Construct a miniature. Cost: \$10 for kit, which can be ordered at first meeting. Sponsor: contact: Reid Simmons, 734-7656.

### Art Gallery Tour

Judith Chernoff, Jacqueline Villars  
Thurs, Jan 14, 10 am-12 noon, meet at Francesca Anderson Gallery, 8 Newbury St., Boston

Tour of five Newbury Street galleries: Francesca Anderson Gallery, Barbara Krakow, Wenniger Arts, Pucker-Safrai, and Contemporary Arts and Crafts. Sponsor: MIT Women's League. Contact: Judith Chernoff, 232-8256.

### Introduction to Jewish Mysticism

Rabbi Shmuel Posner  
Thurs, Jan 14, 8 pm, 5-134

Focus on the Chassidic understanding of Kabbalah. Special emphasis on the mystical powers of the Hebrew alphabet. Sponsor: Chabad Jewish Student Organization. Contact: Gary Steinfeld, 262-1322, 424-1190.

## Changes

### 200 Latin American Debt: Today's Policy Options

Mon, Jan 4, 2-4 pm, E51-329 (location arranged)

### 392 Solar Racing Car

Mon, Jan 4, 6 pm, 3-466 (schedule arranged)

### 3055 The New Age Movement: Underlying Cause of World Turmoil Today

Mon, Jan 4, 11, 25, Wed, Jan 6, 13, 20, 27,  
1:30-3 pm, 8-119 (Jan 25 date added)

### 4035 Getting the Job You Want in the Pin-striped World

Wed, Jan 6-27, 7-9:30 pm, 8-105 (correct location)

### 202 Deunionization In The US

Mon, Jan 11, 2-4 pm, E51-136 (location arranged)

### 205 Stochastic Calculus and Macroeconomics

Jan 12, 14, 2-3 pm, E51-302 (location arranged)

### 201 Deregulation and Privatization Wed, Jan 13, 2-4 pm, E51-136 (location arranged)

### 1327 MIT Pranks and Hacks: A Mischievous History

Wed, Jan 13, 10 am and 5:30 pm, N52-200 (time and room change)

### 1428 Stress and Intimacy

Wed, Jan 13, 11 am-12 noon, 1-150 (date change)

### 12 Our Future in Space

Thurs, Jan 14, 7-9:30 pm, 35-225 (date change)

### 85 Biochemistry and Molecular Biology of Blood Vessel Wall Disease

Fri, Jan 15, 10-11:30 am, 66-160 (date change)

### 780 Scanning Electron Microscopy

Tues-Thurs, Jan 26-28, 2-4 pm, 13-2101 (date change)

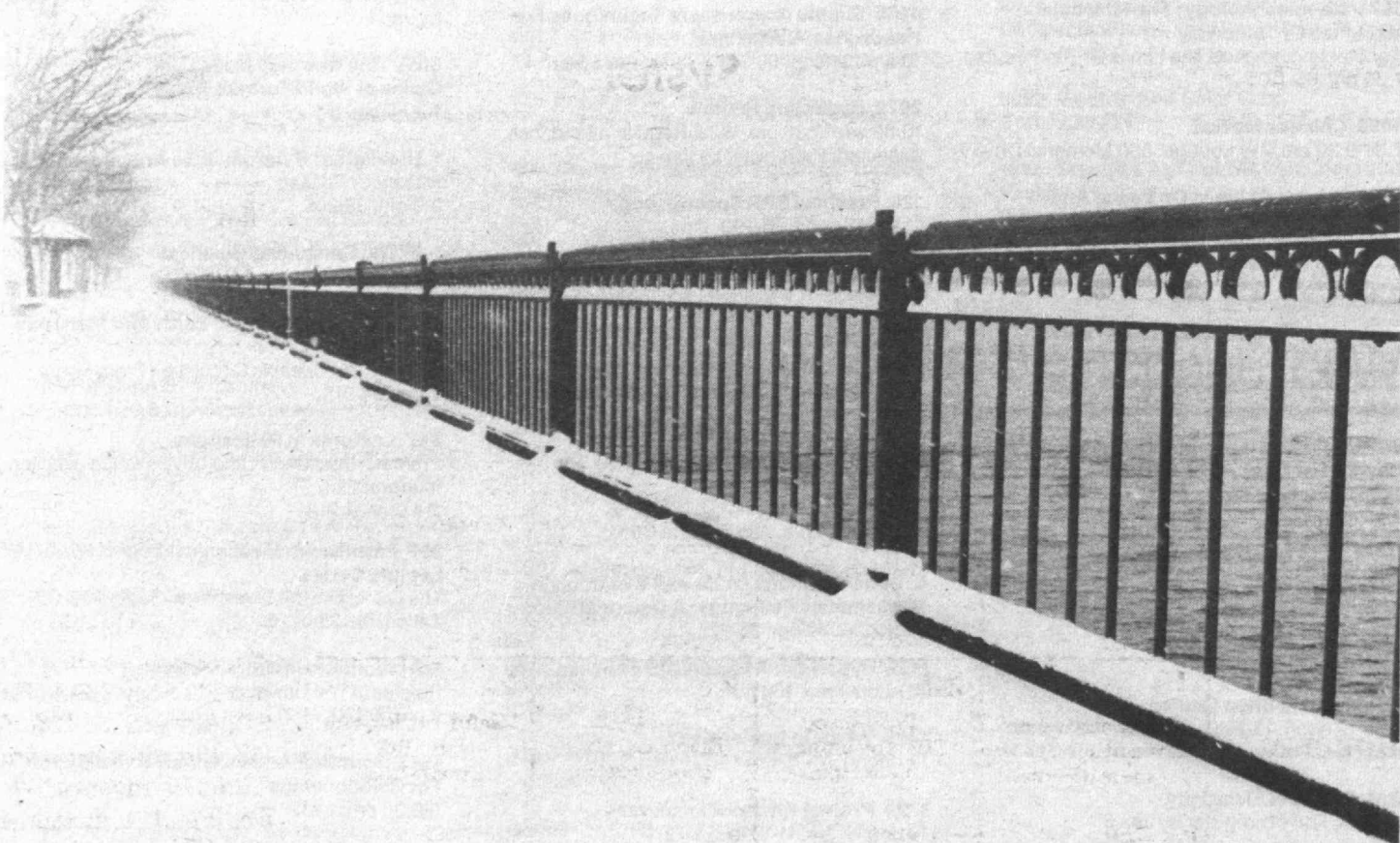
## Cancellations

### 4014 Technology And The Free Market: How Rational Is A Rational Capitalist.

12 Our Future in Space  
NCOS

### 3025 Acupressure Points to Relieve Stress

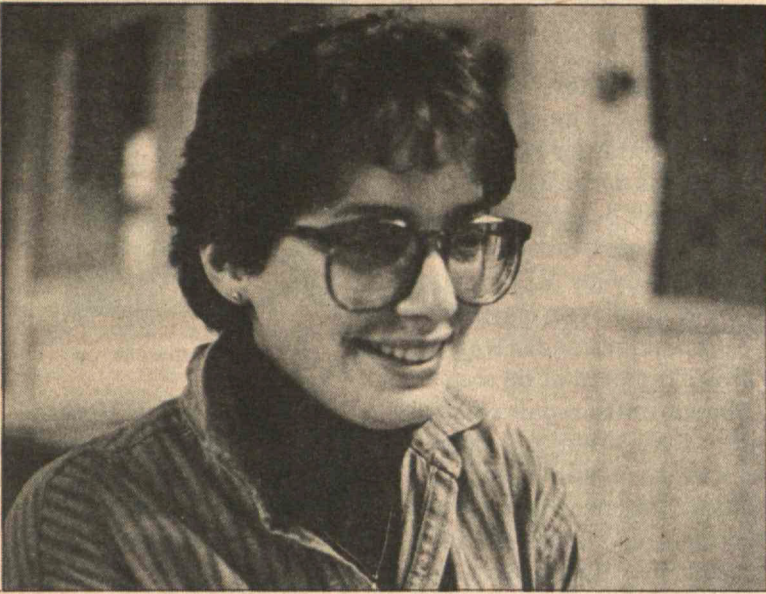
4011 Growth Pains  
Towards a Political Economy of Energy



— Photo by Donna Coveney

## Meet Lorrie LeJeune

Susan B. Jones



Lorrie LeJeune is no ordinary typesetter. Nor is the machine that she operates, the new Linotronic 300 in MIT Graphic Arts Service (see the accompanying article about the Linotronic on this page). LeJeune knows a lot about using computers to create technical illustrations and she looks forward to learning about electronic publishing, with the Linotronic as her workhorse.

In her first weeks at Graphic Arts, LeJeune has become better acquainted with the Linotronic and with Macintosh graphics software. She's installed 13 styles of the Helvetica typeface, for example, and learned her way around Adobe *Illustrator*, an art production package.

LeJeune first used a microcomputer to create graphics as a molecular biologist at Collaborative Research, Inc. in Bedford. As she began spending more time doing technical illustrations for herself and other scientists, her skill and interest grew.

She became especially adept at rendering genetic maps.

At first LeJeune drew these illustrations by hand. As her following grew, she convinced her employers to buy her a Macintosh. She then learned to create technical drawings using *MacDraw*, *CricketDraw*, and *SuperPaint*. Last month, one of her illustrations graced the cover of *Cell*, a leading microbiology journal.

LeJeune will be right in the thick of things as Graphic Arts develops its Linotronic Service Bureau. If she has time, she hopes to teach computer graphics to the technical illustrators at Graphic Arts.

In addition to being an electronic publishing aficionado, LeJeune enjoys the outdoors, horseback riding, and the mandolin, which she's been playing since hearing one two years ago at a Renaissance Faire. She also takes Museum School art courses and has long been interested in drawing and printmaking, especially the lithography process. ●

## Graphic Arts Offers Linotronic Service

Janet Littel • Administrative Systems Development

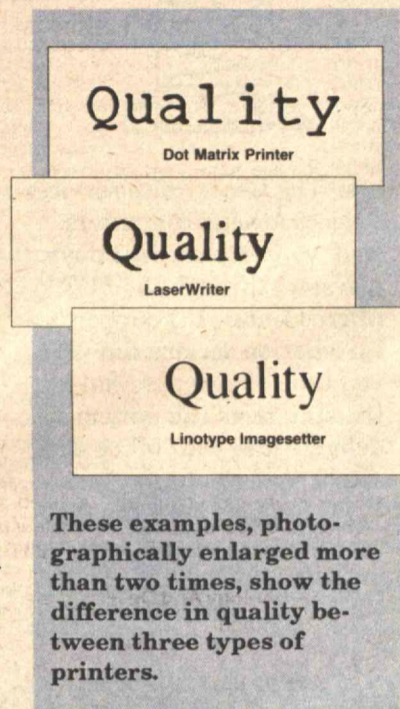
Campus desktop publishers, take note. Graphic Arts Services is the proud owner of a Linotronic 300 (L300) typesetter. The L300 can print any PostScript file, including files from a Macintosh or IBM PC, at typeset resolution — 1270 or 2540 dots per inch. Most laser printers cover the page at 300 or 600 dots per inch.

Jim Coleman, Director of Graphic Arts, plans to start a Linotronic Service Bureau in Building N42, with services ranging from disk conversion to proofreading. Right now, you can bring in a disk of formatted text files by noon and collect camera-ready copy by the end of the next working day.

Graphic Arts charges \$9.25 per page for the first 5 pages of Linotronic output (text only), with stepped discounts for larger print jobs. Pages with graphics will cost more.

"Our Linotronic service is in its fledgling stage," states Coleman. "We are still making pricing and policy decisions and learning what the L300 can do. We're very excited about electronic publishing, and about what we can offer the community. With so many computers and

publications on campus, we felt the time was right to give MIT desktop publishers a high-quality printing option."



The Linotronic 300, from Linotype, uses laser light to produce typeset-quality output on photographic paper. The machine can seamlessly combine text and graphics on a single page. No cutting and pasting needs to be done, and no typesetting codes need to be added. The L300 can print pages up to tabloid size (11"x17").

The Linotronic is the first typesetter on the market to accept disks from Macs or other computers that create files in PostScript, a standard page-description language. For IBM PC users, Graphic Arts offers a Daynafile converter to translate MS/DOS disks into Macintosh-readable disks.

Graphic Arts uses a Mac II as the front end for its L300. If you want page proofs before running your job on the Linotronic, Graphic Arts can print them for you on their LaserWriter, at 50¢ per page.

Graphic Arts' type library for the L300 includes 14 Mergenthaler typefaces, with more on order. Mergenthaler typefaces, now licensed by Adobe Systems, are patented originals of very high quality.

The L300's PostScript design makes it compatible with emerging technologies in prepress production. Apple, Linotype, Microsoft, Aldus (creator of *PageMaker*), and Adobe (creator of PostScript and *Illustrator*) are among the vendors committed to producing PostScript-compatible applications.

For more on Graphic Arts' Linotronic service, call Al Paone at x3-4765. ●

## Calling All Bulletin Boards

If you operate a dial-in computer bulletin board at MIT or a bulletin board associated with MIT, tell Information Systems about your service(s).

IS has received many requests for instructions on

how to access electronic bulletin boards at MIT. We can let these interested individuals know how to get access to your bulletin board (if it's public) and how to reach you if they have questions. In the case of restricted bulletin

boards, we'll give a contact name only to those who ask specifically about a supported topic.

To get the word out about your electronic bulletin board, call IS consultant Art Anger at x3-7044. ●

## Spend IAP With Information Systems

### JANUARY

| M   | T  | W   | Th   | F  |
|---|--|---|--|--|
| 4<br>IBM OS/2<br>noon-1pm<br>Rm 4-231   | 5<br>Campus Network<br>noon-1:30pm<br>Rm 10-250                        | 6<br>MSWord for Mac<br>Users Group<br>Rm 4-231 noon-1pm<br>Joy of VAX<br>Rm E25-401 2-4pm | 7<br>MORE and<br>PowerPoint<br>noon-1pm<br>Rm 10-250             | 8 Things to Try<br>Before Throwing<br>Your Computer Out<br>the Window<br>noon-1:30pm<br>Rm 4-231 |
| 11<br>Intro to<br>Supercomputing<br>noon-1:30pm<br>Rm 4-231                                       | 12<br>Vectorization<br>noon-1:30pm<br>Rm 4-231                         | 13<br>HyperCard<br>Show & Tell<br>noon-2pm<br>Rm 10-250                                   | 14<br>ISDN on Trial<br>10am-noon or<br>1:30pm-3:30pm<br>Rm 4-231 | 15<br>Bargains in DOS<br>Utilities<br>noon-1pm<br>Rm 4-231                                       |
| 18<br>HOLIDAY   | 19<br>Constructing an<br>Information System<br>noon-1:30pm<br>Rm 4-231 | 20<br>Producing<br>Effective Memos<br>noon-1pm<br>Rm 4-231                                | 21<br>Network<br>Electronic Mail<br>11am-12:30pm<br>Rm 4-231     | 22<br>Useful Utilities for<br>the PC<br>noon-1pm<br>Rm 4-231                                     |
| 25 VMS Made Easy<br>Rm 1-390 10am-noon<br>ReadySetGo! and<br>ImageStudio<br>noon-1:30<br>Rm 4-231 | 26<br>Hebrew<br>Language Word<br>Processing<br>noon-1pm<br>Rm 4-231    | 27<br>Computer to Com-<br>puter<br>Connections<br>noon-1pm<br>Rm 4-231                    | 28   | 29   |

Free IS noontime seminars on computer topics are now in swing. Check the calendar at left for dates and locations.

This winter IS will also offer a series of courses and hands-on training sessions, listed below.

Introductory training classes are scheduled for both the Macintosh (Jan 14) and IBM PC (Jan 19).

Other IBM PC sessions include Introductory DOS (Jan 21), Advanced DOS (Feb 17), Introductory 1-2-3 (Jan 26& 27), Advanced 1-2-3 (Feb 10& 11), Introductory *WordPerfect* (Jan 25), Advanced *WordPerfect* (Feb 16), Introduction to *Word* (March 16), and *R:Base System V* (Feb 24&25).

Macintosh classes include introductions to Microsoft *Word* (Jan 28), and *Excel* (Feb 3&4), and Advanced *Excel* (March 17).

IS is also offering a five-session course on the Fundamentals of CMS (starting Jan 11) and a three-evening hands-on workshop on the C programming language (Feb 9, 16, 23).

New this quarter is Administrative Work Station (AWS) training, including introductory courses on the Mac SE and the IBM PS/2 systems. These will be repeated monthly. AWS business modules on Electronic Mail, Using *MSWord* to Create Form Letters, and Using *HyperCard* to Manage Your Office are also planned.

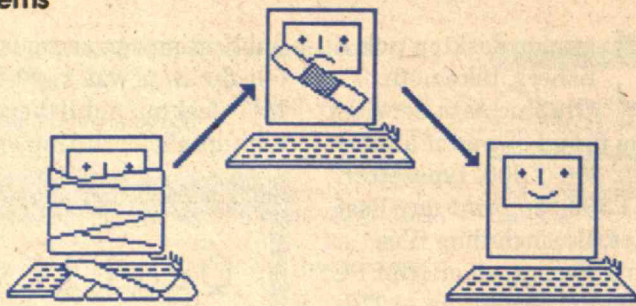
For complete descriptions, including dates, times, locations, and details on how to enroll, see the Winter '88 catalog with the bright red cover. Pick up a copy in Room 11-314 or the Microcomputer Center, Room 11-209. ●

# Repair to PC Support When Your Micro Breaks Down

Carol LeClair • Operations and Systems

Computer stores are scarcer than they once were, and that can limit options when it comes to microcomputer repair. Where would you go if your computer called it quits? Fortunately for owners of Apple and IBM micros, there's a service center right on campus. MIT's PC Support Center is located in W91-103.

PC Support Center staff are trained and licensed by Apple and IBM to provide installation, diagnostic, and repair services to the MIT community. The Center handles most IBM PCs and PC printers (call about your model), as well as Apple Macintosh computers and print-



ers. The Center also services Project Athena computers.

If your department buys a system through the MIT Micro Center, PC Support's installation service can save you time. For a nominal fee, the staff tests the system, delivers it to your office and sets it up for you.

PC Support staff run diagnostic tests and make repairs in their W91 facility. They

have the right tools and anti-static flooring to ensure safe installation of boards and disk drive upgrades.

Because it's tough to lose your micro, PC Support tries to get it back to you by the next business day, if all needed parts are in stock. The Center is open from 8am to 10pm, Monday - Friday.

Free pickup and delivery are available for department-

owned computers. Privately owned micros must be taken to the Center for repair. Service is *not* restricted to computers bought at the MIT Micro Center, but you'll need to present your MIT ID when you drop off your machine.

Computers under warranty are repaired at no cost. Nonwarranty repair rates are very reasonable, and estimates are available on request. Payment is due when you pick up your machine.

So if your disk drive's noisy or your printer's on the blink, don't despair. Call the PC Support Center at x3-0815. Their prompt, efficient service can save your day. ●

## Consultant's Hotline



Consultant's Hotline features some of the questions heard most often by Micro Center consultants. If you have micro questions, call x3-0001 or stop by the Micro Center, Room 11-209.

**Q:** How can I find a file on my IBM PC's hard disk when I've forgotten what directory I put it in?

**A:** You can use WHEREIS, a public-domain utility, to search your entire disk and list all directories containing the files you've specified. This utility lets you employ wild card characters, such as asterisks, in the file specifier. For example, if you give the command WHEREIS KERM\*, the utility will search for all files beginning with "KERM."

You can find out more about WHEREIS and other public-domain PC software at the IS noontime seminar, "Bargains in DOS Utilities," on January 15, Room 4-231. A second seminar, "Useful Utilities for the IBM PC," will focus on commercial products. See the calendar on page 3 for time and place.

If you can't make the seminars, call the Micro Center and ask about their Wednesday afternoon user group/public domain program.

**Q:** When I use Word 3.01 on my Mac, more fonts are listed in the Format Character dialog box than in the Font menu. How can I expand the Font menu list?

**A:** To add a font name to the Font menu, hold down the Option and ⌘ keys and press the + key (on the keyboard, not on the keypad). The arrow cursor changes to a big +. Open the Format Character dialog box, select a font, then click on OK.

The Font menu has a limit of 25 names, so remove unneeded fonts if the list gets too long.

To remove a name from the Font menu, hold the Option and ⌘ keys and press the - key (on the keyboard). The cursor becomes a large minus sign; pull down the Font menu and click on the name to be removed. ●

## Can We Talk? RedRyder for the Macintosh

Robert Zaret • Information Services

This article may seem familiar to you. Some of the material was covered in an article published here in October on *ProComm* for the IBM PC. - ed.

**R**edRyder lets your Macintosh communicate with other computers, whether mainframe, mini, or micro. Like most communications programs, RedRyder offers terminal emulation, file transfer, and other features. Because of its flexibility, reliability, and price, RedRyder has been selected as the communications package for the Macintosh Administrative Work Station.

### Terminal Emulation

To communicate with a host computer (a mainframe or mini), your micro must emulate a terminal supported by that host. Many hosts (including DEC minis and many IBM mainframes) support DEC VT100 terminals, and RedRyder's VT100 emulation is very good.

To communicate with electronic bulletin boards or other micros, you probably won't need to choose a terminal emulation type. For such connections, almost any terminal type will work.

### File Transfer

Transferring files from one computer to another requires cooperation between the two. The rules guiding such transfers are called file transfer protocols.

RedRyder supports four file transfer protocols: plain-text, Kermit, XMODEM, and YMODEM.

Plain-text (or ASCII) transfer is so relaxed that it's generally not even considered a protocol. You can use this type of transfer only for plain-text files (no special printer codes, no ready-to-run programs). Since plain-text transfer does not include error-checking, you won't want to use it to send files that include important data.

You can transfer plain-text files, files with special formatting, and binary files (e.g., ready-to-run programs) with Kermit, XMODEM or YMODEM. These protocols include mechanisms to reduce the chance of errors caused by background noises on your telephone line.

Kermit is found on academic mainframes, including MITVMA on campus. Electronic bulletin boards often use the XMODEM protocol.

### Other Features

RedRyder lets you create a customized phone directory. When you select a directory entry, the program sets the correct parameters and uses your modem to dial. RedRyder also includes a primitive host facility so that you can call and use your computer from a remote location.

The program's powerful macro language lets you automate procedures. For example, IS has created RedRyder programs for automatically connecting to MITVMA. To get a copy of the program that works for your system, contact IS consultant Robert Zaret at x3-7725.

### Commercial and Shareware Versions

Version 10.3 of RedRyder is a commercial program; you can buy it for \$75 at the MIT Microcomputer Center.

Earlier versions of RedRyder are shareware and can be obtained from user groups and bulletin boards. If you use a shareware version, you should send \$40 to RedRyder author Scott Watson. However, be aware that Watson is encouraging users to buy the commercial version. ●

## New Services and Discounts at VRC

New prices for VAXstations, including a discount of up to 50% on the VS3000 series of VAX equipment, are now in effect. Also newly added to the list of equipment available through the VRC is DEC's LN03R laser printer. For prices on all VAXstation equipment, pick up the latest *MIT VAXstation University Program Price List* at the Microcomputer Center, Room 11-209, or the VAX Resource Center, Room 10-256.

If you are not yet a subscriber to the Education Software Library, you can sign up for a half-year subscription that runs from January 1 to June 30, 1988. The Software Library gives subscribers access to about 30 VAX software products for VMS and Ultrix. Fees for half-year subscriptions are:

| System          | Fee    |
|-----------------|--------|
| MicroVAX II     | \$1300 |
| MicroVAX 2000   | 1050   |
| VAXstation II   | 550    |
| VAXstation 2000 | 450    |

New VRC services include dial-up, computer-aided instruction on VMS, covering the VMS EDT editor, Utilities and Commands, and VMS System Management. An electronic bulletin board for MIT VAX users is in the test phase, and should be ready for public use by the end of IAP.

These and other services of the VAX Resource Center will be reviewed by Shava Nerad, coordinator, at the January 6 VAXSyM meeting, from 2-4pm, in Room E25-202 (note different location from usual VAXSyM meetings). ●

MIT Information Systems

### Microcomputer Center

Room 11-209  
Hours: Monday-Friday, 10am-4pm

Software Information: 253-6325  
Hardware Information: 253-7686  
Technical Questions: 253-0001

#### Waiting to Place an Order for an IBM PS/2?

The Micro Center is now able to accept personal orders for IBM PS/2 computers. Under our new agreement with IBM, we take your order and forward it directly to IBM for fulfillment. Because we cannot sell the IBM computers in our inventory to individuals, there will be a wait for delivery. However, this new agreement does offer personal purchasers a wide variety of options and a generous educational discount (40% off list for most items).

**Multifinder**, Apple's new system software upgrade, is now available at the Micro Center. Bring \$4 or two 800k disks to trade for your copy.

Ability to prioritize work effectively essential. Experience with wordprocessing desirable, and/or willingness to learn essential. Familiarity with microcomputers and operating systems (UNIX, MS-DOS) helpful. Department will consider applicants at the Administrative Secretary level depending on experience. B87-562

**SR. SECRETARY**, Civil Engineering, to support one Research Associate and one faculty member. Will use IBM PC to type correspondence, monthly reports, manuscripts, and class notes; maintain files; answer telephones; photocopy; handle large mailings; maintain accounts; coordinate meetings; and perform other related duties as assigned. Requirements: a minimum of 2.5 years of direct/related experience. Wordprocessing experience necessary. Knowledge of IBM PC desirable. Hours negotiable. B87-560

**SR. STAFF ASSISTANT**, Artificial Intelligence Laboratory, to perform general secretarial duties in support of 3 faculty members, one of whom is Associate Director of the Laboratory. Responsibilities include typing, proofreading, and editing; answering telephones; maintaining files on a computer system; handling mail and correspondence; initiating correspondence; arranging appointments, meetings, seminars, and site visits; assisting in all stages of proposal preparation; photocopying; library searches; ordering supplies and equipment; making complex travel arrangements; and occasionally assisting with orientation and training of new support staff. Requirements: high school diploma (or equivalent) and some college background may count toward experience. A minimum of 2.5 years of direct/related experience. Must be willing to learn computer text-editing and text-typesetting. Should enjoy working as part of a team both within the supervisors' research groups and within the broader setting of the Laboratory. Must work well under pressure and with little supervision. Good writing and interpersonal skills a must. Flexibility important. B87-557

**SR. SECRETARY**, Chemistry, to perform secretarial duties for two chemistry professors. Duties include typing correspondence, technical manuscripts, grant proposals, and course material; answering telephones; arranging appointments; making travel arrangements; monitoring research accounts; and filing. Requirements: minimum of 2.5 years of direct/related experience. Knowledge of Macintosh computer and/or willingness to learn essential. Excellent technical typing skills important. Accounting experience and familiarity with MIT highly desirable. Must be able to set priorities and organize work without detailed supervision. B87-552

**ACCOUNTING ASSISTANT**, Comptroller's Accounting Office, to prepare or verify R.P.E. and R.P.S.M. termination and retirement forms. Will compute or verify cost exclusion ratios; assist in typing and wordprocessing; file; check stuffing; data entry material; assist with all aspects of dental, medical, and life insurance; learn all aspects of the R.P.E. - both active and payroll systems as backup individual; and review all typed pension forms for accuracy. Requirements: a minimum of 4.5 years of direct/related experience. Accuracy with figures important. Good communication skills necessary. Familiarity with IBM terminals as well as typing and/or wordprocessing skills essential. B87-551

**SR. SECRETARY**, Technology Licensing Office, to share secretarial functions with two other secretaries in the office working for the Director and seven (7) Technology Licensing Officers. Duties include typing; filing; photocopying; and some answering of incoming calls. Requirements: good organizational and communicational skills important. A minimum of 2.5 years of direct/related experience and typing (55 wpm) essential. Wordprocessing on PC, will train if necessary. B87-550

**SR. SECRETARY**, Sloan School of Management, take-charge person needed to coordinate busy office for three Operations Research/Statistics professors in the Sloan School of Management. This active group needs a well-organized person to coordinate course preparation, type and edit technical manuscripts, and help administer research projects. The academic research of the professors is stimulated by such passions as fear of flying, fear of crime, the search for oil and gas deposits, and the desire to expose "red herrings" in a series of statistical clues. State-of-the-art software and personal computers make this job ideal for someone with a knack for working with computers, or someone wishing further training. Prior word-processing experience preferred, but training will be provided as needed. This job includes extensive technical typing; experience is preferred but training will be provided. Requirements: a minimum of 2.5 years of secretarial experience. Excellent typing and organizational skills important. Ability to handle several tasks simultaneously. Knowledge of MIT a plus. B87-320

**SR. SECRETARY**, Electrical Engineering and Computer Science, to provide direct secretarial support to the Director and Assistant to the Director of the Microsystems Technology Laboratories and general support to MTL operations under the supervision of the Assistant to the Director. Will type, edit, and proofread memos, correspondence, and technical reports; will act as academic subject secretary, preparing course materials and acting as an information source for

students; handle telephones, mail, travel, and supplies, etc. Requirements: high school graduate or equivalent necessary and a minimum of 2.5 years of direct/related experience. Post high school education will count toward experience. Accurate typing skills (50-60 wpm), technical typing desirable. Familiarity with PC wordprocessing and spreadsheet programs preferred. Close attention to detail and ability to tolerate interruption and handle a variety of tasks simultaneously a must. Extensive interaction with students, faculty, staff, and outside contacts at all organizational levels requires a pleasant and poised telephone and office manner. B87-546

**SR. SECRETARY**, Industrial Liaison Program, to provide intelligent and willing support for two Liaison Officers within the Chemicals and Biology Group. Responsibilities involve extensive telephone and personal contact with individuals from ILP corporate members from the U.S., Europe, Japan, and MIT faculty and staff; read, sort, and review for priority and respond to incoming mail; initiate response for officer's approval; type, edit, and proofread (via a DEC 11/780 computer system) and reproduce correspondence and reports; answer telephones for supervising officers and other members of a 6 officer/3 secretary group; provide information to outside groups; use computer system, input and retrieve data and reports on company/MIT interactions and MIT research projects and publications; maintain and establish files and filing system; handle moderately complex scheduling and logistics for appointments and seminars; make travel arrangements, obtain travel advances, prepare itineraries, provide backup materials, and prepare expense reports; and support all office activities. Requirements: a minimum of 2.5 years of direct/related experience. Must have excellent secretarial and organizational skills. Team spirit is a must. Experience with and/or willingness to learn DEC VAX 11/780 computer system necessary. Good interpersonal skills important. A positive and professional attitude, flexibility, and maturity essential. Must use good judgment in setting priorities. Should provide timely responses to officer's requests, and anticipate future actions as needed. Familiarity with MIT helpful. B87-545

**SR. SECRETARY - TECHNICAL**, Ocean Engineering, to work for two professors and one administrative staff. Will type, proofread, reproduce reports, manuscripts, exams, correspondence (may initiate); answer telephone and receive visitors; maintain and originate files and records for operations of office; handle moderately complex schedule of appointments, meetings, and seminars; make travel arrangements with advances and prepare expense vouchers; prepare institute forms with limited signature authority; and maintain records of course and schedule for students. Requirements: a minimum of 2.5 years of direct/related experience. Typing (50 wpm) and familiarity with technical typing important. Wordprocessing experience necessary. B87-544

**SR. SECRETARY**, Lab for Computer Science, Theory of Computation Group, to provide general secretarial support to two faculty in the LCS Theory of Computation Group. Responsibilities include maintaining professional correspondence, coordinating a weekly seminar series; serving as editorial secretary for several journals; serving as course secretary; using computer text editors to generate letters, documents, and research reports; arranging extensive domestic and international travel for faculty, students, and visitors; and coordinating conferences and symposiums as needed. Requirements: a minimum of 2.5 years of direct/related experience. Must be willing to learn and use several complex computer systems for text editing. Excellent organizational and interpersonal skills necessary to coordinate varied activities important. Attention to detail and ability to set priorities and problem-solving essential. B87-543

**SR. SECRETARY**, Office of Sponsored Programs, to perform various secretarial functions for the Intellectual Property Coordinator. Will maintain an active log of invention disclosures and software licenses; prepare and submit timely notices to research sponsors of patent activities; type correspondence and memoranda; maintain file system; and handle routine questions from the academic staff and Technology Licensing Officer regarding patent disclosure matters. Requirements: good secretarial, organizational, and interpersonal skills. A minimum of 2.5 years of direct/related experience and some previous office training necessary. Some discretion and tact essential. A willingness to work as part of a team necessary. B87-539

**SR. STAFF ASSISTANT**, Admissions Office, to act as receptionist/secretary in a busy, service-oriented office; answer phones; schedule appointments; perform secretarial duties for two full-time admissions offices; keep accurate calendar; handle mail; arrange travel; and provide secretarial assistance to additional staff members as needed. Teamwork is essential. Requirements: excellent typing skills and a minimum of 2.5 years of direct/related experience. Secretarial experience preferred. Strong organizational ability important for managing heavy work loads. Ability to work well under pressure and to work effectively with a variety of people important. Attention to detail and good judgement and tact essential. Should be able to transcribe from dictating equipment and to use a word processor. B87-528

**SR. SECRETARY**, Sloan School of Management, to support three Marketing faculty. Busy, congenial group looking for someone who will coordinate course preparation (assemble readings packet, type handouts, create visual aids, etc.), edit manuscripts, and help administer research projects (coordinate meetings, distribute materials, monitor accounts, etc.). Involves extensive interaction with faculty, students, and visitors. Busy telephones and other secretarial duties make this position interesting and varied. Requirements: excellent typing and organizational skills and a minimum of 2.5 years of secretarial experience. Prior word processing experience highly desirable. Familiarity with personal computers a plus. Training will be provided as needed. Ability to handle several tasks simultaneously important. B87-527

**SR. SECRETARY**, Purchasing and Stores - Subcontracts Office, to prepare subcontracts and associated documentation and correspondence in support of the Institute Subcontract Administrator using wordprocessing and automated purchasing systems. Will make editorial changes to insure accuracy of contents; maintain and review subcontract files including invoicing, payment, delivery, and close-out records; investigate and resolve administrative/accounting problems by coordinating with MIT Departments, Laboratories, and Subcontractors; processing mail and responding to correspondence; answering telephones; receiving and screening visitors; and acting as an information resource to MIT and external sources. Requirements: high school graduate or equivalent. A minimum of 2.5 years of direct/related experience, post high school education applicable. Excellent typing/wordprocessing skills (preferably on DECmate system). An aptitude or willingness to learn a new VAX based purchasing/accounting and receiving system important. Good judgment, poise, and flexibility essential. Must possess excellent communication and time management skills. B87-518

**SR. SECRETARY**, Biology (part-time, 17.5 hours/week), to perform secretarial duties for biology faculty member and her research group. Duties include preparing grant proposals and monitoring of funds in active grants; processing and following-through of purchase orders for office and laboratory supplies; typing and editing scientific manuscripts; composing letters; and performing other secretarial work as needed. Requirements: a minimum of 2.5 years of direct/related experience. Ability to work independently and deal with a variety of people necessary. Wordprocessing and spreadsheet software experience essential. Some ease with numbers for grant monitoring important. B87-512

**SR. SECRETARY**, Sloan School of Management - Behavioral and Policy Sciences Area, to provide support in teaching and research to three professors. Two of the faculty members are part of the Organization Studies sub-area. One will be teaching in the Ph.D. program this year where her research includes the interaction between work and family. The second OS professor studies behavioral decision-making and has been researching such topics as pre-trial publicity and taxpayer compliance. He coordinates the OS sub-area, serves on the Ph.D. and the PC committees for the School, and will be teaching in both graduate programs this year. The third professor is co-director of the Industrial Relations Section, works with the Sloan Fellows Program, and chairs a college in the Management in the 1990's Research Program. His research includes tracking innovations in IR, and is involved in both teaching and research in the area of negotiation. This position would enable a person to become actively involved in office automation, using the Profs electronic mail system, the Xerox Star, and doing wordprocessing on the IBM pc. As a vital part of furnishing support, you would have the opportunity to interact daily with faculty, staff, students, and visitors. Requirements: excellent typing, proofreading, organizational, and interpersonal skills. A minimum of 2.5 years of direct/related experience (post-high school education may count toward experience). A knowledge of wordprocessing is highly desirable, as well as a willingness to learn the wordprocessing system within the Area. Ability to solve problems and prioritize tasks necessary. Must be able to work with minimal supervision. B87-505

**SR. STAFF ASSISTANT**, Campus Information Services, to perform complex clerical and secretarial duties under direction of Manager and Assistant Coordinator in the Conference Services Office. Will provide support for presentations; type and proofread various documents; compile information for registration mailings; process incoming registration materials; answer/screen telephone calls; provide information to visitors on events; investigate costs and availability of items and services from outside vendors; maintain files and records on events; assist in scheduling rooms and services for Career Services presentations including audio visual, Physical Plant, and Dining Services; prepare invoices and monitor internal account; schedule appointments for the Manager; prepare Institute forms; order supplies for office and events; operate office equipment; and make travel arrangements. Requirements: high school graduate or equivalent is necessary. A minimum of 2.5 years of direct/related experience, preferably in similar field but not necessary. Attention to detail and

accuracy are important. Ability to work under minimal supervision on concurrent projects necessary. Typing (50 wpm) and accuracy essential. Must be able to set priorities. Familiarity with DECmate wordprocessing system preferred. B87-501

**SR. SECRETARY**, School of Humanities and Social Sciences, to perform complex and diverse secretarial functions for the Dean's Office. Will handle complicated telephone inquiries; coordinate and schedule appointments and travel; type correspondence and general materials; provide information to Institute staff and faculty; maintain and review files and records; assist and support Dean and Staff with special projects and activities; and work with other Administrative Secretaries to cover workload. Requirements: minimum 2.5 years of direct/related experience. Good interpersonal skills and discretion in handling confidential materials essential. Ability to exercise judgement, recognize priorities and work independently imperative. Ability to function with frequent interruptions important. Solid competence in wordprocessing essential. Knowledge of WordPerfect and DEC I and II very helpful. B87-471

**SR. OFFICE ASSISTANT** (Assistant Exhibits Manager), The MIT Press, to be responsible for coordinating and implementing the MIT Press exhibits schedule of around 150-200 meetings each year. Will plan and fulfill any AUPS meetings; select books; order booth furnishings; prepare order form, and flyers; schedule staff to attend meetings; record orders; manage files; and travel to selected meetings. Requirements: must have excellent communication skills, poise, and the ability to keep on top of numerous details. A minimum of 2.5 years of direct/related experience necessary. Good typing and organizational skills essential. B87-461

**SR. SECRETARY**, Civil Engineering (Center for Construction Research and Education), to report to the Administrative Assistant and perform a variety of secretarial functions as needed. Duties will include typing and proofreading correspondence, reports, manuscripts, and similar materials from rough draft; meeting visitors and directing students to the proper individual; answering telephones; making appointments; assisting with travel arrangements and conferences; and being responsible for inventory of office supplies and mailing lists. Requirements: a minimum of 2.5 years of direct/related experience. A neat appearance and pleasant telephone manner essential. Ability to work with minimal supervision and under pressure necessary. Good typing skills and willingness to learn wordprocessing important. B87-459

**SR. SECRETARY**, Biology, to work for a Biology faculty member and his research group. Will maintain financial records for research grants; order supplies for laboratory and office, and keep track of expenditures on a monthly basis; prepare grant applications, manuscripts, teaching materials, and correspondence, etc.; make travel arrangements; and perform other secretarial functions as needed. Requirements: minimum of 2.5 years of direct/related experience and ability to set priorities necessary. Should possess excellent organizational skills. Familiarity with personal computers (spreadsheet, wordprocessing software) preferred. B87-454

**SR. SECRETARY**, Electrical Engineering and Computer Science (Microsystems Research Center), to perform secretarial functions for Center Director and Center Administrator. Will answer telephones, screen calls, direct callers to appropriate research areas, and respond to routine inquiries; schedule complex appointments and meetings; arrange travel; type correspondence, lengthy progress reports, proposals, and other material using computer wordprocessor; receive visitors; process mail; independently respond to routine letters; follow through on office business; maintain inventory of office supplies; process requisitions, travel vouchers, and requests for payments, etc.; assist in carrying out functions for the Center, such as seminar, publication series, and conferences; maintain a computerized address database with over 4,000 names; and verify accounting-statement purchase entries and reconcile any discrepancies. Requirements: must have good interpersonal skills and be able to work with minimal supervision and under pressure. Minimum of 2.5 years direct/related experience and attention to detail essential. Experience with, or aptitude for computer wordprocessing, necessary. Must be able to set priorities. B87-431

**SR. SECRETARY**, Mechanical Engineering, to provide secretarial support to one Professor. Responsibilities include answering phones; screening mail and answering general correspondence; making travel arrangements; mailing reprints; typing and photocopying of grant proposals, technical manuscripts, lecture notes, and general correspondence; responsible for complete account maintenance and monthly budget projections; petty cash; ordering supplies; and assisting with supervision of research group in purchases and general information. Requirements: good typing and interpersonal skills and a minimum 2.5 years direct/related experience. Ability to work independently and set priorities essential. B87-294

**SR. SECRETARY (TECHNICAL)**, Ocean Engineering, to type, proofread, reproduce reports, manuscripts, exams, and correspondence; answer telephone and receive visitors; maintain and originate files and records; handle moderately complex schedule of appointments, meetings and seminars; make travel arrangements with advances, prepare expense vouchers; prepare institute forms with limited signature authority; and maintain records of course and schedule for students. Requirements: good typing skills (50 wpm) and a minimum of 2.5 years of direct/related experience. Familiarity with technical typing and knowledge of word processing on IBM-PC and compatible computers helpful. B87-398

**SR. SECRETARY**, Laboratory for Manufacturing and Productivity, to provide general office support for two faculty members in their various roles as teachers, program directors, journal editors, and writers. Duties include word processing on a Macintosh; coordinating and preparing correspondence; proofreading for an international journal; responding to inquiries; and assisting with the preparation of papers, proposals, budgets, and audiovisual materials. Requirements: minimum 2.5 years of direct/related experience; college degree preferred. Skill in written and interpersonal communications necessary. B87-389

**SR. SECRETARY**, Center for Materials Research in Archaeology and Ethnology (part-time, 20 hours/week), to perform detailed secretarial activities for the director and several faculty members. Responsibilities include keeping track of various programs of the Center and assisting in their administration; typing correspondence, course syllabi, reading lists, and research proposals; reserving book material for all courses, including ordering of books and photocopying of articles; arranging meetings of CMRAE staff; helping run the Summer Institute course; and coordinating all activities through director's office. Requirements: excellent typing, filing, and good telephone skills as well as 2 years of direct/related experience. Attention to detail and ability to handle pressure essential. Should be capable of taking initiative and using good judgment. (The schedule for this position is from 8 a.m. to noon). B87-367

**SR. SECRETARY**, Civil Engineering, to provide support for Director and Assistant Director of the Academic Programs/Student Information Office. Duties will be to respond to telephone and/or mail inquiries regarding graduate school admissions; type correspond; compile and edit data for use in reports and special projects; maintain student files and records; sort and distribute mail; answer telephones; xerox; maintain inventory of office supplies; maintain postage machine; and perform other related duties as necessary. Requirements: excellent typing skills, a knowledge of and/or willingness to learn word processing on DECmate II, in addition to data entry/retrieval on an IBM PC necessary. Minimum of 2.5 years direct/related experience and ability to handle several tasks simultaneously and function effectively with frequent interruptions essential. Strong interpersonal and organizational skills with ability to relate well to students and faculty necessary. B87-325

**SR. SECRETARY**, Technology Licensing Office, to perform secretarial functions for two Technology Licensing Officers. Duties include typing, filing, photocopying and some answering of incoming calls; Requirements: typing (55 wpm) and 2.5 years direct/related experience. Word processing on PC desirable, but will train if necessary. Good organizational and communication skills essential. B87-305

**SR. SECRETARY**, Mechanical Engineering, to provide secretarial support to two faculty members. Duties include using DEC word processor; answering telephones; screening mail; preparing general correspondence; typing class notes, research reports and general correspondence. Requirements: good typing skills and a minimum 2.5 years direct/related experience. Technical typing desirable, as well as knowledge of DEC equipment or willingness to learn essential. B87-293

**SR. MEDICAL SECRETARY**, Medical Department, will work in Surgical Specialties and provide support to the Orthopedic Service. Duties include the shared responsibility for scheduling appointments for four orthopedic surgeons and one orthopedic assistant; will handle the patient triage, medical record management and coordination of pre-operations testing procedures; extensive telephone calls; patient interaction; and the coordination of completion of a high volume of administrative and patient related material; will provide support to the department's Health Screening Unit as well as to the Surgical and X-Ray Service. Requirements: 2.5 years direct/related experience in a very busy medical setting. Must have excellent organizational skills and be able to work as part of a team group. Although typing is not required, some light typing would be desirable. B87-269

**SR. SECRETARY**, Laboratory for Information and Decision Systems, to provide support for four professors. Duties will include typing correspondence, reports and class materials; arranging meetings; scheduling appointments; answering telephones;

arranging and documenting travel; organizing and maintaining files; wordprocessing; and performing special tasks as needed. Requirements: good interpersonal, organizational, typing skills and a minimum of 2.5 years of direct/related experience. Must be efficient and have the ability to work with minimal supervision. Knowledge of and/or willingness to learn word processing necessary. B87-255

**SR. SECRETARY**, Media Lab, Visible Language Workshop, to provide secretarial support to Director and four staff members. Duties will include receiving visitors; answering phones; reviewing and sorting mail; answering general inquiries and composing standard correspondence. Will also maintain Director's schedule; arrange various meetings; make travel arrangements; help prepare and type research proposals, reports, and correspondence; proofread, edit, and format on computer system; xerox reports, handouts, and class notes; organize and maintain filing system; keep statistics for classes; monitor supplies; and prepare requisitions and vouchers for supervisor's approval. Requirements: good organizational, interpersonal, and communication skills and a minimum of 2.5 years of direct/related experience. Must be able to set priorities and work independently. Experience with and/or willingness to learn office computer systems for word processing, mail, and statistics required (especially Macintosh). Familiarity with MIT procedures desirable. Must be able to meet deadlines and keep track of varied activities in a busy environment. B87-230

**SECRETARY**, Mechanical Engineering, to prepare and monitor support staff, hourly and student payrolls. Will review and monitor general accounting records, statements, purchase orders, and requisitions; establish and maintain files; schedule department lounge; open and sort mail; provide information on departmental and Institute procedures; handle student UROP financial arrangements; and answer telephone inquiries. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Ability to organize tasks and accomplish them independently in a busy office necessary. Knowledge of MIT preferable. Willingness to learn IBM PC essential. B87-315

**SECRETARY**, Laboratory for Information and Decision Systems, to support the Administrative Officer and the Laboratory Director. Duties will include typing correspondence and reports; processing requisitions; data entry and word processing; xeroxing; and performing special tasks as needed. Requirements: excellent typing skills and a minimum of 2.5 years direct/related experience. Strong interpersonal skills and attention to detail essential. Knowledge of and/or willingness to learn word processing necessary. B87-257

**SECRETARY**, Laboratory for Manufacturing and Productivity, to perform secretarial duties which require some independent judgment in the application of departmental or office policies and procedures. Will type and proofread reports, manuscripts, examinations, correspondence and similar materials from rough draft, dictaphone, and/or direct instruction; answer telephones and receive visitors; sort and distribute incoming mail and send outgoing mail; and maintain files and records as necessary for the operation of the office including records on personnel, budgetary and purchasing transactions. Will also schedule appointments and meetings; make travel arrangements; and prepare various Institute forms such as requisitions, vouchers, and receipts. Requirements: excellent typing skills (50-70 wpm), high school graduate or equivalent, and minimum one year of direct/related experience; post high school education will count toward experience. B87-189

**SECRETARY**, Mechanical Engineering, to support one faculty member. Will type technical manuscripts and reports, update mailing lists and distribute materials, answer phones, photocopy, prepare teaching materials and handle heavy interaction with students and faculty. Requirements: excellent typing skills, including technical typing, and a minimum of one year of direct/related experience. Must be able to work independently and under pressure. Good interpersonal skills important. B86-702

#### TECHNICAL SUPPORT STAFF

**TECHNICAL ASSISTANT**, Medical Department, to perform a variety of routine laboratory tests under the supervision of a medical technologist in hematology, chemistry, bacteriology, urinalysis, and serology. Will draw blood samples from patients; plant bacteriological cultures; process specimens as needed; and perform other tasks as directed. Requirements: high school diploma and at least one year's experience as a registered MLT (ASCP) or CLA (ASCP) in a recognized hospital or clinical laboratory necessary. T87-486

**TECHNICAL ASSISTANT**, Medical Department, to perform a variety of laboratory tests, many of which are complex and require professional judgment in hematology, chemistry, bacteriology, urinalysis, and serology. Responsible for producing prompt, accurate test results and meeting established quality control standards; must recognize the interdependency of tests and the conditions that affect test results; draw blood samples from patients; process specimens as needed; perform preventive maintenance on equipment; and other tasks as directed. Requirements:

bachelor's degree in medical technology or related field necessary. At least one year's experience as a registered MT (ASCP) in a recognized hospital or clinical laboratory essential. T87-485

#### OFFICE ASSISTANT/ADMINISTRATIVE ASSISTANT

**ADMINISTRATIVE ASSISTANT**, Laboratory for Computer Science, to provide good accounting support to Fiscal Officer. Will initiate and maintain automated financial records for LCS central services and specific research activities; assist with proposal submissions including budget preparation; monitor monthly statements; maintain LCS chart of accounts and contract files; process requests for payments and billing vouchers for LCS central services; maintain petty cash funds; complete special accounting projects as assigned; and assist with transition from Symphony to Excel software package for automated fiscal records. Requirements: excellent organizational and interpersonal skills and a minimum of 4.5 years of direct/related experience. Ability to prioritize and meet multiple deadlines and work independently necessary. Willingness to learn and use micro computers and spreadsheet applications important. Knowledge of MIT central services and experience with spreadsheet applications preferred. S87-571

**ADMINISTRATIVE ASSISTANT**, Laboratory for Computer Science, to provide administrative assistance to the Director's Office. Responsibilities include assisting in the preparation of proposals, reports, and presentations; compiling information associated with the Laboratory's activities; organizing, composing, and typing reports; dealing and maintaining a liaison with students, staff, faculty, and senior executives of the Institute and outside organizations; independently preparing correspondence for own or Director's signatures; initiating, organizing, implementing, and maintaining clerical systems and procedures; organizing, coordinating, and scheduling appointments, meetings, seminars, and special events (especially with outside governmental and industrial organizations); and performing other administrative/secretarial duties as necessary. Requirements: a minimum of 4.5 years of direct/related experience. Must be willing and able to learn to use several different computer systems. Excellent organizational and interpersonal skills necessary for dealing with members of a 300-person Laboratory and many visiting dignitaries. Attention to detail and ability to handle sensitive information important. Must be able to take initiative and work autonomously with little supervision. Excellent telephone manner necessary. Capacity to manage workloads under pressure of deadlines and unplanned activities is vital. S87-570

**ADMINISTRATIVE ASSISTANT**, Media Laboratory, to perform complex secretarial and administrative duties for the Director and organize and oversee the daily operations of the office. Responsibilities include maintaining the Director's calendar; coordinating and scheduling appointments, meetings, speaking engagements, and travel arrangements - including anticipating the needs and actions of the Director - principally via electronic mail and telephone communications; greeting the visitors and serving as a source of information; screening the Director's phone calls; making frequent and complex national and international travel arrangements, while Director is travelling, connecting Director with other national and international offices via telepatcher; reading, sorting, and prioritizing incoming mail, and independently replying to correspondence; managing a large volume of electronic mail to and from the Director; proofreading, editing, and overseeing the final projection of letters, reports, and memoranda from computer drafts; hiring, training, and supervising 2 full time clerical employees, and also hiring and supervising temporary employees as needed; maintaining a large integrated filing system of sponsor, MIT, and Laboratory files which involves discretion with regard to confidential and sensitive material; working closely with other Laboratory offices scheduling sponsors, preparing agendas, and demonstrating of research; overseeing and scheduling use of private dining room and kitchen; arranging special luncheons and dinners; and serving refreshments at informal meetings in Director's office. Requirements: B.A. and/or a combination of education and experience. A minimum of 3 - 5 years of direct/related experience essential. Good organizational skills and attention to detail necessary. Should be poised and friendly. Must exercise good judgment and work effectively under pressure. Ability to work independently with interruptions, and recognize, and set priorities important. Must be able to handle confidential and sensitive information with discretion. Typing (50 wpm), word processing, and electronic communication skills necessary. Knowledge of MIT desirable. Regular overtime required, including maintaining terminal (provided by Lab) at home as electronic mail communications over most weekends, in particular when the Director is travelling in Japan. S87-567

**ADMINISTRATIVE ASSISTANT**, Industrial Liaison Program, to perform complex duties under minimal supervision for the Director and Associate Director of Industrial Liaison. Duties include managing calendars, telephones, files, records, travel arrangements and copying; obtaining travel advances and preparing expense vouchers; coordinating and scheduling diverse and complex appointments, meetings, and

special events; sorting and reviewing mail and independently replying when appropriate; taking notes at meetings, writing, editing, and typing them; preparing Institute forms, organizing agendas, and disseminating information; extensive telephone contact with MIT senior officials and high level officers of ILP member companies and solicitation contacts; acting as an information source on ILP department and procedures; and showing visitors around department and/or campus. Requirements: a minimum of 4.5 years of direct/related experience, as well as excellent interpersonal, organizational, and typing (50-70 wpm) skills. Good judgment, tact, and a professional and friendly manner are needed to handle a variety of people. Must be well-organized, detail oriented, resourceful, and able to work independently. Wordprocessing experience necessary. Familiarity with MIT helpful. Some tact and discretion in handling sensitive issues important. S87-538

**ADMINISTRATIVE ASSISTANT** (Financial Administrator), Applied Biological Sciences, to provide fiscal management and administrative support services for two faculty with large research laboratories. Duties involve reconciling monthly statements; processing invoices for payment; maintaining appropriate records and back-up documentation for all financial transactions; utilizing computerized database and spreadsheet programs in financial management including monthly projection of expenditures and commitments; assisting in coordination and preparation of research support proposals; doing some clerical duties which include sorting mail, answering telephones and correspondence, typing reports and papers; filing; photocopying; some supervising of junior clerical positions and temporary office help; interacting with Department Administrative Officer and other Institute Departments and areas; updating computer data-bases of publications; and making travel arrangements, obtaining travel advances, and preparing travel vouchers. Requirements: ability to set priorities and work independently. A minimum of 4.5 years of direct/related experience necessary. Experience with accounting/bookkeeping functions important. Excellent typing skills essential. Knowledge of computer-assisted systems for spreadsheet and database management (specifically IBM XT hardware, Lotus software) necessary. Some organizational and interpersonal skills important. Ability to deal well with varied activities and specific targets a must. Some administrative financial experience preferred. Knowledge of MIT financial systems helpful. S87-537, S87-536

**ADMINISTRATIVE ASSISTANT**, Center for International Studies, to provide support to the Director of this Center, which performs research on international studies. Will be managing correspondence and manuscripts; handling mail, sorting by priority; assembling files and other information needed for response; answering directly such mail as the Director may designate; extensive telephone contact, and taking accurate messages; maintaining appointment schedules and arranging meetings; keeping files relevant to the Directorship, academic responsibilities, and research interests; maintaining files for quick and accurate reference; assisting with arranging seminars, workshops, publications series as requested; and working without close supervision once responsibilities are assigned. Requirements: a high school graduate or equivalent, a college degree preferred. A minimum of 4.5 years of direct/related experience. Excellent typing skills and ability to use wordprocessor or willingness to learn essential. Ability to work under pressure and to cooperate with a variety of people important. S87-510

**ACCOUNT REPRESENTATIVE**, Operations and Systems/Production Services, to insure the quality and timeliness of production commitments within the 3rd Shift. Will monitor preparation of input/jobs for processing; review console outputs to ensure that production runs meet the clients requirements and specifications; schedule production process and reports on the status of production runs; coordinate and control input and file flow for each application; analyze all production problems and initiate recovery action to complete or re-run jobs; notify problems and initiate action; fulfill administrative reporting requirements; and maintain daily production status of all problems and resolve them. Requirements: minimum of 4.5 years of direct/related experience. A High School graduate and/or some college background preferred. An equivalent certification in Data Processing with at least two years of hands on experience in a data center environment necessary. Knowledge of data processing, operating systems OS/VS1, VM/CMS, and job control language helpful. Also, some knowledge of Exec or Rexx programming skills, production control, and analytical ability important. S87-490

**EMERGENCY MEDICAL SERVICE ASSISTANT**, Campus Police, to be responsible for ambulance operations primarily during day shift to include handling of medical emergencies and other general service calls and transfers. Will maintain a liaison with the MIT Medical Department with regard to equipment and supplies needed; maintain a liaison with the Office of Emergency Medical Service, Boston, for the ambulance license and coordination of EMT certifications. Requirements: Emergency Medical Technician certification or higher (Paramedic, etc.) and a minimum of 3 years of direct/related experience.



Training instructor capability in various life support areas desirable. Massachusetts driver's license necessary. S87-497

**ADMINISTRATIVE ASSISTANT**, History, to perform complex duties with the Administrative Officer and the Head of the History Faculty. Primary responsibility will be serving as Coordinator for a new advising program for undergraduate majors, minors and concentrators in History, and for the implementation of Phase II of the Writing Requirements by History majors. Duties include organizing and implementing administrative details for various History Faculty activities, including the MIT Bulletin; book orders; monthly posting of bills; research grants; assisting the Administrative Officer with the Five-Year Plan, promotion and tenure cases, and national searches as needed; performing secretarial duties; answering phones; and some typing of course materials and manuscripts. Requirements: B.A. and a minimum of 4.5 years of direct/related experience or a combination of education and experience. Typing (70 wpm) and excellent interpersonal skills necessary. Ability to set priorities a must. Must be able to pay attention to detail and handle several projects at a time. Must be able to handle confidential reports, and maintain awareness of and alert faculty and students to new and revised Institute requirements. Should maintain accurate financial records and be able to function as part of an administrative team important. S87-428

**CUSTOMER SERVICE REPRESENTATIVE**,

Telecommunications Systems, to be responsible for processing orders for equipment and services, analyzing needs and making recommendations to departments on telecommunications facilities and equipment and training users on the use of telephones and features. Duties will be to interpret requests from MIT departments, converse with requisitioner to clarify any party of the request which are unclear of have been omitted (such as locations or billing information); prepare orders to outside vendors and/or Telecommunications Systems personnel; contact vendor when MIT's records disagree with the vendor's records and when there are questions about the order or the work to be done; educate departments about the 5Ess system and assist them in specifying the terminal equipment they will need to replace their present telephone systems; meet with departments as necessary and prepare costs estimates of smaller systems; and answer telephones and perform office tasks as needed. Requirements: minimum of 4.5 years combination post-high school education and experience of which 2 years must be work experience. Also, two years of telecommunication experience important. S87-435

**SR. OFFICE ASSISTANT**, Student Financial Aid, to manage the transfer students financial aid process under the direction of an aid officer and in coordination with the Admissions Office. Will serve as contact person to transfer applicants during the application process, distribute award decisions to transfer students, and correspond with students regarding status of application and aid offer; provide general office support in the completion of special projects; arrange and schedule appointments; maintain office filing system; provide typing on the Macintosh (Microsoft, Word Excel) and on occasion with a standard IBM typewriter for four aid officers; and provide backup for other officers as workload or absences needed. Requirements: excellent typing (50 - 60 wpm) and a minimum of 2.5 years of direct/related experience. Ability to work with minimal supervision and follow projects through to completion important. Attention to detail necessary. Must be able to deal with constant interruptions and communicate effectively with a variety of people. Familiarity and/or experience with word processing on the Macintosh essential. S87-564

**SR. OFFICE ASSISTANT**, Industrial Liaison Program, to serve as office receptionist for a busy office providing information regarding the services of the Program to over 300 member organizations. Duties include receiving, screening, and assisting visitors; answering incoming telephone calls; assisting callers and visitors concerning inquiries regarding the services of the Program; ordering and maintaining inventory of office supplies; updating a weekly travel calendar for the office; ordering and distributing library cards requested by ILP member company representatives; maintaining the office resource library (filing of periodicals, distributing magazines via circulation list, etc.); arranging for shipment of packages via overnight/overseas delivery services; and performing other clerical duties as assigned. Requirements: accurate typing skills and a minimum of 2.5 years of direct/related experience. Ability to learn wordprocessing necessary. Excellent interpersonal skills and ability to relate well with a diverse group of professionals, faculty, students, and visitors important. Must be able to work well under pressure, and deal tactfully and effectively with a variety of people. Must be flexible. S87-558

**SR. OFFICE ASSISTANT**, Biology Department (part-time, 20 hrs/wk, 2-3 month assignment), to provide administrative support for the Finance Office. Responsibilities include the preparing and monitoring of support staff, hourly, and student payrolls; handling student UROP financial arrangements; monitoring and reviewing of monthly staff payrolls; preparing of memos as needed to resolve payroll related questions. Requirements:

a minimum of 2.5 years of direct/related experience. Attention to detail important. Ability to work independently and possess good interpersonal skills essential. S87-554

**SR. OFFICE ASSISTANT**, Medical Department - Health Plan Office (Temporary job until 8/31/88), to process Blue Cross claims and bills. Will code and input data entry in the claims database using IBM PC; open, route, and process mail; handle extensive telephone contact with hospitals and other medical providers; file; photocopy; and perform other related duties as necessary. Requirements: high school diploma and a minimum of 2.5 years of direct/related experience. Excellent communication and interpersonal skills necessary. Capacity to handle a high volume of work essential. S87-549

**SR. OFFICE ASSISTANT**, Medical Department, to be responsible for supporting the finance and analysis functions of the MIT Health Plan. Duties include preparing and monitoring the monthly premium billing to employer groups; assisting with the audit of Blue Cross/Blue Shield bills; logging and distributing reimbursement checks; maintaining hospital utilization system; preparing periodic reports; and assisting with accounting tasks as necessary. Requirements: high school diploma with a minimum of 2.5 years of direct/related experience. Accuracy with numbers important. Familiarity with personal computers and ability to use or learn LOTUS 1-2-3 spreadsheets preferred. S87-548

**SR. OFFICE ASSISTANT/UNDERGRADUATE**

**ACADEMIC SUPPORT**, Dean for Student Affairs, to provide general administrative and secretarial support to the Assistant Dean and various programs of the Undergraduate Academic Support section of the ODSA. Will serve as primary source of information to students, faculty and administrators regarding policies and procedures related to Freshman Advising, Study Skills programs, R/O week, IAP, and the MIT/Wellesley Exchange. Will also provide primary support to the Freshman Advising Program, produce the "Freshman Newsletter," and coordinate transmission of information to and from the Registrar's Office. May train and supervise temporary secretaries and student workers. Requirements: minimum of 2.5 years of direct/related experience and excellent secretarial, interpersonal, and organizational skills. Experience with or willingness to learn word processing helpful. Ability to work independently, exercise appropriate judgement, and maintain productivity under pressure important. Knowledge of MIT a plus. S87-531

**SR. OFFICE ASSISTANT**, Office of Laboratory Supplies, to support Office of Laboratory Supplies, Business, Personal Computer and Cylinder Control areas. Within the business section responsibilities include typing of purchase orders and change orders, processing invoices for payment, resolving problems with vendors and MIT accounts payable, assist in terminal screening of purchase order commitment/authorization system, and daily batching of sales requisitions for accuracy and resolving any errors that occur. Within the personal computer and cylinder control system, responsibilities include assisting in the input of cylinder information into the computer systems, resolving cylinder related problems with vendors and end-users, and processing and expediting personal computer orders for the Microcomputer Center. Will work closely with personnel at the Microcomputer Center for the OLS warehouse in resolving problems that arise. Requirements: minimum of 2.5 years experience or combination of education and experience. Typing skills and experience with personal computers or word processors essential. S87-530

**SR. OFFICE ASSISTANT**, Applied Biological Sciences, to perform a variety of functions. Will process invoices for payment; match receiving reports and invoices with appropriate purchase orders; initiate and maintain blanket POs; monitor service contracts and travel; occasional "Walking through" of paperwork; light typing; some data entry; monthly statement reconciliation; and filing and attaching of back-up material. Requirements: a minimum of 2.5 years of direct/related experience. Ability and interest in learning important. Good interpersonal and organizational skills necessary. Must be detail-oriented. S87-519

**SR. OFFICE ASSISTANT**, Graphic Arts Service, to do all accounts payable functions and related clerical duties. Must have a thorough knowledge of accounts payable functions and procedures (invoice, pricing, accounts, etc.). Requirements: accounting or business school graduate and/or a minimum of 2.5 years of direct/related experience. Must have good arithmetic skills and be interested in working with figures. Must be able to operate office calculators. Ability to deal with a variety of people directly and/or by telephone essential. Will be required to work overtime when applicable. S87-516

**SR. OFFICE ASSISTANT**, Alumni Association, to work with other reunion gift program staff by providing clerical and secretarial assistance. Contact will be with alumni volunteers, Treasurer's Office, Campaign for the future offices, and with other Alumni Association offices. Responsibilities will be to assist Coordinator for General Gifts Solicitation on class direct mail solicitations and telethons; perform reception duties which includes extensive alumni contact by phone and in person; maintain inventory on specific reunion gift supplies, e.g. class

stationery, pledge cards, etc.; perform routine filing and record keeping; prepare routine mailings to committees and class members; and assist with preparations for gift committee meetings. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Excellent interpersonal and organizational skills necessary. Ability to handle multiple tasks important. Wordprocessing experience desirable. Experience on the Macintosh preferred. Knowledge of English grammar important. S87-513

**SR. OFFICE ASSISTANT** (Research Assistant), Office of Development Services (Resource Development), to support the research analysts and administrative staff of the Office of Development Services by providing basic research activities and office assistance. Will assist research analysts in the preparation of research reports and summaries; respond to research requests by retrieving information from the ADDS database, office files and reference materials; handle PCS Detail Sheets, corporate profiles, and other computer programs from the ADDS database; write short research reports on prospective MIT donors; provide wordprocessing and general office support including some telephone contact and making calendar arrangements; xerox memoranda, schedules, research requests and other documents, and distribute as needed. Requirements: high school graduate or equivalent necessary and a minimum of 4 years of direct/related experience; post high school education will count toward experience. Should have analytical skills and the ability to organize assignments; work independently; meet deadlines; get along well with others; and take instruction. S87-503

**SR. OFFICE ASSISTANT** (part-time, 25 hours/week, flexible), Office of the Provost, to perform various clerical duties for two supervisors which require some independent judgment in the application of department and office procedures. Duties will include maintaining and reviewing files; typing routine correspondence; handling office mail and telephones; scheduling meetings; monitoring monthly statements; entering and maintaining relevant information on a computer; reproducing reports, manuscripts, and letters; compiling statistics semi-annually for Affirmative Action Report; and coordinating and preparing for yearly meeting of NEROC Board of Directors. Requirements: high school diploma and a minimum of 2.5 years of direct/related experience; post high school education will count towards experience. Accurate typing skills (40 wpm), and ability to handle detail and follow moderately complex instructions necessary. Will train on word processor. S87-500

**SR. OFFICE ASSISTANT**, Purchasing and Stores, Office of Laboratory Supplies, to do the processing and expediting of personal computer orders from the Microcomputer Center that includes preparation of paperwork, depositing of checks, and entry of orders into computer system. Will also communicate with the MCC and OLS warehouse regarding the status of orders into and the resolution of related problems; process cylinder invoices; match vendor packing slips with purchase orders; enter P.O.'s, requisitions and packing slips information into Cylinder Control & Billing System; contact vendors regarding invoice/packing slip discrepancies; contact MIT users in confirming inventory and status of cylinders and resolution of differences relating to the Cylinder Control & Billing System; maintain and update assigned records and files; and perform other duties as assigned. Requirements: high school diploma or equivalent required; some college desirable. Good typing skills (40 wpm) necessary and a minimum of 2.5 years of direct/related experience in one or more of the following areas: purchasing, expediting, and customer service. Strong communications skills, both written and verbal, helpful. Experience with word processors/personal computers preferred. S87-112

**SR. OFFICE ASSISTANT**, Administrative Systems Development, to support activities of Director and his assistant, in addition to several staff members in a computer-oriented environment. This position requires that the successful applicant be well-versed on matters pertaining to supporting the operation of a business office. Will answer telephones and disseminate messages using electronic mail facilities; perform moderately complex clerical and accounting/financial duties; maintain and review files and records as necessary for the operation of the office, such as budget information, up-to-date listings of requisitions and invoices and status of department accounts; schedule meetings; handle petty cash; issue keys; operate office machines and equipment; complete checking and processing of monthly accounting statements using backup material to verify entries; will have limited authorization to approve requisitions and invoices for payment; prepare and authorize cash and travel vouchers, transfer vouchers, and interdepartmental and outside billing for services; and perform other tasks as directed. Requirements: Must have ability to work under pressure and as part of a team. Flexibility and the ability to work well with diverse groups of professionals a must. A pleasant telephone manner and good interpersonal skills necessary. Knowledge of the Apple Macintosh System and MIT helpful. S87-463

**SR. OFFICE ASSISTANT**, Alumni Association, will report to the Manager of Data Entry, and perform clerical duties in support of records functions. Will type forms for matching gifts and process for mailing;

input alumni information into database on a daily bases; and assist in other records procedures as needed. Requirements: minimum of 2.5 years of direct/related experience. Good typing and organizational skills necessary. Ability to handle several assignments and be detail oriented important. Knowledge of computer terminal helpful, and/or training will be provided. S87-462

**SR. OFFICE ASSISTANT**, Comptroller's Accounting Office, to perform a variety of tasks as assigned. Duties include typing of letters and forms; filing; photocopying; receptionist duties; answering telephones; assisting in the preparation and mailing of pension payrolls; preparing billings for benefits for widows, leaves, cobra's, and whatever other categories are applicable; processing bill payments and preparing reports of same to computerized payroll system; assisting in the preparation of account entries for MIT Health Plan; and verifying computations and payments to Blue Cross/Blue Shield. Requirements: good typing and a minimum of 2.5 years of direct/related experience. Attention to figures, good telephone skills, and familiarity with word processing and IBM terminals desirable. S87-451

**SR. OFFICE ASSISTANT**, Alumni Association, to perform clerical duties related to the scheduling and directing of visitors and alumni and provide information regarding services rendered. Duties include performing secretarial functions as needed for the Administrative Officer; responsible for developing and updating on a monthly basis a master calendar of Alumni Activities; completing forms or assisting visitors in completing forms related to the services; coordinating the ordering of supplies for the main office; keeping statistical records of Alumni activity; arranging various functions, as well as completing special projects assigned by the Administrative Officer; and maintaining the reception area. Requirements: high school graduate and a minimum of 2.5 years direct/related experience working with the public in demanding situations. Good typing skills (40 wpm) and ability to well under pressure essential. Experience with personal computers, specifically Macintosh, helpful. S87-401

**OFFICE ASSISTANT**, Medical Department, to provide clerical support in the Enrollment Services unit of the MIT Health Plan Office. Will type; file; process membership changes for the MIT Health Plan and the Student Health Program, using four on-line computerized data bases to input and verify enrollment information; perform extensive telephone contact with members and schools to verify student status; maintain lists and generate form letters from wordprocessor. Requirements: good typing skills and a minimum of one year direct/related experience. Must be able to organize a wide variety of tasks, and handle detail with accuracy. Ability to use IBM personal computer and wordprocessing and/or willingness to learn essential. S87-561

**OFFICE ASSISTANT**, System Dynamics Group, Sloan School of Management, to work with other support staff to support the work of faculty and research staff. Responsibilities include managing petty cash; paying bills and purchasing supplies; submitting requisitions to generate purchase orders; submitting travel reimbursements; monitoring student phone log and billing them for calls; and monitoring Laserwriter usage and billing for pages produced. Will also type and create graphics on the Macintosh computer (no experience necessary); manage lending of computer equipment; schedule conference room reservations; manage document files; manage and maintain reprint library; have postage meter filled at Post Office; bill other groups for postage use; answer phones; order supplies; act as xerox key operator; manage software and manuals library; bill staff for phone and xerox usage; and assist staff in preparation of large seminars held about 5 times each year. Requirements: high school graduate or equivalent. Flexibility and eagerness to learn important. Previous office experience (1-2 years) preferred. Good typing skills (40 wpm) and ability to use calculator helpful. S87-526

**OFFICE ASSISTANT**, Media Laboratory, to provide general clerical assistance for 4 research groups under the supervision of the group administrator. Responsibilities include maintaining library of research publications - updating publications; maintaining adequate stock; responding to requests for publications; preparing standard forms such as requisitions, requests for payment, vouchers, and student payroll reports for supervisor; proofreading and producing final copies of letter and memoranda from computer drafts; ordering and maintaining office supplies; screening and referring telephone calls; handling office mail; receiving visitors and providing general information; checking purchase orders for accuracy and matching them with corresponding requisitions, invoices, and packing slips; making travel arrangements; filing and photocopying; and performing other related duties as necessary. Requirements: high school graduate and 2.5 years of direct/related experience. Some post high school education desirable. Knowledge of and/or experience in computer wordprocessing and electronic mail or willingness to learn important. Good typing (40 wpm) and interpersonal skills. Must be organized and able to follow-through with tasks. Should enjoy working in a busy environment with a diverse group of people. S87-488

**OFFICE ASSISTANT**, Physical Plant, to perform various functions as requested. Duties include answering Operations Center telephones used by the MIT Community to report fire, trouble, maintenance requests, etc.; monitoring the Institute's Auto Call Alarm System and operating the Institute's Facilities Control Systems to include monitoring of alarms, diagnosing problems, and taking corrective action; maintaining a daily log of all Operations Center calls, alarms and indicating what action has been taken; dispatching mechanics (MOD) to investigate maintenance problems; operating various pieces of communications equipment including paging systems, radio network, telephone, and intercoms, etc.; and performing other clerical duties in support of Work Control and the various Physical Plant shops such as: typing, shut-downs, maintaining overtime Lists for Shops, and assisting in maintaining Work Order Systems. (This position is 40 hrs. per wk. but is an irregular schedule). S87-440

**SERVICE ASSISTANT**, Earth, Atmospheric and Planetary Sciences, (academic year only position, with 4 hrs/week or every other week usually on Thursday) to purchase, set up and clean up a cold, picnic style lunch for a faculty meeting. Requirements: must have driver's license or effective means of transporting food essential. Must be reliable and available on Thursdays. S87-422

**OFFICE ASSISTANT**, MIT Libraries - Administrative Services, to process incoming and outgoing domestic mail and packages; fill mailbags and boxes daily; answer inquiries; maintain supplies; maintain files and records for operation; compile daily and monthly statistics and maintain adequate postage. Requirements: high school graduate or one year direct/related experience; post high school education can count toward experience. Must be able to lift 50 lb+ mailbags and boxes and push heavily loaded booktrucks and 2-wheelers. A valid MA., drivers license with at least 3 years driving experience and capacity to drive a van necessary. A good math aptitude and command of the English language preferred and able to meet deadlines and follow a schedule. Some knowledge of automobile and van maintenance required. S87-264

**OFFICE ASSISTANT/SECRETARY**, Student Financial Aid Office, to perform secretarial duties in support of the Director. Will type memos, letters, and reports from rough draft using a Macintosh; preprocess the student payroll each week; take job descriptions from employers and post on bulletin boards; reply to employment verification requests; monitor the College Work Study Program; maintain Student Employment Office files; and be prepared to take on administrative and clerical responsibilities stemming from Student Employment programs. Requirements: good, accurate typing (45-55 wpm) and a minimum of one to two years of direct/related experience. Basic writing, oral, and arithmetical skills necessary. Good organizational and communication skills important. Must be able to work well under pressure and with constant interruptions. Ability to establish priorities and to be flexible helpful. S87-184

**OFFICE ASSISTANT**, Registrar's Office, to directly assist students with all aspects of registration and accurately maintain students' academic records. Requires daily inputting of information into the Registrar's Database; preparation and verification of official academic records for transcript requests; frequent telephone contact with students, faculty, and various Institute administrative offices; and some filing. Requirements: accurate typing, attention to detail, and a minimum of one year of direct/related experience; some college experience desirable. S87-183

**CLERICAL ASSISTANT**, Endicott House (part-time, weekends), to answer main switchboard and perform various clerical tasks. Duties include transferring and placing calls; taking messages; typing; filing; posting employee time sheets; assisting with booking projects and daily planning notices; and registering and assisting conference center guests. Requirements: minimum of one year direct/related experience. Neat appearance and professional telephone manner essential. Ability to set priorities necessary. This position is located in Dedham, MA. The work schedule is Saturday and Sunday, 8:00 am to 4:00 pm. S87-397

**RECEPTIONIST/OFFICE ASSISTANT**, Personnel Department (part-time, 20 hours/week), to act as departmental receptionist in the Employment Section. Will provide services related to the employment process which includes providing information on job status, specifications, and application procedures; assist persons in completing application forms; administer typing tests; schedule interviews; maintain data bank of applicant information; assist with resume acknowledgement system; operate word processing equipment; and perform other related duties as assigned. Requirements: accurate typing skills and a minimum of one year direct/related experience. Familiarity with computer terminals helpful. Excellent organizational, interpersonal, and communication skills necessary. Must have ability to grasp routine procedures quickly and to recognize and respond to unusual situations appropriately. Must be able to work well under pressure. S87-154

## SERVICE STAFF

**CUSTODIAN**, Haystack Observatory, to be responsible to Facilities Manager (4:00 pm to 12:00 midnight). Will perform duties in connection with keeping buildings clean. These duties include sweeping and dry-mopping hallways, etc.; washing, waxing, and machine buffing floors; emptying trash receptacles and dumping rubbish into dumpster; washing walls, windows, and fixtures; caring of laboratory facilities, occasional water pickup resulting from leaks and floods; and performing other related duties as assigned by supervisor. Requirements: should be physically able to perform tasks outlined above. Should have experience in custodial work. This position is located in Westford, MA. H87-688

**CUSTODIAN**, Haystack Observatory (4:00 pm to 12:00 midnight), to perform all necessary work in connection with keeping buildings clean. Duties will include sweeping and dry-mopping hallways, etc.; washing, waxing, and machine buffing floors; emptying trash receptacles and dumping rubbish into dumpster; washing walls, windows, and fixtures; care of lavatory facilities, occasional water pickup resulting from leaks and floods; and performing other related duties as assigned. Requirements: experience in custodial work. Should be physically able to perform job duties. (This position is located in Westford, MA.) H87-682

**HANDYWORKER**, Haystack Observatory (7:30 am to 4:15 pm), will perform duties normally those of a handyworker, including minor activities of the other trades, such as painting masonry, carpentry, rigging, snow removal, equipment and furniture moving, but not limited thereto. Will also drive a forklift and light vehicles. Make pickups and deliveries. Maintain lawns and grounds, make minor road repairs. Must have all round mechanical ability for minor repair. Requirements: must have driver's license and be physically able to perform duties. Must be willing and able to climb towers. (This position is located in Westford, MA.) H87-680

**ASSISTANT ANIMAL TECHNICIAN**, Division of Comparative Medicine (7:00 am to 3:30 pm), will perform under supervision a range of animal care duties for mice, rats, dogs, cats, and monkeys etc. Duties include maintaining proper levels of food and water, cleaning animal cages and trays, changing bedding materials, washing cages, trays, water bottles and related items, cleaning walls, floors, etc., in animal areas as required monitoring animals and notifying supervisor if condition dictates, and performing other tasks as assigned. Requirements: high school graduate and 1-2 years animal care experience preferred. Knowledge and ability to work with animals. Willingness to partake in AALAS seminars and training programs. H87-679

**GENERAL HELPER**, Graphic Arts Service, to work in various groups doing repetitious work as assigned. Primary responsibility will be working in Building 11-004 Copy Center running various copy machines; stapling; collating; binding; and performing other related duties. Will need instruction and supervision and will be required to work overtime when applicable. Requirement: high school graduate. H87-650

**LOCKSMITH**, Physical Plant. Minimum of five (5) years experience in the trade, and knowledge of current trade practices in Builder's Hardware, lock repairing, master keying, and key changes. Will undergo extensive personal and work backgrounds record check, due to the sensitive nature of the position. Applicant must be able to secure bonding and be able to work irregular shifts and respond to after-hour call-ins. H87-673

**ENGINEER, THIRD CLASS**, Physical Plant. Massachusetts Third Class Stationary Engineer's License or higher grade required. Minimum of one year operating experience on high pressure boilers, oil and gas fired with automatic combustion controls required. Turbine driven auxiliaries; A.C. & C.D. generation; switchboard and feed water control. Must be willing to work any and all shifts and do any and all kinds of work, consistent with self-sufficiency of the Center Utilities Plant. Experience required on turbine and motor driven refrigeration equipment. H87-671

**HEAT & VENT MECHANIC**, Physical Plant (Irregular Shift). Applicants should have a broad range of experience in building heating, ventilating and air conditioning (HVAC) operations and maintenance. Specific experience in the operation of steam heating systems, HVAC controls, boilers, water treatment, and refrigeration systems with hands on experience in the repair, replacement, and adjustment of their operating components is a requirement. Qualifications: should have a high school education and a minimum of five years experience in the operation and maintenance of building HVAC systems. Formal training in mechanical operations and maintenance may be considered as substitute for a portion of the experience. H87-676

**ASSISTANT ANIMAL TECHNICIAN**, Division of Comparative Medicine, to perform under supervision a range of animal care duties for mice, rats, dogs, cats, monkeys, etc. Duties include maintaining proper levels of food and water, cleaning animal cages and trays, changing bedding materials, washing cages, trays, water bottles and related items, cleaning walls, floors, etc. in animal areas as required, monitoring animals and notifying supervisor if

condition dictates, and performing other duties as assigned. Requirements: high school graduate with 1-2 years animal care experience preferred. Knowledge and ability to work with animals necessary. Willingness to partake in AALAS seminars and training programs important. H87-668

**OFFSET CAMERA OPERATOR "A"**, Graphic Arts Service, sets up and operates an offset camera and associated equipment such as vacuum frame contact printer, viewing table, etc. Adjusts and positions lights, camera, and material to be copied. Sets lens, shutter, illuminates subject material and exposes film. Prepares and changes developing and printing solutions. Develops, dries, inspects, bleaches and finishes negatives. Sets up and operates a vacuum frame contact printer, prints negatives and develops and dries prints. Maintains camera room and all associated equipment. May guide and train others in the operation and maintenance of the offset camera. Does other related duties as assigned. Needs little instruction or supervision. Requirements: graduation from high school or its equivalent and a minimum of four or five years of applicable experience are required. Experience doing layout, stripping, and opaquing work required. H87-664

**PATROLMAN/PATROLOWOMAN**, Campus Police, to be responsible for the protection of life and property at MIT. Will assist with traffic control; policing of MIT parking lots, and making foot patrols of all grounds and buildings. Will have administration of first aid including ambulance service of injured or ill persons; will participate in emergency procedures, explosions, fire, and chemical spills, etc.; investigate and report; and perform other general police duties. Requirements: minimum of 3 years in the Police Department either Municipal, State, or Campus. Knowledge of criminal investigation, case preparation, investigation of complaints, and report writing procedures necessary. Will be required to obtain Emergency Medical Technician Certification, and successfully complete additional police academy training. Must qualify with use of firearms. A valid drivers license. An honorable discharge from any earlier police service necessary. Ability to work long hours on occasion. Must qualify for Institute Physical Exam. Should be able to handle top level public relations. H87-667

**ANIMAL TECHNICIAN**, Division of Comparative Medicine, will perform under supervision a range of animal care duties for mice, rats, dogs, cats, monkeys, etc. Duties include maintaining proper levels of food and water, cleaning animal cages, changing bedding materials, washing cages, trays and related items, cleaning walls, floors, etc. in animal areas as required. Will also operate cage washing machine, autoclave and incinerator when necessary, operate and maintain quarantine areas, take animal census counts, monitor animals and report illnesses and injuries to supervisor, and promptly remove and store dead animals. Other duties as assigned. In addition to all the duties listed for Assistant Animal Technician, will do special assignments as required such as operate and maintain quarantine area, dark rooms, etc. Will operate cage washing machine and incinerator as required. Also be required to record data on cage cards. Does other related duties as assigned. Some direction required. Requirements: high school graduate. Minimum three years related animal experience. Successful completion of the AALAS Technician Exam. H87-638

## LINCOLN LABORATORY POSITIONS

The following positions are available at the MIT Lincoln Laboratory in Lexington, MA. Employees at the Institute who are interested in these positions should contact their Personnel Officer to apply.

**HEAVY EQUIPMENT OPERATOR** - Utility, General unskilled labor including, but not limited to, digging, shoveling snow, lifting and carrying heavy loads, moving furniture and equipment, loading and unloading trucks, placing shores or rigging under the direction of a rigger, and all other similar functions involving primarily manual labor. Will make occasional use of special tools such as air or electric hammers, drills, and paving breakers. Will pick up and deliver packaged chemicals. Will drive vehicles, generator trailer, fork truck, and heavy trucks as required. Will operate Front-end loader, SNOGO, backhoe, and all other similar equipment as required. Participation in snow removal is a condition of employment. Requirements: vigorous good health, and strength such as to permit performance of above without limitation. Physical examination may be required. Unrestricted Class II Drivers License required, two years heavy truck driving experience, and heavy equipment operation experience. Posting No. 8-341

**HVAC MECHANIC**, will install and perform general and preventive maintenance on air conditioning and refrigeration systems including but not limited to overhauling compressors, charging cooking units, fitting rings, bearings, belts and shafts, repairing cooking and heating coils. Will install and maintain pneumatic/electronic control systems including but not limited to adjusting, calibrating control devices and valves. Will service and maintain factory and controlled air compressor systems. Requirements: minimum of five years experience in the refrigeration field with solid experience in Johnson Controls and Liebert equipment. Posting No. 8-349

**UTILITY**. General unskilled laboring work including, but not limited to, digging, shoveling snow, lifting and carrying heavy loads, moving furniture and equipment, loading and unloading trucks, placing shores or rigging under the direction of a rigger, and other similar functions involving primarily manual labor. Will make occasional use of special tools and as a back-up driver for vehicles. Participation in snow removal is a condition of employment. Requirements: vigorous good health and strength as to permit performance of the above without limitation. Physical examination may be required. Posting No. 8-306

**CUSTODIAN (DAYS)**, to perform all necessary work in connection with cleaning the buildings. These duties will include sweeping and dry-mopping hallways, etc.; washing, waxing and machine buffing floors; emptying trash receptacles and care of lavatory facilities, occasional water pick-up resulting from leaks and floods, and perform other related duties as assigned by supervisor. Requirements: minimum of three years experience as a custodian. Must be physically able to perform the above without limitation. Posting No. 7-555

**ELECTRICIAN/ALARMS**, (two openings), will be responsible for all phases of electrical work. Will perform a variety of electrical trade functions including installation of panelboards and equipment for distribution, and/or utilization of electric energy. Should be able to read and work from construction drawings. Will install, test, troubleshoot and maintain smoke, fire, gas detection and security intrusion systems. Of equal importance is the maintenance of the Mardix Entry System and involvement with the JC/80 Building Management System. Requirements: must be a licensed electrician with a minimum of five years electrical experience. Must have a working knowledge of electronic circuits, power supplies, and capable of troubleshooting same. Hands on experience with the above systems, and ability to read construction drawings and diagrams. Posting No. 7-517, 7-518

**HVAC MECHANIC**, will install and perform general and preventive maintenance on air conditioning and refrigeration systems including but not limited to overhauling compressors, charging cooling units, fitting rings, bearings, belts and shafts, repairing cooling and heating coils. Will install and maintain pneumatic/electronic control systems including but not limited to adjusting, calibrating control devices and valves. Will service and maintain factory and controlled air compressor systems. Requirements: minimum of five years experience in the refrigeration field with solid experience in Johnson Controls and Liebert equipment. Massachusetts Refrigeration Technician's License required. Posting No. 7-488

## OTHER POSITIONS

### TECHNOLOGY CHILDREN'S CENTER

**ADMINISTRATIVE ASSISTANT** (30 hours/week, year round position). Responsibilities include general ledger, billing and fee collection, payroll, and general office support. Bookkeeping experience and organizational skills required. Word processing knowledge helpful. Sense of humor and love of children a must. Competitive salary and excellent benefits. To apply, please contact the Director, Technology Children's Center, 60 Wadsworth St., Cambridge, MA. 02142 (telephone number 253-5907).

Complete descriptions of additional Administrative, Academic, and Sponsored Research Staff Positions are posted in the Personnel Office.

**MIT POSITIONS AVAILABLE**  
MIT Positions Available is a publication of the Personnel Office, Massachusetts Institute of Technology. It appears as a supplement to TECH TALK 35 times a year and as an independent entity other weeks.

Address inquiries or resumes to the MIT Personnel Office, Room E19-239, MIT, Cambridge, MA 02139. General telephone inquiries are received at (617) 253-4251. Please include the job number(s) when making inquiries.

**DEADLINE INFORMATION**  
To post MIT openings in Positions Available, "Request for Personnel" forms should be submitted to the appropriate Personnel Officer in the Personnel Office. Deadlines for submission are as follows:

12:00 noon on Wednesday (except when the following Monday is an Institute holiday)

12:00 noon on Tuesday (when the following Monday is an Institute holiday).



## Chaos symposium honors Lorenz

(continued from page 1)

by ecologists. "The basic task for population biologists," he said, "is to try to disentangle from the superimposed environmental noise and spacial heterogeneity the underlying dynamical mechanisms that regulate natural populations of plants and animals."

"If the insights that Lorenz has given us about weather prediction are indeed correct, and chaotic phenomena are responsible wholly or in part for an essential unpredictability in the weather, is that the real problem that stands in front of ecology and prevents it from being a really predictive science? Or is it the case that even if the world—the external environment—were as predictable as a controlled laboratory setting, there would still be in the natural world of plants and animals an inherent unpredictability derived from the chaos inherent in their own nonlinear population dynamics?"

Professor May offered the startling conclusion that chaotic processes are the basis for even simple ecological systems, e.g., predator vs. prey, and "undercut all traditional methods of analyzing data and indeed designing experiments." This is so, he claimed, even though superimposed environmental noise makes it nearly impossible to observe the characteristic patterns of mathematically simple chaotic models.

Professor Jack Wisdom of MIT brought the discussion of chaos into the realm of celestial mechanics as he outlined instances of chaos either proved or suspected in the heavens: the erratic rotation of Saturn's moon Hyperion and apparently all other irregularly shaped satellites; the transport of meteorites to Earth from the asteroid belt; and even instability in the solar system at large—in particular, the motion of Pluto.

Cautioning that there remain doubts about the instability of Pluto's orbit, Professor Wisdom revealed early indications from a now in-progress computer simulation of the outer planets that parameters of Pluto's orbit may be chaotic. These intimations come from a special purpose "digital orrery" that he, Professor Gerald Sussman, and others at MIT are monitoring as it cranks ahead seven million years per day.

Chaotic phenomena in fluid mechanics and meteorology occupied the remainder of the symposium. Professor Harry Swinney of the University of Texas spoke about laboratory realizations of chaos—experiments with rapidly spinning tanks of water which provide analogies with planetary atmospheres.

In one experiment, a phenomenon arose similar to the centuries-old "great red spot" of Jupiter—thought to be a manifestation of chaos. The researchers have even experimentally observed coalescence of turbulent spots, similar to instances seen in Jupiter's atmosphere.

Professor James Yorke of the University of Maryland was the first person to employ the term "chaos" to describe non-periodic behavior in nonlinear systems. At the symposium he presented a philosophical overview of the subject. Entering the field 10 years after Lorenz began in the area, James Yorke recalled a typical skeptical remark that greeted his work: "Why hadn't people seen this kind of

thing before?" Dr. Yorke observed, "Many, many people have seen chaos for the last hundred years, but they were able to convince themselves that there wasn't anything there."

Dr. Lennart Bengtsson, director of the European Center for Medium-range Weather Forecasts, spoke about the "predictability of predictive skill" in weather forecasting. He agreed, "There is no question that there is a limit to prediction of instantaneous weather patterns—even if the (measurement accuracy and resolution) were reduced to an infinitesimal amount."

He said that though larger scale global patterns may be predictable further into the future, the typical upper limit of predictability is two to three weeks, depending on many factors. The lower bound in weather forecasting, which Dr. Bengtsson termed "predictive skill," has grown, he said, from one to two days in the 1950s to three days by 1970, and is now six to seven days. This improvement has occurred due to improved atmospheric models and dramatic increases in computer capability.

On the final afternoon of the symposium, Professor Lorenz delivered the Victor Starr Memorial Lecture—a fitting tribute, because at MIT as a postdoctoral student in meteorology Professor Lorenz worked with Professor Starr, then a pioneer in analyzing atmospheric eddies.

His lecture concerned the dynamics of the trade winds, mechanisms first hypothesized 300 years ago by George Hadley. After discussing how the phenomenon has been described from the point of view of "merry-go-round effect" Coriolis forces and equatorial-polar region temperature differences, among other explanations, Professor Lorenz described numerical simulations of the atmosphere aimed at understanding the Hadley flow. He remarked jokingly that we now call fairy tales "models," and later concluded, "Is the 'ideal Hadley flow' a fundamental flow or is it a fairy tale? This question must be left unanswered now."

## Doherty Professor

(continued from page 3)

Professorship helped me get my name on the map," Professor J. Kim Vandiver of ocean engineering said. "As a student I had several important mentors including Doc Edgerton, and two former Sea Grant Directors—Alfred Keil and Ira Dyer. The Doherty Professorship is an 'institutional mentor' of sorts; an award that carries with it encouragement and support for a developing professor." He was a Doherty Professor 1976-78.

Continuing to hold Doherty Chairs for a second year are Professors Jean-Jacques Slotine of Mechanical Engineering who is working in the area of autonomous underwater vehicle control; and S. Shayam Sunder of Civil Engineering who is developing acoustic emission technology for measuring ice deformation.

The Doherty Professorship was established in 1974 in memory of the late founder of the Cities Service Co., Henry L. Doherty and his late wife Grace. Principally devoted to supporting the development of national resources related to the coasts and the oceans, the foundation also helped establish the MIT Sea Grant College Program with a grant in 1971.

## Hatsopoulos Chair

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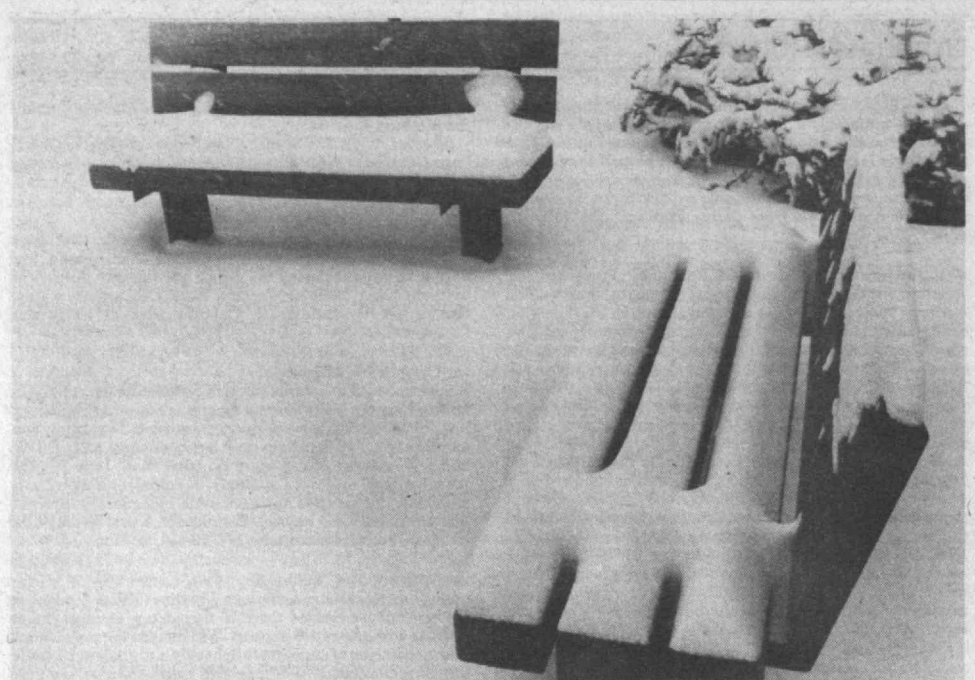
Internationally respected for his work in thermodynamics, he is the author of *Principles of General Thermodynamics*, which he wrote with Joseph Keenan, in 1965. The text has remained a key volume in the field.

Dr. Hatsopoulos' recent interests include strategies for capital formation and for improving US international competitiveness.

He has served for six years on the board of the Federal Reserve Bank of Boston and is currently chairman of that board.

He received the Corporate Leadership Award in 1980 from the MIT Corporation.

Dr. Hatsopoulos and his wife, Daphne, live in Lincoln. They have two children, Nicholas and Marina.



Campus winter scene.

—Photo by Donna Coveney

## University Park wins approval

(continued from page 1)

development allowed in the (University Park) District 2,400,000 square feet of gross floor area, of which 400,000 square feet must be housing."

Under the current industry-only zoning, industrial floor space equivalent to 108 acres (over 4 million square feet) could be built on the 27-acre plot of land; but new housing, sought by all involved, is currently outlawed by the industry-only zoning. The amendment downzones the area by nearly 50 percent, limiting the development to the equivalent of 55 acres of floor space.

The pending zoning amendment states that the housing requirement in the District is increased to a minimum of 400 units, of which 100 must be for low income families and of which an additional 50 must be for moderate income households.

Walter L. Milne, assistant to the president of MIT, said the city's action "is a precedent-breaking sequential zoning plan that requires the developer to achieve specific city and community goals before he can build stated portions of the development. These requirements relate to the building of low-and-moderate income housing, the amelioration of traffic, the construction of new public open space, and conformance to strict design guidelines.

"They represent one of the strongest municipal zoning protection packages and one of the most creative compromises among diverse goals ever put together in Massachusetts," said Mr. Milne.

"If the developer successfully passes each checkpoint, Cambridge will receive \$50 million in revenues from taxes and fees in the next 10 years; the city will increase its housing stock by 400 units,

accommodating more than 1,000 persons; it will gain about 2.5 acres of new public open space; it will have an improved roadway pattern that will minimize the traffic impact of the development, and it will provide approximately 7,000 new jobs, including some from the development of small innovative R&D businesses," Mr. Milne said.

The sequential zoning plan provides that the developer must build, with the first one million square feet, 110 housing units, 27 of them for low-income, and 60,000 square feet of open space. By the time the developer has built 1.75 million square feet, he must include 200 housing units, including 75 low-income, and all 100,000 sq. ft. of open space. Also, peak hour traffic counts must not exceed 1500 trips.

By 1.85 million square feet, before the last 550,000 square feet is constructed, the development must include all 400 housing units, including 100 low-income and 50 moderate-income units, and further traffic checks. The traffic cap for University Park is 1700 peak hour trips at completion of the development.

Mr. Milne noted that the zoning amendment's Agreement for Design Guidelines requires five stages of public and Planning Board review for each building in the development.

Mr. Milne praised the developer for "the flexibility and openness he has brought to the four years of this complex and challenging process. We are particularly proud of his willingness to accept the substantial entrepreneurial risk imposed upon him by the combination of sequential zoning and the requirement to build low-and-moderate income housing without regard to the availability of public subsidies."

## CRLS to join in King event

(continued from page 1)

there seemed to be more opportunity for student involvement." As a result, she said, she was inspired to seek a way of having a joint program the following year.

Ida took her idea to Marilyn Braithwaite, an MIT assistant dean for student affairs, whom she had met at the reception following the King observance.

"I had a skeleton idea of a collaborative celebration," Ida said. "I mentioned that with our school being nestled between two great universities it would be a great opportunity to give our students a view of college life they might not get otherwise."

Ida herself is applying to several colleges, among them Howard University in Washington, D.C., Morgan State University in Baltimore, Md., Wellesley and Holy Cross.

At a meeting in June between Ida, Dean Braithwaite and Clarence G. Williams, special assistant to the president and assistant equal opportunity officer, a plan was developed for the joint program.

At first it was hoped that Rev. King's widow, Coretta King, might speak to the combined assembly, and that is still a possibility. But she has not yet responded

to a letter of invitation signed by Robert Peterkin, Cambridge superintendent of schools, and MIT President Paul E. Gray.

The observance was planned for a date to be determined in February in order to coincide with Black History Month. In a departure from past years, no program will be held in the week preceding Martin Luther King Day, which this year occurs on January 18.

Should Mrs. King not be able to come to MIT, Ida said, "we are looking into some local prominent black females, or possibly Barbara Jordan, the former Congresswoman, or Maya Angelou, the writer."

Ida said she was was anxious to have a woman as the main speaker in order to provide "a black female perspective of civil rights and of contemporary problems affecting black people."

She said there also would be speakers from MIT and the high school, plus music by a gospel choir.

She anticipates that 100 to 150 students from her school, which has a largely minority enrollment, will attend the program.

Details of the observance, including a firm date, will be announced in the near future.

## Sloan Foundation

(continued from page 1)

been one of the most productive members of the economics profession. A study some years ago by George Stigler of the University of Chicago found Solow to be the most frequently cited economist in the publications of others."

"In addition, in the economics profession Solow is universally admired for his intellectual brilliance and universally regarded with great affection," he said.

Mr. Singer said that Professor Solow has advised the foundation on many economics programs.

"The foundation files are full of long letters of advice from Solow," he said. "And they are just the tip of the iceberg. It's fair to say that Solow has served as virtually an adjunct member of the Sloan Foundation staff. The success of the economics program over the past 15 years is due in large measure to his constant advice."