



No Tech Talk

After next week (June 8) Tech Talk will go on its summer schedule of occasional publication. The Institute Calendar in next week's paper will cover the period from June 8-26. Issues scheduled (and calendar periods) for the summer are:

June 22 (June 22-July 10)

July 6 (July 6-24)

July 20 (July 20-August 14)

August 10 (August 10-September 4)

Regular weekly publication will resume with the August 31 issue.

AIDS walk

On Sunday, June 5, people "From All Walks of Life" will gather on Boston Common to begin a 10 kilometer (6.2 mile) pledge walk to benefit AIDS care and research. It is the largest fundraising event for AIDS services in New England.

A number of MIT people and their families plan to walk together. Those interested in joining the MIT delegation may look for MIT sweatshirts near the corner of Beacon and Charles Streets at 10am Sunday. For further information, call Janet Van Ness, x3-1316.

Bursar move

Effective Monday, June 6, the Bursar's Office will be located in Rm 4-145 until mid-August during office renovations in the Ford Building. Telephone numbers will remain the same.

Sports notes

The Department of Athletics will hold open recreation hours in du Pont Gymnasium Saturdays throughout the summer, beginning June 11. The Gym will be open to members of the community 8am-3pm each Saturday, except for July 2.

Also, 1988-89 sign-ups for tennis court time in the J.B. Carr Tennis Bubble are continuing. Those interested in reserving time should see Pat Ferrara at the Murphy Equipment Center in du Pont. For further information, call x3-2914.

Kids' concert

A children's concert with Hugh Hanley on Saturday, June 11, at 4pm in Kresge Auditorium, will benefit programs of the Technology Children's Center.

Mr. Hanley of "KIDSongs" is a well-known performer for children who entertained the children of Eastgate and Westgate last winter.

Tickets are \$3 and are available at TCC in Eastgate, the Child Care Office, Rm 4-144, and at the door.

This week's Institute Calendar appears on page 6.

1,733 receive degrees at Commencement

By CHARLES H. BALL
Staff Writer

At commencement exercises marked by the theme of service to society, MIT awarded degrees Friday, May 27, to 1,733 seniors and graduate students in an outdoor ceremony attended by more than 8,000 relatives and guests.

The university's 122nd commencement, held in Killian Court under cloudless skies, was preceded by a colorful academic procession.

A number of students received more than one degree. In all, 981 bachelor of science degrees and 918 advanced degrees were awarded, for a total of 1,899 degrees. The advanced degrees included 228 doctorates, 665 master's degrees and 25 engineer degrees.

The degree recipients included 398 women.

See texts, related stories, other photos on pages 4 and 5.

Three participants in the exercises—The Rev. Susan P. Thomas, MIT's Lutheran chaplain; A. Bartlett Giamatti, the commencement speaker; and MIT President Paul E. Gray, who delivered the traditional charge to the graduates—all focused on the graduates' responsibility to society.

In her commencement prayer, Rev. Thomas said, "Grant that we may use the privileges of this MIT education and degree wisely—not as entitlement to power or regard, but as a means to serve."

Mr. Giamatti, president of baseball's National League and former president of Yale University, told the graduates to keep their minds open and avoid "the selfishness of self-righteousness" as they address the problems of society. He stated that "the open life of the mind in the service of a more just



MIT officials gave way to mirth as commencement speaker A. Bartlett Giamatti, drawing on his years as president of Yale, offered a sardonic view of his experiences. Among his comments: "Being president of a university is no way for an adult to make a living. Which is why so few adults actually attempt to do it. It is to hold a mid-nineteenth-century ecclesiastical position on top of a late twentieth-century corporation." MIT President Paul E. Gray, former president Howard W. Johnson and Provost John M. Deutch show that they can relate to some of Mr. Giamatti's observations. Behind them, also enjoying the moment, from the left, are The Rev. Susan Thomas, Lutheran chaplain at MIT; Dean Charles D. Hollister of the Woods Hole Oceanographic Institution; Jeffrey A. Meredith, Graduate Student Council president; and Kevin T. Oliveira, Class of 1988 Executive Committee member.

—Photo by Donna Coveney

society" should be the graduates' "guiding principle."

President Gray also said the graduates should use their intellect and education in

the service of society. "Yours is the obligation to help heal this society where healing is required, to help strengthen this country

(continued on page 5)

2,000 expected for Tech Day

Some 2,000 MIT alumni and their spouses will gather on campus Friday, June 3, for Technology Day, the annual program that caps a week of traditional alumni events and class reunions.

Highlights will be a morning program in Kresge Auditorium focusing on the impact of new materials and improved materials processing, and a luncheon program in the Johnson Athletics Center at which the reunion classes will present their gifts.

MIT President Paul E. Gray will welcome alumni in Kresge Auditorium at 9am, after which a panel of MIT faculty members and industry representatives will discuss how advanced materials and materials processing will affect productivity, national well-being and international competitiveness in the years ahead. The moderator will be Dr. Merton C. Flemings, Toyota Professor of Materials Processing and head of the Department of Materials Science and Engineering. The department, which is cele-

brating its centennial, will hold an open house at 3pm.

Panelists include Lester C. Thurow, dean of the Sloan School of Management; Dr. Morris Cohen, MIT Institute Professor Emeritus; Morris Tanenbaum, executive vice president, AT&T Corporation; Richard P. Simmons, chairman and chief executive officer of Allegheny Ludlum Corporation; and Richard F. Polich, president of Tallix Art Foundry.

Technology Day activities begin with a breakfast in the Johnson Athletics Center at 7:15, followed by a memorial service in the MIT Chapel at 8:15 honoring alumni whose deaths have been reported this past year. The day concludes with a late afternoon reception in the courtyard at McCormick Hall.

Other alumni activities this week include the traditional Tech Night at the Pops on Thursday evening, June 2, and a cookout on Thompson's Island on Saturday, June 4.

Daedalus coming home to MIT

If all goes well, the Daedalus 87 will be on display at the hockey rink at the Johnson Athletic Center on Monday, June 6.

The 69.9 pound aircraft, twin to the record-setting human-powered plane that flew 74 miles from Crete to Santorini, is scheduled to leave Greece in a Hellenic Air Force C-130 and arrive at McGuire Air Force Base today, and then be trucked home to MIT.

It is scheduled to be displayed from the ceiling of the hockey rink in time for the Technology Day luncheon tomorrow, and will be on display Monday to the rest of MIT and the general public.

Controlling hazardous wastes by electroosmosis

by Eugene F. Mallove
Staff Writer

Traditional methods for detoxifying hazardous waste sites involve the removal, processing and safe storage of contaminated soil. Researchers in MIT's Mechanical Engineering Department are proposing what they believe might be an attractive alternative: plunge electrodes deep into the ground around the hazardous waste to control the site and its effluents with invisible electric fields.

Professors Ronald F. Probst and Patricia C. Renaud of the Fluid Mechanics Laboratory and their colleagues have been

investigating for the past several years the use of "electroosmosis" to control hazardous waste sites. Electroosmosis is the slow migration of liquid through a porous medium under the action of applied electric fields, when the medium has charged internal surfaces.

The phenomenon has already been applied to dewater and consolidate soils in construction, as well as to dewater mine tailings and waste sludges. The MIT researchers have conducted their experimental and theoretical program in electroosmosis with the aim of extending it to soils contaminated with toxic waste. They fore-

see removal of toxic wastes from contaminated soils, dewatering and consolidating soils, controlling fluids going in and out of a waste site, injecting sealants precisely where leaching occurs, and injecting chemical or biological detoxifying agents.

In fact, encouraged by the results of their laboratory experiments, the researchers have begun to evaluate the economics of detoxifying and controlling "Superfund" waste sites by electroosmosis. The EPA had been supporting the MIT research several years ago, but during the last two years funds have come from the Tufts Center for

INSTITUTE NOTICES

- * - Open to public
- ** - Open to MIT Community only
- *** - Open to members only

Announcements

Bursar's Office Temporary Location - Rm 4-145, June 6 through mid-August. Telephone numbers remain the same.

MIT-Brasil Soccer Camp** - Brazilian Students Association of MIT Summer Soccer Camp for boys and girls aged 6-14, 2-week sessions July 18-29, taught by qualified instructors at Briggs Field; also, video tapes reviewed. Information/registration, x3-7393.

Summer Course in Weight Training** - Beginner, refresher and advanced training, lifting and body building, June 6-July 15, M-W-F, 10-11am, 11am-12noon, DuPont Gymnasium. Fee: \$100. Info: x3-5782.

Serials in the MIT Libraries, 31st edition - Microfiche listing containing over 1,000 new titles, published in two sections: alphabetical list (8 fiche), and keyword index (8 fiche). Prepayment required - \$20, \$5/MIT staff & students. To order send check payable to MIT to Office of the Director, MIT Libraries, Rm 14S-216.

Free Museum of Science Admission for MIT Students - With MIT student ID, provided by Mass Beta chapter of Tau Beta Pi, the National Engineering Honor Society. Reduced admission to special exhibits.

Arts Hotline - Recorded information on all art events at MIT may be obtained by dialing x3-ARTS. Material is updated every Monday morning.

Nightline** - a student-run campus hotline is now seeking staffers for fall term. No experience is necessary, just an open mind. For more information, call x3-7840 between 7pm and 7am. Freshmen and grad students are welcome. Open every evening of the term, 7pm-7am. If you need information about anything or you just want to chat, give us a call. We're here to listen. x3-7840.

Club Notes

MIT Student Television Channel 36** - Seeks people interested in programming the cable television network. Info: Christopher Coon, x5-9432 dorm.

Tool and Die** - MIT's humor magazine, Regular meetings, Tues, 5pm, 5pm, Walker Rm 50-309.

MIT/DL Bridge Club* - Duplicate bridge, Tues, 6:30pm, Rm 33-419. ACBL masterpoints awarded; come with or without partner, newcomers always welcome. Special tournaments monthly. Handicap game, 3rd Tues every month. Info call Gary Schwartz, x8-2459 Draper, or Mark Dulcey, 868-5518. Admission: \$1/ students, \$2/non-students.

MIT Go Club* - Meets every M/Th, 5-7pm, Bldg NE43 7th floor lounge. Ring bell to get in if locked. Info: x3-4874.

MIT Science Fiction Society* - The world's largest open collection of science fiction books and magazines is located in Student Ctr Rm 473. Meetings, Fri, 5:30pm. Info: x5-9144 dorm.

Animal Rights Forum* - Meets 2nd & 4th Weds each month, 5pm, Rm 8-105. Info: Peter Mead, x5-9616 dorm.

COCA (Committee on Central America)* - Meets at least once a month to plan activities relating to events in Central America. Info: Charlie Welch, 783-1668 eves/messages.

MIT Nautical Association** - Recreational and Competitive sailing on the Charles and beyond. Sailing Pavilion open every day, 9am to sunset. Sailing cards on sale at Cashier's Office (Lobby 10): \$10 students, \$30 staff/faculty; \$40 alumni. Free basic sailing classes Sat, 9:30am-1pm; Wed, 5:30pm. Boardsailing classes, Thurs, 5:30pm. Info: x3-4884.

MIT Outing Club* - Camping, cycling, climbing, canoeing, cabins, meets M/Th, 5-6pm, Student Ctr Rm 461. Office and rental hours - Mon/Th, 5-6pm, Rm W20-461. Also, see our bulletin board in "Infinite Corridor" next to Athena.

MIT Soaring Association* - Weekend Soaring - Learn the exciting sport of soaring. We fly from the Mansfield airport every weekend and some holidays (weather permitting). Mansfield is 45 minutes south of Cambridge, off Rt 95. Student membership: \$125; typical flight: \$16. Contact: Bob De Saro, 622-1472 or 264-4426 eves.

MIT Hobby Shop** - Complete supervised facilities for wood-working and metalworking, Rm W31-031, M-F, 10am-6pm; Wed, 10am-9pm. Fees: \$15/term students; \$25/term community. Info: x3-4343.

MIT Aikido Club** - Non-competitive martial discipline, meets M-F, 5:30pm, DuPont Exercise Rm. Beginners always welcome. Info: Mitch Hansberry, 1-872-5015 or 258-1272.

MIT Judo Club** - Meets M/Th, 5:30-7pm, Dupont Gym Wrestling Rm. Info: Donna Duffy, x3-5773 or 661-9469.

MIT Wu Tang Martial Arts Club** - Learn Northern Chinese kung fu. Long fist and praying mantis styles, short sabre and sword. Beginners welcome. Meets T/Th, 8-10pm; Sat, 9am-12noon, Johnson Athletic Ctr. Info: Jeff, Cohen, x3-6204 or 621-0559.

Religious Activities

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

Tech Catholic Community* - Roman Catholic Masses: Suns, 9am, 12 & 5pm, MIT Chapel. Tues & Thurs: 5:05pm, MIT Chapel. Fri, 12:05pm, MIT Chapel.

Lutheran Ministry and Episcopal Ministry** - Weekly Service of Holy Communion - Wed, 5:10pm, MIT Chapel. Supper follows at 312 Memorial Drive. For further info, call x3-2325/2983.

United Christian Fellowship** - Large group meetings. Join us for worshipful singing, prayer, sharing and Bible teaching, and small group Bible studies during the week in various dorms, Fri, 7pm, Rm 6-321. Info: Tracy, x5-9676 dorm.

Graduate Christian Fellowship** - Come join other grad students, faculty and staff as we meet in small groups to learn about and grow in the Christian faith. Activities open to both Christians and those interested in learning more about Christianity. Info: Curt Bronkhorst, x3-4414 or Roz Wright, x3-7314.

MIT Islamic Society* - Daily prayers, Ashdown House (basement), 5 times a day. Call x5-9749 dorm, for schedule. Friday prayer, Ashdown House 1-1:30pm, Khutba starts at 1pm, congregation at 1:20pm.

MIT Bahai Association* - Informal discussions, Thurs, 8pm, Nancy, x3-3361 or Brian, 354-0117.

Christian Science Organization at MIT* - Weekly Testimony meetings, Thurs, 7:30pm, Rm 4-145.

Lincoln Laboratory Noon Bible Studies* - Tues & Thurs, Kiln Brook III, Rm 239. Annie Lescard, x2899 Linc.

Morning Bible Studies - Fri, 7:30-8:30am, L-217. Ed Bayliss, x3456 Linc.

Noon Bible Study* - Every Wed, Rm 66-160, bring lunch. Ralph Burgess, x3-8121. (Since 1965.)

Edgar Cayce Study Group* - Tuesdays, 6:30-9pm, Edgar Cayce's Search for God material will be used as the basis for group discussion & meditation. For info: Douglas McCarroll, 497-0819 12:9pm or Scott Greenwald, x3-7423.

MIT Campus Crusade for Christ* - Fridays, 7:17pm, Marlborough Lounge, Rm E37-252, TGIF weekly meeting of MIT Campus Crusade for Christ. We "thank God it's Friday" every week with singing, biblical input, discussion and fun. Info: x5-9153 dorm.

International Opportunities

Fulbright Faculty Grants for Lecturing and Research Abroad, 1989-1990. Approximately 1,000 awards spanning 120 countries. Major deadlines: JUNE 15 - Australasia/India/Latin America/Caribbean (except lecturing awards in Mexico, Venezuela and Caribbean). SEPTEMBER 15 - All other countries (and lecturing awards in Mexico, Venezuela and Caribbean). Write/call: Council for International Exchange of Scholars (CIES), Eleven Dupont Circle NW, Washington, DC 20036-1257, 202-939-5401. On-campus info: Lillian H. Whelpley, x3-1939, Rm 4-237.

MIT-Japan Science and Technology Program. A unique opportunity to science and engineering students to spend a year working at a major Japanese company or laboratory. Students are trained in Japanese language and culture at the Program's expense before being placed in Japan. Placement is tailored to the student's background and experience. Travel to/from Japan and living expenses will be covered. For further information, call Patricia Gercik, x3-3142, Ctr for International Studies, MIT-Japan Science and Technology Program, Rm E38-656.

Student Jobs

There are more job listings available at the Student Employment Office, Rm 5-119.

Special Note: The Student Employment Office has many "one time only" jobs. Many students find these jobs a good way to earn money fast.

Off Campus: Non-Technical

Clerical assistant. Some typing experience necessary. Previous office experience preferred. Interest in sciences most helpful. Hours: flexible 20-35/wk. Wage: \$6.50/hr. Contact: Jane Flaherty, Earthworth, 680 Mt. Auburn St, Watertown, 926-8200.

One-time job for driver to New York and back, Nov 27-28 or Nov 28-29. Drive a 10' long van. Help unload and load boxes. Wage: negotiable. Contact: Ms. Poole, 547-5717.

Off Campus: Technical

Summer internship. Mechanical engineering junior wanted to work in Boston doing a study on time in motion. Send resume to Armando Romero, Kraft Inc, PO 324 Parkway North, Deerfield, IL 60015, 312-405-8661.

Jufisoft, a small, well-established software company located in Central Sq seeks someone to play a major role in helping to develop an exciting new product. Knowledge of C or Pascal and working knowledge of IBM-PC class machines. Some familiarity with word processors helpful. Lisa, 864-6151.

UROF

MIT and Wellesley students are invited to join with faculty members in pursuit of research projects of mutual fascination. New spring term projects are now posted on the bulletin boards located in the main corridor and in the UROF Office. Faculty supervisors wishing to have projects listed should send project descriptions to the UROF Office. Questions? Contact UROF at x3-7909, Rm 20B-141.

Ceramics Processing Research. A new project has started to develop improved techniques and improved superconducting ceramic materials for electronic applications. The research is based on lots of laboratory tests and experimentation, as well as some analytical and characterization work as is usually practiced in the ceramics branch of materials science. Supervisors: Prof Cima and Drs. Rhine and Pober. Contact: Richard Pober, Rm 12-003, x3-3878.

Ceramics Processing Research. A new project has started to develop improved techniques and improved materials for dental prosthetic applications. The primary application involves CAD/CAM processing of dental restorations using a "state-of-the-art" optical imaging, computer driven machining system. The research program is based on lots of laboratory tests and experimentation, as well as some analytical and characterization work as is usually practiced in the ceramics branch of materials science. The project is supervised by Dr. Kelly, a prosthodontist, and Dr. Pober, an MIT research staff ceramist. Contact: Dr. Richard Pober, Rm 12-003, x3-3878.

Human Nutrition. Full-time student needed to work on a comprehensive search of the scientific literature concerned with the role of the amino acid lysine in human nutrition. The goal is to develop an extensive written review by the end of the summer for eventual publication on the safety of lysine. Will work closely with supervisor. Contact: Dr. Vernon R. Young, Rm E18-613, x3-5801.



Brookline's Lars Anderson Park was the hands-on laboratory for Professor Jan Wampler's design studio graduate students recently. They designed theaters, amphitheaters, a cafe and a restaurant, meeting the site requirements of the park, then displayed their solutions in an exhibit in the park. Graduate student Timothy Mansfield, above, discusses the plans with Brookline Parks Director Paul Willis. Support for the project came from the town of Brookline, the Brookline Parks Commission, Trus Joist Corp., Gerrity Co., the MIT Council for the Arts, the Department of Architecture and the School of Architecture and Planning.

—Photo by Donna Coveney

Wade to head Alumni Assn.

Emily V. Wade, former president and chairwoman of the Boston Zoological Society, widely known for her work in conservation and animal care, is the 1988-89 president of the 88,000-member MIT Alumni Association.

Mrs. Wade, 63, who received the SB in chemistry from MIT in 1945, has been a leader in public service programs and institutions focused on the environment and on providing animal care.

She has also been active in the development of the Alumni Association and of AMITA—the Association of MIT Alumnae.

Mrs. Wade, a resident of Bedford, Mass., is a trustee of Eaglebrook School. She was director of the Massachusetts Audubon Society from 1962-87 and has been honorary director since 1987. She has been a trustee of the Boston Zoological Society since 1966, was president of that organization, 1967-69, and its chairwoman, 1969-78. She is a member of the Manomet Bird Observatory executive committee and the International Council for Bird Preservation's Achievement Board. From 1961-70 she was chairwoman of the Bedford Conservation Commission and from 1972-74 was a member of the Visiting Committee for Harvard's Museum of Comparative Zoology. She has been a member of the New England Deaconess Hospital since 1977.

Mrs. Wade is currently midway through a five-year term on the MIT Corporation, on

which she also served from 1979-84. Since 1985 she has been chairwoman of the Corporation Joint Advisory Committee for Institute-Wide Affairs. She has served on Visiting Committees for the Medical Department and Ocean Engineering and was a member of the Corporation Executive Committee, 1981-84, and of the Corporation Development Committee, 1974-84, and from 1987 to the present. Mrs. Wade has been a member of the MIT Sea Grant Program's State-Industry Council since 1972 and was that group's chairwoman from 1977-79.

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Permission is granted to excerpt or reprint any material originated in Tech Talk.

Gavin, Wagley are elected Corporation Life Members

By **ROBERT C. Di IORIO**
Staff Writer

The Corporation of the Massachusetts Institute of Technology—MIT's governing body—elected two life members and eight term members at its quarterly meeting today, Friday, May 27, held just before MIT's 122nd Commencement Exercises.

Elected life members were:

Joseph G. Gavin Jr. '41, former president and chief executive officer of Grumman Corporation, Bethpage, N.Y.

Mary Frances Wagley '47 of Baltimore, retired educator and former executive director of Episcopal Social Ministries of the Diocese of Maryland, Inc.

Elected to five-year term memberships were:

Herbert H. Dow '52, vice president, The Dow Chemical Company, Midland, Mich.

Robert A. Charpie, chairman, Cabot Corporation, Waltham, Mass.

Margaret Coleman Haas '50, independent consultant in the food technology industry, West Lafayette, Ind.

David H. Koch '62, director and executive vice president, Koch Industries, Inc., New York City.

Angus N. MacDonald '46, president, Angus MacDonald & Company, Inc., Greenwich, Conn.

H. DuBose Montgomery '71, general partner, Menlo Ventures, Menlo Park, Calif.

Robert A. Muh '59, independent investment banker, San Francisco.

Frank S. Wyle '41, founder chairman, Wyle Laboratories, El Segundo, Calif.

The names of those elected were announced by Dr. David S. Saxon, chairman of the MIT Corporation. The new members include a 1986 graduate of the Institute in mechanical engineering, Megan J. Smith, Fort Erie, Ontario, Canada, who was nominated by graduates of recent MIT classes for a five-year term. Ms. Smith received the SM degree in mechanical engineering at the May 27 commencement. Ms. Smith, active in all aspects of MIT life as an undergraduate and a graduate student, was a member of the varsity swimming team as an undergraduate. As a graduate student, she was a member of the MIT student team that entered a solar-powered car in the 1987 south-north race across Australia.

The Corporation is comprised of 75 distinguished leaders (62 men and 13 women) in education, science, engineering and industry. Up to 25 of them may be elected to life membership. In addition, 22 individuals are life members emeriti, participating in meetings but without a vote. The Corporation meets four times a year and considers broad policy issues for the university.

The MIT Corporation also operates 26 Visiting Committees, which provide critical counsel to each academic department and make recommendations to the Corporation on academic activities and initiatives. Each Visiting Committee is chaired by an MIT trustee and, besides other fellow members of the Corporation, each committee includes alumni and other professionals. All in all, more than 400 individuals participate in the Corporation Visiting Committees.

The Corporation includes these ex officio members: the chairman, Dr. Saxon '41; President Paul E. Gray '54; Treasurer Glenn P. Strehle '58; Secretary Constantine B. Simonides; the president of the MIT Alumni Association, Emily V. Wade '45, former president and chairwoman, Boston Zoological Society; Massachusetts Governor Michael S. Dukakis; Edward F. Hennessey, Chief Justice of the Massachusetts Supreme Judicial Court, and Harold Rayolds Jr., Massachusetts Commissioner of Education.

The two new life members have extensive records of service to MIT and to their chosen fields and communities.

Mr. Gavin has served on the Corporation since 1983, on the Corporation Executive Committee since 1984, and on the Corporation Development Committee since 1973. He is a founding life member of the MIT Sustaining Fellows. He has been a member of the Visiting Committee for Aeronautics and Astronautics since 1983 and chairman since 1987. He was chairman of the Visiting Committee for Ocean Engineering from 1984-86 and a member of the Visiting Committee for Mechanical Engineering from 1983-84. His Alumni Association posts include president (1986-87), vice president (1981-83), board of directors

(1981-83), and chairman, nominating committee for Visiting Committee members. In the MIT Leadership Campaign, he was a member of the National Business Committee in 1980 and from 1975-80 a member of the Leadership Committee. Since 1985 he has been a member of the Corporation Campaign Committee.

A native of Somerville, Mass., Mr. Gavin received the SB from MIT in 1941 and the SM in aeronautics and astronautics. He started with Grumman Corporation in Bethpage, N.Y., as a design engineer in 1946, served as director of the Lunar Module Program, 1963-72; vice president, 1962-70; senior vice president, 1970-72; president, Grumman Aerospace Corporation, 1972-76; president and chairman of the board, Grumman Aerospace Corporation, 1973-77; president and chief operating officer, director, Grumman Corporation, 1976-85; and senior management consultant, 1985 to present.

He is a director of the Charles Stark Draper Laboratory, Inc., the European American Banking Corp., and the Pine Street Fund, and a trustee of Huntington Hospital in Huntington, N.Y., and Polytechnical Institute of New York.

Mr. Gavin is a member of the National Academy of Engineering, the American Institute of Aeronautics and Astronautics (former president), the American Astronautical Society, and the Aerospace Industries of America (former governor).

He is also a member of Tau Beta Pi and Sigma Xi honor societies.

Mrs. Wagley was a member of the MIT Corporation from 1970-80 and was elected to another term in 1983. She served on the Corporation Executive Committee from 1973-75 and began another term on that committee in 1987. She was a member of the Corporation Membership Committee, 1975-79. She is currently chairwoman of the Visiting Committee for Humanities and has served on these other Visiting Committees: Chemistry, 1970-73; Libraries, 1970; Nuclear Engineering, 1975-76; Philosophy, chairwoman, 1971-73; Psychology, chairwoman, 1975-80, and Sponsored Research, 1976-80. Mrs. Wagley was also a member of the Corporation Committee on the Presidency (to elect Paul E. Gray) 1978-79. She was president of the Alumni Association, 1984-85, vice president, 1980-82, a member of the National Selection Committee, 1975-78, and a member of the Educational Council, 1961-76.

Born in New York City, Mrs. Wagley received her SB from MIT in 1947 and her D.Phil in chemistry from Oxford University in 1950. From 1950-53 she taught at Smith College, first as an instructor of chemistry, then as assistant professor. From 1956-57 she was with Goucher College. From 1959-61 she was instructor in the School of Nursing at Johns Hopkins. From 1966 to 1978 she was headmistress, St. Paul's School for Girls. From 1979-84 she was executive director, Episcopal Social Ministries of the Diocese of Maryland.

She is a director of Maryland National Bank. Since 1980 she has been a trustee of Virginia Theological Seminary and is a former trustee of American University of Beirut and Goucher College.

She is a member of Sigma Xi honor society.

Herbert Dow, a Corporation member since 1983, has been a member of the Corporation Development Committee since 1969. He has chaired the Visiting Committee for Applied Biological Sciences since 1985 and has been a member of the Visiting Committee for Chemical Engineering since 1971. Past Visiting Committee service includes Biology (1983-87), Medical Department (1962-66), and Nutrition and Food Science (chairman, 1984-85).

Robert Charpie has been a member of the MIT Corporation since 1983 and has been reelected to a five-year term on that body. He has served on two Corporation Visiting Committees, the Visiting Committee for Nuclear Engineering, of which he has been a member since 1964, and the Visiting Committee for Sponsored Research, of which he has been a member since 1983 and chairman since that time.

Margaret Coleman Haas is serving her first term on the Corporation. She was president of the Association of MIT Alumnae (AMITA) from 1980 to 1984 and served as treasurer from 1977 to 1979. She



Mr. Gavin



Mrs. Wagley



Mr. Dow



Mr. Charpie



Mrs. Coleman Haas



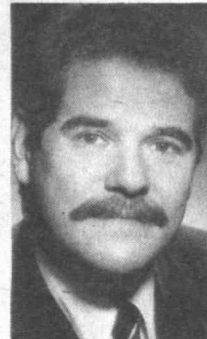
Mr. Koch



Mr. MacDonald



Mr. Montgomery



Mr. Muh



Mr. Wyle



Ms. Smith

chaired the annual AMITA Career Development Conference, co-sponsored with the Boston chapter of the Society of Women Engineers, from 1980-87. She headed the 25th reunion committee for the Class of 1950.

David Koch, serving his first term on the Corporation, is a founding life member, Sustaining Fellows; vice chairman for the New York City area in the Campaign for the Future; served on the Visiting Committee for Athletics, 1977-80, and has been a member since 1985 of the Visiting Committee for Chemical Engineering. He was a member (1974-81) of the National Sponsoring Committee for the Athletics Center and a member (1973-78) of the Educational Council.

Angus MacDonald served on the Corporation, 1973-78 and 1981-87, and has been a Corporation Development Committee member since 1968. A founding life member, Sustaining Fellows, he was president of the Alumni Association, 1981-82. He has served on Visiting Committees in Aeronautics and Astronautics, 1975-81 (as chairman, 1975-77); Arts, 1971-81; Humanities, 1967-71, 1982-84; Political Science (chairman, 1986-87); Psychology, 1982-86 (as chairman, 1984-86); Whitaker College, since 1986. Mr. MacDonald has been a member of the Council for the Arts since 1971 and was vice chairman in 1971-72.

H. DuBose Montgomery has been Alumni Association vice president since 1986 and a member of the Corporation

Development Committee since 1982. Other service includes National Selection Committee, 1980-83; Alumni Nominating Committee for Visiting Committees, since 1985; Alumni Awards Committee, chairman, 1987; Alumni Fund Board, 1982-85; Alumni Activities Board, chairman, 1980-82; regional chairman, personal solicitation campaign, 1984-85.

Robert Muh has been a member of the Corporation Development Committee since 1985. He was vice president of the Alumni Association, 1987-88, and a director, 1985-88; a member of the Committee on Alumni Nominees to Corporation Visiting Committees, 1984-86. He has been president of the Class of 1959 since 1984 and was secretary from 1959-70. He is a member of the San Francisco Committee of the Campaign for the Future. From 1978-81 he was an Educational Counselor in the Los Angeles area.

Frank Wyle served a term on the MIT Corporation, 1982-87, and has been a member of the Corporation Development Committee since 1965. He has been Visiting Committee chairman for Aeronautics and Astronautics, 1982-87, and a Visiting Committee member, Humanities, 1980-84. He is a founding life member of the Sustaining Fellows, Los Angeles Leadership Campaign chairman, 1975-80; Class of 1941 vice president, 1976; member of the Council for the Arts since 1974, and Los Angeles committee chairman, Campaign for the future.

Kemp receives Science Prize

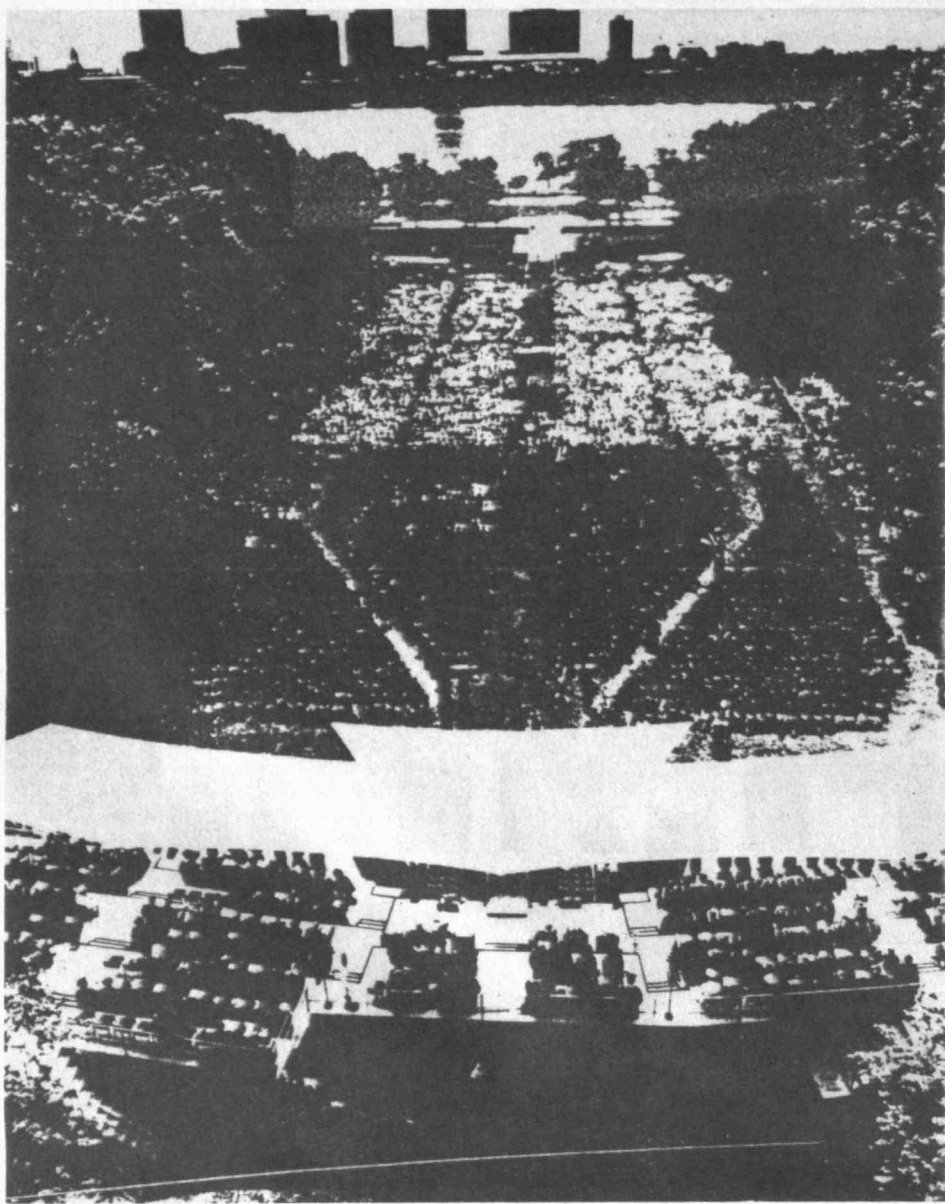
Professor Daniel S. Kemp of the Department of Chemistry is the 1988 recipient of the MIT Science Council Prize for Excellence in Undergraduate Teaching.

The award was announced by Dean Gene M. Brown of the School of Science. The prize is given to recognize outstanding instructional performance and to draw attention to the importance the Science Council places on teaching, Dean Brown said. The Science Council is made up of the dean and the heads of the academic departments in the School of Science.

Professor Kemp has been a member of the faculty since 1964. His most recent influence on undergraduates has been in his teaching of 5.11, "Principles of Chemical Science," the Science Council said. Earlier in his academic career, Professor Kemp was instrumental in initiating new courses for undergraduates in the area of organic chemistry. He also served, from

1969-71, on MIT's Commission on Education in the '70s.

Professor Kemp received his bachelor's degree from Reed College and his doctorate from Harvard University. He is the author of more than 85 research publications in the areas of peptide chemistry, synthesis of peptides, and catalysis. He has been an A.P. Sloan Research Fellow (1969-71), a Camille and Henry Dreyfus Fellow (1971-75), a senior research fellow of Jesus College (Oxford) in 1983, and an Alexander von Humboldt Fellow (1982-83). He received a MERIT Award in 1987 from the National Institutes of Health, and has served as a member of the NIH's Medicinal Study Section and the NIH Small Business Research Initiative Study Section. In 1985 he was a member of the NSF's Chemistry of Life Sciences review panel. He has given invited lectures at many international peptide symposia.



Formal portrait of Commencement 1988.

—Photo by Donna Coveney

Commencement invocation

(The Rev. Susan P. Thomas, Lutheran chaplain at MIT, gave the following Commencement Prayer at graduation exercises Friday):

O God, you who call us to life and attend our death, make us lovers of this life and enemies of all that deals death. Gentle our knowledge with care, our precision with insight, our accomplishment with humility.

We give you heartfelt thanks for this commencement day and for all who have brought us to it—parents, professors, advisors, counselors, friends, great-aunts, TA's, deans, that high school chemistry teacher, janitors, roommates and spouses, hot pretzel vendors, and the long line of inquirers who came before us, some of whose names surround us here. We remember especially before you those who do not march with us this day, whose way has been harder and who have struggled with despair.

Grant that we may use the privilege of this MIT education and degree wisely—not as entitlement to power or regard, but as a means to serve. May the technology that we use and develop be humane, and the world

we create with it one in which people can live more fully human lives rather than less, a world where clean air and water, adequate food and shelter, and freedom from fear and want are commonplace rather than exceptional.

We also lay before you today our fears—our fears that the talents we've been given will not be fully used, or worse, wrongly used; our fear that the work we love most to do will not be available to us or will amount to nothing; our fear that we may not win the Nobel Prize; our fear that our technological answers will not be sufficient for the overwhelming problems we and the whole world face.

O God, sweep the hopes and fears we bring before you into one high and holy heap. Transform them into something lovely and nourishing and then scatter them over the ugly and starving places of which we are hardly yet aware. A portion of the knowledge we have gained at MIT is that we live in a wounded world, and we ask you to guide us tenderly, not triumphantly, into it, with a hope that will finally overcome fear. Amen.



A flight of paper airplanes signalled the end of graduation exercises for former students in aeronautics and astronautics.

—Photo by L. Barry Hetherington

Charge to the graduates

(Following is the text of the charge to the graduates by President Paul E. Gray at commencement exercises in Killian Court last Friday.)

Thank you, Ms. Martin.

Dr. Saxon, Dr. Giamatti, ladies and gentlemen...good morning.

This is, before all else, an occasion for congratulating people. First, I extend to each of you who receive degrees today the congratulations and best wishes of the faculty, the administration, and the Corporation.

The road that has brought you to these ceremonies has not been an easy one. If excellence has been your guide, then rigor has been your companion. In completing the journey through MIT, you have travelled far, and we all take pride in this special moment for you.

Special congratulations are due, also, to the parents and families of the graduates. Their steadfast support and sacrifices have made this day possible for many of you. By way of thanks, I ask members of the graduating class to stand, face the guest sections, and join the faculty and trustees in applauding some of the most remarkable people in higher education today—your parents and families.

My charge to you, as you leave these halls, concerns what this university expects of you during the decades to come—and that is the obligation of public service.

It is an obligation embodied in the life and work of MIT's tenth president, James Rhyne Killian Jr. This past winter, we were saddened by the death of this major figure in MIT history, a man of enviable erudition, natural eloquence and charm, and rare qualities of mind and spirit and vision. A distinguished leader in American higher education and an advisor to a long succession of American presidents, Jim Killian was a tireless public servant who served his country with wisdom, courage, and limitless dedication to the commonweal and the ideals of democracy.

In his memoir, *The Education of a College President*, he recalled that upon his retirement in 1971 he and Mrs. Killian made a swing around the country, paying farewell visits to gatherings of MIT alumni. "It was," he said, "a wonderful opportunity to get a grassroots feeling for the greatness of this institution by observing close up what its alumni have accomplished, what they contribute to the welfare of this country, and the variety of ways they have enriched the quality of American life."

If he were here today—in this court that bears his name—I believe Jim Killian would say that your alma mater expects no less from you.

You, above most others in this society, possess the gift of remarkable intellect, enriched and enabled by superb education. Yours is the obligation to help heal this society where healing is required, to help strengthen this country where strengthening is required, and to help bring harmony among the nations of this world wherever discord obtains.

You won't have to look far for opportunities to meet these challenges. We live in a world divided by poverty, disease, racial differences, conflicting religious beliefs, political hostilities, ignorance, and fear. A world in which the divisions among peoples and nations cause unimaginable human suffering.

What, you may ask, do you have to bring to this world? I would submit that your education—based in the sciences—gives you more than a meal ticket, more than the key to professional opportunity. Your education has given you the opportunity and the obligation to participate fully in the political, economic, and cultural life of society—to be servants of the public interest and the common good.

Science and technology are the agents of much of the change we see all around us. And they are also the key to your ability to influence and improve this world. Whatever paths you choose, you will find challenges to the once traditional order of things. The details of the knowledge you have acquired here will become old long before you do. But the basic scientific premises and approach to learning will sustain you as

leaders in an age shaped increasingly by science and its technological fruits.

Few would argue that—for good or bad—our society, our culture, our lives have come to be increasingly dependent on technical knowledge. At the same time, there is widespread and increasing scientific ignorance, even hostility, among the general population, even among the supposedly educated. Just consider the decline in science education in the public schools, the widespread ignorance of elementary and crucially important scientific concepts, or the confusion between astronomy and astrology—not to mention the remarkable influence of the latter.

There is little need here to elaborate on the consequences for the nation of a public unable to distinguish sense from nonsense in the domain of science and its applications; of an electorate unable to comprehend the arguments arising at the intersection of science, technology, and public policy; or of a work force that cannot understand the nature of their tools, the processes they control, or the products they produce.

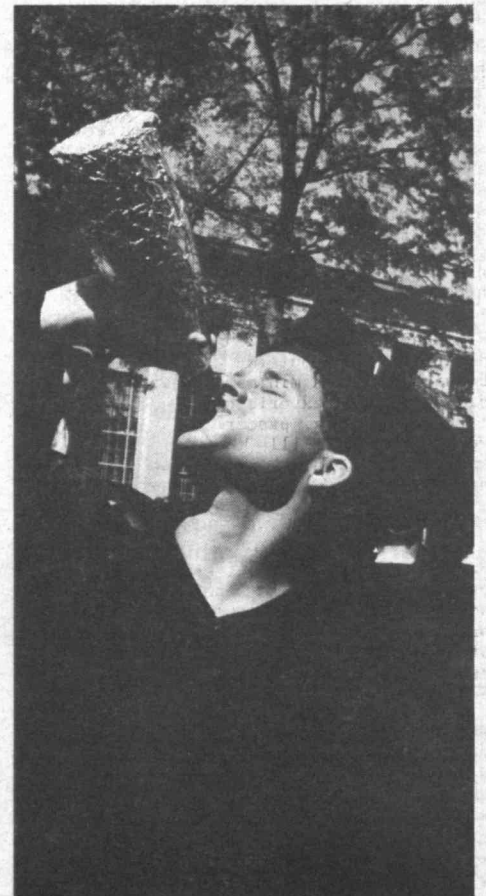
The plain fact is that scientific illiteracy undermines a democratic civilization. How can a democratically based society such as ours prosper when significant numbers of our citizens don't have even a rude understanding of some of the major forces that shape and direct our society? Without such understanding, how can our citizens—and leaders—make responsible decisions concerning future energy sources and the environment, defense systems and arms control, public health policy, and international trade?

You have the talent and you have the tools to influence the future course of our society. And if you take Dr. Killian as your model, you have the will to put these tools to work in the service of the public good.

Carved on the marble fireplace in the office that has served MIT presidents for 72 years is the Latin phrase: "Alia Initia e Fine." Freely translated it says: "From every ending, other beginnings." How well that describes this moment in the lives of each of you. James R. Killian once described the central challenge facing American universities as "the imperative to be relentlessly first rate, to maintain such high credibility, creativity, and luminous excellence that they enlarge the national vision and enhance the national confidence."

As you embark on your own "other beginnings," let his words likewise be your challenge. Recall always that your alma mater expects of you contagious excellence and high moral purpose in the service of a better world.

Good luck and Godspeed.



Kenneth Arnold of Houston, Texas, celebrated with bubbly while awaiting his degree in management.

—Photo by Donna Coveney

Massachusetts Institute of Technology



June 2, 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 BUILD-
INGS 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

Effective 4/13/88, All Support Staff Positions will be listed first in POSITIONS AVAILABLE followed by the Administrative, Academic, Research, and Service Staffs.

SECRETARY/STAFF ASSISTANT

ADMINISTRATIVE SECRETARY - TECHNICAL, Plasma Fusion Center, to perform duties for the Division Head for Toroidal Confinement as well as secretary to the entire research group. Will utilize desktop publishing and wordprocessing software to type technical manuscripts, proposals, class notes, and correspondence, etc.; initiate own correspondence; arrange complex domestic and foreign travel; host U.S. and foreign visitors; schedule and provide services for meetings and conferences; purchase office supplies etc.; maintain records of purchases and solve related problems; maintain weekly calendar of deadlines for entire research group and assist in meeting these deadlines; handle mail and telephones; hire, supervise, train, and set priorities for group secretaries and student assistants; and interact with various departments and outside companies. Requirements: a minimum of 4.5 years of direct/related experience. Excellent technical typing, proofreading, and wordprocessing skills important. Some knowledge of manuscript preparation and experience making travel arrangements through a travel agency helpful. Strong organizational and interpersonal skills important. Ability to work well under pressure on a variety of simultaneous projects for multiple supervisors necessary. Ability both to discern the broad picture and follow through the level of detail essential. Some overtime required. MIT experience desirable. B88-240

ADMINISTRATIVE SECRETARY, Alumni Association, to support the Regional Director for the West. Will transcribe and type correspondence and general materials; provide information to Alumni, Institute Staff, Faculty, and representatives from outside organizations about alumni programs; assist ongoing alumni activities in running smoothly and efficiently; assist and support Regional Director with special programs and activities; perform other general office procedures; and work with other Administrative Secretaries to balance out and cover workload responsibilities for entire group. Requirements: excellent secretarial training as well as a minimum

of 4.5 years of direct/related experience. Good interpersonal skills and discretion in handling confidential materials essential. Ability to exercise judgment, recognize priorities, and work independently imperative. B88-239

ADMINISTRATIVE SECRETARY, Resource Development - National Campaign Office, to work for the Manager and Assistant Manager of Special Events and Sustaining Fellows. Will create and maintain a well organized system which identifies and records all new participants and notifies them of their status; maintain tracking system; answer questions; type, edit, and proofread memos, etc.; make travel arrangements and complete reimbursement vouchers; photocopy; provide telephone coverage; assist in planning local and national meetings; be a source of information on activities; with other support staff, provide coverage of general office functions; attend to the organization of 10-12 national special events; and perform other duties as needed. Requirements: a minimum of 4.5 years of direct/related experience, post high school education preferred. Excellent secretarial training desired. Knowledge of MIT preferred. Must have excellent typing, spelling, and proofreading skills. Knowledge of IBM word and data processing, Macintosh, and dictating equipment very helpful. Must be able to organize, set priorities, and carry out multiple detailed tasks. Willingness to assume responsibility and work under pressure essential. Must demonstrate tact and good judgment when interacting with public. Excellent interpersonal and communication skills necessary. B88-228

STATISTICAL INFORMATION ASSISTANT (ADMINISTRATIVE STAFF ASSISTANT) - Office of the Registrar, to perform diverse and complex functions involving the provision, analysis, and presentation of statistical information from the student data base. Will serve as information resource for Institute senior officers, faculty, and departments/committees; work with user groups to define information needs and find new ways to meet them; assist in strengthening academic research capabilities in support of MIT's educational programs; undertake specific research projects and statistical studies; use Easytrieve Plus to generate statistical data, and maintain appropriate database and text files; prepare and distribute a variety of reports and publications, such as the annual Registrar's Report, Academic Calendar, enrollment, and grade distribution reports, etc.; exercise significant judgment and discretion in responding to inquiries involving sensitive information; and respond to a variety of questionnaires. Requirements: a bachelor's degree and/or equivalent combination of education and experience necessary. Strong analytical skills and knowledge of wordprocessing, database management, and programming languages essential. Ability to communicate and work effectively with senior faculty and staff necessary. Excellent organizational skills, meticulous accuracy, and proofreading skills essential. Must have strong written and verbal skills. Ability to anticipate needs, deal with sensitive information, and work under pressure important. Must have long-term commitment. Some administrative/data analysis experience working in a college or university setting desirable. MIT experience desirable. B88-196

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, Athletics Department, to assume a variety of assignments in a busy office, including clerical support for faculty members. Responsibilities include daily contacts with students and other members of the MIT Community and making direct responses to inquiries about athletic programs; and answering busy tele-

phones and directing calls to the appropriate person. Requirements: excellent typing skills and experience in word-processing and/or willingness to learn. Pleasant personality, interest in people, and ability to interact with students and the MIT Community important. Must have a minimum of 2.5 years of direct/related experience. B88-263

SR. SECRETARY/ADMINISTRATIVE SECRETARY, Materials Science and Engineering, to handle Faculty and Academic matters for Department Head. Will maintain faculty files and notebooks; liaison with Dean's office; organize meetings; collect and coordinate materials for departmental reports; and coordinate with Visiting Committee office. Requirements: experience with IBM personal computer, (Microsoft Word) and a minimum of three years of direct/related experience. Ability to work under minimum supervision important. Excellent typing, dictaphone, and shorthand skills desirable. Solid command of English language essential. Good organizational skills and ability to set priorities necessary. A bachelor's degree desirable. B88-261

SR. STAFF ASSISTANT (SR. SECRETARY), Career Services and Preprofessional Advising, to perform thorough and diverse secretarial and administrative duties for Associate Director and has continuing interaction with students, alumni, faculty, and staff. Will draft correspondence; anticipate and initiate actions for the office; arrange meetings; compile annual data; maintain Associate Director's calendar; and manage files and records of premedical and prelaw students including typing, filing, copying, and mailing; and assist in general office functions. Will also have the opportunity for further student interaction and for creative projects as well as counseling individuals seeking guidance. Requirements: excellent interpersonal skills as well as a friendly, caring, and perceptive manner. Ability to exercise discretion in handling of confidential material important. A pleasant office manner and ability to work well with students necessary. Typing essential. Must have creativity and enthusiasm. Some wordprocessing skills (Macintosh) useful, and/or interest in learning essential. An interest in learning about medical, legal, and others careers important as well as a capacity to empathize with others who are confronting problems or questions about related aspects necessary. B88-260

SR. SECRETARY, The Writing Program (Humanities), a flexible, highly motivated person is needed to perform diverse activities as part of administrative team in a busy headquarters office. Will provide information and referrals as necessary; maintain databases; plan and support special events; coordinate projects for several staff members; answer telephones; photocopy; type and proofread correspondence and reports; order supplies; maintain petty cash; and assist with special projects as needed. Requirements: a minimum of 2.5 years of direct/related experience, college education preferred. Excellent organizational and interpersonal skills needed. Must be able to work independently and with many interruptions. Wordprocessing experience and willingness to learn database applications essential. Familiarity with MIT procedures preferred. B88-259

ADMINISTRATIVE STAFF ASSISTANT, Information Services, to work with the Director and be responsible for the central office operations of Information Services as well as act as a liaison with various Institute departments. The office is highly automated, using a network of Macintosh personal computers, and offers an excellent opportunity to learn and use a variety of office automation tools such as digital telephone and voice mail. May train new employees and participate in interviewing of candidates. Requirements: a minimum of 4.5 years of direct/related experience. Excellent oral and written communication skills necessary. Ability to use and/or willingness to learn a Macintosh computer and associated office productivity software essential. College degree preferred. B88-257

SR. MEDICAL SECRETARY, Medical Department, to provide secretarial and reception support to an Internal Medicine Cluster consisting of two physicians and one nurse practitioner. Responsibilities include answering the telephone; scheduling appointments; patient triage; medical transcription; routine typing of correspondence and reports; ordering and coordinating patient medical records/test results; maintenance of office files; and performing other routine secretarial functions. Will work as a team member with another secretary; provide relief coverage for lunches, breaks, sickness, and vacations; and may be assigned other projects or committee work as necessary. Requirements: must be a very good typist with the ability to transcribe medical terminology. Some college or secretarial school training preferred with previous experience in a responsible secretarial position necessary. Must possess good judgment and organizational skills. The Department has a computerized patient registration and record ordering system, and therefore, requires use of a computer terminal. B88-255

SR. SECRETARY, Industrial Liaison Program, to provide intelligent and willing support for two Liaison Officers within the Computer and Electronics Group. Will perform extensive telephone and personal contact with individuals from ILP corporate members from the U.S., Europe, Japan, and MIT faculty and staff; read, sort, review, and respond to mail for priority; type, edit, and proofread (via a DEC 11/780 computer system) and reproduce

correspondence and reports; answer telephones (telephone coverage within working suite between secretaries important); be a source of information for callers and provide officers with necessary background information and materials; maintain files; handle schedules; may be asked to escort MIT visitors; make travel arrangements and obtain travel advances; and generally support office activities whether for the supervising officers, the group, or ILP as a whole. Requirements: strong interpersonal skills as well as a minimum of 2.5 years of direct/related experience. A positive and professional attitude important, as well as flexibility and maturity. Good judgment important. Must have excellent secretarial and organizational skills. Team spirit a must. Excellent typing skills necessary. Experience with and/or willingness to learn DEC VAX 11/780 computer system essential. Beyond providing timely response to officers' requests, should anticipate future actions as needed. B88-254

SR. SECRETARY, Office of Sponsored Programs, to perform secretarial duties for two contract administrators who are responsible for submission of research proposals, negotiation of grants and contract, and post-award administration for various departments within MIT. Duties include typing correspondence; maintenance of filing system; and providing telephone coverage. Requirements: must have discretion, tact, and willingness to work as part of a team. A minimum of 2.5 years of direct/related experience as well as good organizational and interpersonal skills necessary. B88-253

SR. SECRETARY, Media Lab, Visible Language Workshop, to provide secretarial support to Director and four staff members. Will receive visitors; answer telephones; review/sort mail; answer general inquiries and compose standard correspondence; maintain Director's schedule; arrange other lab, academic, research meetings as needed; make travel arrangements; help prepare and type research proposals, reports, correspondence, etc., from draft or verbal instructions; proofread, edit, and format, often on computer system (Mac, Wang, Vax); photocopy reports; organize and maintain filing system; keep statistics for classes and other projects; monitor supplies; prepare requisitions and vouchers etc. for supervisors approval; and assist with special projects as necessary. Requirements: good organizational, interpersonal, and communication skills. Must be able to set priorities, work independently, meet deadlines, and keep track of varied activities in a busy teaching/research/creative environment. Experience with and/or willingness to learn office computer systems for wordprocessing, mail, and statistics necessary. Familiarity with MIT procedures desirable. Interest and/or experience in any of the arts, graphics, computer graphics, and photography, etc., would be of great value. Work is often project-based and may require some overtime. B88-252

SR. SECRETARY, Laboratory for Manufacturing and Productivity, to work for two professors providing secretarial support. Responsibilities include typing problem sets, technical manuscripts, correspondence, proposals, and reports (often from dictaphone); answering telephones; some photocopying and filing; ordering office supplies; and preparing and following-up on travel and expense vouchers. Requirements: a minimum of 2.5 years of direct/related experience. Typing (60 wpm) and shorthand desirable, some college background preferred. Willingness to learn text formatting in LaTeX, and work with a Macintosh SE important. Must be self-motivated, possess common sense, and work with minimal supervision. (The hours for this position are somewhat flexible, occasional overtime necessary). B88-248

SR. SECRETARY - TECHNICAL, Plasma Fusion Center, to work as a team member in the heart of an ongoing research project where the environment is active and intensely interesting. Will provide secretarial services to this large fusion energy research group; provide technical typing services including typing manuscripts, abstracts, proposals, and correspondence on a wordprocessor; make travel arrangements (domestic and foreign) for group members; maintain records; provide services for meetings and conferences, including set-up of refreshments; answer telephones and deliver messages by hand and by computer mail; sort and deliver mail; purchase office supplies; and perform other tasks as needed. Requirements: a minimum of 2.5 years of direct/related experience. Excellent typing and proofreading skills with emphasis on accuracy important. Strong organizational and interpersonal skills necessary. Ability to work with multiple priorities in a very active environment essential. B88-241

SR. MEDICAL SECRETARY, Psychiatric Service, Medical Department, to perform a variety of office functions. Responsibilities include making appointments both in person and via the telephone; help manage the reception needs and secretarial work associated with the care of psychiatric patients; work directly with clientele in program for international; arrange weekly meetings; and provide support for self-help group activities. Requirements: a minimum of 2.5 years of direct/related experience. Good secretarial, organizational, and interpersonal skills important. Must be detail oriented. Willingness to take initiative and assume responsibility important. B88-237

SR. SECRETARY, Research Laboratory of Electronics, to support a professor, 2-3 Postdoctoral Fellows, and 2-3 Visiting Scientists, and five graduate students. Will assist in the overview of the group's budget, and organization of group's files and library; arrange group members' travel and care of visitors from the USA and abroad; organize various aspects of committee meetings, correspondence, and scientific typing and wordprocessing; and production and distribution of technical reports, and scientific papers for journal publication. Requirements: a minimum of 2.5 years of direct/related experience as well as knowledge of wordprocessing. Knowledge of shorthand desirable. B88-225

STAFF ASSISTANT, Media Laboratory, to provide support for administration of the Music and Cognition Group's activities (including research, academic, events, and music production). Responsibilities include answering telephones; handling mail; filing; ordering supplies; daily fiscal affairs (accounts payable and receivable); document development and dissemination; and logistics for concerts and lectures, etc. Requirements: a bachelor's degree preferred, and/or equivalent training and experience. Previous experience in general administration or in arts management desirable. Familiarity with computers and music helpful. Strong organizational and verbal skills important. Attention to detail essential. Must take initiative and assume responsibility. Experience with administrative use of computer (wordprocessing, mail), and/or willingness to learn important. B88-224

SR. STAFF ASSISTANT, Admissions Office, to act as receptionist/secretary in a busy, service-oriented office. Will answer telephones; schedule appointments; perform secretarial duties for two full-time admissions officers; keep accurate calendar and arrange travel; handle mail; and provide secretarial assistance to additional staff members as needed. Requirements: excellent typing skills and a minimum of 2.5 years of direct/related experience. Strong organizational and interpersonal skills important. Ability to work well under pressure necessary. Must be able to transcribe from dictating equipment and use a word processor. Solid command of English usage plus attention to detail essential. Good judgment and tact important. B88-215, B88-212

SR. SECRETARY, Mechanical Engineering, to provide secretarial and administrative support to two faculty members. Will prepare technical manuscripts and reports and have considerable interaction with agencies funding research; prepare and distribute teaching materials; answer telephone inquiries and correspondence; arrange travel; file; and perform other general office functions as necessary. Requirements: a minimum of 2.5 years of direct/related experience. Excellent typing and organizational skills essential. Accuracy in handling detail and knowledge of MIT accounting system important. Must be able to interact with a wide variety of people. B88-214

SR. SECRETARY, Materials Science and Engineering, to perform a variety of secretarial duties for a large research group. Will handle routine inquiries; screen calls; type correspondence, technical manuscripts, and research proposals, etc.; maintain monthly statements for research contracts; prepare requisitions and vouchers, and check statements for payment; schedule meetings and travel, and keep a calendar for a senior professor. Requirements: a minimum of 2.5 years of direct/related experience and ability to set priorities and function well in a busy environment. Familiarity with MIT procedures desirable. Should have good typing skills and knowledge of wordprocessing. B88-202

SR. SECRETARY, Center for Space Research, to perform a variety of secretarial tasks for an active research group working on problems on man in space. Must interact effectively with a diverse group of people, screen callers and visitors; direct inquiries; maintain daily correspondence and group documents; file; handle travel arrangements and follow-up; maintain office supplies; and assist with special projects as necessary. Requirements: a minimum of 2.5 years of direct/related experience. Ability to work independently, set, and meet priorities necessary. Must be extremely organized. Knowledge of wordprocessing - IBM PC or Macintosh important. B88-200

SR. SECRETARY, Industrial Liaison Program, to provide support for two Industrial Liaison Officers within the Materials and Manufacturing Group. The Position involves intelligence, initiative, and extensive personal and telephone contacts with outside corporate members from the U.S., Europe, and Japan plus MIT faculty, students, and staff. Requirements: excellent secretarial skills, accurate typing, and knowledge and/or willingness to learn computer terminal operation. Familiarity with MIT helpful but not essential. Will maintain files and make travel arrangements. Support office activities and assist in arrangements for seminars, symposiums and meetings at MIT. May be asked to escort visitors to MIT. This a challenging opportunity and never dull, in a friendly office environment consisting of 21 Industrial Liaison Officers and 30 support staff. B88-199

SR. SECRETARY, Sloan School of Management, to work for three professors in the Applied Economics, Finance, and Accounting Area. Will support the busy professors in both their teaching and research, some of

which is technical in nature, as well as assisting with the administrative details of a weekly seminar; become actively involved in office automation by becoming proficient on IBM PCs using Wordperfect and other software, and by learning how to use the electronic mail system. Requirements: excellent typing and proofreading skills and a minimum of 2.5 years of direct/related experience. Post high school education may count toward experience. Technical typing skills (50 wpm) highly desirable. Willingness to learn the IBM pc essential. Excellent organizational skills and ability to work with minimal supervision important. Ability to work with a variety of people necessary. Knowledge of MIT helpful. B88-184

SR. SECRETARY, Plasma Fusion Center, to perform a variety of office functions. Responsibilities include typing routine correspondence; handling office mail and telephones; photocopying and filing; ordering office supplies; preparing and maintaining check requests for telephone payments; and providing other secretarial duties as needed. Requirements: a high school graduate and/or equivalent. A minimum of 2.5 years of direct/related experience, post high school education will count toward experience. Typing (50 wpm) important. Knowledge of MIT helpful. B88-183

SR. STAFF ASSISTANT, Undergraduate Education Office, to provide support to busy office with broad Institute-wide responsibilities. UEO is concerned with Undergraduate Research Opportunities Program, the Writing Requirement, and Curriculum Support. Duties include providing information and referral as necessary for undergraduate students; greeting visitors; providing assistance with data collection and analysis; assisting with publications; and monitoring/updating office and office budgets and undergraduate research payroll. Requirements: a minimum of 2.5 years of direct/related experience with organizational and interpersonal skills. Knowledge of MIT helpful. Familiarity and/or willingness to learn computer systems important. B88-181

SR. SECRETARY/RECEPTIONIST, Center for Technology, Policy, and Industrial Development, to provide secretarial support to the Administrative Officer and serve as information resource for the Center. Will answer telephone; respond to inquiries; greet and assist visitors; type and edit memos, letters, and forms; establish and maintain personnel and miscellaneous files; sort mail and oversee postage meter; distribute and order supplies; maintain telephone and space lists; and perform other duties as assigned. Requirements: strong secretarial and organizational skills and a minimum of 2.5 years of direct/related experience. Ability to work with interruptions in a service environment essential. Excellent interpersonal skills necessary. Knowledge of IBM pc and/or willingness to learn important. B88-168

SR. SECRETARY, Urban Studies and Planning (part-time, 25 hrs/wk), to type correspondence, reports and manuscripts; provide assistance to general inquiries, and handle busy telephone. Will also set up appointments and make travel arrangements for faculty and help out in general departmental typing if necessary. Requirements: minimum of 2.5 years of direct/related experience, excellent typing abilities, and prior secretarial experience. Knowledge of Word Processing (Word Perfect/Word Star) and/or willingness to learn important. (The work schedule for this position is Monday through Thursday.) B88-087

SR. SECRETARY, Graduate Alumni Program, Alumni Association, to support Director's work with MIT's PH.D and Master degree alumni/ae, graduate students, department heads and school development officers. Responsible for assisting in telethon recruitment and planning; production of annual department mailings in fall (approximately 20 mailings) and dean's mailing in spring; organizing functions for graduate alumni/ae and graduate students. Will also provide general support in receiving visitors; reading and prioritizing mail; maintaining files; answering telephones; receiving visitors; reading and prioritizing mail; maintaining files; scheduling appointments; handling meeting logistics; and temporarily assisting with other staff members at the request of the GAP Program Director. Requirements: high school diploma plus 2-3 years of direct/related experience. Excellent organizational and interpersonal skills as well as the ability to work well independently and under pressure essential. Attention to detail, diplomacy, and discretion. A sense of humor preferred. Experience with Macintosh computers and with MIT very desirable. Occasional overtime required. B88-161

SR. SECRETARY, Office of the Dean for Student Affairs, to perform moderately complex secretarial duties under general supervision in support of the International Students' Office within the Student Assistance Services section. Responsibilities include responding to telephone and in-person inquiries regarding a variety of international students' concerns; preparing documentation and correspondence in support of the international graduate student admission and visa requests; providing administrative support and processing financial transactions for international students' events; and providing secretarial support to the Committee on Foreign Scholarships. Requirements: a minimum of 2.5 years of direct/related experience and knowledge of and/or willingness to learn wordprocessing (IBM Wordperfect or DECmate preferred).

Excellent interpersonal skills important. Attention to detail and accuracy essential. Ability to work under pressure necessary. B88-160

SR. SECRETARY, Biology Department (part-time, 17.5 hrs/wk), to perform varied 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; and composing letters and other secretarial work. Requirements: a minimum of 2.5 years of direct/related experience and knowledge of wordprocessing and spreadsheet software on a personal computer. Must be able to work independently and deal with a variety of people. Familiarity with numbers essential. B88-136

SR. SECRETARY, Sloan School of Management - Behavioral and Policy Sciences Area, to provide support in teaching and research for three senior faculty. The professors' respective fields are organization studies/technology and innovation; human resource management; and strategy and policy. All are involved in research sponsored by the Management in the 1990's Research Program; in addition, one of the professors directs the program and one coordinates the program's research aspects. Faculty recruiting and account monitoring add variety to regular office activities. Will become actively involved in office automation, using the PROFS electronic mail system, the Xerox Star, and doing wordprocessing on the IBM pc. Will also interact daily with a wide variety of people. Requirements: excellent typing, proofreading, organizational and interpersonal skills and a minimum of 2.5 years of direct/related experience. Post high school education may count toward experience. Degree training from a secretarial school a plus. Knowledge of wordprocessing highly desirable, as well as a willingness to learn the wordprocessing systems within the area. Must be assertive in problem-solving. Ability to prioritize tasks and work independently essential. B88-133

SR. SECRETARY, Sloan School of Management - Behavioral and Policy Sciences Area, to provide support in teaching and research for three professors. The professors will teach and perform their research in the field of corporate strategy and policy, with different emphases: technology strategy, Japanese technology management, strategic planning, measurement in strategy research and business history. Will also be involved in the process of recruiting new faculty for the strategy and policy sub-area; and manage the workload. Will actively participate in office automation as major part of job - use Xerox Star, Apple-Macintosh, PROFS electronic mail system and do wordprocessing on IBM pc. Requirements: excellent typing, proofreading, organizational, and interpersonal skills as well as a minimum 2.5 years of direct/related experience. Post high school education may count toward experience. Must be able to work in a busy environment and be assertive in problem-solving. Knowledge of wordprocessing and willingness to learn specific systems highly desirable. Should be able to deal with a variety of people. Must be able to prioritize tasks. B88-124

SR. STAFF ASSISTANT, Nuclear Engineering, to work for three professors performing a variety of office procedures. Will prepare classnotes, research reports, technical papers, and general correspondence from handwritten materials; handle telephone calls, appointments, and travel arrangements. Will also be responsible for the transparencies for class and research work; preparing various MIT accounting forms; and assist with applicable duties as necessary. Requirements: a minimum of 2.5 years of direct/related experience. Experience with typing of Greek equations and knowledge IBM PC w/T³ software preferred. Experience on a personal computer important. Strong communication skills helpful. Must be able to deal with a variety of people. B88-116

SR. SECRETARY, Sloan School of Management, to manage a busy office for three Operations Research/Statistics professors whose research includes 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. Will coordinate course preparation; type and edit technical manuscripts; and help administer research projects. Requirements: a minimum of 2.5 years of direct/related experience as well as excellent typing and organizational skills. Ability to handle several tasks simultaneously important. Prior word-processing and extensive technical typing experience desirable, and/or training will be provided. Knowledge of MIT a plus. B88-109

EDITORIAL SECRETARY, Acquisitions, MIT Press, to perform a variety of secretarial functions. Duties include typing correspondence and other materials pertaining to publication projects; making travel arrangements for editors, including processing travel advances and filing travel vouchers; duplicating and distributing materials in-house; assisting in maintaining contract files; assuming primary responsibility for answering Department's telephones; and assisting acquisition editors on special projects. Requirements: excellent secretarial skills (65 wpm minimum) and at least 2.5 years of direct/related experience. Familiarity with office procedures and ability to work with a varied group of people essential. Knowledge of English grammar important. Must possess a pleasant telephone manner and a sense of humor. Should be detail oriented. B88-108

SR. SECRETARY, Office of the Dean for Student Affairs, in the Carnegie-Sponsored Quality Education for Minorities Project which is a two-year national project that will develop strategies for improving the quality of education received by minorities, as well as for increasing the number of minority students completing each educational level from high school through post-doctoral studies. Responsibilities include coordinating with the Administrative Assistant and providing general secretarial support to the Project Director and Project Staff. Will respond to telephone and in-person inquiries; type major reports as well as routine documents; process travel documents, purchasing documents, and other routine forms; and assist with mailing and other office activities as needed. Requirements: strong secretarial and organizational skills as well as a minimum of 2.5 years of direct/related experience. Wordprocessing experience (Wordperfect) important. Must be accurate and pay close attention to detail. Strong interpersonal skills essential. An interest in the goals of this national project highly desirable. B88-097

SR. SECRETARY, Physics Department, to provide secretarial support to faculty, postdocs, and visitors in the Condensed Matter Theory Group. Will type technical manuscripts, correspondence, and grant proposals; open and distribute mail; maintain office supplies; photocopy; answer telephones; handle travel arrangements; and perform other duties as requested. Requirements: excellent typing skills and a minimum of 2.5 years of direct/related experience. Should have the ability to work independently and assume responsibility for the office important. Knowledge of the Macintosh Apple Computer and Xerox Memorywriter 640 and/or willingness to learn essential. B88-040

SR. SECRETARY, Mechanical Engineering, to provide secretarial and administrative support for two faculty members. Duties include typing of technical reports, manuscripts, teaching material, and correspondence; arranging travel and meetings; maintaining accounting records, petty cash, and files; answering telephones; photocopying; distributing material; and interacting with faculty, students, and government funding research. Requirements: excellent technical typing and a minimum of 2.5 years of direct/related experience. Must be an efficient and responsible person who works independently and can set priorities as well as work under pressure. Attention to detail and accuracy important. Pleasant personality and good interpersonal relations valuable. Must have knowledge of basic accounting. MIT experience desirable. B88-001

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, 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. 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, 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, Mathematics, to support the Personnel Administrator, Administrative Officer and Department Head of the Mathematics Department Headquarters Office. Duties include extensive telephone coverage; answering questions and directing them to the proper individuals; maintaining inventory; handling general secretarial duties when requested; posting mail daily; and performing general receptionist duties for the whole department when needed. Requirements: excellent typing skills and technical typing with a minimum of 2.5 years direct/related experience. IBM PC experience desirable. Ability to establish priorities and work independently with good judgment and minimum supervision necessary. **B87-323**

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. STAFF ASSISTANT, Nuclear Engineering, to support two professors and one senior research scientist. Will use IBM PC to prepare class notes, research reports, technical papers, and general correspondence from handwritten materials; handle telephone calls, appointments and travel arrangements; produce transparencies; prepare MIT accounting forms; and perform other duties related to faculty members' departmental administrative work. Will interact with both graduate and undergraduate students. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Experience typing equations preferred, as is experience with a personal computer. Knowledge of T desirable. Strong communication skills important. **B87-010**

SR. SECRETARY, Fiscal Planning and Budget Office, to support nine staff members. Will answer phone and greet visitors; type all correspondence and statistical tables using either personal computer or typewriter; maintain and order office supplies; act as key operator for photocopier; assist in arranging meetings and office functions; photocopy, log budget changes, file, mail budget authorizations; and perform other related duties as required. Requirements: good typing skills, including statistical typing, and a minimum of 2.5 years of direct/related experience. Ability to use dictaphone necessary. Must have strong organizational skills and a pleasant phone manner. **B87-943**

SR. SECRETARY, Undergraduate Academic Support, Office of the Dean for Student Affairs, to support section head in exercising overall management of the office, and to support the freshman advising program, the research efforts of the office and the new special freshmen initiatives. Position involves interaction with the MIT community, both in person and by telephone. Requirements: excellent typing skills, familiarity with or willingness to learn word processing and a minimum of 2.5 years of direct/related experience. Familiarity with MIT helpful. Excellent interpersonal and organizational skills essential. **B86-450**

SECRETARY, Spectroscopy Laboratory, to provide secretarial support to the department. Will type, perform wordprocessing, and prepare routine correspondence, etc.; maintain files; answer telephones; and assist with general office coverage. Requirements: excellent typing and proofreading skills as well as a minimum of 2.5 years of direct/related experience. Ability to set priorities and interact well with staff and students necessary. Some overtime may be required. One year appointment - continuation depending upon funding. **B88-233**

SECRETARY, Mechanical Engineering, to provide secretarial assistance in a two-secretary environment for four full-time faculty members. Duties include screening telephone calls; interacting with students and faculty; dictaphone transcription using engineering terms; extensive photocopying; preparing teaching materials with classtime deadlines; arranging complete travel itineraries and scheduling multi-person meetings; and handling mail. Requirements: excellent typing skills, a willingness to learn, as well as a minimum of one year of direct/related experience. Ability to meet deadlines important. Technical typing desirable. Wordprocessing skills

on Volkswriter III Deluxe, and PC Text desirable. **B88-186**

SECRETARY, Haystack Observatory, to type technical manuscripts; correspondence and grant proposals; open mail; maintain petty cash; order office supplies; photocopy; answer telephones; send out reprints; arrange travel; and perform other related duties as necessary. Requirements: good typing skills and a minimum of 2.5 years of direct/related experience. Word processing experience important. (This position is located in Westford, Ma.) **B88-175**

SECRETARY, Provost/Upward Bound, to function as Program Secretary and perform a variety of functions. Responsibilities include typing all Program correspondence; handling office mail and telephones; processing voucher payrolls; maintaining files; ordering office supplies; and operating office equipment. Upward Bound is a co-educational, multi-racial, multi-ethnic college-prep program serving 70 high school students from the Cambridge area. The primary goal of the program is to motivate participants to develop both the necessary skills for academic success and the persistence to progress to college. Requirements: must be able to work with adolescents and people of varied ethnic, cultural, and racial backgrounds. Typing (40 wpm) and at least one year of direct/related experience important. A valid Massachusetts drivers license necessary. Own transportation helpful but not required. During the summer session (7 weeks) the individual must be willing either to commute to Wellesley College or reside there 5 days per week. Must be willing to work flexible hours on occasion which might include evenings and/or weekends. **B88-157**

TECHNICAL SUPPORT STAFF

TECHNICAL ASSISTANT/WORDPROCESSOR, Center for Real Estate Development, to maintain the Center's information systems, files, records, and data systems under the supervision of the Administrative Officer. Will type and proofread reports, manuscripts, correspondence, and similar material from rough draft, dictaphone and/or direct instructions; assist in maintaining the Center's computer facilities including the rendering of technical assistance; provide back-up support in answering telephones; reproduce printer materials; and bulk mailing and distribution of printed material. Requirements: a minimum of 2.5 years of relevant experience, accurate typing (60 wpm) and proficiency with wordprocessing. Operating knowledge of IBM/PC II hardware systems and HP Laserjet printer important. Familiarity with Wordstar, Dbase III, Symphony, and Lotus 1-2-3 necessary. Should be articulate and capable of getting along with others. Ability to prioritize work and take direction essential. **T88-042**

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**

HVAC DESIGNER/DRAFTSPERSON, Physical Plant, to work in the utilities engineering section. Will make load calculations, design HVAC systems and carry design through the drafting stage. Requirements: graduation from technical school and a minimum of five years of experience in the mechanical designer drafting field. Must be able to work with minimal supervision. **T86-837**

LIBRARY STAFF

LIBRARY ASSISTANT III - CIRCULATION ASSISTANT (NIGHTS), Libraries - Hayden Circulation, to perform tasks under the direction of the Circulation Librarian. Will check ID's of users entering library allowing entrance only to the MIT community and outsiders with valid library cards; prepare GEAC generated notices for mailing; answer directional questions; help users with copy machine problems; and call Physical Plant, Campus Police, and supervisor in case of problems. Requirements: a minimum of one year of direct/related experience. Post high school education can count toward experience. Must have tact and courtesy in dealing with the user community. Ability to understand and enforce applicable library policy important. Punctuality and regular attendance essential. (The hours for this position are Mon. through Fri., midnight - 8:00 a.m., the shift starts at 11:30 p.m. to allow for 30 minute break). **L88-251**

LIBRARY ASSISTANT III - CIRCULATION ASSISTANT - STACKER, Libraries - Hayden Circulation (part-time, 20 hrs./wk), to be responsible for shelving and maintenance of the Science Library materials. Will maintain a flow of materials to the basement and Humanities Library; shelf read; and may be required to shelve materials in the Humanities Library and Hayden Basement. Will train, if applicable, and direct student stackers that work on Sundays; learn the desk routine and fill in when needed; participate in shifts of materials; and perform other miscellaneous duties as assigned. Requirements: a high school graduate and/or equivalent. A minimum of one year of direct/related experience. Must be dependable. Ability to pay attention to details important. Must have

physical stamina for stacking and show an interest in ensuring availability of materials to users. Ability to work with a minimum amount of supervision and to interact tactfully with users essential. (The hours for this position are Mon. through Fri., 1:00 p.m. to 5 p.m.) **L88-250**

SR. STAFF ASSISTANT, Libraries, Catalogue Department, to perform secretarial duties for three people. Will type and proofread correspondence, reports, and policy/procedure documents; answer telephones; make appointments; photocopy; sort and distribute mail; use microcomputer for wordprocessing and spreadsheets, etc.; maintain staff absence records; prepare support staff and student assistant payroll reports; maintain office and invoice files; monitor operating expenses and student budget; recruit student assistants and prepare documentation; order equipment and office supplies. At certain times, will perform bibliographic searching in OCLC and RLIN databases; and perform other varied assignments as necessary. Requirements: a high school graduate and/or equivalent. A minimum of 2.5 years of direct/related experience; post-high school education will count toward experience. Accuracy and speed in typing necessary. Ability to organize and perform a variety of tasks, set priorities, and work efficiently essential. Experience in use of microcomputer highly desirable. (The hours are 9-5, Mon-Fri, Negotiable) **L88-210**

LIBRARY ASSISTANT III, Catalogue Department - LC Cataloguing/Retrospective Conversion Section (part-time, 17.5 hrs/wk), to process monograph records to be converted from manual to machine-readable form. 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 bibliographic information to Divisional/Branch Libraries; and compiling conversion backlog statistics. Also, responsible for pre-cataloguing searching, both online and offline, for materials to be recatalogued/reclassified; and performs auxiliary assignments such as filing and typing. Requirements: a high school graduate and/or minimum one year of direct/related experience. Accurate typing (40 wpm) and experience using PC terminal desirable. Attention to detail essential. (The hours are Mon. through Fri., 9:00 a.m. to 12:30 p.m. - negotiable). **L88-144**

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. The hours for both these jobs are 11:30 p.m. to 8:00 a.m. (One job is 24 hrs/wk, Sun. through Tues.) **L88-318**

OFFICE ASSISTANT/ADMINISTRATIVE ASSISTANT

ADMINISTRATIVE ASSISTANT, Linguistics and Philosophy and Center for Cognitive Science (50% time each) to work in two person Department headquarters office. Duties are to assist administrative officer in financial matters including approving invoices and travel vouchers; processing purchase orders; reconciling monthly statements; monitoring research grants and project expenditures; supervising student payroll; contacting outside vendors; and assisting linguistics chair with visitor selection process. Will also share general duties such as: answering telephones, photocopying, processing mail, and assisting visitors; maintaining equipment inventory; and coordinating moves and space changes where appropriate. Requirements: strong interpersonal and organizational skills as well as 4.5 years of direct/related experience. Ability to interact well with others, including other Institute officers, universities, and outside vendors important. Good judgment, tact, and attention to detail necessary. Ability to work with frequent interruptions essential. A personal computer and spreadsheet software experience important. **S88-262**

PROPERTY DATA COLLECTOR, Property Office, to report to the Property Manager and be responsible for the inventory of all newly acquired equipment funded by MIT or its sponsors. Duties include initiating property records from purchasing and accounts payable information; locating and tagging equipment in the field, and completing property records for entry in the Property Data Base. It may be necessary, at times, for the Data Collector to input such information into the data base as well as inventory items of existing equipment. Will direct contact with principal investigators, fiscal and administrative officers, and staff, etc., to establish or verify property records; and perform other related duties as necessary. Requirements: an Associate Degree and/or 4.5 years of direct/related experience. Some experience in equipment inventory and

property management desirable. Ability to handle large amounts of detailed information and solve problems necessary. Must possess excellent communication skills. **S88-249**

ADMINISTRATIVE ASSISTANT, Sloan School of Management, to report to Director of Master's Student Services. Will assist with development of and maintain system for class and room schedules, and subject enrollments; generate reports on scheduling of classes, subject conflicts, registration profile, and faculty teaching assignments; coordinate process of distributing grade sheets to faculty, and grades from faculty to Registrar; coordinate subject evaluation process including collection of data and publication of results; coordinate classroom maintenance in E51 and E52 during academic year, with major repair/clean up effort each summer; check for damage, monitor repairs, ensure proper chair count at all times, and respond to complaints. Requirements: a minimum of 4.5 years of direct/related experience as well as an excellent sense of detail, combined with solid understanding of office technology. Ability to work both independently and as part of a team, depending upon a particular assignment important. Must be able to work well with a variety of people. Knowledge of MIT and Registrar's Office helpful. **S88-227**

ADMINISTRATIVE ASSISTANT, Department of Chemical Engineering. Will provide administrative and secretarial duties including account monitoring, fiscal projections; using wordprocessor for correspondence, reports, manuscripts, etc.; acting as a liaison between professor and students; making travel arrangements; answering telephones; maintaining office supplies; scheduling meetings and conference planning as needed. Requirements: a high school education plus a combination of 8 to 10 years of education and work in a position with progressively increased responsibility. Should be familiar with wordprocessing and basic accounting/bookkeeping principles. Must be mature and able to respond to a dynamic working environment and establish priorities. **S88-203**

ADMINISTRATIVE ASSISTANT (Research Analyst), Resource Development - Office of Campaign Systems, to identify, research, and prepare profile reports on prospective individual, corporate, and foundation donors to the Institute. Will review lists of major prospects and donors; compile background material on prospects using files, references, and electronic databases; and provide administrative support to the daily operations of the Campaign Systems Group. Requirements: minimum of 4.5 years of direct/related experience; college degree desired; higher education will count toward experience. Strong research, writing, and organizational skills necessary. Ability to interact well with others, meet deadlines, and work well under pressure important. Familiarity with computers and databases and/or an interest in learning preferred. Must have strong devotion to accuracy and excellent judgment. **S88-174, S88-173**

ADMINISTRATIVE ASSISTANT, Technology Licensing Office, in the Software Center and Trademark Licensing Program. Duties include responding to inquiries from potential and current licensees; administering and collecting financial data; compiling and maintaining promotional material concerning available software; handling overall responsibility for two software packages; and participating in some negotiation of license agreements. Requirements: minimum of 4.5 years of direct/related experience; high school education or equivalent. Knowledge of PC operations, including Lotus 1-2-3 desirable. **S88-162**

JUNIOR PROGRAMMER V, Alumni Association, to assist with data-processing needs with emphasis on production control and programming. Duties will include inputting and maintaining a new on-line production scheduler; converting to Natural 2, downloading to Mac and IBM/XT; maintaining Natural applications and programs; and modifying current EXEC2 to REXX. Requirements: minimum of 1.5 years REXX, CMS and CMSBATCH experience. Natural 1.2 or 2 a plus. Knowledge of VMLIB helpful. Good interpersonal, organizational, written, and oral communication skills necessary. **S88-170**

ADMINISTRATIVE ASSISTANT, Aga Khan Program for Islamic Architecture/Design for Islamic Societies Unit, to act as an assistant to the Professor and as a support assistant to other members of the academic staff. Will control and be responsible for all office correspondence, incoming and outgoing; receive visitors, and respond to inquiries by telephone or in person; prepare programs and research papers by wordprocessor; arrange seminars, lectures, and social events; and act as a liaison with the central office of the Aga Khan Program. Requirements: a minimum of 4.5 years of direct/related experience as well as typing/word processing on Macintosh and DEC. Must be mature and able to work well under pressure. Good intercultural communication skills and willingness to support foreign students and visitors important. Ability to work well as a team necessary. Must have good organizational skills. MIT experience preferred. **S88-140**

ADMINISTRATIVE ASSISTANT, Mechanical Engineering, to perform complex secretarial and administrative duties for the Director of the Cryogenic Lab. Responsibilities include providing support to ensure the fiscal integrity of the Lab and monitoring expenditures and monthly reconciliation of accounting statements;

reviewing mail; processing weekly time-cards for hourly personnel; preparing letters, proposals, and similar documents; and performing other related duties when necessary. Requirements: a minimum of 4.5 years of direct/related experience and ability to work independently. Well organized, good judgement, and detail oriented important. Experience with word-processor and/or computer necessary. Must be able to work with many interruptions, and be self motivated. S88-120

ADMINISTRATIVE ASSISTANT/Carnegie
Sponsored Quality Education for Minorities (QEM) Project, Office of the Dean for Student Affairs, to develop strategies for improving the quality of education received by minorities, as well as for increasing the number of minority students completing each educational level from high school through post-doctoral studies. Responsibilities include managing the day-to-day operation of the Project office and providing administrative and secretarial support to the Executive Director and Project staff; responding to all telephone and in-person inquiries; typing major reports as well as routine documents; coordinating all arrangements for national conferences and meetings; processing requisitions, vouchers, and purchase orders; reconciling monthly financial statements; and coordinating other projects as requested. Requirements: a bachelor's degree or equivalent combination of education and experience. At least five years experience in administration of MIT administrative procedures highly desirable. Knowledge of computer systems and software, especially wordprocessing important. Excellent written and oral communication skills necessary. Attention to detail, and a highly developed sense of diplomacy essential. S88-057

SR. OFFICE ASSISTANT (RESEARCH ASSISTANT), Resource Development (Office of Development Services), to support the research analysts and administrative staff by providing basic research activities and office assistance. Duties include assisting research analysts in the preparation of research reports and summaries; responding to research requests (addresses, giving, etc.) by retrieving information from the ADDS database, office files, and reference materials; writing short research reports on prospective MIT donors (individuals, corporations, and foundations); providing wordprocessing and general office support including some telephone contact and making calendar arrangements; photocopying and distributing memoranda, schedules, and other documents; and performing some courier duties as needed. Requirements: high school graduate and/or equivalent as well as four years of direct/related experience. Post high school education will count toward experience. Must have analytical skills and ability to organize assignments, work independently, and write coherently. Ability to meet deadlines necessary. Must be able to get along well with others and support a team-oriented workplace. Ability to take instructions essential. S88-258

SR. OFFICE ASSISTANT, Medical Department (part-time, 17.5 hrs/wk), to provide weekend, evening, and holiday evening support to the After Hours Service. Duties include answering the telephone, providing general information, and taking messages; receiving patients, completing encounter information, and researching information in patient data base and verifying registration; obtaining patient's medical record and scheduling follow-up daytime appointments; completing test requisitions (will be trained to assisting planting cultures) and arranging for patient and/or specimen transportation via taxi or Campus Police; maintaining visitor log and statistics; and ordering supplies. Requirements: ability to deal effectively with patients and medical staff and act with good judgment and tact in sensitive situations. Excellent organizational skills and ability to work with minimal supervision important. Must have demonstrated success in dealing with the public and in a busy setting (preferably medical). Must be dependable. Should be flexible to cover illness and vacation for weekday evening reception. (The hours for this position are Sat. 2:30 p.m. - 12:00 midnight, Sun. and Holidays 4:00 p.m. - 12:00 midnight). S88-238

SR. OFFICE ASSISTANT, Planning Office, to provide secretarial and research assistance to the Director and associated staff. Duties include wordprocessing, keyboarding, and proofreading all correspondence; some transcribing of correspondence and minutes of meetings; photocopying; keeping the Director's calendar, scheduling appointments and meetings; maintaining complex project and subject files; answering telephones; opening and distributing mail; making travel arrangements; arranging meetings; greeting visitors; assembling project materials; researching archival data; and performing other duties as assigned. Requirements: very good organizational skills along with wordprocessing experience and expertise. A minimum of 2.5 years of direct/related experience. Must have good transcription and editing skills. Familiarity with planning or architectural office environment desirable. Must be extremely tactful and have discretion. Ability to handle interruptions and deadlines important. S88-234

SR. OFFICE ASSISTANT, Center for Transportation Studies (part-time, 17.5 - 25 hrs/wk), to assist Administrative Officer in routine administrative and accounting duties. Responsibilities

include monitoring and reconciling research, fund, and general accounts; preparing and payment of requisitions, invoices, petty cash, payrolls, and other payments; assist in the preparing of research grant proposals and other fiscal reports and miscellaneous duties as requested. Requirements: an aptitude for figures, and ability to work in a diverse and busy office, with a variety of faculty and staff. Willingness to learn or use IBM/PC and wordprocessing necessary. S88-231

SR. OFFICE ASSISTANT/RECEPTIONIST, Student Financial Aid Office, to perform a variety of office functions. Will be responsible for all student appointment scheduling, and inform aid officers; keep abreast of rules and regulations and interpret policy to variety of people; and manage student files. As Records Center Liaison, will retrieve and archive student financial aid and loan records; make available all student information sheets and handouts; order and photocopy material; handle all incoming and outgoing mail; maintain postage machine; process financial aid transcripts and other material; and assist with special tasks as assigned. Requirements: very strong communication and organizational skills and a minimum of 2.5 years of direct/related experience. Knowledge of financial aid and previous experience in an academic setting very helpful. Ability to work under pressure and with constant interruptions essential. Some typing helpful. Experience with CRT and MAC desired, and/or willingness to learn. Must be able to interact with a variety of people. A college background helpful. S88-216

SR. OFFICE ASSISTANT, Plasma Fusion Center, Accounts Payable: Duties include processing invoices for payment for a large volume of research expenditures. Specific duties consist of logging in purchase orders of an electronic spreadsheet program; matching receiving reports and invoices with appropriate purchase orders; generating automated open balance roster on a monthly basis; and solving problems associated with purchase orders and invoices regarding mismatches, securing necessary OK to pay if there is no receiving report, and calling companies if no invoice was sent for goods received; and handling other problems as necessary. Requirements: ability to think logically and communicate effectively with Research Staff and Vendors. Must be able to use a calculator and write neatly. A minimum of 2.5 years of direct/related experience as well as good interpersonal and organizational skills important. Must be able to set priorities and manage workloads. Should be willing to learn use of electronic spreadsheet. S88-213

SR. OFFICE ASSISTANT, Physical Plant - Superintendent's Office, to perform a wide variety of office duties. Will prepare purchase orders as well as code or classify data; verify and correct summaries, reports, and calculations; provide information on procedures within area of responsibility; contact various organizations; maintain and review files; enter and maintain relevant information on a terminal; and perform other clerical and financial duties as necessary to support own or others' activities in the department. Requirements: high school graduate with one year of direct/related experience. Post high school education will count toward experience. Must be able to type accurately. Ability to handle detail and follow moderately complex instructions important. Must be proficient with adding machines, calculators, and computer terminals. Some bookkeeping and accounting experience necessary. S88-201

SR. OFFICE ASSISTANT (RESEARCH ASSISTANT), Resource Development (Office of Development Services), to support the research analysts and administrative staff by providing basic research activities and office assistance. Responsibilities include assisting with preparation of reports and summaries; retrieving information from the ADDS database files, and other computer programs from the database; writing short research reports on prospective MIT donors; wordprocessing; and performing general office support duties. Requirements: high school graduate or equivalent with one year of direct/related experience. Post high school education will count toward experience. Must have analytical skills and be able to organize assignments. Ability to meet deadlines and follow instructions important. Should be able to deal with a variety of people and be a team member. S88-197

SR. OFFICE ASSISTANT, Plasma Fusion Center, to assist Quality Assurance Office for the Alcator C-MOD fusion energy research project in keeping the Quality Assurance Office organized and running smoothly. Duties include document filing; typing; and photocopying. Will also support the Alcator research group. Shall work with two secretaries and one administrator to provide wordprocessing; telephone answering; filing; photocopying; training in office supply purchasing procedures; making travel arrangements; and performing technical typing using desktop publishing software. Requirements: well organized and a minimum of 2.5 years of direct/related experience. Must have interpersonal skills and ability to interact with a wide variety of people. Typing (55 wpm) with emphasis on accuracy and proofreading ability essential. S88-166

SR. OFFICE ASSISTANT, Resource Development, to perform a wide-range of secretarial, clerical, and data-processing duties for the Office of Development Information Management Services. Duties

include answering/screening telephone calls; typing memoranda, letters, and documentation updates; scheduling of meetings; filing; photocopying; performing of courier duties; maintaining PC database records and wordprocessing lists; editing; assisting in the verification and collation of database reports and system manuals; and responding to department database users' questions and information needs. Requirements: a minimum of one year of direct/related experience with some college or post high school education. Must have good typing skills. Knowledge of IBM pc wordprocessing and database software helpful, and/or willingness to learn. Some knowledge of the IBM CMS environment and NATURAL programming helpful, and/or willingness to learn. Accuracy and attention to detail essential. Good interpersonal, written communication, and organizational skills necessary. Ability to set priorities important. S88-179

SR. OFFICE ASSISTANT, The Libraries - Administrative Services, to process manually and by computer all book, serial, equipment, and supply, etc. invoices for submission to the MIT Accounting Office for payment. This includes learning a moderately complex accounting system, telephone, and personal contact with the Accounting Office, library employees and vendors to solve invoice related problems; inputting daily book and serial orders into computerized commitment program generating a monthly report; monitoring commitments vs. budget and informing appropriate person when overcommitments occur; maintaining binding expenditures for input into commitment report; processing monthly online ready reference invoices, preparing transfer vouchers and computerized monthly report; and creating and maintaining invoice files. Requirements: a high school graduate or equivalent. Some college background preferred. A minimum of 2.5 years of direct/related experience. IBM pc and Lotus 123 experience preferred. Some accounting experience desirable. S88-177

SR. OFFICE ASSISTANT, Housing and Food Services, to perform a variety of functions under the supervision of the Manager of Maintenance. Duties include preparation and typing of contracts, specifications, work orders and correspondence; enter and maintain computerized key program; handle telephone inquiries and schedule meetings; provide information on procedures within maintenance area; interact with various departments; and perform other clerical duties as necessary. Requirements: high school graduate and/or equivalent with a minimum of 2.5 years of direct/related experience. Good typing skills (60 wpm) and ability to handle detail and follow moderately complex instructions important. Proficiency with wordprocessor and PC necessary. (The hours for this position are 7:30 a.m. - 3:30 p.m.). S88-156

A/R - COMPUTER OPERATOR/SR. OFFICE ASSISTANT, MIT Press, to perform a variety of office functions. Will run, log, and troubleshoot daily, weekly, and monthly invoices; box invoices and give to proper personnel; file invoices in numeric order; set up end of Day Spooling Programs; back up system daily; maintain hardware in Computer Room; fill in for Head Computer Operator when needed. Accounts Receivable: apply cash to all domestic and foreign accounts; update all inhouse manual files/after payments; total daily cash applied and check cash against End of Day Cash Receipts Reports; keep logs of daily cash slips and total daily cash applied; transfer all A/R information from old to new accounts; write off and adjust accounts when requested by Credit Manager; correspond with a variety of people and departments; assist in opening daily mail; and be a backup for Mail Room when needed. Requirements: a high school or business school graduate preferred with at least one year of direct/related experience. Some computer operator experience very helpful. Accounts Receivable experience desirable (10 key adding machine). Accurate typing (minimum 40 wpm) necessary. CRT experience desirable. Must be able to work overtime on weekends and whenever necessary. (The hours for this position are 11:00 a.m. to 7:00 p.m.). S88-154

SR. OFFICE ASSISTANT, Alumni Association-MIT Enterprise Form (part-time, 20 hrs/wk), to prepare monthly newsletter from prepared documents and advertisements, assuring proper format and accuracy as well as publication schedules. Will edit documentation as necessary and interface with printer for publication, mailing, and delivery; assist with the editorial/logistic preparations (including audio-visual and other requirements for meetings, seminars, and conferences throughout the year); independently respond to routine inquiries received by telephone and/or letter, refer inquiries to proper resource; maintain accurate office records and reports; prepare meeting announcements, letters, notices, and other reports as necessary. Requirements: some college experience and ability to type (50 wpm), and fluently use MacIntosh SE, especially wordprocessing packages essential. A minimum of 2.5 years of direct/related experience (post high school education counts toward experience) important. S88-055

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 officers, 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 TO THE UNDERGRADUATE ASSOCIATION, Office of the Dean for Student Affairs (10-month position, September-June), to provide clerical and organizational support to the Undergraduate Association (UA). Will coordinate the operation of the UA Office and the Association of Student Activities and serve as primary source of information for data relevant to all student organizations and activities on campus. Requirements: good typing skills (50 wpm), high school graduate or equivalent, and a minimum of 2.5 years of direct/related experience; post high school education will count toward experience. Ability to work under pressure and deal effectively with people in an environment which requires some independent judgment necessary. S87-248

OFFICE ASSISTANT, Plasma Fusion Center, to provide typing and general office work to large fusion energy research group. Duties include general typing of correspondence, travel vouchers, and requisitions, etc.; photocopying; sorting and delivering mail; answering telephones and delivering messages by hand and by computer mail; inventory of office supplies; checking in and putting away supply orders; and setting up refreshments for meetings; filing; and performing other tasks as the need arises. Requirements: a high school graduate or equivalent, as well as one year of direct/related experience. Strong typing skills (40 wpm) with emphasis on accuracy. Must be well organized. Good interpersonal skills and ability to work under pressure important. S88-242

OFFICE ASSISTANT, Medical Department, to work in Medical Record Services and perform a variety of duties. Will pull and file medical records from telephone requests and written order slips; file medical material into records; dispatch records and record boxes to the proper stations; maintain patient index file; do minor repair on Telelift system; may be assigned special record projects from time to time; and be required to work morning and evening shifts as needed. Requirements: good communication skills and ability to work in a team setting. Must have accuracy with details and ability to work under pressure. Considerable physical strength is required to lift boxes and push heavy carts. Must be able to stand on feet all day. S88-236

ASSISTANT COMMUNICATIONS CONSOLE OPERATOR, Telecommunications Systems, to perform a variety of duties. Will process and expedite incoming and directory assistance calls; assist callers in transferring calls from one party to another; assist in processing conference calls; and provide general clerical support as necessary. Requirements: a high school graduate with one year of direct/related experience. Must have good English skills. Ability to be courteous and helpful to callers important. Must project professionalism. Ability to follow instructions and procedures, yet exercise own judgment when appropriate necessary. (Normal work hours are 9-5 but occasionally will be asked to work other shifts, 7:15 a.m. - 3:15 p.m., or 2:15 p.m. - 9:15 p.m.). S88-230

CLERICAL ASSISTANT (CLERK/MESSANGER), Office of Sponsored Programs, to perform a wide variety of office functions. Will act as office receptionist; answer telephones; pick up mail from Mail Room and distribute daily; take charge of photocopy machine; deliver postage machine for reloading as necessary; pick-up and deliver OSP material to various administrative offices (at least twice a day, sometimes more); log in, separate, and distribute account action notices; sort monthly accounting statements; maintain monthly log of proposals on DECmate; file; and turn off postage meter, photocopy and coffee machine, and see that mail room is in order. Requirements: a minimum of one year of direct/related experience. Must be dependable and flexible. Some typing and familiarity with DECmate equipment helpful. Must be neat. S88-222

OFFICE ASSISTANT, Medical Department (part-time), to work in Medical Record Services and perform a variety of office functions. Responsibilities include pulling and filing medical records from telephone requests and written order slips; dispatching records; doing minor repair on Telelift system; performing special projects from time to time; and may be required to work morning and evening shifts as directed by supervisor. Requirements: must have good communication skills and ability to work in a team setting. Accuracy with details and ability to work under pressure essential. Considerable physical strength necessary to lift boxes and push heavy carts. Must be able to stand on his/her feet all day. (The hours for this position are 8:30 - 12:00, Mon - Thurs, 8:30 - 12:30 Friday). S88-207

OFFICE ASSISTANT, The Libraries, Micro-production Laboratory, to perform the following tasks under the supervision of the Business Manager. Will receive requests on the telephone and at the counter and process them accordingly. This includes answering inquiries and

i/s

News about information systems throughout MIT

Automate → Informate → Network: Information Technology in the Workplace

Lee Ridgway • Information Services

“We know that microcomputers are increasing in numbers, but how do we stop them?” A typical remark, you say, from a computer-phobic secretary. Or a worker afraid of being put out of a job by a computer. Actually, a businessman asked this question last year while attending a presentation to graduates of the Sloan School's Senior Executive Program.

Although it sounds like a call against technology, the executive's comment is really about whether or not a company's investment in numerous small computer systems is worth it. This points up some paradoxes in how microcomputer technology affects business and similar organizations. On the one hand, micros are used in the workplace in increasing numbers, rapidly changing the ways many people work. On the other hand, management sometimes appears uncertain about how to manage the impact of microcomputers in their organizations.

Researchers, including several at the Sloan School, are studying the impact of new information technology on employees, management, and organizations. John S. Carroll, Associate Professor of Behavioral & Policy Sciences in the Sloan School, and Constance Perin, Principal Research Associate, Management in the 1990s Program, are two researchers who have collaborated in this field. In discussing their work, Carroll summarized the issues and their research findings.

Carroll looks at how expectations about microcomputers and information technology

influence organizational consequences. For Carroll, the question is not just what happens to individual workers when given a micro, but also what happens to the relationship between manager and worker, and how the organization is affected.

In three case studies, Carroll and Perin tracked what happened when micros were introduced into three different corporate settings.

One company, exploring for and selling natural resources, introduced four micros into a 200-person accounting group. Work in this group was done either on a mainframe or by hand. The manager's vision for using micros was modest: he saw them as “fancy adding machines” for automating small projects previously prepared by hand.

Accountants could take training on the micros, but mostly on their own time. Eventually, micros found a useful niche in the accountants' work processes, though they were seen more as a convenience than a necessity. The manager did not use a micro and supervisors did not use them as a matter of course — they were seen as tools for soldiers, not generals.

Expectations focused on efficiency, reduced drudgery, and a more professional look to reports. An interesting sidelight is that the manager forbade the accountants to write their analyses on micros — this was regarded as typing and accountants were to continue to send handwritten memos to the typing pool.

Carroll's second case study focused on the comptroller's department of a large company within a larger telecommunications corporation. Here the impetus and vision of individual computing came from upper management. They foresaw a micro on nearly every manager's desk and at least one for every two employees.

Support policies included in-house training for everyone in the department. Skilled micro users were designated as resource people to write applications and to help other

(continued on page 2)



This photo portrait by Lee Friedlander is part of the exhibit “Three on Technology” on view at the List Visual Arts Center through June 26. Three photographers were commissioned to investigate the nature of our changing technological world and our human roles in it. Friedlander, often considered the foremost documentarian of the social landscape, chose to investigate the interface between humanity and technology in his deadpan portrait series of the contemporary workplace. Other photographers in this exhibit are Jan Groover and Robert Cummings.

ARF Studies the Way We Look and Listen

Our ability to transmit, store, manipulate, and display sounds and images of all kinds has grown dramatically in recent years — witness the widespread home use of VCRs, hi-fi TV, and video and audio disks. But according to Prof. W. Russell Neuman, director of the Audience Research Facility (ARF), “We don't know yet how computers will be combined with existing communications media.”

The Audience Research Facility is an MIT laboratory built to study how we will use and react to new communication technologies. Located in the Liberty Tree Mall in Danvers, ARF has functioned since 1985 as a field testing site for prototype communication technologies as well as for basic scientific research.

ARF's mall location makes it possible to recruit a relatively representative sample of adult subjects. Liberty Tree's shoppers come from urban-industrial, suburban, and semirural communities and are an ethnically and socioeconomically diverse population.

The 1,200-square-foot facility includes four research areas, a reception area, and a control room. An audio room has been specially designed for audio and acoustic research. A simulated living room replicates home media-use patterns. A larger viewing room with video and film projection equipment for group viewing studies can be divided into smaller experimental areas. The audio room and living room are also used for focus groups and in-depth interviews.

ARF's Research Agenda

An underlying hypothesis at ARF is that the way people think and feel about messages varies with the medium of communication, particularly its display and user-control characteristics. That is, as Marshall McLuhan told us in the 1960s, “the medium is the message.” Accordingly, one project at ARF is a series of studies that explores how the mode of communication affects the way we understand and interpret messages.

Other issues being studied at the facility include:

The Display. Recent developments in broadcast and telecommunications technology offer the user new choices in accessing information and entertainment. These include high-resolution and large-screen video, videotex, high-quality audio, and a variety of home printers for electronically delivered text and graphics. Do people notice any differences in the technologies? How might these new media be used?

Control. Many new technologies provide the user with increased control over the amount and flow of information. Interactive technologies, including home computers, videodisks, VCRs, and two-way cable, offer the audience the ability to filter and control this flow and to choose from a much broader variety of sources. Will interactivity lead to changes in habits of passive media behavior? Will it change how people accumulate information from the media?

Market Innovation. A number of new media are being introduced and diffused

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IN THIS ISSUE:

- *TEX* Site Licenses
- Word Users Group
- Shocking Truth About Micros
- A Look at *Word-Perfect* 5.0

5ESS Update: Ring Out the Old, Ring In the New

Karen McCarty • Telecommunications Systems

On the weekend of August 12, all telephone services now provided via the Centrex and Dorm Line Systems will be switched to the 5ESS.

AT&T is now completing the installation of 5ESS telephone jacks and cross-connecting those jacks back to the 5ESS switch sites. This month, AT&T work crews will begin installing more than 10,000 new digital and analog telephones on campus.

AT&T, MIT Telecommunications Systems, and department representatives will be identifying the exact 5ESS jack to which each telephone connects and will be assigning account numbers for equipment, message unit,

and long distance charges. They will verify that what has been programmed into the 5ESS database is what has been ordered by users and will arrange for voice mail service for everyone who has subscribed to this new service. Conversion to voice mail is especially critical for those with digital sets, a technology that will make answering machines obsolete.

This is an ambitious schedule! But given the continuing cooperation of the MIT community, Telecommunications Systems and AT&T believe they can meet it. To date about 650 representatives from departments throughout MIT have participated in planning for the new system.

These representatives have received AT&T's phone installation schedule, are turning in their voice mail subscription lists, and are working with their Administrative Officers to verify jack and billing information.

Starting June 20, department representatives will receive hands-on training on using the new phones and voice mail service. With the help of Telecommunications Systems' Customer Service Representatives, they will prepare users within their departments for the new system.

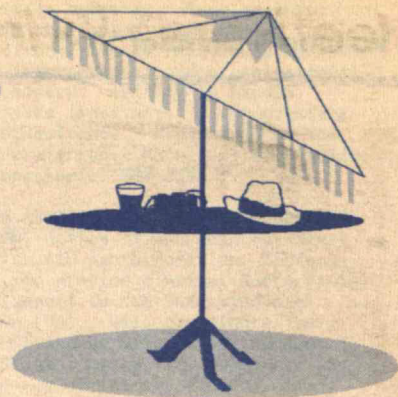
Below is a schedule of 5ESS training modules:

• **Voice features available with the new analog and digital telephones.** This

class meets twice a day, Monday through Friday, starting on June 20 and continuing through August 12. For information on this training, contact Karen McCarty at x3-1455 or x3-3651.

• **Use of digital sets for data communications.** Sessions are scheduled for Monday, Wednesday, and Friday mornings from June 27 through August 12. For more information, contact Ron Hoffmann at x3-4101.

• **Use of voice mail for message-taking and delivering services.** This module meets Tuesdays and Thursdays in July. For information, call Debbie Spence at x3-3651. ●



We're taking a break, but *i/s* will be back in September. Watch for special issues on computers and the disabled, scanning and other desktop publishing technologies, and artificial intelligence. We will also cover the opening of the Microcomputer Center in the Student Center Building, on-line library catalogs, and user groups. Send your suggestions for articles to Robyn Fizz, Room 11-309, x3-0540. Look for us again in *Tech Talk* this fall. ●

TEX Typesetting Comes to Microcomputers

Caia C. Grisar • Information Services

TEX (rhymes with *tech* and *yecch*) is a typesetting system that's been used on mainframe computers since the late 1970s. Donald Knuth developed *TEX* at Stanford University for typesetting books and papers, especially those containing complex mathematics and scientific notation.

TEX formatting isn't what-you-see-is-what-you-get (WYSIWIG) and isn't simple to learn, but it's very powerful. You embed code within your word-processed document and run it through *TEX* for formatting. When a lot of coding is involved, you can use macros – single commands that generate several computer instructions. A widely used set of *TEX* macros is a package called *LaTEX*.

TEX and *LaTEX* have remained very popular among scientists and mathemati-

cians, even with the advent of WYSIWYG equation editors and page layout software. Very few microcomputer packages can emulate typesetting the way *TEX* can.

TEX Goes Micro

For micro users, *TEX* now comes in Macintosh and DOS versions. MIT's Micro Center will soon acquire a site license from Kellerman and Smith to sell *TeXtures for the Mac* to members of the MIT community. *TeXtures* is an integrated implementation of *TEX*, including a text editor, screen previewing, LaserWriter and Imagewriter printing capabilities, and the ability to import Macintosh graphics. *TeXtures* requires at least a 512KE Mac with 5.5MB of storage.

The Micro Center continues to sell *MicroTEX* for IBM PCs and compatibles as well as printer drivers for the HP

LaserJet Plus, PostScript, and Epson dot matrix printers. *Preview*, a screen driver for previewing documents before printing, is included when you buy *MicroTEX*.

MicroTEX requires an IBM XT or AT with at least 512K of RAM and a hard disk with about 4.5MB of storage. The DVILASER/HP, the driver for the HP LaserJet Plus, requires another 3MB of storage and the PostScript driver, DVILASER/PS, requires 4MB. The Epson driver, DOTPRNT, requires 1MB of storage. *LaTEX* files are not yet compatible with this driver.

Because drivers for printers tend to be very large, *TeXtures* and *MicroTEX* users will probably want to work with at least a 20-MB hard disk.

Pricing

The Microcomputer Center (and list) prices for *TEX* products are as follows.

For MS-DOS machines:

- *MicroTEX* \$125 (\$545)
- DVILASER/HP \$60 (\$250)
- DVILASER/PS \$70 (\$300)
- DOTPRNT \$25 (\$100)
- *LaTEX* \$8 (\$45)

Soon to be available for Macintoshes:

- *TeXtures* \$195 (\$395)
- *LaTEX* \$8 (\$50)

The manual *LaTEX: A Document Preparation System*, for *TeXtures* and *MicroTEX* users, will be in stock soon for \$24.

The *TeXtures* site license will restrict distribution to MIT students, faculty, and staff on the Cambridge campus. Lincoln Lab micro users interested in *TEX* should call the PC Resource Center at x181-7225 and ask about site licenses for the Lab.

If you have *TEX* or general scientific word processing questions, call IS Consultant Caia Grisar at x3-5111. ●

Audience Research

(continued from page 1)

into the marketplace. What types of groups and individuals are most likely to use these new technological options? Do early adopters tend to be typical of the marketplace as a whole? Will some new technologies lead to even greater inequities in access to public information?

Communications Effects. There is a long history of social and psychological research on the effects of mass media on audiences. Will the new technologies lead to communication of greater educational, emotional, and persuasive impact? How will these new technologies compare to current ones in terms of their effects on audiences?

ARF sponsors include the Advanced Technologies Research Program, the Future of the Mass Audience Project, Polaroid, and GTE. ●

Adapted from "Studying the Effects of New Communications Technologies: The Audience Research Facility," which appeared in *The MIT Report*, December/January 1986-87.

Automating

(continued from page 1)

users. On his second visit, Carroll found further development of support and educational programs. This established company gave the impression of shaking itself up, trimming down, and educating for the future through computerization.

The third study focused on a 45-person advanced-engineering group within a large computer company. This group of skilled computer professionals developed and used state-of-the-art workstations. These machines were powerful by themselves, but their power was further increased because they were connected to

larger computers where they could share resources and to the company network for worldwide communications – this was information technology at the cutting edge.

This company followed what Carroll calls the technological imperative: get the new technology into the hands of people who will find ways of making it work for themselves.

Carroll views these three cases of introducing microcomputers into the workplace as a continuum that represents organizational expectations about the new technology. At one end of the continuum is the expectation that microcomputers will *automate* well-understood

and specific tasks – word processing and spreadsheet preparation – as a means of enhancing efficiency and possibly reducing headcount. This view is closely related to the traditional view of technology as substituting capital investment for labor costs.

Further along the continuum is the expectation that information technology will enhance the information-handling capabilities of its users, thereby giving them a deeper understanding of the organization's workings. This stage has been given the label *informating*, a term coined by Shoshana Zuboff of the Harvard Business School.

At the other end of the continuum is *networking*, where

information technology systems are interconnected, letting employees transcend their organization's limitations of resources by calling on those elsewhere in the company and beyond the company's borders. In contrast to automating and informating, where the focus is internal, networking can reveal and transcend artificial boundaries and focus attention on external interdependencies.

Carroll elaborated on his findings in a talk given in April as part of the Sloan School's Management in the 1990s Program; copies of that talk are available from the program's office (Room E40-294, x3-0585). ●

MIT Information Systems

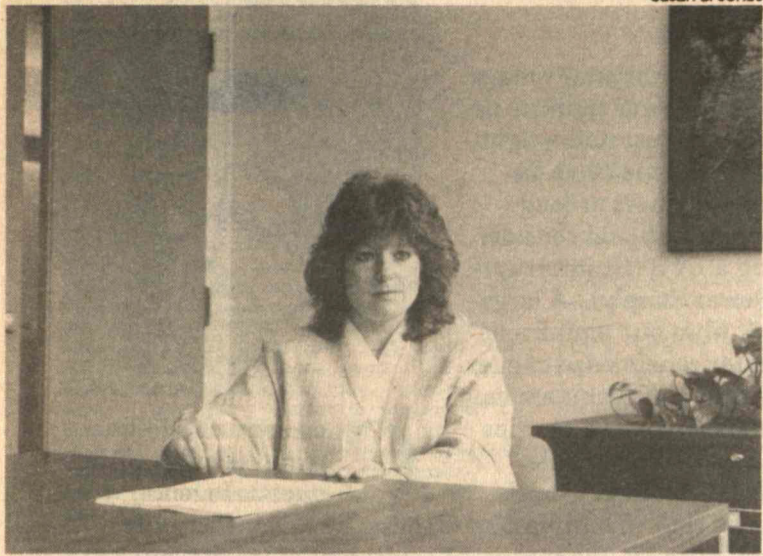
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Meet Karen Kramaric

Susan B. Jones



In the Technology Licensing Office (TLO; see the article on this page)

Karen Kramaric is the officer who helps MIT software developers license their intellectual property. She advises them about options for protecting their product (usually through a notice of copyright) and then begins to find a niche for it in the commercial market.

Kramaric acts as liaison between government agencies which may have sponsored the research associated with the software, the MIT software developer(s), outside companies interested in the product, and outside counsel. Negotiations for the licensing agreement take anywhere from a day to six months.

Kramaric's background in computers comes from hands-on experience with hardware and large-scale applications. She troubleshoots the TLO computers, even replacing faulty microchips. With an undergraduate degree in non-fiction writing, Kramaric says she turned to paralegal work because law demands lots of writing. She wound up in the legal department of Union Carbide, where she designed and managed the litigation database.

When she came to TLO three years ago, Kramaric saw the need for a catalog of MIT-licensed software, since customers calling the office

often had only a vague notion of what they sought. Working on the catalog still gives Kramaric a good deal of satisfaction. She finds it even more rewarding when her efforts help lead to the start-up of a new company.

Kramaric's goals include educating MIT software developers and inventors about TLO services. She'd like to publicize the benefits of licensing new technology for commercial use – not just the obvious monetary rewards, but also the gratification of providing a valuable, constructive tool and establishing interactive relationships with a large group of end users. She's also working to bring MIT software to the attention of the industrial community by announcing product releases in publications such as *Digital News*.

In her spare time Kramaric skis, plays racquetball, and writes short stories. She jokes about writing the great American novel, probably with an espionage twist. That theme links, if indirectly, to her professional skills, as her work involves not only bringing new technology to light but also keeping mum about developments not yet ready for public consumption. ●

i/s would like to thank Marie Ludwig and Marlene Gast for keeping this column afloat.

New Publications from IS

Information Systems has published three new documents for Institute computer users. You can pick up copies at the Publications Counter in the Micro Center.

MC-4.2	<i>Directory of Microcomputer Retailers</i>	free
QG-1	<i>Printing Lotus 1-2-3 Worksheets on Dot Matrix and LaserJet Printers</i>	free
IS-5	<i>MIT User's Guide to Supercomputing</i>	free

Supervisors. . .

when someone in your group terminates from MIT, transfers to another department, or changes responsibilities, you need to make sure that his or her access to data and computer resources is properly restricted.

If you need help in determining what to do when it comes to MIT mainframe accounts, pick up a copy of *Termination Procedures Relating to Computer Access* in the IS User Accounts Office, Room 3-123.

Technology Licensing Office: Patent Pending

Susan Tibbetts • Information Services

The Technology Licensing Office (TLO) has been around for decades – almost 50 years as far as Clyde Kelley can tell from looking at old paperwork. Kelley, an outside consultant, is automating the office's information flow.

The function of TLO has always been to protect MIT technology through patents and copyrights and to transfer that intellectual property to the public through licenses. In the past two years relatively greater emphasis has been placed on licensing activity. As a result, the number of inventions disclosed rose from 123 in 1985 to about 200 in 1987.

How the TLO Functions

The TLO staff includes a half-time attorney, six full-time officers, and a support staff of five and a half.

The attorney addresses contract compliance and provides general in-house counsel. All patent application work is done by outside law firms.

The six TLO officers are responsible for marketing and licensing technology in areas ranging from materials

science, mechanical engineering, and software to biotechnical and medical devices.

The support staff keeps the paperwork flowing. After Kelley develops the much-needed TLO database, the staff will be able to find and reference information on-line instead of hunting through numerous file cabinets. TLO is planning a VAX/Mac-based, networked system.

Software and the Licensing Process

Software may be protected by copyright or, in certain cases, by patents. Members of the MIT community are encouraged to submit to TLO their technology disclosures for software and other inventions. If all goes well, TLO submits a registration of copyright and an end user or distributor purchases a license.

Software licenses are sold to government agencies, universities, and commercial companies for internal use and to distributors who take the MIT product and package it as part of their product. Among the software available through TLO are CLU, a programming language that runs

under UNIX and TOPS-20; FINGREEN, a file of FORTRAN subroutines for computing velocity potentials; and the best-selling X-Windows. X-Windows lets you open and work concurrently with several windows on your computer screen.

Distributors such as Symbolics and Intex Solutions, Inc. have purchased rights, respectively, to MACSYMA, a program for highly developed algebraic formula manipulation and TROLL, an interactive econometric system.

Fifteen percent of royalties are used to cover operating expenses incurred by TLO. The rest is divided evenly among the author(s), the MIT general fund, and the author's department. In 1987 TLO sold licenses to 60 patented items and about 50 software programs, and generated \$3.1 million in revenues.

Most of the software products can be used by the MIT community. TLO is compiling a catalog of their software. If you're interested in looking at the catalog or if you have software that you want to submit for licensing, contact Karen Kramaric at TLO, x3-6966. ●

Word Group Relies on Community Users

Tony Jackson • Information Services

Microsoft Word User Group Summer Schedule

Date	Location	Topic	Speaker
June 15	Marlar Lounge (Rm. 37-252)	Q & A Session	Everyone!
July 20	Rm. 4-231	Integrating Word with FileMaker	Alexei Folger
August 17	Bush Room (Rm. 10-105)	Creating a Brochure	Phyllis Galt

Once each month people at MIT get together during their lunch break to ask questions and watch presentations about *Microsoft Word*, the most popular word processor available for the Macintosh computer.

A Typical Meeting

The first half hour of each meeting is for questions and answers – participants bring their problems and share their knowledge about the program. *Word* has many advanced and obscure features, and while a user may be proficient in one or more of these, she or he can learn a lot from people who are more knowledgeable in other areas.

During the second half of the meeting members of the MIT community demonstrate one or more of *Word's* advanced features. Past topics have included Quick and Easy Outlines, Using Style

Sheets Effectively, Working with Tables, and How to Produce a Newsletter with *Word*.

Who Attends and Who's Involved?

The *Microsoft Word* user group is open to MIT faculty, students, and staff. Expertise of group members varies from beginner to expert. The group discusses all levels of questions and each person usually learns something new.

Started last December by IS as a service to Macintosh users, the *Word* group is run by (and for) members of the MIT community. Some of the people who have made important contributions are Joni Bubluski (Energy Lab), Alexei Folger (Office of the Corporation), Ping Lee (Aero/Astro), and Karin Young (Information Services). If you're interested in making a presentation or lending a hand with administrative details, such as mailings, call Tony Jackson at x3-4135.

A Few Tips

Here are a few tips that may help if you use *Word*.

Resizing graphics: If you have imported a graphic into a *Word* document, you can resize the graphic while in *Word!* Hold down the shift key while you drag one of the frame handles.

Sorting by any column: The Sort command normally sorts a table by the first column. To sort by any other column, select that column before choosing the Sort command. To select a column, hold down the option key while you click and drag.

Keyboard shortcuts: If you have a keyboard with a numeric keypad, you can use the keypad keys to move the cursor and select text. Here are some shortcuts that are especially useful: *Page Up:* press 9; *Page Down:* press 3; *Top of Doc:* press ⌘-9; *Bottom of Doc.:* press ⌘-3.

For more tips and ideas, come to a meeting! ●

The Shocking Truth: Your Micro on a Power Trip

J. David Allred

This article is excerpted from a longer one that appeared in *The Active Window*. While the article is specifically about Macs, much of the information applies to other micro-computer equipment. — Ed.

Taking your Macintosh with you when traveling sometimes involves a bit more preparation than deciding what color carrying case to buy.

An important consideration is your source of electrical power. Your Macintosh usually gets a nominal 120 volts at 60 hertz and uses 60 watts or so. This becomes important when you find yourself faced with a wall socket that supplies 240 volts at 50 hertz and accepts something quite different from the familiar three-prong plug. [For all configurations, check your manuals for total wattage, and the back of your micro and monitor for acceptable operating frequencies. — Ed.]

Your approach to getting the right power for your Mac and any other equipment that you may use with it, such as a disk drive or a printer, de-

pends on the specific equipment requirements.

The most common way to get the required voltage is to use a transformer. This electrical device has been around for a long time and comes in hundreds of different types. Since we want to raise or lower voltage, we will be shopping for a step-up or step-down transformer. Many serve both functions.

To choose the correct transformer, you need to know the equipment requirements and the voltage available at your destination. The most common situation involves using 220 to 240 volts to power something like a Mac Plus, a hard disk, and an ImageWriter. Choose a transformer that can handle the combined power consumed by the devices connected to it. Never use a converter that is not a transformer or is not designed to work with electronic equipment. The converter that works well with a hair dryer

may cause permanent damage to your Mac and other equipment.

To use a transformer, plug your equipment into an outlet strip attached to the low voltage side of the transformer and plug the high voltage side into the 220-volt outlet, using plug adapters as required.

If all you are taking with you is your Mac SE with its internal drives, buy a plug adapter

to fit foreign outlets or get a new local power cord when you arrive. The SE works on 220 volts without conversion or complaints. Some other equipment does too, check the labels and read your manuals.

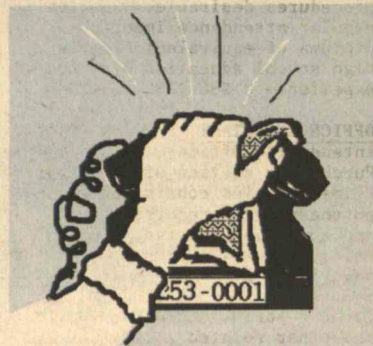
If the power that you encounter is likely to vary outside the limits of your Mac's tolerance (for example: 120 volts at 2pm and 85 volts at 7pm), you may want to consider using a power conditioner. These devices accept a wide range of input voltage and deliver a constant output

voltage. Operational voltage limits and power capacity determine the cost and weight.

If power sometimes disappears for short or long periods, you should consider getting a UPS (Uninterruptible Power Supply). A large UPS is what our mainframe computer cousins use to guarantee that your bank account won't disappear if a car rips out a nearby power pole. There are different models available that will run a Mac from as little as 10 minutes to as long as you feel is necessary. The length of time is directly related to size, weight and cost. They use batteries, automatically condition the incoming power, and usually work with 90 to 260 volts AC or 10 to 40 volts DC. A UPS is a cover-all-bets solution to power problems. ●

Excerpted with permission. Copyright © 1988 by Photon, Inc. Printed in The Boston Computer Society's Macintosh Group publication: *The Active Window*, March 1988. To find out more about this publication, call (617) 625-7080. J. David Allred, (617) 661-9046, is a Macintosh consultant.

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: Is there a way my boss and I can work on the same document, even though we each use a different word processing package? She uses *WordStar 3.3* when she works at home; I prefer *WordPerfect 4.2*.

A: The *WordPerfect Learning Disk* contains a *Convert Utility* that should enable you to convert documents back and forth between these two word processors. You'll find a good explanation of how to use the utility in the *WordPerfect Installation Guide*. This utility also converts files to and from *MultiMate 3.22*, documents saved in DCA format from other word processing programs, and spreadsheet DIF files. Try *Convert* with a test document to see how much formatting is saved.

Q: I'm doing a special two-column memo format in *Microsoft Word 3.01* for the Mac using Side-by-Side paragraphs. When I paginate for previewing or printing, *Word* often leaves lots of blank space on a page instead of putting part of the next paragraph in that space and continuing on the next page. Is there a way to get around this?

A: You've discovered a quirk in *Word's* Side-by-Side paragraph format. *Word* does not break text blocks formatted in this way, so long Side-by-Side paragraphs won't split between pages — they will start on a new page. To get around this and get more text on a page, turn off Side-by-Side formatting for those paragraphs with nothing next to them. Shifting between the two kinds of paragraphs is easy if you set up a style sheet for each kind. ●

PC Repairs
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PC WordPerfect Strives for Perfection

Gail Garfield • Information Services

Last month WordPerfect Corp. released the long-awaited *WordPerfect Version 5.0* for the DOS environment. The previous version, 4.2, has been well out in front of the competition since it came on the scene in February 1986. The new version threatens to increase that lead with its impressive new features and many improvements.

WordPerfect 5.0 lets you import graphics from almost any source, create and edit style sheets, edit macros, and change setup options from within the program. Improvements include an easier-to-understand search and

replace function, more full-screen menus, simplified selection of fonts, a better interface with laser printers, and an exceptional page preview display.

Users can now bring graphics directly into *WordPerfect* from *Lotus 1-2-3*, *AutoCAD*, various paint programs (including files saved in Macintosh *MacPaint* format), scanners, and more. You can attach a graphic to a particular page or paragraph, or treat it like a character and move it with the text. After the graphic has been placed in the document, you can size, move, or distort it. The border around it can be

changed, and so can its caption. You can also flow text around graphics.

Version 5.0 lets you create boxes for text and graphics and screen them with any degree of shading that your printer allows. The program comes with 30 clip art images from Marketing Graphics, Inc. With these features, plus kerning, word spacing, and line spacing, *WordPerfect* fulfills most simple desktop publishing needs.

With 5.0 you can create style sheets and apply them to your documents. This is a great feature when you're trying to keep formatting the same through long, complex

documents. You can also edit your style sheets; the resulting changes can affect either your whole document or just the part you've selected.

Installing your printer driver and selecting fonts is much easier now. You choose fonts by name from a menu that lists only those available for your printer.

Version 5.0 comes with a new, easy-to-follow manual and a workbook. *WordPerfect* continues to offer free telephone support to registered users.

You need at least 512K to run *WordPerfect 5.0*. The vendor recommends a hard disk and, if you plan to use lots of downloadable fonts, additional memory in your printer. *WordPerfect 5.0* lists for \$495; Micro Center prices are \$245 for personal use and \$163 for Institute use.

The upgrade to 5.0 from any previous version costs \$60. If you bought 4.2 after February 1, 1988, the upgrade is free. Requests for upgrades should be sent to: *WordPerfect 5.0 Update*, 329 North State Street, Orem, Utah 84057. Each order must be accompanied by the title page from the *WordPerfect* manual, indication of disk size (3.5" or 5.25") and printer type, and payment.

If you have questions about *WordPerfect 5.0*, call IS consultant Gail Garfield at x3-0878. ●

MIT Information Systems

Microcomputer Center

Looking for a Macintosh software bargain?

Come to the Microcomputer Center on Wednesday afternoons from 2-4 pm. You can learn about and purchase inexpensive disks of Mac programs called *public domain software* or *shareware*. These disks are distributed by the MIT/BCS Mac User Group, and consist of small, worthwhile programs that could not be marketed economically in the commercial arena. The author may choose to make the program available free of charge, or request a small donation (\$5-\$10) if you decide that you like and regularly use the program. Come visit us in room 11-209 to look at a catalog, try out the software, or ask for more information.

Also on Wednesday afternoons — a consultant will be on hand to help recover damaged files or disks. Stop by from 2-4 pm to learn about solutions for restoring lost Macintosh files.

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

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

discussing available services with Laboratory users; compute the costs of requests; prepare invoices for submission to the Accounting Department; respond to routine written inquiries; tabulate various statistics; and enter and proofread data in a computer microfiche titling system. Requirements: a minimum of one year of direct/related experience as well as a good personality and command of the English language. Must be able to set priorities and allocate time effectively. Accurate typing necessary. Acquaintance with basic accounting procedures desirable. Punctuality and regular attendance important. High school diploma or equivalent necessary. Post high school education may count toward experience. S88-189

OFFICE ASSISTANT, Physical Plant, Superintendent's Office, to work within the Purchasing section of the department. Primary duties consist of reviewing purchase order requisitions for accuracy and completeness; typing purchase orders; mailing same to vendors; distributing associated copies to pertinent parties; maintaining purchase order log; correcting error reports; and doing general filing and other related activities. Requirements: business training or minimum of one year experience and good typing skills. Must be highly service oriented and personable in dealing with departmental personnel as required. S88-172, S88-163

RECEPTIONIST, Naval Science, to perform secretarial and various office duties. Will answer telephones and receive visitors; type correspondence; maintain files; and process mail. Requirements: a high school graduate and/or secretarial school and/or one year direct/related experience. Good typing skills (50 wpm) essential. S88-106

OFFICE ASSISTANT, Medical Department, to work in Record Services and perform a variety of office procedures. Responsibilities include filing and filing medical records from telephone requests and written order slips; dispatching records; maintaining patient index file; and performing special projects as requested. Requirements: good communication skills and ability to work in a team setting. A minimum of one year of direct/related experience, and able to work under pressure essential. Considerable physical strength is required to lift boxes and push heavy carts. Must be able to stand on feet all day. (May be required to work morning and evening shifts). S88-035

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

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 cleanup a cold, picnic style lunch for a faculty meeting. Requirements: a minimum of one year of direct/related experience. Must have driver's license or effective means of transporting food essential. Must be reliable and available on Thursdays. S87-422

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

SERVICE ASSISTANT, Earth, Atmospheric and Planetary Sciences (part-time, 12 - 15 hours/week; September through May), to prepare and cleanup for daily tea hour. Will order tea supplies, maintain kitchen facility and help set up faculty luncheon. Will occasionally do errands for headquarters. Requirements: valid driver's license. Must be reliable. S87-901

ADMINISTRATIVE AND ACADEMIC STAFF

ASSISTANT DIRECTOR, Admissions Office, to participate in recruiting candidates; developing admissions strategies; interviewing and evaluating applications for undergraduate admissions; and representing MIT at public meetings and secondary schools. Requirements: excellent communication and interpersonal skills, as well as a bachelors' or masters' degree. Admissions counseling or similar experience desirable. A88-085

FINANCIAL AND INFORMATION ADMINISTRATOR, Technology Licensing Office, to perform financial operations including budgeting and budget management, financial forecasting, purchasing and requisitioning, bookkeeping, accounting, cash transfers and deposits, royalty distributions, and invoicing, etc.; administer/operate VAX/VMS information system and database contents; manage action item/tickler list; and perform miscellaneous administrative duties. Requirements: a thorough foundation in financial operations, keeping books and accounts, and handling cash flow. Must have proficiency for numbers and details. A minimum of an Associates Degree and five years of direct/related experience necessary. Must be goal oriented and able to work diligently with minimal supervision. Ability to work well with people important. A88-084

STAFF WRITER/EDITOR III, Resource Development - Communications, to define, research, write and edit fund-raising materials and provide editorial support for special events. Writing tasks include proposals, brochures, feature articles, news releases, speeches, audio visual scripts, and correspondence. Requirements: five years of more experience in development communications in a responsible position, with emphasis on writing and public relations skills. Must have publication production background and be willing to develop expertise in desktop publishing. Familiarity with university organization, sensitivities, and policies highly desirable. Experience in preparing audio visual materials and speech writing helpful. A88-083

ASSISTANT DIRECTOR, Resource Development (Office of Development Services), to provide operational support and coordinate a broad range of development support services to selected internal MIT "clients". Responsibilities include liaison between the department and designated academic/administrative officers; participation in discussions of fundraising needs and priorities, in prospect strategy and review sessions, as well as in planning and execution of cultivation/solicitation/donor relations activities; assistance in prospect identification and evaluation, allocation of prospects for specific projects, and clearance matters; operational staff support for specific fundraising projects in close cooperation with school fundraising officers; coordination of school and departmental contacts with key field staff; preparation of proposals, gift memoranda, and correspondence regarding prospects; coordination of prospect research, prospect lists, visit briefing materials, response to information requests, database inquiries, Dialog/Nexi queries, and selected library/reference/file research; occasional direct contact with donors and prospects; and distribution of status reports, reminder lists, action, and follow-up agendas. Requirements: a bachelors' degree with three or more years in fundraising and/or administration, preferably in higher education or a major non-profit organization. Strong interpersonal skills as well as effective oral and written communication skills essential. Previous experience in prospect research and/or proposal writing preferred. Familiarity with MIT and its development organization desirable. Ability to fit into a "team oriented" environment, and manage multiple projects simultaneously with deadlines necessary. Familiarity with database operations and some supervisory experience important. A88-082

ANIMAL FACILITIES MANAGER, Division of Comparative Medicine, to manage animal facilities on MIT campus with average daily census of 13,000. Will supervise the Facilities Coordinator and Supervisor, and 14 Animal Technicians and Technologists; act as liaison with the research community; and oversee the direct administration of the animal facilities. Requirements: a B.S. in biological sciences or related field. Two to five years of direct/related supervisory experience necessary. Strong interpersonal skills essential. A88-081

HEAD, COPY-BASED CATALOGUING SECTION (Librarian I), The Libraries, to work under the direction of the Associate Head for Monograph Cataloguing and Authority Control. Will supervise the Copy-based Cataloguing Section; catalogue English and foreign language monographs for which Library of Congress or acceptable contributed cataloguing is available; catalogue MIT publications; and retrospective conversion. Will also provide a full range of supervision of section staff, including hiring recommendations, orientation and training, performance evaluation, and motivation; interpret cataloguing policy for the section in consultation with appropriate senior staff; and participate in departmental and system-wide committees for procedures and/or policy formulation and in appropriate special projects. Requirements: an MLS from an ALA-accredited library school. Substantial copy-based cataloguing and authorities experience necessary, preferably in a research library. Must have basic

knowledge of MARC book format and AACR2 as implemented by LC and an advanced knowledge of OCLC or RLIN cataloguing subsystem. Ability to demonstrate well-developed communication, interpersonal, and problem-solving skills, as well as supervisory potential. A commitment to a user service orientation for technical services important. A88-079

ASSISTANT ENGINEERING LIBRARIAN (Librarian I), The Libraries, to identify and monitor the information needs of a segment of the MIT community working in a particular subject area. Will provide traditional and online reference service in the general areas of interest to users of the Engineering and Science Libraries and respond to in-depth needs within specialized areas of subject competence. Will provide instruction in both individual and classroom sessions; manage and develop research level collections in one or more engineering and science disciplines; review existing collections and identify needs; make recommendations for additions, weeding, storage, and cataloguing treatments; and work on projects with other Engineering and Science Librarians and with staff from other units of the MIT Libraries. Requirements: a MLS from an ALA-accredited library school necessary. Relevant pre-professional experience in a science or engineering research library highly desirable, as is a degree in science or engineering. Must demonstrate well-developed interpersonal and strong communication skills. Ability to be a source of information in a dynamic environment important. A88-078

ASSISTANT DIRECTOR FOR SUBCONTRACTING AND GOVERNMENT RELATIONS, Purchasing and Stores, to direct and oversee subcontracting/purchasing activities, primarily under Federal contracts and grants, processed by personnel of the Central Subcontracting Office, the Purchasing Field Office, and Satellite Purchasing Agencies. Will provide guidance and instruction to personnel at all locations on Federal procurement regulations, contract and grant requirements, and all forms of subcontract arrangements, including cost reimbursement, time and materials, labor hours, consultant, and firm fixed price. Responsibilities include coordination and preparation of subcontracting plans required under Federal contracts, negotiation of plan goals with contract sponsors, and the preparation and submission to sponsors of quarterly reports of accomplishment. Will assist with the planning, development and implementation of new and improved systems, methods, and procedures. Requirements: a degree in business, accounting or law, five plus years in-depth subcontract/contract management and supervision experience. Knowledge of the provisions of Federal contracts and grants and related procurement regulations important. Knowledge of minority and women-owned business affirmative action purchasing and subcontracting programs and related records and reports necessary. Must have very strong administrative, negotiating, written, and oral communication skills. A88-075

SOFTWARE DISSEMINATION COORDINATOR, Information Services, to coordinate the process of acquiring, marketing, and distributing software, primarily site-licensed software for academic and research use. Will report to the Director of Information Services and work closely with the Microcomputer Center and Vax Resource Center. Will be responsible for negotiating site licenses, coordinating legal review of software contracts, and distributing site licensed software products to the MIT community. Requirements: a bachelors' degree, preferably in business with significant experience with business contracts, software vendors, and software marketing. Excellent business, administrative, and communication skills necessary as well as experience in the software or computer industry. A88-074

COORDINATOR OF ADMISSIONS OUTREACH, Sloan School of Admissions Office, to organize admissions functions and marketing initiatives, act as primary support person for technology systems; coordinate publications work; act as member of Admissions Committee to evaluate applicants for the Master's Program, and help to support Associate Dean to expand the outreach efforts in dealing with prospective applicants and companies interested in our graduates. Requirements: a bachelors' degree along with a few years of experience or a comparable level of technical expertise. Should enjoy working with students and be able to deal effectively with several different constituencies including applicants and MIT staff of all levels. Solid understanding of computing and information systems very helpful. A88-073

ASSISTANT DIRECTOR, Resource Development (Office of Development Services) to provide operational support and coordinate a broad range of development support services to the School of Science. Responsibilities include liaison between Resource Development and the Director of Development for the School of Science; participation in discussions of fundraising needs/priorities; in prospect strategy and review sessions, and in planning and execution of cultivation/solicitation/donor relations activities; assistance in prospect identification and evaluation, allocation of prospects for specific projects, and clearance matters; operational staff support for specific fundraising projects in close cooperation with school fundraising officers; coordination of school and departmental contacts with key Resource Development field staff; preparation of proposals, gift memoranda and correspondence regarding prospects; coordination of prospect research and lists, visit briefing materials, response to informa-

tion requests database inquiries, Dialog/Nexis queries, and selected library/reference/file research; occasional direct contact with donors and prospects; distribution of status reports, reminder lists, action, and follow-up agendas. Requirements: a bachelors' degree and three or more years in fund-raising and/or administration, preferably in higher education or a major non-profit organization. Strong interpersonal skills as well as effective oral and written communication skills essential. Previous experience in prospect research and/or proposal writing preferred. Familiarity with MIT and its development organization desirable. Ability to fit into "team oriented" environment, and manage multiple projects simultaneously within deadlines important. Familiarity with database operations highly desirable. Some supervisory experience important. A88-072

ADMINISTRATIVE OFFICER, Foreign Languages and Literatures, to assist the section head in all matters pertaining to administration. Responsibilities include preparation and administration of budget; compilation of promotion, tenure, and reappointment dossiers; preparation of statistics and Bulletin copy; administrative support for faculty searches; preparation of materials for foreign visitors (visas and logistical arrangements); advising faculty and staff on Institute procedures; and supervision of support staff. Will also serve as a liaison in all matters of personnel, payroll, accounting, purchasing, and physical plant. Requirements: a bachelors' degree as well as previous administrative experience. A strong knowledge of one of the foreign languages taught in the Section highly desirable. Previous MIT experience strongly desired, preferably in an academic area. A88-071

AUDITOR I, Audit Division, to perform assigned audit tasks in reviewing and appraising the soundness, adequacy, and application of accounting, financial, and operating controls. Will participate in discussions with departments heads, faculty, and staff on audit procedures and results to assure economic and efficient operation of the units or departments reviewed; maintain a high degree of professionalism and objectivity in the audit tasks assigned; participate in the preparation of reports as directed; participate in the review of systems and procedures and make recommendations on improvements in systems design and computer applications; and supervise the work of clerical support staff. Requirements: a bachelors' degree in Business Administration with a major in accounting and/or equivalent combination of education and experience. A minimum of one to three years experience with a certified public accounting firm or equivalent internal auditing experience necessary. Reasonable knowledge of systems analysis and computer capabilities desirable. Accreditation as a C.P.A., C.I.A., or C.I.S.A. must be a career goal. A88-058

DIRECTOR OF DEVELOPMENT, School of Humanities and Social Science, Resource Development, to plan and develop all phases of program to expand endowment and operating support including identification, cultivation, and solicitation of prospects for major gifts from various sources. Will coordinate fundraising activities within the school; prepare publications and proposals for presentation to prospects; communicate information of School priorities; serve as liaison among various departments; develop program for donor recognition, involvement, and stewardship; review files; and initiate research where necessary. Requirements: a bachelors' degree with advance degree desirable. A minimum of three years experience in an educational or not-for-profit environment requiring frequent contact with a variety of people. Should have demonstrated success in charitable fundraising or in sales. Previous experience at MIT desirable. Excellent verbal, written, and interpersonal skills necessary. A88-070

PROGRAMMER/ANALYST I, Fiscal Planning and Budget Office, to perform analysis, evaluation, and translation of existing programs for use on a new MicroVax environment. Will analyze, design, program, and test new applications using 4GL's and other tools; and assist in user training and maintenance of office hardware and software. Requirements: bachelors' degree or equivalent combination of education and experience. Knowledge of C, 4GL's and DBMS concepts, preferably in MicroVax environment a plus. Familiarity with IBM PC's and local area networks helpful. A88-068

SR. STAFF ASSOCIATE, Office of the Dean for Student Affairs, to administer programs and produce publications for the Undergraduate Academic Support (UAS) Section, with primary responsibilities involving Independent Activities Period (IAP). Will help develop and publicize educational and community service opportunities for undergraduates during January; define, research, write, edit, design, and oversee production of publications for IAP and other UAS programs, including the Freshman Handbook and publications for incoming students, and promotional material for the Wellesley-MIT Exchange Program; oversee day-to-day operations for IAP and the Exchange; serve as consultant to other staff in the Office on the preparation and production of publications; counsel students, faculty, and administrators regarding participation in IAP and other UAS programs. Requirements: a bachelors' degree or equivalent combination of experience and education. Two to five years of writing, editorial,

and production experience, with proven ability to meet deadlines, and administrative experience, preferably in a university or college environment. Familiarity with desktop publishing on the IBM pc a plus. Strong communication, organizational, and interpersonal skills important. Some experience in training and directing other staff preferred. A88-066

ASSISTANT DIRECTOR, Office of Career Development, Sloan School of Management Placement Office, to provide career planning and placement services to 400 master's level management students. Office hosts 160 recruiting companies annually with 70 firms making presentations in the fall. Candidate will manage all aspects of on-campus recruiting program; promote Sloan School students to employers; supervise recruiting assistant, resume book production and serve as primary office representative in Director's absence. Requirements: a master's degree or equivalent and several years of relevant work experience. Direct experience in corporate/college relations highly desirable. Familiarity with business careers, MBA employers, and career planning desirable. Excellent organizational/interpersonal skills and experience in administrative systems/information management essential. Effective communicator with ability to work successfully with senior level executives and MIT staff, faculty, alumni, and students necessary. Supervisory skills important. Working familiarity with wordprocessors/personal computers and willingness to work overtime, especially during recruiting season, necessary. A88-065

LIBRARIAN II, The Libraries, to serve as principal staff assistant to the Director of Libraries and work closely with him and the four Associate Directors in planning, fund raising, external relations, publications, and publicity. Responsibilities include editing faculty and staff newsletters; writing grant proposals, fund raising publications, and reports to sponsors and funding agencies; serving as MIT Libraries' representative to a number of library, university, and external committees; arranging for visitors, meetings, and special events. Will also be expected to take on special projects that might include research, design of survey tools, statistical analysis, interviewing, and preparation of reports; and serve as secretary of Library Council. Requirements: MLS from an ALA-accredited library school as well as direct/related experience in an academic research library. Should be conversant with the organization, management, and operation of university libraries and have an understanding of their role in supporting education and research. Excellent communication skills and ability to work well with a variety of people necessary. Must be able to work under pressure. A88-064

LINDGREN LIBRARIAN III, The Libraries, to serve as a branch librarian and manage the services. Will plan and carry out creative information services and user education programs; build and manage research level collections in all formats in geology, geophysics, astronomy, meteorology, and oceanography and serve as the subject specialist to the MIT community in these subjects; serve as a map specialist for the Engineering and Science Libraries and as a member of various committees. Requirements: MLS from an ALA-accredited library school with considerable professional experience in a research library, including experience in traditional and online reference and in developing collections. A degree in one of the physical sciences or experience in a science library necessary. Some supervisory experience important. Must have strong communication skills. A88-063

ASSOCIATE HEAD, Devey Library, The Libraries, to assist in planning and organizing of collections and services in the library, in evaluating programs, and in allocating and monitoring the use of departmental resources. Will participate in the full range of personnel management; coordinate the collection management programs; monitor research and instruction in social sciences and management at MIT and assist in formulating budget requests and allocating and monitoring resources; work with the processing librarian to establish priorities for handling materials; serve as a subject specialist in one of the social sciences or management areas; develop and manage research level collections and provide traditional and online information services to all users; and serve as a liaison for members of MIT community. Requirements: MLS from an ALA-accredited library school as well as considerable knowledge of research librarianship. A degree in one of the social sciences or management and/or equivalent experience necessary. Experience with the application of technology to the management of library collections and services highly desirable. Must possess strong communication skills. A88-062

ADVISOR TO FRATERNITIES AND INDEPENDENT LIVING GROUPS, Office of the Dean for Student Affairs, to provide Institute support to MIT Fraternity and Independent Living Group Chapters, their Officers, Chapter Alumni Corporations, the Interfraternity Conference, and the Alumni Interfraternity Conference and its Steering Committee in order to strengthen the operations and on-going viability of the individual fraternities and independent living groups. Requirements: a bachelor's degree with a master's degree in management, student personnel, or a related field preferred. One to three years of business experience highly desirable. Strong communication skills

important. Must be sensitive in understanding and relating to others. A88-061

ELECTRONIC PUBLISHING COORDINATOR, The MIT Press, to be responsible for devising and implementing cost- and time-efficient procedures for handling author-supplied media and camera-ready copy. Will work with authors, acquiring and production editors, designers, and production people to coordinate efforts on such projects from conception to execution; create guidelines for nonpaper media; help authors produce true camera-ready copy; handle tapes prepared in high-end editing systems such as TEX and also diskettes prepared on microcomputers; and keep up with changes in the field and serve as an information resource for the rest of the Press. Requirements: should be familiar with both DOS and Macintosh environments and have at least 1 year of production experience. Willingness to learn and to teach, independence, flexibility, ability to create and implement new procedures, and work with others a must. A88-060

ASSOCIATE REGISTRAR AND MANAGER, Student Information Systems, Office of the Registrar, to assist the Registrar in planning, directing, and managing the technical and operational activities of the Registrar's Student Information System. Will provide leadership in developing a strategic plan for SIS, including a separate mainframe; manage technical and operational activities of SIS staff; strengthen academic research capabilities on the database. Will also have substantial contact with Faculty and academic departments; participate in writing and documenting programs; and coordinate instructional courses for SIS users. Requirements: a bachelor's degree, preferably in computer science, mathematics, or a physical science, and/or equivalent education and experience. Extensive experience in operating systems, database management and computer operations at both technical and management levels necessary. Strong supervisory and organizational skills important. Strong written and verbal communication skills necessary. Ability to work under pressure and discretion essential. Experience in a university administration desirable. MIT experience preferred. A88-059

COMPUTER SYSTEMS COORDINATOR, Whitaker College, to coordinate operational activities of a DEC VAX 11/785 computer and oversee the daily operations of the facility. Responsibilities include routine systems maintenance, including system backups and software upgrades; development of software packages and documentation; oversight of hardware maintenance; and monitoring the user request and billing process. Involves substantial interaction with a variety of users on issues and problems related to software packages and system utilities available for general use at the facility. Requirements: Bachelor's degree in Computer Science or related field and minimum of two years of systems maintenance and systems programming experience, specifically with the VAX/VMS operating system. Working knowledge of C, FORTRAN, DCL; experience with word processing packages such as MASS-11, SCRIBE, TEX; and familiarity with spreadsheet programs, SAS, RS/1 packages strongly preferred. Excellent communication skills (oral and written) essential. Ability to function independently as well as working well with others very important. A88-056

EDITOR, The MIT Press, to deal with subject matter and usages in a number of fields and work with free-lance editors on specific projects. Job includes editing manuscripts, dealing with authors, and handling proof and related materials through publication of book. Requirements: must know technical notation and be able to work in such fields as computer and cognitive science, as well as economics. Must have five years' experience in editing manuscripts in a publishing house or equivalent free-lance work. Ability to work with people essential. Reading knowledge of French, German, or Italian useful. Some understanding of electronic publishing methods helpful. A88-054

ASSISTANT DIRECTOR - CAPITAL GIFTS, Treasurer's Office, to develop marketing plans, produce material and organize events to promote gifts of capital by individual donors to MIT, especially through special arrangements such as Life Income Funds. Responsibilities will include preparing and disseminating promotional material needed to implement marketing plan; scheduling and arranging meetings for presentation of promotional material; and marketing research and analysis. Requirements: college degree and three years' experience in marketing, promotion, and advertising. A88-035

ANALYST PROGRAMMER II, Comptrollers Accounting Office. Duties include analyzing user system problems to determine application needs, providing structured techniques for analysis, design, coding, documentation, and testing. Requirements: a bachelor's degree and/or equivalent combination of education and experience. Reasonable experience in systems analysis necessary. Experience with financial systems preferred. Knowledge of Cobol essential. Knowledge of Cobol in a VAX environment desirable. A88-053

ANALYST PROGRAMMER III, Comptrollers Accounting Office. Duties include analyzing user system problems to determine application needs, providing structured techniques for analysis, design, coding, documentation, testing, and implementing systems according to prevailing standards. Requirements: a bachelor's degree and/or equivalent combination of education and experience.

At least five years experience in systems analysis necessary. Must have three years in financial systems. Some Cobol experience in a VAX environment desirable. A88-052

ADMINISTRATIVE OFFICER, School of Engineering, to manage the financial, personnel, student-related, and other administrative matters in the Leaders for Manufacturing program. This is a new program funded jointly by the Schools of Engineering and Management in cooperation with industry. It is an educational program aimed at discovering the principles for competitive manufacturing in the international marketplace. Requirements: a bachelor's degree and/or equivalent combination of education and experience. Must have excellent organizational, financial, and interpersonal skills. Familiarity with MIT academic and administrative procedures desirable. A88-051

ANALYST PROGRAMMER II, Administrative Systems Development, to assist in development of external system specifications and translate into internal system specification and computer programs. Will prepare 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; assist users with program problems; attend classes and seminars, and develop and maintain knowledge of currently accepted programming standards and techniques. Requirements: an associate's degree or bachelor's degree and/or equivalent combination of education and experience. Must have experience using VM/CMS or TSO. Should have two years experience in business applications programming in PL/1. Experience working with NATURAL and ADABAS necessary. A88-048

ANALYST PROGRAMMER I, Administrative Systems Development, to translate external program specifications into computer programs. Will prepare program logic diagrams and data flow; program, test, and debug computer programs; document new programs or changes in existing programs within prescribed standards; assist users with program problems and answer questions; and attend classes and seminars, as well as develop and maintain the know-how in programming. Requirements: an associate's degree and/or equivalent combination of education and experience. A minimum of one and one-half years in an administrative programming environment necessary. Experience with PL/1 preferable. Experience with ADABAS, VM/CMS, writing IBM EXEC II and/or REXX exec language helpful. NATURAL experience a plus. A88-047

PURCHASING ADMINISTRATOR, MIT Microcomputer Center, Information Services, to oversee all activities relating to the physical management of projects, including ordering, warehousing, shipping and receiving, and inventory control of a staff which includes students. Will establish and maintain relationships with all vendors; design and operate systems and procedures for controlling inventory; negotiate among vendors to achieve favorable terms; select or change vendors as appropriate; maintain necessary quantities of items on-hand; create and maintain appropriate schedules and policies to achieve this; coordinate with Sales Manager to review sales projections; maintain physical and administrative capability to pickup/deliver items to/from customers for vendors; maintain a vehicle for this purpose; operate a cash register; provide periodic management reports on various subjects such as inventory investment, turnover, out-of-stock conditions or obsolete items; create job descriptions, as well as recruit, hire, train, and manage; and coordinate activities with other managers. Requirements: a minimum of 4.5 years of management experience in purchasing, warehousing or inventory management, ideally in a retail distribution operation handling high-tech, consumer electronics or appliances. Experience with computerized inventory control systems helpful. Familiarity or interest in personal computers desirable. A88-046

ASSOCIATE DEAN FOR STUDENT AFFAIRS AND DIRECTOR OF THE OFFICE OF MINORITY EDUCATION, Office of the Dean for Student Affairs, to be responsible for the overall operation of the office. Will work with Faculty/Staff Advisory Committee to develop, implement, and maintain academic programs and strategies to support underrepresented minority students at the undergraduate level; coordinate research on variables that influence the retention of minority students, and use these findings to develop programs to assist in their adjustment to the campus environment. Requirements: a master's degree, in an academic discipline, with considerable experience in higher education preferred. A doctoral degree preferred. At least five years experience at the college or university level administering programs and/or working on behalf of various minority student groups important. Strong communication, organizational, and management skills necessary. Must be sensitive and understanding when relating to others. A88-043

SYSTEMS PROGRAMMER II, Operations and Systems, to support and maintain three VAX computer systems running VAX/VMS. Responsibilities include insuring the consistency and integrity of the file system; maintaining of systems software, utilities, and VMS layered products; system performance analysis and tuning; network configuration and management; and insuring maximum uptime in a business production

environment with diligent care of the systems. Requirements: a bachelor's degree in Computer Science and/or equivalent combination of work experience and education. Must have three years of systems programming and maintenance work experience with the VAX/VMS operating system. Knowledge of programming at the systems level, using high level language such as VAX PL/1 important. Strong experience in data communications, general networking experience (DECnet and/or TCP/IP) essential. Strong troubleshooting experience necessary. A88-034

PLANNING OFFICER, Planning Office, to provide professional planning support for the Institute physical planning activities that contribute to the development and maintenance of the Institute's long range plan for campus development. Will design and execute campus planning projects; provide academic and administrative program analysis; prepare departmental facilities plan; prepare project site analysis, location, and selection studies; participate in the preparation of the Capital Budget program; manage the preparation of fund raising documents; and prepare environmental impact and other government mandated reports. Requirements: a thorough knowledge of urban design, landscape architecture, economic, and financial principles. Familiarity with institutional space planning and management systems important. Must have knowledge of building, zoning, and other regulations affecting MIT development. Excellent writing and presentations skills and ability to manage several projects concurrently important. Should have financial management, budgeting skills, as well as a knowledge of CAD and Database systems. A88-017

SR. CONSULTANT, Information Services (Full-time or part-time with a minimum of 20 hrs/wk, M-F), to provide consultation and training to research groups and individuals at MIT in the use of supercomputers. Will provide local support in various areas including remote supercomputer access, vectorization and the use of numerical and scientific libraries, the use of workstations for graphical display of supercomputer computations and the development of tools and utilities to aid program conversion to supercomputers. Requirements: a strong background in numerical analysis and scientific computation. A graduate degree in relevant engineering or scientific discipline and some previous programming experience on a vector or parallel processor such as the Cray, Cyber 205, or the IBM 3090 important. Extensive familiarity with the UNIX operating system and SUN workstations highly desirable. Excellent interpersonal and communication skills necessary. (Will consider full-time candidates and candidates who work a minimum of 20 hours per week). A88-014

ANALYST PROGRAMMER II, Administrative Systems Development, to assist in the development of external system specifications and translate into internal system specifications and computer programs. Will prepare program logic diagrams and overall data flow; 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 as needed; attend classes, seminars and the like to develop and maintain knowledge of currently accepted programming standards and techniques; and exercise functional supervision over applications programmers. Requirements: associate's degree or equivalent combination of education and experience necessary. Considerable programming experience and knowledge of PL/1 and ADABAS essential. Experience using VM/CMS, writing IBM EXEC II and/or REXX exec language important. NATURAL experience a plus. A minimum of 2.5 years in an administrative programming environment using the above tools necessary. A88-012

SYSTEMS PROGRAMMER III, Operations and Systems, to support the operation of Project Athena by providing programming expertise for the maintenance and operation of a network of 700 Advanced Function Workstations (DEC VaxStations and IBM RT/PCs) and 50 VAX-11/750 Server systems running 4.3BSD UNIX. Requirements: bachelor's degree in computer science or equivalent experience and 5-7 years of programming experience in a UNIX environment. Proficiency in the C programming language required. Working knowledge of the Department of Defense TCP/IP networking protocols and Ethernet preferred. A88-010

PRODUCTION ANALYST I, Operations and Systems, to analyze user information systems problems, and suggest or take action during production processing to alleviate the problem and to ensure processing under the supervision of Production Services' Manager. Will review production documentation to comply with production processing standards and techniques; control data flow and assist users with production software preparations or production; assist with scheduling and loading of system master files for production processing; update production runbooks with processing standards modifications; assist in the preparation of problems reporting, and suggest remedies to avoid occurrence of processing problems; prepare and suggest production flow enhancements to improve production processing; establish PS functional and interface standards; participate in operational meetings whenever necessary; assist users with production processing

procedures and job entry software; and attend classes, seminars, and the like to enhance, develop, and maintain up to par with currently accepted production and or programming standards and techniques. Requirements: associate's degree or the equivalent combination of education and experience. Considerable experience Execs Routines, JCL, and other technological tools preferred. A88-008

POSTDOCTORAL ASSOCIATE, Biology Department, is specified as full-time research in collaboration with Leonard Lerman in a project on human genomic DNA mapping. The project has been designated for support by the Department of Energy through the Office of Health and Environmental Research for 32 months, beginning June 1, 1988. The project team will include a full-time laboratory assistant and other part-time personnel. The project is expected to develop a new type of molecular map of genomic DNA and to apply the mapping procedure to selected regions of interest in the genome, particularly where modifications or rearrangements are known to occur or are suspected. Requirements: a broad background in genetics, and skill in the conventional laboratory manipulations in molecular biology. A Ph.D. in appropriate field important. C88-012

ASSISTANT RADIATION PROTECTION OFFICER, Medical-Environmental Medical Services, to assist in the overall operation of the Institute's Campus Radiation Protection Program. Duties include surveillance over use of lasers, microwaves, and radiation-producing equipment plus initial review of applications for permission to use radioactive materials; reviewing available facilities and equipment for such work, and recommending changes as necessary; indoctrination and training of personnel in appropriate radiation protection and radionuclide handling techniques; ongoing surveillance of the approved authorizations to ascertain continuing compliance with application regulations; and supervision of RPO technicians involved in surveys and waste collection for those laboratories under his supervision. Requirements: a bachelor's degree, preferably in Physics, and a Master's degree in Radiological Health or Health Physics. Some experience in health physics application in academic programs desirable. Must be eligible for certification by the American Board of Health Physics within 5 years from start of employment. C88-011

POSTDOCTORAL FELLOW, Applied Biological Sciences, to participate in projects on design of enzyme reactors for extracorporeal treatment of disease and peptide synthesis of lipoprotein analogs and structure: function studies in vitro and in vivo. Requirements: Doctorate degree in Chemistry or Biochemistry. C88-009

POSTDOCTORAL ASSOCIATE, Applied Biological Sciences, to work on translational regulation of ferritin biosynthesis by iron, specifically to purify protein(s) interacting with ferritin mRNA in an iron-dependent manner. Requirements: Ph.D. degree. Good background in one or more of the following areas desirable: protein purification; antibody production; recombinant DNA technology; and screening cDNA libraries with antibody or oligonucleotide probes. C88-007

ASSOCIATE DIRECTOR FOR SYSTEMS AND PLANNING, Libraries. Responsibility for the development, implementation, and administration of automated library systems, and for the development of appropriate strategies and processes to assure effective planning for library programs and services. Along with the Director of Libraries and three other Associate Directors, the incumbent will participate fully in the overall administration of the library system, including program development and evaluation, planning, budget formulation, and the establishment of system-wide policies; establish operating programs and policies directed toward extension of the integrated on line library system; the expanding use of microcomputer technology for other library and administrative programs, and the development and introduction of other technologies for library services; create the most effective integration of the MIT Libraries' systems and services; serve as a principal link to campus agencies involved in information technology and telecommunications and to the wider research library community; and exercise principal responsibility for the Libraries' planning process and lead a variety of planning efforts intended to see that full advantage is taken of opportunities to further library program development. Inherent in the planning process is the need to develop a means of evaluating the effectiveness of programs and services and to provide meaningful data and information for future planning efforts. Requirements: ALA-accredited MLS; very extensive and increasingly responsible experience in a major research library which has included the responsibility for the application of technology to library problem solving, particularly in technical services; comprehensive knowledge of issues related to future developments in library automation, telecommunications, and other developing technologies; understanding the role of planning in the administration and management of research libraries; and experience with library planning process and fundraising efforts. Will be expected to demonstrate a thorough understanding of issues facing research libraries today and in the near future, as well as highly developed interpersonal and analytical skills. Ability to work effectively as a member of senior management team important. Demonstrate record leadership and achievement essential. C88-006

DENTAL HYGIENIST, Medical Department (temporary appointment for six months), to perform a variety of office tasks. Responsibilities include initial comprehensive examination and charting, prophylaxis, periodontal treatment, plaque control, taking and processing dental x-rays, screening dental emergencies, conducting patient education programs, and occasional assisting. Will also help assist in coordinating and directing technical staff. Requirements: a registered Dental Hygienist with an A.B. or B.S. in Dental Hygiene preferred. Previous work experience very desirable. Some experience in periodontal care important. Must be sensitive to the needs of patients and relate well to a variety of people. Should be professional in manner and appearance. Ability to be reliable and assume responsibility essential. Personal recommendations important. C88-005

INDUSTRIAL HYGIENE ENGINEER, Environmental Medical Services/I.H.O., to develop, evaluate, and advise on health and environmental programs associated with work conducted at the Institute and related laboratories, with prime responsibility being in design and evaluation of hazard control systems. Will perform and/or supervise evaluations of potential exposures to chemical and physical hazards and assist other staff personnel in containment techniques associated with control of substances that are biohazardous and/or radioactive. Requirements: a degree in Chemical or Mechanical Engineering, additional training or experience in Industrial Hygiene, and be qualified for certification by the American Board of Industrial Hygiene. C88-004

REGISTERED NURSE, Medical Department, to give nursing care to a wide variety of patient diagnosis in the MIT Medical Department's 18 bed Inpatient Unit. Will be responsible for assessment, planning, implementing, evaluating and documenting care given to patients in the licensed JCAH accredited hospital facility. Requirements: must be a registered nurse in the State of Massachusetts, with at least one year experience in the Medical/Surgical Nursing necessary. Some experience with IV therapy preferred. C88-002

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. C87-239

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. C87-238

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. C87-236

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. C87-234, C87-233, C87-232

SPONSORED RESEARCH STAFF

TECHNICAL ASSISTANT, Center for Cancer Research, to carry out laboratory work involving cell culture, purification of proteins, RNA, DNA, and isolation and sequencing of nucleic acids; maintain hybridomas and other cell lines in culture and by transplantation in mice; maintain a pedigree mouse breeding colony; and production and purification of monoclonal antibodies. Requirements: a B.S. degree in Biology or Biochemistry. Demonstrated ability to learn rapidly important. R88-087

RESEARCH TECHNOLOGIST, Division of Comparative Medicine, to carry out techniques detailed in research protocols under general supervision. Duties will be partially dependent upon the current stage of the particular research project. Will include computerized record keeping; animal manipulations; maintaining and ordering supplies; and performing microbiological procedures, immunological assays, and tissue culturing. Requirements: a B.A. or B.S. degree in biological sciences and/or equivalent combination of education and experience. Flexibility and ability to work without supervision essential. Minimal computer and laboratory experience necessary. R88-086

RESEARCH TECHNOLOGIST, Division of Comparative Medicine, to perform a variety of tasks under general supervision and carry out techniques detailed in research protocols. Duties will be partially dependent upon the current stage of the particular research project and include computerized record keeping; animal manipulations; maintaining and ordering supplies; performing microbiological procedures, and immunological assays and tissue culturing. Requirements: a B.A. or B.S. degree in biological sciences or equivalent combination of education and experience. Ability to work without supervision and flexibility essential. Must have minimal computer and laboratory experience. R88-085

RESEARCH SPECIALIST, Cell Culture Center, will consist of a variety of cell culture related duties including the preparation and quality control of cell culture media, mass production of animal cell culture as well as large-scale concentration and purification of virus. The cell culture work involves growth of cells from primary culture as well as production of cell lines in suspension and monolayers. Requirements: a B.S. or B.A. degree in Chemistry or Biology. Some experience in animal cell culture desirable. R88-084

SRS-ADMINISTRATIVE OFFICER, Center for Environmental Health Sciences, to coordinate and manage fiscal and operational matters. Will work closely with core staff of approximately 30 researchers and with Program Project Investigators in other Institute departments and at Harvard University. Responsibilities include the development and preparation of sponsored project budgets; the interpretation of Institute and sponsoring agencies' policies; review and analysis of financial reports, budgets, and accounting data for accuracy and appropriateness; and the timely preparation of account projections and financial reports for approximately 50 sponsored accounts. As primary fiscal liaison, will have extensive interaction with appropriate personnel in various departments and outside agencies. Will coordinate and facilitate activities related to personnel; assess operational needs and/or problems and make recommendations to Director for solutions; and perform related and other assigned duties as necessary. Requirements: a bachelor's degree and/or equivalent combination of education and experience. A minimum of three years experience in a responsible position that includes work with sponsored accounts. Familiarity with computer application, i.e. spreadsheets, database management, and graphics essential. Excellent organizational skills and the ability to prioritize and work under pressure in a very demanding environment important. Must be able to work well with others exercising tact and discretion, as well as independently, with motivation and initiative. Strong oral and written communication skills necessary. R88-082

RESEARCH ENGINEER, Lab for Electromagnetic and Electronic Systems, to be involved in designing and developing systems for characterizing the physical properties of biological tissues (both living and non living). These systems will require extensive experience in analog and digital design and in computer software appropriate to micro and mini computers. Position also involves analytical and numerical methods for solution of couples, and nonlinear differential equations; and ability to work closely with Faculty, Staff, and Students in the Continuum Electromechanics Group. Requirements: a Ph.D. with specific expertise in the electromechanical properties of biological tissues and synthetic polymers used as biomaterials. R88-081

RESEARCH SPECIALIST, Cell Culture Center, to be involved the day-to-day operation of Cell Sorter Laboratory and operate computer-interface Ortho System 60H and Coulter EPICS-C Cell Sorter as a service for research laboratories in the Northeastern United States. Requirements: a B.S. or M.S. degree with some cell sorter experience. Direct experience with Ortho System 60H and/or Coulter EPICS-Systems preferred. R88-055

ADMINISTRATIVE OFFICER, Center for International Studies, to handle accounts, personnel, and operational responsibilities. Will serve as liaison with other parts of MIT; assist in preparation of proposals and budgets; advise principal investigators of the status of accounts; monitor accounts in accordance with sponsor requirements and MIT regulations; manage administrative aspects of Center activities such as seminars and conferences, publications, meetings, and working groups; monitor and maintain space; and provide support to the director as required. Requirements: bachelor's degree and/or equivalent combination of education and experience. Must have excellent communication skills and familiarity with or willingness to learn computer spreadsheet. Knowledge of MIT structure and procedure preferred. R88-078

TECHNICAL ASSISTANT, Biology Department, to investigate the initiation of sporulation in *Bacillus subtilis*. Will include bacterial genetics, transposon mutagenesis, gene mapping, physiology, and nucleic acid analysis. Will also do a significant amount of critical thinking and independent work; and perform other related job duties as necessary. Requirements: a bachelor's degree in biology and/or related field. Some laboratory experience and familiarity with sterile technique, genetics, radioisotopes, RNA, and DNA work necessary. A 1-2 year commitment important. R88-075

PRINCIPAL RESEARCH ENGINEER, MIT Sea Grant College Program, to provide intellectual leadership for the unmanned, underwater

vehicle programs for design and development of unmanned remotely operated and autonomous research vehicles, and for the development of appropriate laboratory facilities. Along with the Director, will supervise and work closely with students and technicians. Requirements: must have demonstrated ability to generate and develop concepts independently, and, to do independent research. Should have an advanced degree and experience in at least one of the following areas: dynamics and control of marine vehicles; underwater sensor design; underwater data acquisition; processing and transmission; and underwater manipulator design. Equivalent experience in land based or aerospace system may be acceptable. R88-073

COMPUTER SYSTEMS MANAGER, Center for Space Research, to perform duties including installing software, operating systems, hardware and network devices. Will troubleshoot software problems and perform any necessary system reconfigurations; debug hardware problems to the board level; design/implement simple utilities for system maintenance and for users; maintain and enhance electronic mail, data communications and network file systems; administer user accounts and monitor disk space and other resources; tune the network for performance, quality (uptime), flexibility, and security; document procedures and tools; and interact with service organizations and vendors. Requirements: good written and oral communication skills and a proficiency in UNIX and C. Experience debugging computer hardware problems desirable. A B.S. in Computer Science and/or a minimum of two years in managing computer systems necessary. R88-072

RESEARCH SPECIALIST, Cell Culture Center, to be responsible for day-to-day operation of a cell sorter facility. Requirements: a B.S. or M.S. in biology or related field and some experience in cell sorting. Experience with Ortho System 60.H and/or EPICS-C preferred. R88-069

RESEARCH ENGINEER, Plasma Fusion Center, Graduate Engineer who will be technical assistant to the Senior Project Engineer, responsible for the development, fabrication, and testing of a large superconducting magnet. Duties include mechanical, quality control, testing, and supervision of manufacturing; ability to oversee and coordinate the installation of our MIT magnet in a test facility in Japan. Requirements: demonstrated ability to represent Group at a foreign test facility desirable. Must have M.S. degree in Mechanical or Electrical Engineering. Should have experience in cryogenics and superconductivity. Must be an experimentalist. R88-068

RESEARCH ENGINEER, Plasma Fusion Center, Project Engineer responsible for fabrication of test devices for superconducting magnet development both outside MIT as well as in the PFC or at MIT workshops. Requirements: must supervise technicians, junior engineers, and students. Extensive (at least 10 years) experience necessary in superconductive systems, superconducting material science, cryogenics, metal processing, wire processing, superconducting powder technology, metallurgy, and contaminants in OFHC coppers and engineering practice. R88-067

TECHNICAL ASSISTANT, Biology Department, to aid in conducting basic research in immunology laboratory. Requirements: competence in one or more of the following necessary: cell culture, immunochemistry, biochemistry, or molecular biology. A B.A. and experience or very solid course work in immunology highly desirable. R88-066

ASSISTANT DIRECTOR FOR ADMINISTRATION (FACT), Civil Engineering, to manage the Program in Advanced Construction Technology. Responsibilities will be for the administration of all research projects, developing procedures for processing proposals, and status reports. Will also be responsible for the purchasing of equipment, determining needs, development priorities, and obtaining prior approval from sponsor. As a member of the Program's executive committee, the Assistant Director will assist in the fellowship processing, and recipient progress. Requirements: a bachelor's degree in business administration preferred. Administrative experience in an academic or research environment helpful. Knowledge of computer software for spreadsheets, databases, and wordprocessing necessary. R88-065

RESEARCH ASSOCIATE, Materials Science and Engineering, to supervise 3 - 4 doctoral students in laboratory undertaking liquid dynamic compaction (spray atomization) studies of a series of low-alloy steels to achieve highly refined structures at high-strength levels with useful ductility, toughness, and formability. Requirements: both powder metallurgy and near-net shape-forming background desirable. Must be proficient in the use of transmission microscopy, scanning electron microscopy, structural analysis, and mechanical behavior of metals. Should have at least five years of direct/related experience and have published 5 - 10 scientific papers on the subject in referred-journals. A Ph.D. degree in Materials Science and Engineering necessary. (The salary range for this position is \$40,000 to \$45,000) R88-064

RESEARCH ENGINEER OR POSTDOCTORAL ASSOCIATE, Ocean Engineering, to become effective on or about July 1, 1988, for research in the area of computer-aided design and manufacturing. The laboratory is currently involved in research in geometric modeling, databases for design and fabrication, automated analysis, and simulation of manufacturing processes for complex engineering structures. Requirements: must have an advanced degree and experience in at least one of the above areas. Must also be versed in numerical analysis and have experience in at least one computer language, preferably C or LISP. Should be able to contribute significantly in the execution of current laboratory research projects. R88-063

PRINCIPAL RESEARCH ENGINEER, Ocean Engineering, to be hired on or about July 1, 1988, for research in viscous fluid problems in marine vehicle design. Requirements: must have demonstrated ability to generate and develop concepts independently, and in general, to do independent research. Should have a Ph.D. degree and have a strong background and proven research record in theoretical work in at least one of the following: 1) modeling of fluid-structure interaction in real fluids, 2) flow induced vibrations of marine structures, or 3) interaction of ocean waves with shear flows, 4) demonstrated capability in numerical modeling of fluid problems, and 5) ability to integrate results from this research to improve design of marine vehicles. R88-062

PRINCIPAL RESEARCH ENGINEER, Ocean Engineering, to commence on or about July 1, 1988, and will be expected to take a leadership role in research in the area of free-surface hydrodynamics. Responsibilities include, but not be limited to: conception and investigation of basic research topics; supervision of graduate students; support of software which may accrue from this research, for both internal and external users; and management of computer resources for the Computational Hydrodynamics Facility. Requirements: a strong background in analytical and computational free-surface hydrodynamics. A Ph.D. in marine hydrodynamics with emphasis in free-surface flow necessary. Experience with solution of three-dimensional, wave-body interaction problems by panel methods and familiarity with computational approaches to nonlinear free-surface problems essential. A demonstrated ability in technical writing, practical engineering experience, and knowledge of state-of-the-art applications in hydrodynamics research expected. Experience in design and supervision of experimental studies beneficial. R88-061

TECHNICAL ASSISTANT, Department of Applied Biological Sciences, to work in a photosynthesis laboratory on the molecular genetics of purple nonsulfur bacteria. Duties include running a DNA synthesis facility. Requirements: M.S. degree in Biology or related field. Should be proficient in DNA cloning, sequencing, protein purification, microbiological stock maintenance, and other techniques relevant to prokaryotic molecular genetics. R88-060

RESEARCH ASSOCIATE, Center for Information Systems Research, Sloan School of Management, to be a member of a small research staff with concerns and issues related to the management of the information systems function and the organizational impact of information technology. The Sloan School's MIS faculty is the core faculty of CISR; 25 corporate sponsors provide funding and assistance in defining research areas. The Research Associate will participate in all phases of research projects, including design, data gathering, analysis, and report writing, with major responsibilities in project management. A typical project will involve visits to various research sites to conduct interviews or surveys. Will also plan seminars for sponsor audience. Requirements: MBA (or equivalent degree) and 2-3 years professional experience in management information systems or the computer industry. Project management and consulting experience desirable. Knowledge of current information systems issues spanning technical, managerial, and organizational concerns important. Must be self-motivated and have solid analytic abilities. Excellent writing and interpersonal skills necessary. R88-059

RESEARCH ASSOCIATE, Laboratory for Computer Science, to have primary responsibility for the compiler for the functional language Id. The focus of the compiler work will be the development and implementation of new optimizations. Will extend the existing compiler to accommodate new features in the Id programming language; and participate as a member of the team developing the Id programming language. Requirements: a Ph.D. in computer science and extensive experience in compiler development and compiler optimizations for functional languages as demonstrated by publications. Familiarity with dataflow highly desirable. R88-058

RESEARCH ASSOCIATE, Laboratory for Computer Science, to work in the development of dataflow graph interpreters which includes extending and maintaining the existing GITA code for Texas Instruments and Symbolics Lisp Machines, and Sun workstations. The existing code must be updated to run on new releases on vendor software and extended to add new and updated features. The existing code will also be ported to other workstations, and possibly to Cray supercomputers. This includes the port of GITA from the lisp programming language in the C programming

language. The development work will also include the development of new dataflow graph interpreters. This position involves the design and implementation of the I/O system software for the Monsoon Dataflow machine, including participation in identifying the hardware configuration of the I/O system. The primary work involves developing device drivers and other system programming tasks for the I/O processors of Monsoon. The work will be done in C for a Unix operating system. Requirements: an advanced degree (MS or Ph.D.) and extensive related experience. Direct experience in developing operating systems and resource managers necessary. Extensive experience in the C programming language and the Unix operating system, as well as with the Lisp programming language essential. Research experience in functional languages and dataflow highly desirable. R88-057

PROJECT MANAGER, Laboratory for Computer Science, with primary responsibility for the hardware implementation of the Monsoon dataflow machine. The researchers will participate in the design of the high level architecture of the Monsoon dataflow machine and take primary responsibility for its implementation. The researcher will complete the top level design of a processor for Monsoon that will support efficient execution of dataflow graphs with a minimum of hardware. Will also manage the hardware implementation of a single board version of this processor and a subsequent VLSI version of this processor; manage the overall integration of the processors, the network, and the I/O into the Monsoon System; and supervise a team of three to four research staff. Requirements: a Ph.D. degree in computer science, expertise in dataflow systems as demonstrated by publications. Extensive experience in processor and computer system design, as demonstrated by participation in the design of a significant system, and a familiarity with compiler and systems operating design. Research experience in functional languages highly desirable. R88-056

TECHNICAL ASSISTANT, Biology Department, to work with Dr. Leonard Lerman and a new postdoctoral research associate in a project on molecular mapping of human genomic DNA. The work will involve DNA preparation, gel electrophoresis, plasmid cultivation, radioisotope labeling through DNA synthesis, radioautography, and related techniques. Requirements: good laboratory skills, and ability to read and use the original scientific literature. Must have perseverance and have the ability and inclination to work interactively with others. A B.S. or M.S. degree in an appropriate field important. R88-054

RESEARCH ENGINEER POSITION, Aeronautics and Astronautics Department, to work in the Flight Transportation Laboratory and perform duties which involve management of several research projects funded by major airlines. Current projects include the development and implementation of computerized seat inventory control systems and airline passenger demand forecasting models. Requirements: a Ph.D. in air transportation and/or transportation systems analysis necessary, with emphasis in the fields of economics, management, statistics, and operations research. A minimum of five years experience in airline research and operations preferred, and familiarity with current airline marketing, reservations, and capacity management practices desirable. Must be able to apply technical models to practical airline management problems, communicate ideas clearly to airline sponsors in technical and non-technical terms, and assist with computer implementation of these models at the airline itself. R88-053

VAX/VMS SYSTEMS MANAGER, Research Laboratory of Electronics, to manage two closely related VAX/VMS research computer systems for our speech communication and Sensory Groups. Each system is under development and will consist of a DECnet LAN of VAX 750's, VAX Stations and personal computers. Job responsibilities include working on system integration; routine system management; some applications programming; user assistance; oversight of hardware maintenance, backups, and documentation. Required experience: VMS system management and integration. Experience with local area clusters, real-time I/O, scientific applications and graphics programming highly desirable. Educational requirements: a bachelor's degree preferably in Electrical Engineering or Computer Science, and/or the equivalent combination of education and experience. R88-041

TECHNICAL ASSISTANT, Applied Biological Sciences, to work on translational regulation of ferritin biosynthesis by iron, specifically to purify protein(s) interacting with ferritin mRNA in an iron-dependent manner. Will also take responsibility for general laboratory management. Requirements: B.S. or M.S. degree. Good background in one or more of following areas desirable: protein purification; antibody production; recombinant DNA technology; and screening cDNA libraries with antibody or oligonucleotide probes. R88-050

EDUCATION COORDINATOR, Upward Bound, to be responsible for the development and implementation of educational support services in a year-round college preparatory program serving seventy (70) disadvantaged youth from varied economic, ethnic, and racial backgrounds under the supervision of the Program Director. Will recruit and supervise a seasonal staff (academic year and summer) of tutors and teachers; develop student monitoring and evaluation measures; and maintain a network of ancillary support through the target high

school and community organizations. Requirements: B.A. or M.A. in Education (secondary concentration) with at least one year of direct/related experience. Experience in developing remedial and/or enrichment educational programs/services extremely helpful. Education assessment/evaluation experience, and an understanding of those issues related to compensatory and urban education important. Residential experience helpful. Massachusetts drivers license important. R88-048

RESEARCH SCIENTIST, Biology Department, to lead research efforts studying capsid assembly in bacterial viruses. Requirements: must have Ph.D. in Physical Biochemistry with 2-3 years of postdoctoral experience and publications in referred biochemical journals. Should have expertise in application of light scattering, circular dichroism and ultracentrifugation to protein polymerization reactions. Familiarity with growth of bacteria and bacteriophage and microbial genetics highly desirable. R88-047

DESIGN ENGINEER, Francis Bitter National Magnet Laboratory, to join a small team involved in the development of high magnetic fields. The Magnet Technology Division has been responsible for the development of the world's highest steady magnetic fields and is about to embark on the next step: a combination superconducting and high-power water-cooled magnet to generate 45 tesla. Requirements: engineers with degree(s) in mechanical engineering, with at least 5 years experience in mechanical design and with understanding of stress analysis, strength of materials, and mechanisms and hydraulics. Familiarity with computing, particularly, CAD, cryogenics and/or superconducting materials would be good supporting qualifications but not essential. R88-046

SPONSORED RESEARCH TECHNICAL STAFF, Department of Brain and Cognitive Sciences, Electrical engineer to run the electronics facility. Will provide electronic services for several research laboratories in the department. Duties include the design and construction of analog and some digital devices; repair of existing equipment; complete documentation of constructed equipment; and trouble shooting. Requirements: a bachelor's degree and/or equivalent combination of education and experience. Must possess extensive hardware experience. Some experience with software desirable. Ability to prioritize projects and general workload, and deal with the various laboratories in an effective and efficient manner essential. R88-044

TECHNICAL ASSISTANT, Applied Biological Sciences, to assist ongoing research in immunological applications of controlled release protein delivery from polymers. Responsibilities include preparation of amino acid-based polymers, formation of polymeric delivery devices, performance of in vitro protein release studies using UV/VIS spectroscopy and liquid scintillation counting, and measurement of anti-protein antibody levels in mice via ELISA or RIA. Requirements: a bachelor's degree in biological science or chemistry. Some experience in synthetic chemistry important. Familiarity with the above techniques important. R88-043

SERVICE STAFF

PROJECT TECHNICIAN (MECHANICAL), Laboratory for Nuclear Science, a highly skilled technician with all the qualifications of a Senior Technician who, in addition, demonstrates ingenuity in design, construction, and cooperation or maintenance of highly technical and complicated apparatus. An exceptionally high degree of responsibility and ingenuity is expected of employees in this classification. Must have one or more of the following aptitudes: a. flair for improving scientific devices, b. unusual ingenuity at trouble-shooting, c. demonstrated ability at field engineering or test engineering, d. ability to do effective and important laboratory instructional work with students. The Bates Linear Accelerator is looking for a high vacuum technician. The position is primarily involved with the installation, maintenance, and trouble-shooting of vacuum systems associated with the pulse stretcher ring project at Bates Laboratory. Responsibility will also include present vacuum systems at Bates Laboratory. The linear accelerator vacuum varies from a rough vacuum of 500 millitorr to an ultra high vacuum of 5x10E-11 Torr. Must have extensive vacuum experience with thorough knowledge of vacuum techniques including bake-out procedures for metal sealed systems and chemical degreasing and cleaning of vacuum systems. Will have a thorough knowledge of all vacuum pumps including trouble-shooting and disassembly of roughing pumps, horizontal and vertical turbomolecular pumps, cryo pumps, ion pumps and gettering pumps. Will also be well-versed in the rebuilding and use of mass spectrometer leak detectors and residual gas analyzers. Previous experience in design, fabrication, and assembly of vacuum components and spool pieces required. A working knowledge of cryogenic target systems and high purity gas systems is desired. A diverse background should include being able to machine on lathes, and surface grinding machines all with own setup being required. Also required are use of the cut-off and band saws, silver and all-state brazing and soft soldering. Stainless steel and aluminum welding is required. Requirements: graduation from a two year day technical school, or its equivalent, and a minimum of ten years of applicable experience required. A sound basic knowledge of his/her particular field is important for this classifica-

tion. A knowledge of rigging and use of cranes with up to 40-ton capacity is also required. Must be proficient in precision alignment and surveying techniques utilizing a theodolite, transit, and other surveying equipment. Must be able to work from prints in the manufacture of parts and assemblies. Basic knowledge of electrical troubleshooting of AC and DC circuits desirable and must be capable of training technicians of a lower grade. An associates degree in engineering highly desirable. R88-071

PATROL OFFICER, Campus Police, for the protection of life and property, traffic control, policing of MIT parking lots, making foot patrols of all grounds and buildings. Will administer first aid including ambulance service of injured or ill persons; and close participation in emergency procedures, explosions, fire, chemical spills, etc., investigations, report writing and general police duties. All phases of law enforcement experience, to include criminal law, knowledge of procedures, criminal investigation, case preparation, investigation of complaints and report writing. Requirements: must obtain Emergency Medical Technician Certification. May be required to successfully complete additional police academy training. Qualify with use of firearms, valid driver's license, honorable discharge for any earlier police service. Ability to work long hours on occasion, qualify for Institute Physical Examination, and handle top level relations necessary. A minimum of one year Police Department experience: Municipal, State, or Campus Police. (The work schedule for this position is 6:00 p.m. to 2:00 a.m.) R88-074

AUDIO VISUAL OPERATOR "C", Graphic Arts Service, to set up, operate, and maintain all types of slide and motion picture equipment such as projectors, rewinders, and splicing machines, etc. Will clean, inspect, and repair slides and films; maintain department records of all equipment and films; drive motor vehicle; deliver and pick up material and equipment; and perform other related duties as assigned. Will need some instruction and supervision. Requirements: graduation from high school or its equivalent and a minimum of 1-2 years of applicable experience. Commercial driving experience needed. Must have Mass. driver's license (unrestricted) and ability to pass special physical examination required of driver. R88-068

DORMITORY MAINTENANCE MECHANIC, Housing, to perform a wide variety of duties directly related to the servicing, maintenance, repair and renovation of dormitory buildings and associated equipment. The majority of the duties fall within the lower skilled range of duties performed by tradesmen such as carpenters, electricians, etc., (but these duties do not require the services of journey of tradespeople). Will accept repair orders, evaluate job priorities, and take the required actions necessary to complete the job assignment. May assign job priorities and divest the work of lower rated maintenance employees as required. Will assist the House Manager in planning and be responsible for the execution of an adequate preventive maintenance program in the dormitory buildings and perform the duties of a handyworker as required. Requirements: must be familiar with and able to use all common tools and small power tools. Must have minimum of three years experience in maintenance and repair of common building fixtures and accessories. R88-067

STOCK CLERK, Office of Laboratory Supplies, to perform a variety of duties. Will unpack incoming goods; inspect goods for quality and quantity; repack goods; pack goods away in storage rooms and keep work areas clean; deliver goods and over the counter on requisitions; check requisitions for proper description of items and keep stock in good condition. Requirements: experience and knowledge of stock necessary. (This is a temporary 4-5 month appointment). R88-064

Complete descriptions of additional Administrative, Academic, Sponsored Research, and Service Staff Positions are posted in the Personnel Office in Bldg. E19-239.

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)

Giamatti tells graduates to keep open minds

A. Bartlett Giamatti told MIT graduates Friday to keep their minds open and avoid "the selfishness of self-righteousness" as they address the problems of society.

In his commencement address, he said that "the open life of the mind in the service of a more just society" should be "the guiding principle for all of us."

"Insist on conversation even when it is not proffered," he stated. "Have the courage to connect, the courage to strive to keep the shouting down and the conversation open—for only in that way eventually will equality—of sexes and races and opportunity finally come, only in that way will the homeless get housed and the hungry fed and the poor get work and the city be rebuilt."

"To have the moral courage to avoid the selfishness of self-righteousness and to assert positively the need we each of us has for the other—that is the real work of mankind," he said.

In his speech, Mr. Giamatti, president of baseball's National League, recalled his former career as president of Yale University. He said the university "is the place where the mind learns how to make ideas, which is the mind's most durable product."

The university's essence, he continued, is give-and-take and conversation "in its innumerable forms."

"When that conversation, the to-and-fro of ideas is stymied or foreclosed, or frozen, when the questing for truth is told it must

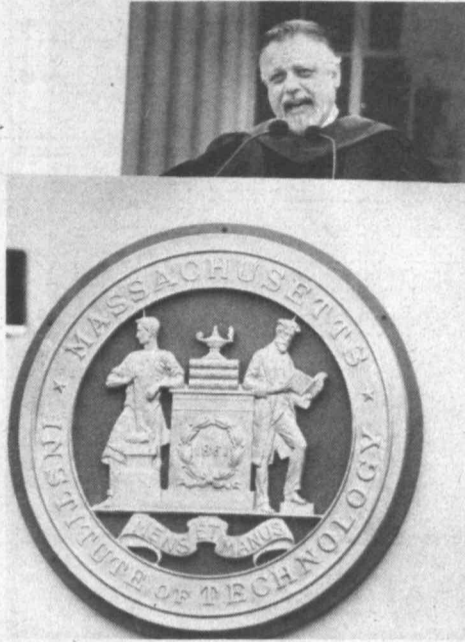
cease because there is only one Truth and it is Complete, then the institution in its essence is chilled and its life threatened."

He continued:

"The enemy of the university is, finally, not dissent, not disagreement, not disagreeableness. Gentility is the mark of a great finishing school, not a university; a great university cares not for the genteel. It cares for the blood and sinews of ideas, in

noncoercive combat with other ideas. The 'noncoercive' quality is fundamentally the key—a combat that does not seek to take a life, but to add energy, and passion, and logic, add commitment to the open life of the mind in the service of a just society—that is the norm, the guiding principle, the light to guide us.

"The deniers of left or right, diagnosticians for whom all illnesses are similar because all cures are identical; the purveyors of an ism, the dealers in system, the myopic for whom all the world's pain is simply reduced to their cause; the Simplifiers who tell you that that they are idealistic because they have boiled life down to a bumper sticker, a t-shirt maxim; the Reductionists who pretend to global concern so as to promote a personal preoccupation—these are the enemies of give and take, of debate, of disagreement. The Shouters who want it Now care nothing for exchange, for connection, each to each, for working it out. What must be fluid, so each of us has freedom of mind, and spirit, and belief, they would freeze, catching us all in the amber of their dogma. In some ways, they are the subtlest enemy of the university, of the life of the mind, not because they win the day, but because they remove themselves from debate; they force us into Us and Them, fragmenting precisely when they most hunger for solidarity, splintering the very sense of community they ache to form."



A. Bartlett Giamatti delivers the Commencement address.

—Photo by Donna Coveney

1,733 receive degrees at Commencement

(continued from page 1)

where strengthening is required, and to help bring harmony among the nations of this world wherever discord obtains," he said.

The academic procession into Killian Court was led by the chief marshal, Raymond S. Stata, a 1957 MIT graduate and president of the MIT Alumni Association. He is president of Analog Devices, Inc., of Norwood, Mass.

During the processional, the Metropolitan District Police reported the arrest of Ronald Francis, an MIT graduate student who was not among those receiving degrees, for disturbing the peace. The police said he was arrested on public property outside the courtyard while passing out pledge cards for a group that calls itself The Coalition to Humanize MIT.

The group, which said its members include several MIT students, alumni and staff members, earlier said it intended to ask graduates to sign a "Graduation Pledge of Environmental and Social Responsibility," promising "to investigate thoroughly and take into account the social and environmental consequences" of any job opportunities they consider.

It was not known how many graduates, if any, had signed the pledge cards.

Commencement principals included: Dr. David S. Saxon, chairman of the MIT Corporation, who presided at the graduation exercises.

Dr. Howard W. Johnson, former president of MIT and former chairman of the MIT Corporation, now honorary chairman of the Corporation.

Professor Bernard J. Frieden, chairman of the MIT faculty.

Cambridge Mayor Alfred E. Vellucci.

The Marshal of the Academic Principals was the provost, Professor John M. Deutch.

The Class of 1938 Division—the 50th reunion class—was led by its marshal, Norman B. Leventhal, a member of the class.

Student marshals were the officers of the Class of 1988, Lisa A. Martin, presi-

dent; Grace Y. Ma, secretary; Kevin T. Oliveira, executive committee member; and Jeffrey A. Meredith, president of the Graduate Student Council.

Ms. Martin, presenting the class gift to President Gray, said that the strength of MIT "is in the support we depend on and provide for each other." Therefore, she said, the Class of 1988 wanted to contribute something "to the future of the MIT community that expresses our thanks for the support we have received from faculty, friends and families."

She said class members had contributed more than \$6,900 toward the establishment of a Class of '88 Scholarship, a sum that was matched by the 50th reunion class of 1938 to produce more than \$13,000 for the fund. In addition, she said, the senior class also had pledged \$17,800 to MIT, which will be paid over the next four years.

President Gray was joined by Provost Deutch in presenting the degrees. Following custom, the name of each student was announced as the degrees were awarded.

On Thursday afternoon, May 26, 46 graduates of MIT's Reserve Officer Training Corps (ROTC) program received their military commissions in the Army, Air Force, Navy and Marines in ceremonies alongside the USS Constitution in Charlestown. Students from Harvard University, Tufts University and Wellesley College train with the ROTC units at MIT because their colleges do not have such units on their campuses. Some received their commissions on Thursday, and others will do so after their colleges have held their graduations.



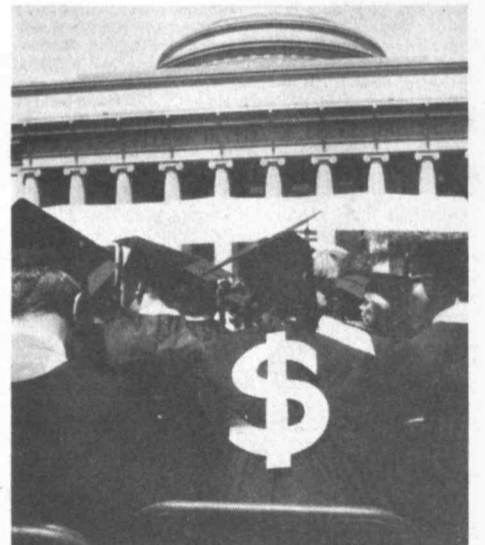
Interpreter Denise Hines signs the National Anthem for the hearing impaired at Commencement.

—Photo by Donna Coveney



The sun shone brightly on Commencement, bringing out strong shadows of the graduates.

—Photo by Donna Coveney



An editorial comment? What the degree has cost, or perhaps what it will bring.

—Photo by L. Barry Hetherington



David Serrano of Mayaguez, Puerto Rico, who received the ScD degree in mechanical engineering, smiles as his two-year-old son David tries on his mortarboard.

—Photo by Donna Coveney

THE INSTITUTE CALENDAR

June 2-June 12

Seminars and Lectures Thursday, June 2

Multi-Channel Interferometer for the ATF Stellarator* - Dr. D.P. Hutchinson, Oak Ridge National Laboratory, Plasma Fusion Ctr Seminar, 4pm, Rm NW17-218.

Friday, June 3

The Third World Economy and International Debt* - Prof Donald Lessard and Prof Willard Johnson, Colloquium for the 50th anniversary of Ashdown House, 4-5:30pm, Ashdown House Hulsizer Rm.

Saturday, June 4

Can Engineering Design be Taught?* - Prof Woodie Flowers, Prof Nam P. Suh, and Prof Louis Bucciarelli, Colloquium for the 50th anniversary of Ashdown House, 10-11:30am, Ashdown House Hulsizer Rm.

Suburban Traffic Congestion: What is Being Done?* - Michael Meyer, Mass. Dept of Public Works; Mary MacInnes, 128 Transportation Council; Geoff Slater, Central Transportation Planning Staff, Colloquium for the 50th anniversary of Ashdown House, 1:30-3pm, Ashdown House Hulsizer Rm.

Community Meetings

Alcoholics Anonymous (AA)** - Meetings every Tues, 12-1pm, Rm E23-364. For info call Sarah, x3-4911.

Al-Anon** - Meetings every Fri, noon-1pm, Health Education Conference Rm E23-297 and every Tues, noon-1pm, Rm 1-242. The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Call Sarah, x3-4911.

Alcohol Support Group** - Meetings every Wednesday, 7:30-9am, sponsored by MIT Social Work Service. For info call Sarah, x3-4911.

Narcotics Anonymous* - Meetings at MIT, every Mon, 1-2pm, Rm E23-364 (MIT Medical Dept). Call 569-0021.

MIT Faculty Club** - The Club is open Mon-Fri. Luncheon hours: noon-2pm; dinner hours: 5:30-8pm. For dinner and private party reservations, call x3-4896, 9am-5pm daily.

Women's Support Group** - For wives and companions of graduate students working on dissertations or attempting to cope with over-demanding work pressures. Group will meet weekly Tues, 7-8:30pm, E23. Those interested in joining should contact Dr. Charlotte Schwartz, MIT Medical Dept, x3-2916.

Working Mothers Support Group** - Meets every other Wednesday, 12-1:15pm (drop in any time), Rm E25-202. Next meeting: June 8, June 22. Join an ongoing support group to help with the hassles of being a working mother with young children. We discuss the usual problems, including daycare, work conflicts, siblings, summer camps, awful behavior of kids in public, coping with sleep deprivation, etc. New members and potential parents always welcome. Info: Janette Hyde, x3-4290.

Informal Embroidery Group** - MIT Women's League Group meets June 8, 10:30-1:30pm, Rm 10-340.

MIT Activities Committee

MITAC, the MIT Activities Committee offers discount movie tickets for General Cinema, Showcase and USA Cinemas Theaters (\$3 ea). Tickets are good 7 days a week, any performance. (*Note: USA tickets are not valid at Copley, Nickelodeon, Janus, & Harvard Sq. Theaters.)

Tickets may be purchased at MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm. Mon through Fri. Tickets are sold in Lobby E18 on Fridays 12-1pm. There are no ticket sales in Lobby 10 during the months of June, July and August. Lincoln Lab employees may purchase tickets in Rm A-263 from 1-2pm, Tues-Fri only. Check out our table of discounts for camping, dining, musical and cultural events available to you through MITAC.

A Day in New York City. Sat, June 11. A horse-and-buggy ride around Fifth Avenue; renewal of life with the fresh flora at the New York Botanical Garden; a ferry ride to the Grande Madam of the city - the Statue of Liberty; window shopping for the newest garb at Saks - this is New York City in springtime. Experience all the sights/sounds/smells/tastes of NYC with a day trip to the "Big Apple." Eight full hours on your own to explore all the nooks and crannies of "The City": Trump Tower, the Village, Times Square, Empire State Building... and don't forget the hot pretzel (with mustard) from the corner vendor. Bus leaves West Garage at 7am; returns approx 12 midnight. Cost: \$19/pp. Reservations can be made in the MITAC office.

Weekend Escapes at Talbot House in Scenic Vermont. Fri-Sun, July 8-10, July 15-17 & Aug 12-14. Journey to serene and tranquil Woodstock, VT this summer. Bike through pastoral countryside; hike; fish; sightsee; canoe. Escape inc lodging for 2 nights at Talbot House (*arrive after 5pm on Fri), plus 6 meals (2 dinners, 2 country breakfasts, & 2 lunches). Dorm style accommodations in a cooperative living environment. Room sizes for 4, 5 & 6 people/rm. Reservations must be made by the room, and all reservations must be made by June 30. Only \$50/pp for the weekend, including meals. You provide your own transportation. One room per MIT ID. Reservations in the MITAC office.

Fall Foliage Weekend at Honey Lane Farm. Fri-Sun, Sept 9-11. Experience the crimson/burnt orange of autumn with a weekend escape to Honey Lane Farm-in Dublin, NH. Trail ride through scenic woodlands; go antiquing for rare finds; or just relax in a cozy nook of the fireplace living room. The weekend includes a Friday champagne get-together (*arrive between noon & 9pm on Fri); 5 delicious home-cooked meals; a hayride; & lodging, Golf, tennis, & mountain climbing nearby. Cost: \$149/pp for lodging in the lodge (rms for 2, 3, or 4 people in an inn type setting; & reservations must be made by the room); or \$115/pp for lodging in the bunkhouse (more rustic fanfare for the hearty soul - lodging in one "grande" room). All reservations must be made by June 30 in the MITAC Office. You provide your own transportation.

F.Y.I. I. Welcome, mates... help sail the 77-foot gaff-rigged schooner on the calming waters of Lake Champlain... bask on the wooden bow... cultivate a cut throat game of cribbage in the galley... and more on a Vermont Schooner Cruise aboard the Homer W. Dixon. Cruises, departing Burlington, VT - sail from May-Oct. Call 1-802-453-4818 for more info.

F.Y.I. II. The Steamship Authority discounts to Martha's Vineyard & Nantucket are here. Savings on roundtrip ferry transportation for both children & adults. Martha's Vineyard: adults \$6 (reg \$7.50), children \$3 (reg \$3.80). Nantucket: adults \$13.60 (reg \$17), children \$6.80 (reg \$8.50). Available in the MITAC office.

Council for the Arts Museum Passes. On campus, there are 10 passes employees may borrow for free admission to the Museum of Fine Arts. To check on availability, call x3-5651. At Lincoln Lab, passes are available in the Lincoln Lab Library, Rm A-150.

Museum of Science Tickets. Available for only \$1. Pay another \$1 at the door, for a total savings of \$3/pp/adult; \$1/pp/child (reg \$5/pp/adult; \$3/pp/child). Don't miss "Splice of Life: Genetic Engineering" June 5-Aug 21.

The City Books are Coming. Look for them in mid-June.

Important! To avoid disappointment, purchase tickets and make reservations early as we are limited by ticket availability and transportation. All MITAC events and ticket purchases are non-refundable due to the non-profit nature of our organization.

Social Activities

Japanese Lunch Table** - Every Tues, 1pm, Walker 220. Enjoy lively conversations and new faces each week.

Movies

For the latest Lecture Series Committee movie and lecture information, call the LSC Moveline, x5-9179 dorm.

Back to School** - Lecture Series Committee Movie, June 3, 8pm, Rm 10-250. Admission: \$1.50 MIT/Wellesley ID.

Space Camp** - Lecture Series Committee Movie, June 4, 8pm, Rm 10-250. Admission: \$1.50 MIT/Wellesley ID.

Roman Holiday** - Lecture Series Committee Movie, June 10, 7pm, Rm 10-250. Admission: \$1.50 MIT/Wellesley ID.

Without Love** - Lecture Series Committee Movie, June 10, 9:15pm, Rm 10-250. Admission: \$1.50 MIT/Wellesley ID.

The Good, the Bad and the Ugly** - Lecture Series Committee Movie, June 11, 8pm, Rm 10-250. Admission: \$1.50 MIT/Wellesley ID.

Dance

MIT Ballroom Dance Club Workshops: Tues, June 7 - Rumba, 7-8:30pm. Tues, June 14 - Waltz, 7-8:30pm. All levels of experience welcome. No partner necessary. All classes held in Walker Memorial, 3rd floor gym. Admission: \$.75/members, \$1/non-members. General dance follows workshops, 8:30-10pm. Info: x5-9171 dorm.

MIT Dance Club: Aerobic and Jazz-Aerobic* - Aerobic, Mon, 6:30-7:30pm, Dance Studio and Wed, 7-8pm, General Exercise Rm; Jazz Aerobic, 6:30-7:30pm, Dance Studio. Cost: \$3/MIT; \$4/non-MIT. Info: Julia, 492-1369 eves.

MIT Folk Dance Club* - weekly dancing Sun, International Dancing, 7:30pm, Lobby 13; Tues, Balkan and Western European Dancing, 7:30pm, Rm 6-321 (Moore Rm); Wed, Israeli Dancing, 7:30pm, Lobby 13.

Yoga* - ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 5:15pm; Intermediates: Mon, 6:15pm. For information call El Turchinetz, 862-2613.

Exhibits

LIST VISUAL ARTS CENTER

Three on Technology. Robert Cumming, Lee Friedlander and Jan Groover, three noted American photographers, present a body of work that documents the elusive effects of the technological revolution. Through June 26. **Kristin Jones and Andrew Ginzel: Charybdis.** Artists develop a metaphorical tableau evoking the power and splendor of weather systems and develop and construct "Charybdis," a major environmental installation inspired by the legendary whirlpool off the coast of Sicily. Through June 26. **Tishan Hsu.** Large, colorful paintings by this Boston-born New York artist (MIT '73, G '75) are mysteriously evocative, combining industrial forms and materials with surreal imagery that suggests the human body. Through June 26. Hours: 12-6 weekdays, 1-5 weekends.

THE MIT MUSEUM

MIT Museum Bldg - Earth, Sea and Sky: Charles H. Woodbury, 1864-1940, Artist and Teacher. Paintings, watercolors and drawings by Woodbury, MIT Class of 1886, is the largest retrospective exhibit of works by this master of nature's motion an opposing force. Through October 3. **Arnold Newman: Five Decades.** Photography of Arnold Newman, renowned American portraitist. Through June 27. **Math in 3-D.** Brightly colored geometric sculptures based on mathematical formulae, by Morton C. Bradley, ongoing. **Light Sculptures by Bill Parker, MIT '74.** Changeable, touchable plasma sculptures by the artist who developed this medium, ongoing. Hours: Tues-Fri 9am-5pm. MIT Museum closed to the public on Mondays; Open 12-4pm Sat-Sun; \$2 donation requested.

Compton Gallery - Microscapes: The Hidden Art of High Technology. 50 dramatic photographs, focusing on the seldom-seen world of advanced developments in microelectronics software and lightwave communications. Sponsored by AT&T. Through Sept 9. Gallery hours: Weekdays 9am-5pm, closed Saturdays.

Hart Nautical Gallery

Ongoing exhibits: George Owen '94: Yacht Designer - Line drawings and half-models designed by one of the early professors of naval architecture at MIT. **MIT Seagrant** - A review of MIT ocean research; **Half Models in Naval Architecture and Ship Building** - Half-models, ship drawings and photographs illustrate how the half model has aided ship and yacht designers and builders.

Edgerton's Strobe Alley - Exhibits of high speed photography. Main corridor, 4th floor.

Corridor Exhibits

Corridor Exhibits: Building 1 & 5, 2nd floor: John Ripley Freeman Lobby, Building 4: Norbert Wiener, Karl Taylor Compton, Community Service Fund, Ellen Swallow Richards. Women at MIT. An overview of the admission of women at MIT. Five photographic panels with text documenting the circumstances that increased the number of women in the classroom since Ellen Swallow Richards. Building 6: **Laboratory for Physical Chemistry.**

OTHER EXHIBITS

Institute Archives and Special Collections - James Rhyne Killian, 1904-1988. Photographs from the career of MIT's 10th president, 1904-05: **A Pivotal Year for MIT.** Chronicles alumni and staff reaction to the most serious of several attempts to merge Harvard and MIT. Hall exhibit cases in 14N, 1st floor.

Wellesley Events

Jewett Arts Center* - Selections from the Wellesley College Museum Permanent Collection. From the Medieval period through the 20th century. Through June 5. **Recent Acquisitions and Alumnae Gifts.** Paintings, sculpture, prints, and photography by Berenice Abbott, M.C. Escher, Claude Monet, and Pre-Columbian and Hellenistic objects. Through June 5.

The Elbert Collection on Slavery, Emancipation, and Reconstruction* - Books, tracts, and narratives from the Elbert Collection displayed in connection with the celebration of the centennial of the graduation of Ella Smith Elbert, second Black graduate of Wellesley College, Margaret Clapp Library. Through June.

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

MIT Cable System - Submit announcement in writing to Rm 9-050. We prefer a day's warning, but faster action may be possible. Useful also for correcting errors, notifying about cancellations, and dealing with emergencies. If you have met the Tech Talk deadline, your announcement is automatically put on cable (except for exhibits and some multi-meetings programs).

We are now accepting requests via e-mail. Announcements are shown on MIT Cable channel 12, which is displayed on the receivers in Lobbies 7 and 10. Announcements should be of interest to the general MIT community. Classified ad type messages will not be accepted. Messages should include: date, title of event, speaker or sponsor, time and location. MIT Cable reserves the right to edit your message to fit the screen. Include your MIT phone number. E-mail your announcements to: tv-messages@telecom.mit.edu. Messages will usually be posted within 24 hours of their receipt.

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

Send notices for Wednesday, June 8 through Sunday June 26 to Calendar Editor Rm 5-111, before 12noon Friday, June 3.

CLASSIFIED ADS

Tech Talk ads are intended for personal and private transactions between members of the MIT community and are not available for commercial use. The Tech Talk staff reserves the right to edit ads and to reject those it deems inappropriate.

INSTRUCTIONS: Ads are limited to one (of approximately 30 words) per issue and may not be repeated in successive issues. All must be accompanied by full name and extension. Persons who have no extensions or who wish to list only their home home telephones, must come in person to Rm 5-111 to present Institute identification. Ads using extensions may be sent via Institute mail. Ads are not accepted over the telephone. MIT-owned equipment may be disposed of through the Property Office.

Deadline is noon Friday before publication.

For Sale

Child's Bancroft Jr tennis racq, wdn, 4-3/8" grip, exc cond, \$10. Call 484-0802, 1-9pm.

Apple Mac SE w/20MB hrd drv, Apple Laserwriter prntr, Microsoft Wrd w/ref mnl, multiple fonts, opportunity to take over lease, 27 mos (flex) left to pay fr 7/1/88, \$268.25/mo, gd as nw, exc for graphics & dsktop publishing. Rose, x3-1757.

Whitewater kayak, red, mdl Dancer, used 1 season, exc cond, sprayskirt & 4 flotation bags, \$500 inclusive or bst. Sally, x8-205 Whitehead.

'77 Pop up tent trailer, Starcraft Stormmaster, sone ice box, screen-hse, sleeps 8, \$1,700. Ed/Tim, 933-4138.

Cordata prsnl cmpr, fully IBM-XT PC compatbl, rns perf, mvng, mst sell, 512K memry, 16 bit 8088 procssr, 2 disk drvs, mntr, intrnl modm, xtensive sftwr, price nego. Monica, x3-6284 or 354-1015.

Q-sz. King Koil box spr, exc cond, won't fit up stairs, \$60. Tom, x2240 Linc.

US Open (golf) practice round tix, \$20 ea. June 13-15. Felicia, x3-4496.

Fridge in exc cond, almsr nw, 15 cf, \$65; wh metl utility cbnt, 6' hi, gd cond, \$20. Grace, x3-2750.

M's Gitane 10-spd French racing bike, narrow trs, Pelissier whls, \$120; chld's Peugeot bike for girl 8-12, 5-spd, racing frm, \$80. Jean-Louis, x3-3465 or 484-4931.

Epson Geneva prtbl cmpr, 128K RAM, 5 lbs, couplr modm, 4 sftwr prgrms stord on ROM chips, on-brd micro-cass drv, AC adaptpr/chargr, nr ltrr-qity Seikosha prntr, nvr used, \$400 or bst. Paulette, x3-7106.

Elec griff, \$18; Barwa lounge, in/out, \$25; 4 ktechn chrs, \$15 ea; Electrolux vac w/pwr nozzl, \$100; twin bed hbrd, mapl, \$10; crib, \$10; Orientl hndmd Belouchistan 3x3'; \$100; elec basebrd htr, \$10. Call x3-3175 or 332-8251.

Answering mach, nvr used, \$40. Jocelyn, x3-4044.

Girl's 10-spd bike, \$25; dshwshr, nds rpr, free. Marty, x2846 Linc.

Vehicles

'75 Chevy Nova, 6 cyl, 2-dr, rns exc, 4 steel bltd rads, some rst, hi mi, well maint, auto trans, ps, radio, tntd glss, etc askg \$300, perf stnd car. Mike, x8-3977 Draper.

'79 Monte Carlo, blk, a/c, 87K, \$350. Call x3-5548 or 237-9146 eves.

'79 Scirocco, 70K, a/c, cass, exc cond, \$1,700. Tommy, x3-5230 or 431-7628 7-9pm.

'79 Horizon, frnt whl drv, 4-spd std, AM/FM/cass, v zippy accleratr, \$550. Bruce, x8-3288 Draper or 443-0067 eves.

'80 Chevy Chevette, 4-dr hcthbck, 65K, off-wh, 4 cyl, exc cond, askg \$900. Billy, x3-7925.

'81 Ford Escort wgn for parts, AM/FM stereo 4 nr nw rads (155/80 R13), nw batt. Frank x8-4888 Draper or 438-3776 eves.

'81 Honda Accord, 4-dr, 61K, 5-spd mnl trans, ps, AM/FM/cass stereo w/4 spkrs, a/c, nw brks & trs, frnt reclining buckt seats, \$2,100. Vernon, x3-7862 or 237-6645.

'81 Dodge Aries K, 2-dr, blk w/red rf, auto, 4 cyl, AM/FM, undr-coatd, nw batt, gd trs, no rst, gd cond, askg \$1,500. Jim, x3540 Linc or 658-9840.

'81 Kawasaki 440 Ltd, blk, 10K, gd cond, well-maint, \$700 or bst. Call x3-4036 or 868-9711.

'82 Chevy Citation, 4-dr hcthbck, 6 cyl, auto, a/c, AM/FM/cass stereo, rear defrst, dual mirrors, clth int, Chapman lck, rstprfd, lo mi, grt shape, \$2,995. Demetri, x3-3908.

'82 Subaru GL wgn, 85K, 5-spd, AM/FM/cas Digital stereo, a/c, 4 nw trs, nw shcks, struts, exh & othr nw parts, looks & rns grt, mst sell, \$2,500 or bst. Frank, x3-4695.

'83 Toyota Tercel, auto, 60K, sunfr, wh, 4 nw trs w/3 time rotatn opt, gd cond, \$3,500, avlbl 6/8. Call 577-1290.

Housing

Cape Cod escape, Brewster Resort twnhse, sleeps 6-8; amenities, nr beaches & all activities, \$600-650/wk-summ. Call 263-1942.

Back Bay, quiet v sunny 1BR 6th flr apt, 750 s.f., 56 Comm Ave, elevator, fully furn, inc prkg space, v nr public trnsprtn, avlbl 8/15/88-8/15/89, \$1,100/mo inc ht. Call 267-9890 or 437-0805.

Lexington, 7 rm rncn, LR, DR, 3BR, ktch, fmly rm, 2 full baths, 3-season prch, finshd, wk-out bsmt, wlk to Diamond Jr High, bus to Estabrook Elem School, \$268,000. Call 862-1298 eves.

Belmont, furn 2 BR apt, grg, sublt July & Aug, yrd. Call x3-6835 or 489-3602.

Summr rntl: Village of Loon Mt, Lincoln, NH, sleps 6-7, fully appliancd ktchn, 2 baths, pools, sauna, tennis, whirlpool, etc. Jack, x3-2772 or 396-4221 eves.

Melrose, 2BR, 2b, larg condo, grg prk, prch, exc storage, nr T & commutr rail, Rts 1, 93 & 128, nwr bldg, \$155,000. Call 665-3665.

Owls Head, ME, summr cottage, exc view of Penobscot Bay, all conv, frpl, avlbl early July & late Aug, \$300/wk. Call 275-6521 eves.

Cottage in quiet ME fishing village, wtr view, grt restaurnts, all conv, cycling, nature preserves, \$350/wk/3 prns, parts of June, July, Sept. Marie, x3-3490 or 547-1311 eves.

Cocoa Beach, FL, oceanfrnt 2BR, 2b, fully furn condo, htd pool, tennis courts, putting green, 20 min frn Kennedy Space Ctr, 1 hr frn WDW, Epcot, etc. June-Sept, \$400/wk, \$1,050/mo+ utils. Sherry, x3-7758.

Wanted

Visting scientist & fmly sk 2-3BR hse/apt to rnt Aug & Spet. Sara, x3-7797 or Earth Resources Lab Hdqtrrs, x3-8027.

Roommates

M/F to shr 4BR apt, 2b, furn, on-st prkg, 10 mins to Kendall Sq, strt 6/1 or 7/1. Mauricio, 547-2245.

Somerville, Teale Sq, 2 young pro W sk 3rd to shr spacious 3BR apt, hwd flrs, W/D, bsmt & attic, prkg, yrd, 2 prchs, non-smkr, mst like cats - we have 3 (no more please), \$285/mo+ utils. Call 628-9704 lv mssg.

Sk rmmate, 23-30, to shr 5BR Watertown apt, on Belmont line, Cushing Sq, ez wlk to Hrvd Sq, off-st prkg, avlbl immed, 1 yr lease, \$216+. Sarah, x3-0405 or 924-5296.

Surplus Property

The Property Office has this excess MIT equipment for transfer within MIT. Unless noted, items are at the Equipment Exchange, 224 Albany St., open Tues & Thurs 11am-3pm. After 30 days, items are sold to individuals. Where noted, bids and offers go to Earl C. Fuller, Institute Property Officer, E19-429, x3-2779, with envelope so marked. Always reference case number on the envelope. MIT reserves the right to reject any and all bids.

Case 2290 - For sale by sealed bid. The Media Lab has several hundred miscellaneous computer hardware and software items. A complete list is available at the Property Office, or from William Kelley, Rm E15-468A. For further info, call Mr. Kelley at x3-5154. Bids must be received by 4pm DST, June 15. Envelopes must be marked "Sealed Bid Case 2290" and sent to Earl Fuller, Rm E19-429.

Case 2283 - Located in Bldgs 56 and 16: Miscellaneous items of furniture & research equipment. Info: Judy Quimby, x3-5104.

Case 2265: Gilford chart recorder.

Case 2263: 12 Digital DEC scopes, 2 Zenith terminals, Digital Decwriter II, teletype.

Case 2166: 2-tier mobile rack, Sony recorder.

Case 2198: Sgl pedestal wood desk, wood chair, artwork in frame, step ladder, triangular tables w/white formica tops.

Case 2271: 4 IBM 5322 terminals, 2 IBM printers 5217 & 5243, IBM disk storage 5247.

Case 2274: Tektronix 4015 terminal, IBM 5218 printer, IBM keyboard, drive & display writer.

Case 2266: Digital forms tractor, Digital monitors & keyboards, 2 boxes software, 2 Digital Decwriter II, 2 Digital modems.

Case 2257: Hughs welding power supply, Apple monitor, drive, keyboard & file, IDS mdl 460 prntr, 2 Xerox 610 C1 memory writers, Tektronix power supply, IBM Selectric II typewriter, Beckman 715 oscilope monitor, Tektronix 555 oscilloscope, Analog 1100 oscilloscope, Model J weldpower head on bench, Oregon electronics power supply.

Female smokers wanted for study

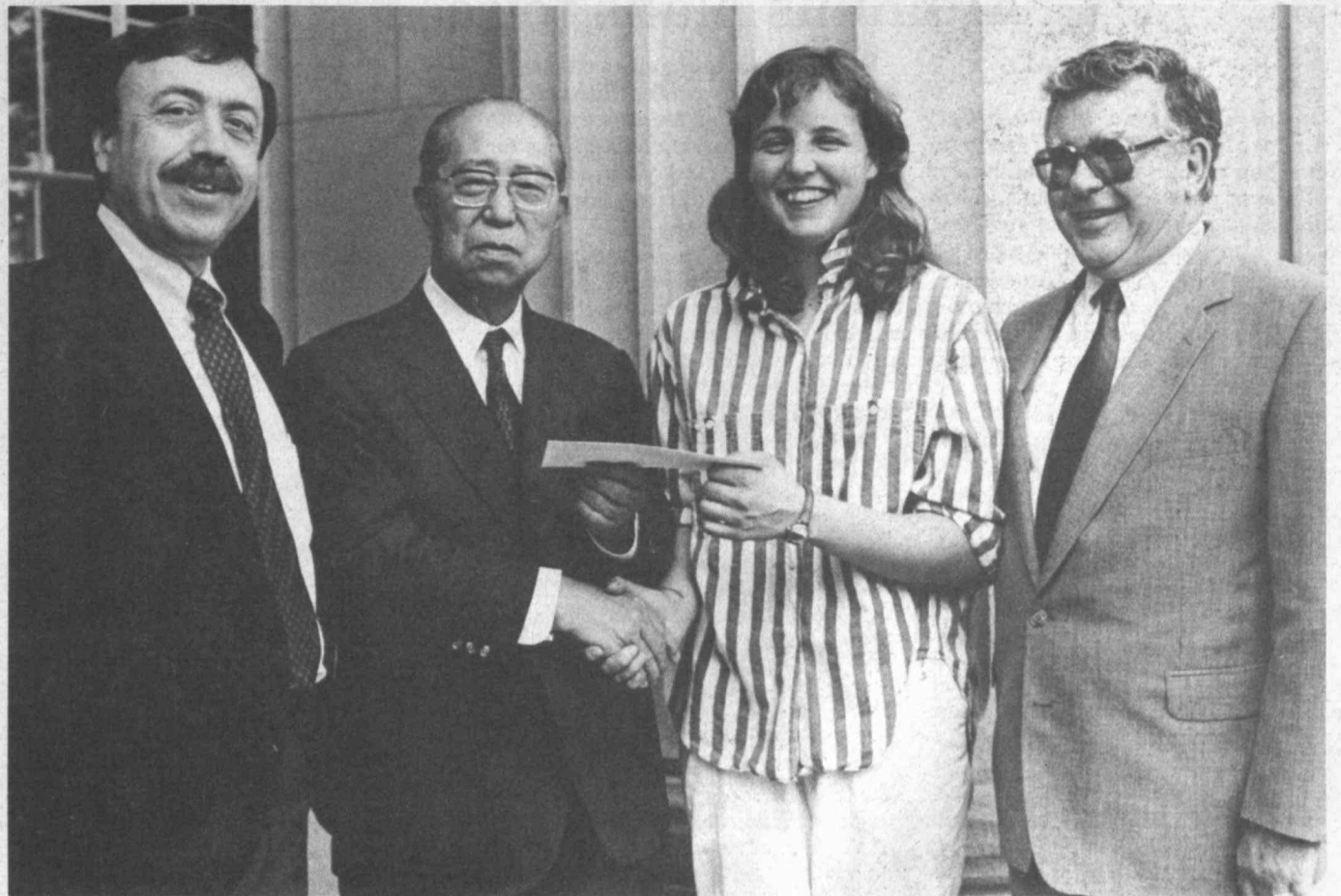
If you are a woman thinking of giving up smoking, you may want to participate in a new study at the Clinical Research Center set to begin in July under the direction of Dr. Judith Wurtman.

The program will be carried out in conjunction with a free smoking withdrawal program led by Terry Clancy, a top facilitator from the American Lung Association.

The study will measure mood and appetite changes (including food cravings) in subjects before and after quitting smoking. The investigators will also try to prevent weight gain by offering meal plans that should curb overeating. Free diet counseling will be offered to those who complete four weeks of not smoking. The study will test a safe drug that reduces overeating associated with stress.

You are eligible if you are female, overweight, a smoker and healthy. Those on medication of any type are not acceptable.

The smoking withdrawal sessions and eating counseling will take place on campus in the CRC dining room. Prospective subjects are asked to call Janine, x3-3087 for further information and applications.



A study of the impact of climate change on the Bengal Delta region of Bangladesh, the development of a stored-heat concentrating solar cooker for developing areas, and an investigation of the status of women in India will be supported by the 1988 Carroll L. Wilson Awards. The awards are given to encourage student research and study of important societal problems with international dimensions. They honor the late Professor Carroll L. Wilson who spent much of his career seeking solutions to world-scale problems. He died in 1983. Two \$5,000 graduate student awards—one to Megan J. Smith, above—and a \$2,500 undergraduate award were made. Other recipients were Sara L. Bennett, graduate student in the Department of Earth, Atmospheric and Planetary Sciences, who will study the Bangladesh climate, and Supreo Ghosh, undergraduate in economics, who will investigate the status of Indian women. Presenting the award to Ms. Smith above is Dr. Saburo Okita, chairman of the prize committee. He is former minister of foreign

affairs and chairman, Institute for Domestic and International Policy Studies, Japan. With them are MIT Vice President Constantine B. Simonides, who is secretary of the MIT Corporation, left, and Robert P. Greene, assistant director-administration and finance, MIT Media Laboratory. Mr. Simonides is a member of the 1988 Wilson Award prize committee. Mr. Greene is executive director of the Wilson Awards Committee Secretariat. Other members of the prize committee were Professor Umberto Columbo of Italy, chairman, National Commission for Nuclear and Alternative Energy Sources; Sir William R. Hawthorne, United Kingdom, former master, Churchill College, University of Cambridge; Professor Howard W. Johnson, honorary chairman of the MIT Corporation; Professor Samuel J. Keyser, associate provost, MIT; Dr. James A.F. Stoner, Fordham University Graduate School of Business, and Ms. Rosemary Wilson, attorney, Sullivan and Worcester, Professor Wilson's daughter.—Photo by Donna Coveney

MIT-based theater to begin nearby

A summer theater program with three productions has been organized by a group of MIT students, former students, and staff members.

Ulysses Productions opens next weekend, June 9, with *Vinegar Tom*, an intensely funny and provocative play dealing with women and power, written by Caryl Churchill, and directed by Susan Downing '86, now staff for the MIT Shakespeare Ensemble. *Vinegar Tom* will continue through July 2. This and all other performances of the new company will be at the Alley Theatre, 1253 Cambridge Street, in Inman Square, Thursday through Sunday at 8pm. Tickets are \$10; student, senior citizen and group rates are available. Information: 491-8166.

Upcoming will be Shakespeare's *Much Ado About Nothing*, directed by Andrew Borthwick-Leslie '87, July 7-August 6; and two short plays, *Cowboy Mouth* and *Back Bog Beast Bait* by Sam Shepard, directed by Bill Bryant '83, staff for Athena.

Among the other alumni from both the MIT Dramashop and Shakespeare Ensemble are Lee Higgins, Wellesley '87, staff, Council for the Arts at MIT; Kevin Cunningham '84, Mike Levine '87, graduate student Jim Tate, Gretchen Bowder '87, Raudline Etienne '87, Marino Tavaréz '88 and former student John Landau. Music coordination is by composer/musician Julio Friedman '88. Technical director and lighting designer is one of the Ulysses founders, Eddie Shoopman of the MIT Libraries. From the wider community Bettina McGimsey has the distinction of being the only non-MIT affiliated person in the company, although she is the sister of a student.

29 managers to begin joint degree program

MIT has selected 29 mid-career managers from private and public sector organizations in this country and abroad for its 1988-89 Management of Technology Program.

The program, which offers a Master of Science degree after 12 months of full-time study, is the nation's first advanced degree program focusing directly on the management of technology. It is conducted jointly by MIT's School of Management and School of Engineering.

According to Dr. Peter P. Gil, the director, four women and 25 men from the United States and nine other countries will bring to the program a wide variety of outstanding technical backgrounds and accomplishments.

Controlling hazardous wastes by electroosmosis

(continued from page 1)

Environmental Management. Professor Probststein said, "I am optimistic that if funding for the research can be continued, field testing should be a realistic possibility in the near future."

The basic principles of electroosmosis are easy to understand, but analyzing the phenomenon quantitatively requires, in practice, complex mathematical models. Mineral particles that make up soil ordinarily carry negative charges on their surfaces when in contact with water or other electrolytes. Through attraction of charges, positive ions then build up in the fluid that is in contact with the surfaces of the soil particles.

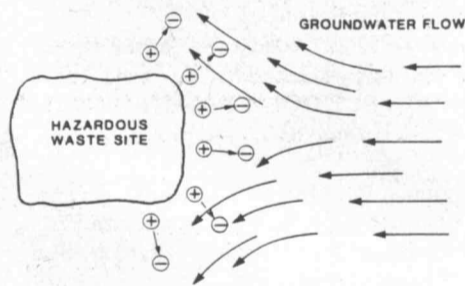
Applying an electric field makes these positive ions migrate toward an implanted negative electrode. Viscous forces in the fluid set up by the moving ions then draw the liquid waste through the pores in the medium. So by establishing an appropriate geometry of positive and negative electrodes in the soil, it is possible to control the flow of fluids underground.

A preliminary cost analysis by the MIT-Tufts group suggests that with electroosmosis costs can be around \$.01 per gallon of waste removed over a wide range of conditions. The experiments at MIT with toxic substances in clays have demonstrated 99 percent removal of toxic material.

The experiments were conducted in a column of soil contaminated with acetic acid—the acid in vinegar. Moreover, the experiments were conducted continuously for periods over three months, showing that uninterrupted electroosmosis is feasible with noncorroding electrodes, e.g., ones made of porous carbon.

Professors Renaud and Probststein say that acetic acid generally is the organic acid highest in concentration among those present, for example, in municipal sewage. Its chemical "dissociation constant," they say, is also a representative mean of organic toxic liquids at hazardous waste sites.

The researchers next hope to do experiments with benzene-impregnated clay, reasoning that benzene is another repre-



Diversion of groundwater flow around a hazardous waste site using electroosmosis.

sentative toxic organic chemical found at hazardous waste sites.

In addition to the laboratory experiments, the researchers simulated electroosmotic flow on a high-speed digital computer (two-dimensional steady state numerical solutions). They were able to demonstrate favorable electric fields and flow patterns around hazardous sites that could divert groundwater from contaminated areas. Professors Renaud and Probststein published their findings in the September, 1987, issue of *PhysicoChemical Hydrodynamics*,

Water research fellowships funded

The Ralph M. Parsons Foundation has funded the Ralph M. Parsons Fellowships for graduate study in water resources and environmental engineering.

The establishment of the fellowships was announced by Professor Rafael L. Bras of the Department of Civil Engineering, director of the Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics. The lab, also the product of Mr. Parsons' generosity, educates professionals capable of understanding, preserving and managing the aquatic environment.

During his lifetime Mr. Parsons earned a reputation for success in designing and building projects of unprecedented size and complexity. Under his leadership the Parsons Company designed and built many of the world's largest refineries, plants and mining and metallurgical complexes. He was always sensitive to the demands of

for which Dr. Probststein has recently become Editor.

Since coming to MIT in 1962, Professor Probststein has conducted research on desalination, water purification, and synthetic fuels. He has authored or coauthored 10 books and more than 125 technical papers and holds five patents. He is a member of the National Academy of Engineering and a Fellow of the American Academy of Arts and Sciences, and he has received the Freeman Award in Fluids Engineering from the ASME.

Dr. Renaud is the Harold E. Edgerton Assistant Professor of Mechanical Engineering at MIT. Prior to coming to MIT in 1985, she had been at the National Center for Scientific Research in France for three years.

Working in MIT's Fluid Mechanics Laboratory under the direction of Professors Probststein and Renaud has been PhD candidate Andrew Shapiro. Professor Behrouz Abedian (MIT '80), chairman of mechanical engineering at Tufts, and Ken Hughes, a master's degree student at Tufts, have also been involved in the effort.

the environment and favored collaboration with nature even before it became common practice.

The fellowships, designed to encourage postgraduate education, will provide recipients with the time to survey the various areas of study in the Parsons Lab and to mature academically before deciding on particular research objectives. Fellowships are awarded for the first academic year in residence and include full MIT tuition and a stipend at ongoing research assistant rates.

The Parsons Foundation also provided funds for research initiation grants. These are intended to encourage and facilitate the development of new ideas by faculty and students of the laboratory.

For more information contact Professor Bras, Rm 48-311.

Alumnus plans to see Americas—up close

By CHARLES H. BALL
Staff Writer

In the first issue of his newsletter, "America North-South," MIT graduate Jonathan Wyss states his goal simply: "In June of 1988 I will begin a 16,000 mile journey from the Canadian Arctic to the southern tip of the Americas. The expedition will last three years, during which time I will use no motorized transport. Instead I will bicycle, kayak, ski, walk and sail, depending on the place and season."

The 24-year-old Wyss, who has two degrees in meteorology from MIT (SB in 1986 and SM in January, 1988), can't say exactly why he is embarking on his journey. "I don't really know that yet," he said. Yet he views it both as an extension of his professional interests and his longtime interest in hiking and mountain climbing.

It certainly isn't a case of getting from one place to another. He could cover the distance in a car in a few weeks, or by bicycle in several months.

Traveling as he will, "close to the land and the people," he hopes especially to explore the environment and cultures along the route.

As a meteorologist, he explains, the prospect of traversing all the world's climate regions in a single journey is exciting. "I can think of no better way to continue my education," he said, "than to benefit from the scientific insight which travel through the wind, rain and clouds has to offer."

As a practical matter, he added, he'll maintain weather records, including daily meteorological readings.

Wyss's trip will be essentially self-financed, although he received material from outdoor equipment manufacturer and a camera from the Olympus Corporation. He also hopes to defray expenses from subscriptions to his quarterly newsletter, which will describe his progress in words and pictures.

He credits his humanities courses at MIT, in which he concentrated on the anthropology and archeology of the Americas, with giving him a focus for his trip. He also enjoys writing and language, he said, accounting for his plans for a newsletter.

Wyss actually has been something of a world traveler all his life. Although he is a United States citizen, it was not until his first year at MIT that he actually lived in America.

Because his father was an internationally oriented sales representative, Wyss was raised first in South Africa and later in Belgium and Luxembourg. He is fluent in English and French,

For those who might want to follow Wyss's adventure in his own words, a subscription to his newsletter is available for \$10/year by writing to America North-South, c/o Kelly Firth, 440 Hanover St., 3B, Boston, 02113.

has a knowledge of several other languages, and hopes to master Spanish on his trip.

It was while living in Europe that he took up hiking, which included a walking trip, in segments, from northern Europe to the Mediterranean.

He plans to leave from Inuvik in the Canadian Arctic on June 12 (he'll get there by plane) and end his journey in Tierra del Fuego in Chile, at the threshold to the Antarctic, in April, 1991.

He'll travel mostly alone ("People aren't really that interested in biking across Patagonia"), although occasionally he'll be accompanied by friends, particularly as he travels down the West Coast of the United States. And, of course, he'll be meeting people along the way.

What are his plans after the trip?

"I'll figure out something along the way," he answers.



Mr. Wyss has prepared this detailed itinerary—complete with modes of transportation—and schedule of his three-year tour of the Americas.

Tenure decisions announced

The Executive Committee has granted permanent tenure to 16 faculty members, effective July 1. Fifteen are associate professors, and one is an assistant professor who is simultaneously being promoted to associate professor. A later Tech Talk article will provide biographical sketches and photographs of the newly-tenured professors. They are:

SCHOOL OF ENGINEERING

Department of Electrical Engineering and Computer Science

Robert C. Berwick, associate professor of computer science and engineering.

Charles E. Leiserson, associate professor of computer science and engineering.

Silvio Micali, associate professor of computer science and engineering.

Charles G. Sodini, associate professor of electrical engineering.

George C. Verghese, Carl Richard Soderberg Associate Professor in Power Engineering.

Department of Materials Science and Engineering

Carl V. Thompson, associate professor of electronic materials.

Department of Mechanical Engineering

Ahmed G. Ghoniem, associate professor of mechanical engineering.

Anthony T. Patera, associate professor of mechanical engineering.

Department of Ocean Engineering

Paul D. Slavounos, associate professor of naval architecture.

SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

History Section

Peter C. Perdue, associate professor of history.

SCHOOL OF SCIENCE

Department of Chemistry

Sylvia T. Ceyer, Class of 1943 Career Development Associate Professor of Chemistry.

Keith A. Nelson, associate professor of chemistry.

Department of Earth, Atmospheric and Planetary Sciences

Jack Wisdom, assistant professor of planetary science *

SLOAN SCHOOL OF MANAGEMENT

Chi-Fu Huang, associate professor of finance.

Thomas W. Malone, Thomas Drane Career Development Associate Professor in Information Technology and Management.

Garth Saloner, associate professor of applied economics and economics.

* Promoted from assistant to associate professor with tenure

Row, row, row

Sculling and rowing opportunities will be available to the community at the Pierce Boathouse this summer.

Recreational sculling instruction will be offered Mondays-Thursdays, June 13-August 18, 7am-1pm. Physical education courses in sculling will consist of three two-hour lessons given Fridays, 7am-1pm.

Competitive sweep rowing will be offered Mondays-Fridays, June 13-August 19, 5:30-7am. The sweep rowing will also include selected weekend regattas.

Hours of operation at the boathouse will be weekdays 5:30am-2pm through the summer. The facility will be closed weekends.

All participants in sculling or rowing must have valid athletic cards and have passed the small boats test given by the Physical Education Program and must purchase a sculling card for \$15. Additional instructional fees will be charged for the programs.

For further information, call x3-6245.

Nelson named Sea Grant Fellow

Michael R. Nelson, who recently received the PhD degree in geophysics, has gone to Washington as the MIT Sea Grant College Program's first Sea Grant Fellow.

Dr. Nelson, who is among 19 Sea Grant Fellows selected nationwide, has been appointed to the Subcommittee on Science, Technology and Space, part of the Senate Committee on Commerce, Science and Transportation, chaired by Sen. Ernest F. Hollings (D-S.C.).

As a Fellow, Dr. Nelson will help acquaint subcommittee members with topics that come up in hearings.

"We are the filter that allows them to deal more effectively with the complex information they are exposed to," Dr. Nelson said. "I'll take a 700-page document, for example, boil it down to a few pages, and suggest some questions the senators might want to ask."

A focus of Dr. Nelson's attention in Washington will be the growing ozone hole. As the ozone layer, which is responsible for

screening out harmful ultraviolet rays, deteriorates above the South Pole, some scientists fear the negative effects this change in radiation will have on the earth. Potential problems include an increase in skin cancer and an imbalance in the aquatic food chain caused by the destruction of phytoplankton. Chlorofluorocarbons found in the cooling agents of refrigerators and air conditioners are thought to be the major culprit.

Dr. Nelson will monitor ozone programs and funding already underway and recommend future activity in areas under his subcommittee's jurisdiction.

Projects such as these help acquaint interns with the political processes behind science, according to Norman Doelling, executive director of MIT's Sea Grant. "As one of the few interns with a doctorate and a background in physical science, we think Dr. Nelson's capabilities will provide a unique perspective to the senators he is working for."

Obituaries

Daniel P. Burbine

A funeral Mass was held May 9 in Wilmington for Daniel P. Burbine, an engineering assistant at Lincoln Laboratory, who died May 5. Mr. Burbine was 47 and living in Lexington at the time of his death. He had worked at Lincoln since 1971.

Survivors include his fiancée, Karen Shaw of Lexington; two sons, Daniel P. Jr. of Wilmington and Joseph W. Burbine of Richmond, Va.; his former wife, Marie Peterson Burbine, two sisters and a brother. Memorial contributions may be made to Hospice Care, Inc., 20 Academy Rd., Arlington, MA 02174.

John G. Brangwynne

Word has been received of the April 9 death of John G. Brangwynne, 70, of Belmont. Mr. Brangwynne was a mechanic in Physical Plant from 1949 until his retirement in 1982. He is survived by a daughter, Cheryl.

Alice V. Lundin

Alice V. Lundin of Wakefield, a retired secretary at Lincoln Laboratory, died May 11. She was 80. Mrs. Lundin worked at Lincoln from 1965 until her retirement in 1973.

She is survived by her husband, Emil T. Lundin; a son, Norman E., and a daughter, Irene V. Straghan, all of Wakefield, and a son, David T. Lundin of Winchester. Memorial contributions may be made to the Visiting Nurses' Hospice Care, Stoneham.

James R. Stamper

A funeral was held May 26 for James R. Stamper, 73, of Chestnut Hill, who died May 25. Mr. Stamper was a custodian in Physical Plant from 1963 until his retirement in 1977.

He leaves two sons, George Credie and Calvin Hicks, both of Boston; a daughter, Arlene Jackson of Springfield, and two grandchildren.