

November 20, 1985
Volume 30, Number 20

Faculty meeting

A regular meeting of the faculty will be held today (Wednesday, Nov. 20) at 3:15pm in Huntington Hall (Rm 10-250). Agenda items include:

- Annual Report of the President.
- Faculty Housing: Issues and Some Answers.
- A motion to recommend to the Corporation the establishment of a Master of Science degree in Urban Studies and Planning.
- New Business.

Note: A printed copy of The Report of the President, 1984-85, is included as a pull-out supplement in this week's paper.

You're invited

A community reception for Laurence H. Bishoff will be held Thursday, Nov. 21, at 5pm in the atrium of the Whitaker College-Medical Services Center. Mr. Bishoff who is executive director of the Medical Department, will leave MIT at the end of November to become executive assistant to the president of the Harvard Community Health Plan.

Benefits deadline

Monday, Dec. 2, is the last day to sign up or make changes in benefits for 1986. Applications must be received by then in the Compensation Office, Rm E19-434, or the Lincoln Benefits Office, Rm A-123.

This is the only time each year when MIT personnel can enroll in, cancel or make changes in health insurance; set up a FRAP account; change participation in the Premium Payment Plan, or change their tax-deferral decision in the Retirement Plan for Staff Members.

Those who miss the deadline will have to wait until next November to make changes.

Crafty?

MIT craftspeople—potters, workers in stained glass, weavers, jewelers, woodworkers, quilters, cooks, etc.—are invited to request table space at the expanded Christmas Crafts Fair next month in Lobbies 10 and 13. To sign up, call Mary Miller, x3-5225 or 494-5217 evenings.

Colloquium recap

The Institute Colloquium Committee (ICC) will meet Thursday, Nov. 21, 3-5pm in Rm 10-280 to to reflect upon the recent apartheid forum and to consider future programs.

"The possibilities of this kind of forum are clear," Professor Frank Morgan, ICC chairman, said, "although the next colloquium conceivably could be quite different. This one was political, perhaps the next one won't be."

Members of the community are invited to suggest topics or formats for future colloquia to Professor Morgan at x3-3665 or to Dallas Slawter at x3-6776.

Fast reminder

Thursday, Nov. 21, is the annual "Fast for a World Harvest" day at MIT, during which members of the community will be asked to fast and to donate the money they would have used for meals to Oxfam-America. Contributions will be used for self-help programs locally and for long-term development in the Sahel region of Africa.

Events at MIT are being jointly sponsored by the Chaplaincies and the Hunger Action Committee, which is distributing information and sign-up sheets and receiving Oxfam contributions in Lobby 10.



Governor Michael Dukakis, right, and David S. Saxon, chairman of the MIT Corporation, learn about a robotic hand from graduate student David M. Siegel during the governor's visit Monday, Nov. 18, to the Artificial Intelligence Laboratory. Several state officials and executives from high tech firms accompanied the governor to the lab and more joined him later for lunch at the Sala de Puerto Rico for a discussion of the state's economic future. The governor spent several hours on Monday touring various academic and industrial research sites.

—Photo by Calvin Campbell

Microsystems center to open in renovated Brown Building

The establishment of two offices to manage MIT's growing research program in microsystems has been announced by Professor Joel Moses, head of the Department of Electrical Engineering and Computer Science.

The Microsystems Technology Laboratories (MTL) is charged with operating the new facilities housed in the extensively renovated Building 39. The Microsystems Research Center (MRC) will coordinate the broader MIT microsystems research program.

On December 6, Building 39 will be formally redesignated as the Gordon Stanley Brown Building, honoring one of MIT's outstanding citizens whose career here has spanned more than four decades. Dr. Brown, Institute Professor Emeritus, received his bachelors, masters and doctoral degrees from the Department of Electrical Engineering (now EECS). He

became an outstanding faculty member and headed the department from 1952 to 1959 when he became Dean of Engineering. Dr. Brown placed great emphasis on interdisciplinary approaches to research problems, a concept that influences MIT and the EECS department to this day. The most recent example of this approach is the Microsystems Technology Laboratories, fittingly housed in the building to bear Dr. Brown's name.

Microsystems, said Professor Richard B. Adler, associate head of the EECS Department, "includes VLSI (very large scale integration), microelectronics, submicron structures and the natural applications of these technologies, such as to highly parallel computer systems and special-purpose integrated systems for

(continued on page 8)

South African intern learns hands-on library skills here

By SHARON DAVIS
Staff Writer

Once Maria "Minky" Seromo returns to her native South Africa on December 7, her hazardous mission will begin. Despite probable objections from the government, she aims to reform her country's black library system.

Although she is concerned about possible intervention (black South African students studying in the United States are monitored) she granted this interview to Tech Talk.

Ms. Seromo knows she cannot change the system overnight, so she intends to start small. "I want to begin a children's library in my township," she said. She is from Mamelodi, a black township in Pretoria, with a population of more than 20,000 blacks.

Even with her strong library background,

Ms. Seromo will not be appointed to a position in a predominantly white library. "Blacks in South Africa are not allowed access to white public libraries," she said.

The library in Mamelodi was burned during the 1976 riots. The present black library or "collection" as she calls it, housed in a "hut with a thatched roof is not worth being called a library at all," she said. But she has heard rumors that the Transvaal Provincial Administration, the governing body responsible for black township libraries, plans to rebuild it. She has not been home for a year and a half.

The library's collection includes nonliterary works by such romance writers as Barbara Cartland and Danielle Steel, Afrikanans and English grammar books. "There was no litera-

(continued on page 8)

\$5M Fairchild grant to advance brain science

By CHARLES H. BALL
Staff Writer

The Sherman Fairchild Foundation has awarded MIT \$5 million for a new approach to research in the brain sciences that utilizes computer technology.

MIT President Paul E. Gray said the pioneering five-year program will be an interdisciplinary research effort linking artificial intelligence with the natural and behavioral sciences, most notably neurophysiology and psychology.

Through the new Program in Computational Approaches to the Brain Sciences, he said, scientists will seek to broaden their understanding of the brain, particularly its function as a powerful "information processor."

In thanking the Sherman Fairchild Foundation for its support, President Gray said the newly emerging computational approach to the brain is made possible by the development of increasingly powerful and sophisticated computers. The approach, he added, "promises to bring about pioneering advances in both the brain sciences and the emerging field of artificial intelligence."

Studies in brain science at MIT draw upon the fields of biology, chemistry, physics, psychology, linguistics, various branches of engineering, and computer science. Researchers in recent years have become increasingly convinced that a full understanding of brain function will require not only basic knowledge of the brain's biochemical and biophysical

Symposium on Saturday to probe SDI

"We're going to concentrate on giving the MIT faculty and students basic information on the Strategic Defense Initiative and avoid as much as possible ideological and theological aspects of the debate," Professor Louis Smullin, organizer of Saturday's SDI Symposium, said.

Noting that the daylong event in Huntington Hall (Rm 10-250) on November 23 is but the latest in a series of discussion on the controversial "Star Wars," Professor Smullin said there is at MIT an ability and a need to understand the complexities of this proposed defense system. There are already some SDI-funded research projects on campus, he said, with prospects for others.

The morning session of the symposium—chaired by Provost John M. Deutch—will begin at 9:30 and will be devoted to technical issues of SDI. Speakers and their topics will be:

—"Historical Review of ABM Issues," Alexander Flax of the Institute for Defense Analyses.

—"SDI Systems Concepts," Ashton Carter of Harvard University.

—"Critical Technologies," Richard Garwin of IBM, Hans Mark of the University of Texas and Gerold Yonas of the SDI Office.

In the afternoon session beginning at 2pm, the focus will be social and political issues surrounding SDI development. Professor Smullin who chaired the organizing committee, will chair the afternoon session with the following program:

—"Strategy and Policies Issues," Fred Hoffman of R&D Associates/Panheuristics and Professor Jack Ruina, head of the MIT Defense and Arms Control Studies Program.

—"Personal Perspectives on SDI," Brent Scowcroft, (Lt. Gen, ret., USAF) former National Security Advisor to the President, and Institute Professor Jerome B. Wiesner, former MIT president and White House Science Advisor.

The symposium is open to all members of the community.

United Way drive makes progress

The United Way drive at MIT this year was one of the casualties of Hurricane Gloria. It's solicitors' meeting was scheduled for that day the storm struck and the Institute was closed.

As a result, the solicitors never got the briefing they needed to launch the drive effectively. But there has been a dramatic upturn in returns recently, leading campaign officials to feel optimistic about reaching the \$250,000 goal.

"During the past 10 days, we've gone from 40 per cent to nearly 60 per cent of the goal," Professor Thomas B. Sheridan, drive chairman said. "If we can sustain that giving level for a couple of more weeks, we should have a successful drive."

Campaign coordinator Ann Brazier noted that contributions have come from more than 1,550 members of the community, about a thousand fewer than last year. "Donations by a thousand more members of the community will bring our total right up," she said.

mechanisms, but also an understanding of just what these mechanisms are designed to do.

"The human brain, in a sense, must be viewed as the most sophisticated and powerful 'information processor,'" Dr. Gray said. "It must be understood not only at the level of neurons and synapses, but also at the level of 'programs' it runs and the kind of computation required to run these programs. As an analogy, understanding the circuitry of an electronic calculator would be difficult, and perhaps pointless, without knowing that the device accomplishes certain purposes—in this case, mathematical calculations."

The \$5 million grant, payable over five (continued on page 8)

INSTITUTE NOTICES

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

Announcements

Drop Date - Last day to cancel subjects from registration is November 22. The Registrar's Office reminds students that correction cards will not be accepted without the necessary signature. Obtain your advisor's signature well before the deadline. If your advisor is unavailable, contact your undergraduate office or department headquarters. Freshmen should go to the Undergraduate Academic Support Office, Rm 7-104.

Project Contact - Undergraduates interested in communicating with high school students and guidance counselors about what it's like to be an MIT student are encouraged to join Project Contact. For more contact the Educational Council Office, Rm 4-240, x3-3354.

Information Services Computing Courses and Seminars** - FREE SEMINARS: Text Formatting with GML, Nov 20, 10-12noon, Rm 1-390. VENDOR PRESENTATIONS: A Survey of Database Software for the Macintosh, Nov 22, 9:30-12noon, Rm 1-390. All sessions require 1 week advance registration, Rm 11-315, 9:30-12noon, 1-4pm. Payments due at time of registration. MIT ID required to avoid paying maximum fee. For info, call Joan Bubliski, x3-1744.

Career Planning and Placement Company Recruitment Presentations** - Lord Corporation, Nov 20, 7-8pm, Rm 4-153. Apple Computer, Inc, Dec 4, 5-7pm, Rm 4-153. Management Analysis Center, Dec 5, 4-6pm, Rm 4-370. Morgan Stanley & Co, Dec 5, 7-9pm, Rm 4-149.

Talbot House Applications - For the month of January are now being accepted in the Talbot House Office, Rm 7-103. Application deadline for January is Nov 27. Info: Sharon, x3-4158.

Free Museum of Science Admission for MIT Students - With MIT student ID. There is also a reduced rate for tickets to the exhibit on Chinese Technology, through December 15.

MIT Hunger Drive Food Drive - We need non-perishable, unopened foods for Boston's less fortunate. Ongoing collection all day and night at drop-off boxes in Lobby 7, Walker, McGraw desk.

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

Nightline** - a student-run hotline open every evening of the term, 7pm-1am. If you need information about anything or you just want to chat, give us a call. We're here to listen. x3-7840.

Faculty Members - Technology Review would like to hear about books being published by MIT faculty members. Please notify us, as far in advance as possible, of your upcoming book. Technology Review, 10-140, x3-8250.

Club Notes

WMBR** - is looking for students interested in radio and technical work. Contact Eli Polonsky, x3-4000. Leave name and phone number.

MIT Student Cable Programming Group** - Looking for students interested in programming the MIT Cable Television channels. Contact Randy Winchester, x3-7431.

Tool & Die - MIT's humor magazine, meets every Weds, 7pm, Rm 50-309 (Walker). Everyone welcome.

MIT Filipino Students Association Pot Luck Lunch*** - Nov 23, 12noon, Rm 3-130. To discuss IAP Barrio Fiesta, etc.

Student Center Committee (SCC)** - Has fun every Sunday, 7pm, Student Ctr Center Lounge. Do you? Call x3-3916 anytime for more info.

MIT Student Duplicate Bridge Club* - Bridge games every Sat, 7pm; every Thur, Sun & Mon, 6:30pm, \$.75 entry fee, Rm 407, Student Center. Lessons free w/entry at 6:15pm from Bridge Senior Masters. No partners necessary, all welcome.

MIT/DL Bridge Club* - Duplicate bridge, Tues, 6pm, Student Center Rm 349. ACBL masterpoints awarded; come with or without partner, newcomers always welcome. Special tournaments monthly. Info call Gary Schwartz, x3-2459 Draper, or Mark Dulcey, 272-8428. Admission: \$.75/students, \$1.50/non-students.

MIT Table Tennis Club** - Meets Fri, 8-10pm; Sat, 6pm, T-Club Lounge. Info: Hoang Do, x3-2843.

MIT Go Club** - Meets M/Th, 5-7pm, Rm NE43 3rd flr Playroom. Play the ancient oriental game of skill. Knock to get in if the door is locked.

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 Yoga Club* - Rejuvenate your mind and body with Kundalini Yoga, the science of awareness, M-Th, 5:10-6pm, outside Burton Dining Hall. Beginners welcome. Info: Fred Martin or Jeff Tollaksen, 247-0506 or x3-3157.

MIT Aikido Club** - meets Mon-Fri, 5:30pm, DuPont exercise room. Aikido is a non-competitive Japanese martial discipline. Beginners welcome.

Human-Powered Vehicle Association* - New England Chapter meets Thurs, 8pm, Bicycle Exchange, 3 Bow St. Harvard Sq. Come help plan an HPV workshop for IAP '86.

MIT Outing Club* - Camping, cycling, climbing, canoeing, cabins: meets M/Th, 5-6pm, Student Center Rm 461. Also, see our bulletin board in "Infinite Corridor" next to Athena.

MIT Wu-Tang Club* - teaches northern Chinese kung fu, Tues & Thurs, 8pm, Burton Dining Hall; Sat, 10am, Athletic Center. Beginners welcome. For info call Roger Walco, 262-5090.

MIT Tae Kwon Do Club** - Tae Kwon Do is a Korean martial art. Meetings Sundays, 4pm, T-Club Lounge; Mon-Wed, 6pm, Burton Dining Hall; Fri, 6pm, T-Club Lounge. For info call In Ho Kim, 266-2827.

Scuba Club** - The club sponsors dives throughout the term. Call scuba locker (x3-1551) for info and equipment rentals. For more info contact Dave Summa, x3-6464 or Mike Fox 492-4407.

MIT Guild of Bell Ringers* - meets Mondays, 6:30-9pm, 2nd floor Lobby 7, for change ringing on handbells. We also ring the tower bells at Old North Church. Beginners are welcome. Contact Steve Costenoble, x3-3664 for more information.

Religious Activities

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

Ecumenical OXFAM Service and Supper* - Nov 20, 5:10pm, MIT Chapel. **24 Hour Prayer Vigil: Hungering for Peace and Justice** - Beginning with OXFAM service and ending Nov 21 with Tech Catholic Community Mass, 5:05pm. Info: call x3-2983.

Christian Science Organization at MIT* - Weekly Testimony Meeting, Thurs, 5:45pm, Rm 4-145.

Tech Catholic Community* - Roman Catholic Masses: Sun, 9am, 12noon, 5pm (& 10pm on 12/1, 12/8, 12/15); Weekdays: T/Th: 5:05pm & Fri 12:05pm (except 11/28, 11/29). All Masses in MIT Chapel. Morning Prayer: M-F, 8:15am, Chapel Basement. Advent Prayer Vigil: Tues, 12/3-10/17, 7-8pm, Chapel. Advent Reconciliation Service: Tues, 12/10, 7pm, Chapel. Bible Study: Tues, 8pm, Chaplaincy Library. Chaplaincy Office: x3-2981.

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

MIT Hillel** - Fri, Nov 22: Conservative-Reform Shabbat Services, 5:30pm, Hillel (W2a). Community Shabbat Dinner, 6:45pm, Ashdown House Dining Room; reservations due by Thurs, \$6.50. Gourmet Dessert Soiree, 9pm, Ashdown House Dining Room.

Islamic Society* - Daily prayers, Ashdown House (basement), 5 times a day. Call x5-9749 dorm, for schedule. Friday prayer, Ashdown House 1-1:45pm, Khutba starts at 1pm, congregation at 1:25pm.

Meditation and Discourse on the Bhagavad Gita* - Swami Sarvagatnanda, MIT Vedanta Society, head of Ramakrishna Vedanta Society of Boston, meets Fridays through Dec 13, 5:15pm, MIT Chapel.

United Christian Fellowship** - MIT Chapter of Inter-University Christian Fellowship, weekly meetings: large group for worship and sharing from God's word, Fri, 7pm, Student Ctr Rm 491; small group meetings for Bible Study and support, weekly at different times. For more info, call Chiu-Oan, x5-6123 dorm.

MIT Graduate Christian Fellowship* - Come meet other Christian faculty, staff and grad students, Tech Sq Prayer Meeting, Tues, 1:30-2pm, Rm NE43-368; weekly lunch gatherings, Weds, 11:55-12:55, Student Ctr Twenty Chimneys. For information contact Burt Kaliaki, x3-5866 or Roz Wright, x3-8926. A fellowship group is also meeting in the Sloan School, Weds, 7:30am, Rm E51-307.

MIT Seekers Christian Fellowship* - Park Street Church Seekers Teaching and Worship Time, Sundays, 9:15am, enjoy our biblical teaching, worship and sharing at Park Street Church, right in front of the Park Street T stop. MIT Seekers leave from McCormick at 8:30am. Come join us.

Campus Crusade for Christ** - Family time, 7:15pm, Fri, eves, Rm 37-252. Fellowship, scripture teaching, prayer, singing, refreshments & fun. Tues, prayer time, 7:30-9am, W20-441, Student Center. Call x5-9153 dorm.

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 E17-109, bring lunch. Ralph Burgess, x3-2422. (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, 876-7134 12-9pm or Scott Greenwald, x3-7423.

Graduate Studies

Unless otherwise indicated, contact Dean Jeanne Richard at the Graduate School Office, Rm 3-136, x3-4869 for further information.

The Lady Davis Fellowship Trust. Seniors, graduate students, and those who have recently completed doctoral studies in any field are eligible to apply. Fellowships are tenable at the Hebrew University of Jerusalem and the Technion-Israel Institute of Technology, Haifa. Grants cover tuition, travel and living stipends in Israel. Renewal for a second year is possible. Applications are available in Rm 3-138. Deadline: November 30, 1985.

American Association of University Women Fellowships. **Dissertation Fellowship** - Available to women who will have completed all course requirements and examinations for the doctorate degree except the dissertation by December 31, 1985 and whose degree will be received by the end of the fellowship year. Applicants must be US citizens or hold permanent resident status. Period of Award: 12 months beginning July 1, 1986. Awards: \$10,000. Deadline: December 1, 1985. **For American Women in Selected Professions** - To assist women in their final year of professional training in the fields of law, dentistry, medicine, veterinary medicine and architecture or their final year of a 2-year Master's in Business Administration (MBA program). Period of Award: 9 months beginning September 1986. Awards: \$3,500-9,000. Deadline: December 1, 1985 (February 1, 1986 for MBA applicants). **Postdoctoral Fellowships** - For postdoctoral research for women who hold the doctorate at the time of application. Applicants must be US citizens or hold permanent resident status. Funds may not be used for research equipment, publications costs, travel grants, or tuition for further course work. Period of Award: 12 months beginning July 1, 1986. Awards: Up to \$15,000 and one Founders Fellowship of \$20,000. Deadline: December 1, 1985.

Fulbright Scholar Awards 1986-87. The Council for International Exchange of Scholars (CIES) has announced the opening of competition for the 1986-87 Fulbright scholar awards in research and university lecturing abroad. The basic eligibility requirements for a Fulbright award are US citizenship, PhD or comparable professional qualifications, university or college teaching experience, and for selected countries, proficiency in a foreign language. Application deadlines: Dec 1, 1985 for administrators seminars in Germany, Japan, and the United Kingdom; Dec 31, 1985 for NATO Research Fellowships; and Feb 1, 1986 for the seminar in German civilization, Spain Research Fellowships, and France and Germany travel-only awards. For more information, contact Dean Eugene R. Chamberlain, Rm 5-106, x3-3795.

Alice Freeman Palmer Fellowship for women graduate students sponsored by Wellesley College, for study or research abroad or in the US. Fellows must be 26 or younger at time of appointment, and must remain unmarried throughout her tenure. Stipend: \$4,000. Must be nominated by undergraduate institution. Applications must be postmarked no later than December 1, 1985. Contact Dean Jeanne Richard, Rm 3-138, x3-4869 or write directly to Secretary to the Committee on Graduate Fellowships, Office of Financial Aid, Box GR, Wellesley College, Wellesley, MA 02181 for applications.

Mary McEwen Schimke Scholarship for women graduate students sponsored by Wellesley College, to help financially with child care and household responsibilities. Based on scholarship and need. Candidates must be over 30 and currently pursuing graduate study in literature and history. Stipend: \$500-1,000. Applications must be postmarked no later than December 1, 1985. Contact Dean Jeanne Richard, Rm 3-138,

x3-4869 or write directly to Secretary to the Committee on Graduate Fellowships, Office of Financial Aid, Box GR, Wellesley College, Wellesley, MA 02181 for applications.

M.A. Cartland Schackford Medical Fellowship for women graduate students sponsored by Wellesley College, for the study of medicine with a view of general practice, not psychiatry. Stipend: \$3,500. Applications must be postmarked no later than December 1, 1985. Contact Dean Jeanne Richard, Rm 3-138, x3-4869 or write directly to Secretary to the Committee on Graduate Fellowships, Office of Financial Aid, Box GR, Wellesley College, Wellesley, MA 02181 for applications.

Harriet A. Shaw Fellowship for women graduate students sponsored by Wellesley College, for study and research in music and allied arts in the US or abroad. Candidates must be 26 or younger at time of appointment. Preference given to music candidates; undergraduate work in history of art required for other candidates. Stipend: \$2,000-3,000. Applications must be postmarked no later than December 1, 1985. Contact Dean Jeanne Richard, Rm 3-138, x3-4869 or write directly to Secretary to the Committee on Graduate Fellowships, Office of Financial Aid, Box GR, Wellesley College, Wellesley, MA 02181 for applications.

Robert S. McNamara Fellowships. The World Bank annually offers 12-month fellowships for full time graduate work in fields related to economic development and institution building. Applications are considered from individuals as well as from small groups of up to five persons at the same institution for work on a joint project. Candidates for these grants must be citizens of a World Bank member country, 35 years of age or under, holders of a master's degree or equivalent, and willing to carry out their study in a country other than their own. For more information, contact Dean Eugene Chamberlain, Rm 5-106. Application deadline: December 1, 1985.

Marvin E. Goody Prize. An award of \$5,000 offered annually to a graduate student about to prepare (i.e. expected to be completed not later than September 1986) the SM or equivalent (e.g. M Arch or MCP) thesis in the building arts. The Prize was established by Joan E. Goody in the name of Marvin E. Goody, M Arch '51 (1929-1980), and faculty member (1953-68) to extend the horizons of existing building techniques and use of materials, to encourage links between the academic world and the building industry, and to increase appreciation of the bond between good design and good building. Administered by a committee consisting of John P. de Monchaux, dean, School of Architecture and Planning; William R. Dickson, senior vice-president; David H. Marks, head, Dept of Civil Engineering; Dean Perkins, dean, Graduate School. Applications and additional information available from Jackie Sciacca, Dean of the Graduate School Office, Rm 3-134. Deadline: December 2, 1985. Winner announced on January 15, 1986.

Fulbright Collaborative Research Grants, 1986-87. Designed for teams of 2-3 graduate students or recent post-graduate researchers to perform joint research abroad. Applicants must be US citizens, hold a BA or equivalent before the beginning date of the grant. Those with a PhD at the time of application may have obtained the degree no earlier than June 1983. Applicants are expected to have written and spoken proficiency in the language of the host country. Application deadline: December 20, 1985. For more information, contact Dean Eugene R. Chamberlain, Rm 5-106, x3-3795.

The Business and Professional Women's Foundation's Lena Lake Forrest Fellowship Program and the BPW Foundation Research Grant Program. To support research pertaining to economic, educational, political, social or psychological factors affecting working woman. Awards range from \$500 to \$3,000. Applicants must be doctoral candidates or postdoctoral scholars whose proposal for research has been approved by an accredited graduate institution. Only US citizens are eligible. Application deadline: January 1, 1986.

BeH Laboratories Graduate Research Programs for Women. Provides financial support for outstanding women students pursuing full time doctoral studies in the following fields: chemistry, computer science, economics, electrical engineering, experimental human psychology, materials science, mathematics, operations research, physics, and statistics. The Fellowship Program provides full tuition and fees plus a stipend of \$925/month for the academic year (9 months) plus an allowance for books, fees and related travel expenses. The Grant Program provides an annual award of \$1,500 which the recipient may use during the academic year in any way that benefits her professional development. Fellowships and grants will be renewed on a yearly basis for the duration of the graduate program, provided the student maintains satisfactory progress toward the doctoral degree. Applications must be received by January 15, and all supporting material by January 31, 1986. Two fellowships and four grants are awarded annually in late March for graduate study beginning in September. Applications are usually submitted during the candidate's senior year in college.

The Josephine de Karman Fellowship Trust of Pasadena, Calif. Twelve fellowships of \$3,000 each for the regular academic year (fall and spring semesters, or the equivalent where the quarterly system prevails) paid through the office of the university in which the candidate will be enrolled for study in the US. Study must be carried out in the US and all funds must be expended only within this country. Students in any discipline who are entering their senior undergraduate year or graduate students entering their third year or after of graduate school in the fall of 1986 are eligible. Postdoctorate students are not eligible. Special consideration will be given to applicants in the humanities. Foreign students already enrolled in a university located in the US are eligible. Tenure is for one academic year and is not renewable. Travel expenses are not included. For information and application forms, write to: Fellowship Committee, ATTN Miss B.J. Brown, Secretary, Josephine de Karman Fellowship Trust, PO Box 446, La Verne, CA 91750 or before January 15, 1986. Announcement of awards will be made during April 1986.

US Navy Office of Naval Research Graduate Fellowships. Approximately 45 three-year Fellowships available for 1986-87, awarded for study and research in the following nine disciplines: electrical engineering, computer science, naval architecture and ocean engineering, materials science, applied physics, aerospace/mechanical engineering, life sciences and mathematics. These renewable fellowships have a 12-month tenure and pay full tuition and fees plus a stipend of \$13,000. Applicants must be US citizens who will receive their baccalaureate degree in 1986. Deadline: January 31, 1986. For applications, write: American Society for Engineering Education, 11 Dupont Circle, Suite 200, Washington, DC 20036.

Walter S. Barr Fellowships. Awarded by the Horace Smith Fund for advanced study or research. Fellowships are limited to residents of Hampden County, MA, who have been or about to graduate from college. Candidates should be preparing for careers of "definite social usefulness," such as careers in politics or scientific research. The GRE Aptitude or other appropriate professional school aptitude test is required of applicants. Minimum award is \$1,500. Deadline: February 1, 1985. Apply to: The Secretary, The Horace Smith Fund, Box 3034, Springfield, MA 01101.

Howard Heinz Endowment Office Research Grants on Latin American Issues. To interdisciplinary teams with at least one political scientist and/or economist. Also, one team member must be based at an institution located within the Commonwealth of Pennsylvania. Information and applications: Marty Muetzel, Howard Heinz Endowment, 301 Fifth Ave, Pittsburgh, PA 15222, 412-391-5120. All applications must be submitted no later than February 14, 1986; awards announced by July 1, 1986.

Armenian General Benevolent Union (AGBU) Hirair & Anna Hovnanian Fellowships - two fellowships, each in the amount of \$3,000 given annually to assist Armenian-American students specializing in government, international affairs, or international law. Applicants must be graduate students with high academic standing. Written requests for application forms must be submitted to the Armenian General Benevolent Union, 585 Saddle River Rd., Saddle Brook, NJ 07662 (tel: 201-797-7600) by February 15. Decisions will be communicated to the applicants during July.

Book sale to return

After an absence of three years the MIT Press Book Sale—augmented by the Yale University Press—will return to the Sala de Puerto Rico December 5-7.

Altogether more than 30,000 books published by the two presses will be discounted up to 90 per cent. The selection will include hundreds of titles in art, architecture, philosophy, linguistics, economics, urban studies, humanities, engineering, science and social science. Also available will be MIT Press journals.

Hours for the sale will be Thursday and Friday, Dec. 5 and 6, 10am-9pm, and Saturday, Dec. 7, 10am-4pm. The best selection will be available at the beginning of the sale, but the bargains will improve as the sale progresses. Payment by MasterCard, VISA, traveler's check, personal check or cash will be accepted.

Other Opportunities

Mellon Fellowship Program, 1986. The Program in Science, Technology and Society at MIT invites proposals from scientists, engineers, and physicians for several one year study fellowships on the relationships of science, technology, or medicine with society. PhD or equivalent in science or engineering is desirable. partial or full stipend. For more information write: Deborah Wilkes, Mellon Fellowship Committee, Rm E51-128. Deadline: February 1, 1986.

Student Jobs

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

Student needed to tutor in electrical drawings, diagrams, blueprints and schematics. Hours and salary negotiable. Joy, x3-4962.

Data entry person needed for general typing. Hours are flexible; salary dependent on skill. Contact Andrew Hamilton, 497-4847.

Emerging high-tech spinoff in the field of building automation systems for R&D labs seeks bright aggressive student to assist in the design, testing and construction of some new electronic air-flow control products. EE, MechE, or Aerospace with knowledge or experience with analog electronics in simple control systems. Fluid dynamics or flow transducer knowledge a plus. Hours are 20+/wk; salary competitive. Contact: Ann Connell, IMEC Corporation, 93 Mass Ave, Boston, MA 02115, 266-8405.

Draftsman/apprentice lighting designer for architects specializing in lighting design. We will train in lighting design. Hours are 15-30/wk, flexible. Salary is \$5-7/hr, depending on experience. Contact D. Schweppe, Rippman Lighting Consultants, (on bus line from Harvard Sq), 489-3366.

Student programmers needed for a systems integrator company. Programming experience in "C" a must, VAX/VMS desirable. Juniors, seniors or grad students accepted. Hours are 15/wk, with full-time potential for holidays and summer 1986. For more information, inquire at the Student Employment Office.

UROP

MIT and Wellesley undergraduates are invited to join with faculty members in pursuit of research projects of mutual fascination. Undergraduates are also urged to check the Undergraduate Research Opportunities Program's bulletin boards located in the main corridor of the Institute and in the UROP Office. Faculty supervisors wishing to have projects listed should send project descriptions to the UROP Office. Questions? Contact us, x3-5049, Rm 20B-141.

Construction Automation and Robotics. Phase I: The "Wallbot." We are currently investigating automation of construction processes. This position is part of a project involving the design of a computer numerical controlled (CNC) autonomous machine for framing walls (installing the framing for interior walls in large buildings). UROP opportunities to work as part of the team in developing this unique robotic device include: identification and testing of fastening systems, analysis of designs using CAD solids modeling and finite element analysis, cost benefit analysis to determine the level of automation required, development of a microprocessor based machine controller hardware and software, and machine vision systems. Positions are available in all of these areas. Appropriate background and/or interest required. PAY or credit. Faculty supervisor: Alex Slocum. Contact: Laura Demsetz, x3-8011, Rm 1-143.

Computer Interfacing of Instruments in Biochemical Engineering Laboratory. Three instruments: a Coulter counter, a fluorometer and a spectrophotometer are to be interfaced with a microcomputer. The coulter counter emits a voltage pulse in proportion to the size of the cell passing through the detection mechanism. About 5000 pulses per second must be recorded and sorted according to amplitude in order to determine the cell size distribution. The spectrophotometer and fluorometer have RS232 interfaces. The UROP student must write the software necessary to carry out enzyme kinetics measurements (and associated graphics) with these instruments. Microcomputer experience highly desirable. Faculty supervisor: Dr. Greg Stephanopoulos. Contact Ron Grosz, x3-6591 or leave message with faculty supervisor's secretary in Rm 66-552.

Computer Modelling and Computer Aided Correlation Projects. Projects available to students of any year with interest in working with PCs and mainframe computers. The projects pertain to fuels research. Students in chemical engineering, mech engineering, computer science, and chemistry are most appropriate for the work. If interested, see faculty supervisor Jack B. Howard, x3-4574, Rm 66-454 or Glen Ko, x3-6535, Rm 66-053.

Conductivity and Surface Oxides in Amorphous Silicon for Solar Cell Applications. UROPer will carry out a study of the effect of surface layers on amorphous silicon electrical conductivity. This could be an excellent thesis opportunity for a Course 3, 6 or 8 senior interested in semiconductors because the study could be completed during IAP and the spring term. Juniors now taking 6.150 may also apply. PAY or credit. Faculty supervisor: Dr. John S. Haggerty. Contact: Howard Branz, x3-8478, Rm 12-084.

TECH TALK



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Dr. Irving M. London was honored at a symposium held earlier this month to commemorate his retirement as director of the Harvard-MIT Division of Health Sciences and Technology (HST). More than 20 graduates of the program—many of whom are now on medical school faculties—presented papers at the symposium. Others submitted remembrances for a bound volume which was presented to Dr. London by Dr. Roger Mark, left, and Dr. Richard Kitz, new directors of the program. Dr. London chaired the planning committee for what became HST and was named its director when it was established in 1971.

—Photo by Calvin Campbell

Alumnus' film debuts in Boston

By CHINA ALTMAN
Staff Writer

The quality of mystery in a movie is usually communicated through standard devices such as partial-revelations carefully juxtaposed and selections from the richly available spectrum of eerie music. But most of all, if it's a mystery the light will either be diffused—murky, dim, misty—or made so harsh that it becomes cartoon-blattant.

In his first feature movie, *Return*, now playing at Sack Cinema Copley Place in Boston, MIT alumnus Andrew Silver has departed from several film conventions. But most of all he tells the story of a profound mystery, with elements from the world of the supernatural, by placing it within a radiant light. There is a sense that he not only told this story—he befriended it.

The film is a love story and a mystery thriller. Mr. Silver, who received his SB in industrial management from MIT in 1964 and his SM in the same field in 1967, was producer, writer and director.

Throughout, he achieves a quality of radiance, fully realized even in the first second when the movie opens on a woodland scene of autumn leaves and a rushing rocky stream of water. These images could have been commonplace except for an immediate double-layered perception of real and surreal life.

It comes about through the film's extraordinary quality of clarity and super-nearness, conveyed not only through the lighting, which brings a special intensity to the colors, but through Silver's approach to the story.

He adapted it from a 1973 novel by Donald Harrington, *Some Other Place, The Right Place*, dealing primarily with reincarnation.

In the movie, a young woman played by Karlene Crockett learns about a young man who, when hypnotized, takes on the personality of her grandfather, killed years ago in an unsolved murder.

Much of the movie was filmed at the Quabbin Reservoir in Massachusetts. Though the New England scenery is fully as beautiful as anyone would expect it to be, it never becomes folksy or quaint.

As remarked by Michael Blouen in *The Boston Globe*, *Return* is "notable for its lack of sexual and violent exploitation."

In one scene the young man (John Walcutt)

is standing under a woodland waterfall, dressed only in his (old-fashioned) boxer shorts. The audience sees the young woman as she comes upon this scene and as she decides to begin undressing to join him.

There is delicacy in the subtle revelation of the awkwardness felt by the characters. It is a nude scene so authentic that it stays in the memory later as a contrast to all the other typical movie nude scenes, now seeming even more mannered and artificial than they appeared to be before.

Mr. Silver has said that the movie was a "labor of love" for all the people involved.

Even the music was remarkable for what it did and what it avoided; only later does the viewer realize that it never "did" a single thing except to be an integral part of telling the story.

It was co-composed by Ragnar Grippe of Stockholm and Michael Shrieve of Santana, known as one of the most gifted drummers in rock music.

Mr. Silver has been invited to bring *Return* to the Florence Film Festival in early December. It already has won awards at a number of festivals, including: Best Film (Philadelphia), Best Actor (John Walcutt) at the Sitges, Spain Festival, Best Use of Music in Film (Belgium), Silver Award (Houston), and Gold Award (Virgin Islands).

After leaving MIT in 1967, Mr. Silver spent the next five years teaching film at Brandeis University. He then returned to his studies, receiving his doctor of business administration from Harvard in 1975. At Harvard he continued his research in organizational psychology and temporary systems, particularly as these relate to the process of filmmaking and computer programming.

A native of Dallas, he now lives in the Back Bay of Boston with his wife, producer, writer and editor Yong-Hee Silver, who has collaborated with him on several documentaries. Two of their short films for the WGBH New Television Workshop were adaptations of short stories by Kurt Vonnegut and Ray Bradbury.

Mr. Silver stays in close touch with MIT through his membership in the Council for the Arts, made up of alumni, friends and individuals appointed by the president for three year terms in consideration of their demonstrated scholarship, creativity or distinguished service to the arts.

German, Spanish students to give plays

Unusual opportunities are offered this weekend for those who may wish to have some direct experience of the German or Spanish languages.

Plays in both languages will be presented by students of the new drama workshops offered this term by the Foreign Languages and Literatures Section of the Department of Humanities and Social Sciences.

Students of the German Drama Workshop will present a fully staged version of Bertolt Brecht's *Leben Des Galielei* in German Friday through Sunday, Nov. 22-24, at 7:30pm in Kresge Little Theatre.

Students of the Spanish Drama Workshop will present a *cafe teatro* production of *El Arquitecto y el Emperador de Asiria* by Fernando Arrabal, Friday, Nov. 22, at 8pm in the Mezzanine Lounge of the Student Center.

The German workshop is taught by Michael Geisler, assistant professor of German and the Spanish workshop by Manuel Delgado, assistant professor of Spanish.

Residents of Spanish House and its tutor, graduate student Maria Elana Lara '84, have collaborated with Professor Delgado to produce Arrabal's play. Ms. Lara said the decision to present it as *cafe teatro* was made to give the audience a chance for both a cultural and social experience of the drama.

The Spanish Drama Workshop will also present three one-act plays on December 6 in

the same setting.

For the Brecht play donations of \$1 from students and \$2 from all others will be requested. An English summary will be provided.

Refreshments will be served for the Arrabal play and donations will be accepted.

Siler wins Fulbright

Todd L. Siler, a PhD candidate in arts history and psychology, has been awarded a Fulbright Graduate Student Program grant to study in India during the 1985-86 academic year.

He will conduct his research project, "A Philosophical and Visual Arts Study of Symbolism and Allegory in Buddhist and Hindu Art," with affiliation with the University of Madras in India.

Mr. Siler received a BA degree from Bowdoin College in 1975 in art history and studio arts. During that time, he was an exchange student at Smith College from January 1973 to June 1974. In 1981, he was graduated from MIT with an SM degree in visual studies. He expects to complete his PhD in June 1987.

Mr. Siler was a consultant at the Diapulse Corporation, Great Neck, N.Y., in 1974, and created artwork for the Martex Textile Company in New York in 1979. He also holds patents for an artists' canvas-stretching device and textile machinery for patterning and printing processes.

Getty makes grant to CMRAE

The J. Paul Getty Trust of Los Angeles has made a \$75,000 planning grant for a research project on the art and artifacts of pre-Columbian America and precolonial Africa to be carried out by the Center for Materials Research and Ethnology (CMRAE).

Announcement of the award was made by Professor Heather Lechtman, director of CMRAE, which is housed at MIT. Professor Lechtman will act as coordinator and general advisor to the project entitled "Style in Art and Technology: Pre-Columbian America and Precolonial Africa."

"We are delighted that the Getty Trust is providing this generous support," Professor Lechtman said. "The grant will be used to design the research activities of two teams of investigators. One group will address the manufacture and use of art and artifacts within specific societies of precolonial Africa; the other the pre-Columbian production of such items in the Andes and Mexico. We expect the project to develop over the next three or four years, during which we hope for continued support from the Getty Trust."

The grant was made because the project advances a major goal of the Getty Trust: the critical reexamination of the meaning of art in cultures past and present, according to Susan Bandes, Getty Grant Program officer.

"Through its combination of scientific analysis of material objects with historical and ethnographic research this project is of interest to two operating programs, the Getty Center for the History of Art and the Humanities and the Getty Conservation Institute," she said. She noted that this is the first grant to MIT from the Getty Trust.

The research will combine the methodologies

of archaeology, anthropology, art history and materials science, applying them to archaeological or ethnographic artifacts produced by non-Western societies. The project will explore the concept of technological style in the art and material culture of specific societies.

Heading the research teams will be Susan Terry Childs and Dorothy Hosler, research fellows at CMRAE. Both have training in materials analysis as well as in anthropology and archaeology. Ms. Childs, a doctoral candidate at Boston University, will head the Precolonial African investigation, while Ms. Hosler, a doctoral candidate at the University of California, Santa Barbara, will lead the Pre-Columbian effort in the Andean area and in Mexico.

Each team will include an archaeologist, an art historian, and a scholar from the host country whose collections are under study. Museum collections will be the focus of the study but contemporary production will be investigated as well.

Research methods will emphasize laboratory examination of artifacts to enable reconstruction of their technological histories; ethnographic study of contemporary communities of artists/artisans working in the areas that produced the items; ethnohistoric archival documents pertaining to the producers, and art historical investigation.

Established in 1977, CMRAE coordinates laboratory and teaching facilities of eight participating institutions in the Boston area. In addition to MIT, they are Boston University, Brandeis University, Harvard University, the University of Massachusetts at Boston and Amherst, Boston Museum of Fine Arts, Wellesley College and Tufts University.

Basketball teams to visit Chicago

By KEN CERINO

Sports Information Director

For the first time ever, both the MIT men's and women's basketball teams will visit Chicago together when they compete in the University of Chicago Coed Tournament on Friday and Saturday, Nov 29-30.

The MIT Club of Chicago will host a reception for the teams Friday evening at the University of Chicago Faculty Club. Also attending will be prospective MIT students and their parents from the Chicago area. The event is being arranged by Lanier Leonard '80.

MIT's men will play host Chicago in the first game of the tournament at 1pm Friday followed by the MIT-Chicago women's contest at 3. The other teams in the tournament are the University of Rochester and Washington University of Missouri. The consolation and championship games will be held on Saturday.

"This promises to be an exceptional college athletic event," said MIT athletic director Royce N. Flippin, Jr. "I share the enthusiasm of my fellow athletic directors as well as the coaches and students as we prepare for this exciting coeducational basketball tournament."

MIT's men's team has four starters back from last year's 7-16 squad led by forwards Mike McElroy (Watsonville, Calif.) and Craig Poole (Exmore, Va.), two of the better Division III players in New England. McElroy, a 6'6" junior, led the Engineers in scoring (15.3 average), rebounding (7.6), and field-goal percentage (51.1) while Poole, a 6'0" senior, was second in scoring with a 14.0 average. Poole, by the way, needs only 132 points to reach the coveted 1,000 mark.

Also returning are senior starting guards Randy Nelson (Buffalo, N.Y.) and Jim Egan (Providence, R.I.). The 6'3" Nelson was the team's MVP last season after averaging 11.6 points and 4.7 rebounds while shooting 48% from the floor. Egan, meanwhile, had a team-high 75 assists.

Others to watch are 6'6" sophomore center Bruce Mihura (Stillwater, Okla.), 6'1" junior

forward Evan Pratt (Paris, Ill.), and 5'11" sophomore guard David Evans (Guilford, Conn.). Mihura averaged 6.2 points and 7.3 rebounds, and set a school record for blocked shots (40) despite playing in only 15 games last year. Among the top freshmen are Doug Cornwall (New York, N.Y.), a 6'3" guard/forward, and Jarrod Fraser (Carson, Calif.), a 6'2" guard.

"I think we're going to be a much-improved team," said MIT coach Fran O'Brien. "Our top seven players are back and I think Mike McElroy is going to have a tremendous season if the first two weeks of practice are any indication."

"The quality of our schedule continues to improve with the addition of New York University and the Chicago Tournament. We feel this tournament is a very positive and rewarding experience for the coaches and players, and we're looking forward to participating in this fine event."

MIT's women's team, coached by Jean Heiney, has nine letterwinners back from last year's 12-10 squad, including co-captains Grace Saccardo (Wrentham, Mass.) and Martha Beverage (Pittsfield, Maine).

Saccardo, a 5'8" senior guard, was the team MVP last year after averaging 7.5 points while handing out 105 assists. Beverage, a 5'6" junior guard/forward, was third in scoring with a 9.5 average.

Also expected to see considerable action are veteran guard Stacy Thompson (Katy, Texas), and forwards Helena Cragg (Bronx, N.Y.), Irene Gregory (Westminster, Md.), and Julie Brown (Warwick, R.I.). Senior Elizabeth Williamson (Waldoboro, Maine), junior Judy Maurant (Framingham, Mass.), and sophomore Darlene Dewilde (Malverne, Penn.) will share the center position.

"I think we'll win our share of games this season," said Heiney. "We have five first-year players who I think will make a contribution. As for the Chicago Tournament, this is an excellent opportunity for us to compete outside the Boston area with teams who have similar athletic philosophies."

Humanities to name Burchard Fellows

A new award has been established to recognize outstanding accomplishment in the humanities and social sciences by undergraduates pursuing careers in science and engineering.

Dean Ann F. Friedlaender of the School of Humanities and Social Sciences said the Burchard Scholar Awards, named after the school's first dean, will go to 10 to 15 students

each year who have demonstrated unusual abilities and academic excellence in the areas embraced by the school.

The Burchard scholars will be invited to a series of monthly dinners at which an MIT faculty member, visiting scholar or Burchard Scholar will present work in progress, followed by a discussion. This "intellectual feasting," Dean Friedlaender said, will allow both students and faculty a greater chance to mix and will give students, especially, an opportunity to engage in the kind of intellectual exchange that characterizes scholarship in the humanities and social science. The emphasis throughout will be interdisciplinary, she said.

The program will begin in the spring term, with the selection of the first Burchard scholars based on nominations made by faculty members in the School of Humanities and Social Science. Although the selection committee will entertain nominations from all undergraduate classes, preference will be given to juniors. Students will be notified before the end of the current term.

For the first year, Professors Bruce Mazlish and Philip S. Khoury of the History Faculty will serve as coordinators of the program.

SMPTE cites Schreiber

Dr. William F. Schreiber of electrical engineering, was awarded the 1984 Journal Award for a television article entitled "Psychophysics and the Improvement of Television Image Quality" that appeared in the August 1984 issue of the SMPTE (Society of Motion Picture and Television Engineers) Journal.

He received the award at SMPTE's 127th Technical Conference and Equipment Exhibit held in Los Angeles.

Dr. Schreiber, who won his first SMPTE journal award with coauthors Christopher F. Knapp and Norman D. Kay in 1960, is director of the Advanced Television Research Program (ATRP) at MIT. The ATRP, which is funded by 10 American TV broadcasting companies and suppliers of TV broadcasting equipment, conducts research in a number of areas relating to the improvement of television systems.

THE INSTITUTE CALENDAR

November 20-December 8

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.

MISS THE TECH TALK DEADLINE?

Put your announcement on the MIT Cable System. "Today at the Institute" runs 24 hours a day and can be viewed in Lobby 7, Lobby 10 and anywhere the cable is connected.

Simply submit announcement in writing to Rm 9-030. We prefer a day's warning, but faster action may be possible. Useful also for correcting errors, notifying about cancellations, and dealing with emergencies.

Note: If you have met the Tech Talk deadline, your announcement is automatically put on cable (except for exhibits and some multimeetings programs).

Events of Special Interest

Strategic Defense Initiative/"Star Wars" Symposium* - Office of the Provost/Defense and Arms Control Studies Program Symposium, Sat, Nov 23, 9:30am-5:30pm, Rm 10-250. Morning Session, chaired by John Deutch, MIT; **Historical Review of ABM Issues** - Alexander Flax, Institute for Defense Analyses; **SDI Systems Concepts** - Ashton Carter, Harvard University; **Critical Technologies** - Richard Garwin, IBM; Hans Mark, University of Texas; Gerold Yonas, SDI Office; Afternoon Session, chaired by Louis Smullin, MIT; **Strategy and Policy Issues** - Fred Hoffman, R&D Associates/Panheuristics; Jack Ruina, MIT; **Personal Perspectives on SDI** - Brent Scowcroft, former National Security Advisor; Jerome Wiesner, MIT; and TBA.

Nu Delta Dance Marathon for Muscular Dystrophy** - Sat, Nov 23, 2pm-2am, Walker Dining Hall. Pick up fundraising forms in Lobby 10, Nov 12-22.

UNICEF Card Sale* - Technology Community Association Sale of Chanukah, Christmas and note cards, through Dec 6, 10am-3pm, Lobby 10. All proceeds donated to UNICEF.

Cross-Cultural Events

Solubility of Solids in Supercritical Fluids* - Dr. Ronald Koningsveld, Dutch State Mines, The Netherlands, lecturer for Polymer Seminar Series, composer of polymer music, Program in Polymer Science and Technology, Nov 20, 1:30pm; **Music Program**, works by Koningsveld, Staudinger March, and **Polymer Music: A Suite for Two Pianos**, pianist Prof Walter Stockmayer, Dartmouth College, 3:30pm, Kresge Auditorium. Refreshments served, 3pm.

Seminars and Lectures Wednesday, November 20

Picosecond Career Density and Light Output Dynamics of Modulated Diode Lasers** - B. Johnson, MIT, EECS/RLE Seminar on Optics and Quantum Electronics, 11-12noon, Rm 36-428.

East Meets West: How Research is Conducted in Japan and the US** - Prof D. Eleanor Westney, PhD, Sloan School of Management, Mitsubishi Career Development Chair in International Management, Personnel Office/Provost's Office/Sloan School of Management "Perspectives" Lecture, 12-2pm, Rm E25-111.

Coherent Structures in Baroclinic Atmosphere: A Theory and Comparison with Data* - Paola Malanotte-Rizzoli, MIT, Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.

Jewish Lab: Jewish Conversation** - Rabbi Dan Shevitz, MIT Hillel Seminar, 1-2pm, Hillel, W2a.

Some Aspects of Energy Efficient Buildings in Switzerland* - Yurgen Blaich, visiting scholar from the Swiss Institute for Material Testing and Research, Swiss Federal University, Zurich, Joint Program for Energy Efficient Buildings and Systems Seminar, 1-2pm, Rm 1-214. Bag lunches welcome.

Non-Stationary Response of Vehicles Traversing Rough Roads* - Prof S. Narayanan, Indian Institute of Technology, Madras, Mechanical Engineering Special Seminar, 3pm, Rm 3-442.

The Dynamics of Large-Scale Continental Deformation** - Prof Philip England, Dept of Geological Sciences, Harvard University, Dept of Earth, Atmospheric, and Planetary Sciences Colloquium, 4-5pm, Rm 54-915. Tea served, 3pm, Rm 54-923.

Work Transfer, Heat Transfer and Irreversibilities in Gas Turbines and Their Cycles** - Prof Maher El-Masri, MIT, Dept of Mechanical Engineering Thermodynamics Seminar, 4pm, Rm 1-114. Coffee served, 3:30pm.

Elastic Solids with Many Cracks, and Crack Damage Interactions* - Prof Mark Kachanov, mechanical engineering, Tufts University, Constructed Facilities Division Seminar, 4-5pm, Rm 1-350. Refreshments served, 3:30pm.

Grain Boundary Melting Transition in a Molecular Dynamics Simulation Model** - Tue Nguyen, PhD candidate, Radiation Science and Technology Doctoral Seminar, 4pm, Rm 24-121.

The Atomic Simulation of Bain Transformation** - Horngming Hsieh, PhD candidate, Radiation Science and Technology Doctoral Seminar, 4pm, Rm 24-121.

To Nairobi and Back** - Preparation and Participation of the US Delegation - Margaret Gale, staff consultant, Committee on Foreign Affairs, House of Reps; **International Dialogue: Enacting and Unprecedented Resolution on Family Violence** - Lois Harrington, asst attorney general, Justice Dept; **The Unique Concerns of Refugee Women: Feedback from the Conversation Group on Refugees** - Donna Alvarado, director, ACTION; **The Women and International Development Component of the Nairobi Conference** - Sarah Tinsley, acting asst administrator, Bureau of External Affairs of the Agency for International Development. Joint Harvard-MIT Women in International Development Seminar, 4:30-6:30pm, Student Ctr Mezzanine Lounge.

Japanese Identification of Technical Leverage Points for Their Competitive Advantages: Japanese Success through Technical Innovation* - Dr. George Kenney, director to Collegium, MIT Japan Science and Technology Program, 5:30pm, Student Ctr Center Lounge.

India in the 21st Century: Policy, Technology and Economy* - K.S. Bajpai, Indian Ambassador to US; N. Krishnan, India's permanent representative, UN; James Manor, visiting professor, Harvard University; Prof Raj Reddy, director Robotics Institute, Carnegie-Mellon University; S. Swamy, visiting professor of economics, Harvard University; J.S. Bajjal, special secretary, Planning Commission, Govt of India and senior fellow, Harvard Center for International Affairs; moderator Prof Roderick MacFarquhar, Harvard University, SANGAM (MIT Indian Students Association) Festival of India Symposium, 7pm, Rm 10-250. Reception dinner with speakers, 5:30pm, Student Ctr West Lounge.

Thursday, November 21

Optical Technology and Computer Communications** - Robert W. Lucky, executive director, Research, Communications Sciences Division, AT&T Bell Laboratories, Laboratory for Computer Science Seminar, 3:30pm, Rm 34-101. Refreshments served, 3:15pm.

Molecular Spectroscopy and Gravitational Collapse** - Prof Paul Ho, Harvard University, Physics Colloquium, 4pm, Rm 26-100. Refreshments served, 3:30pm, Rm 26-110.

Past Imperfect: Predicting Future Criminal Records from Existing Ones** - Arnold Barnett, MIT, Operations Research Seminar, 4pm, Rm E40-298.

Macromolecular Drug Release from Biodegradable Poly-anhydride Microspheres** - Dr. Edith Mathowitz, MIT, Dept of Applied Biological Sciences Seminar, 4-5pm, Rm E25-202.

Software Dissemination: First Sale and Shrink-Wrap Licensing* - David Waterman, Annenberg School of Communications, University of Southern California; Robert Bigelow, Bigelow and Saltberg; Robert McEwen, Boston College, MIT Communications Forum, 4-6pm, Rm E15-070.

L'Espace Dans L'Oeuvre d'Henri Matisse* - Christophe Lecuyer, Ecole Normale Supérieure, Paris, Foreign Languages and Literatures Section Lecture/Slide Show, 4pm, Rm 4-249.



Sculptor Carol W. Keller and painter Kathleen Soles whose two-person exhibition, Red Weights, opens tomorrow (Nov. 21) with a 5-7 pm reception at the MIT Museum, 265 Mass Ave. Both artists belong to Boston's Fort Point artists community and both support themselves by working for the MIT Libraries. Ms. Keller, who is in the cataloging office, currently works in low relief, modeling her images in clay which is then cast in hydrocal, sealed and painted in oils. Ms. Soles, who is in the Rotch Visual Collections, will be represented by paintings, drawings and monoprints. The artists met at MIT and discovered an affinity in their art. MIT Museum curator Joan Loria described their work as "very dynamic and powerful." She said, "I was deeply impressed by their professionalism. Both of them work for many hours every day in their studios. The fact of their having to earn a living hasn't diminished their commitment in any way." The exhibition is funded in part by the Council for the Arts at MIT and the St. Botolph Club Foundation.

-Photo by Calvin Campbell

Emigration, Old-Age Pensions, Child Default and Fertility* - Prof Jeffrey G. Williamson, Harvard University, MIT-Harvard Research Seminar on Migration and Development, 4-6pm, Harvard Ctr for Population Studies, 9 Bow St.

Experiences with Strobe Lights* - Harold E. Edgerton ScD, MIT Institute Professor Emeritus, Electrical Engineering and Computer Science, Biomedical Engineering Seminar-HST 590, 4:10-5:30pm, Rm E25-117. Refreshments served, 4pm.

Forming Comparisons (Nouns, Adjectives, Qualifiers)** - Writing and Communication Center English as a Second Language workshop, 4:15-5:15pm, Rm 14N-317.

Retinal Function: New Insights from Pharmacology* - John Dowling, prof of cellular and developmental biology, Harvard University, Psychology Dept Colloquium, 4:15-6pm, Rm E25-111.

Everyday Forms of Peasant Resistance* - Prof James Scott, political science, Yale University, MIT History Faculty lecture, 4:30-6:30pm, Rm E51-020. Of special interest to history majors and concentrators.

Economic Conversion: Toward Disarmament and Economic Renewal* - Prof Seymour Melman, industrial engineering, Columbia University, MIT Student Pugwash/Bay State Center for Economic Conversion Seminar, 8-9:30pm, Rm 34-101. Reports on economic conversion in Quincy and Cambridge will be given; \$1 donation requested.

Friday, November 22

Mirror Research Program in Japan* - Dr. Kawabe, University of Tsukuba, Plasma Fusion Center Seminar, 11am, Rm NW17-218. Refreshments, 3:45pm.

Computer-Based Planning and Control of Transportation Systems* - Richard A. Murphy, PhD, president, Optimal Decision Systems, Center for Transportation Studies Luncheon Seminar, 12:45-2pm, Student Ctr Mezzanine Lounge. Optional luncheon, 12-12:45pm. Luncheon fee: \$2/students; \$4/non-students.

Surface Interactions in Cellulose Hydrolysis by C. Thermocellum and its Cellulase Complex** - Noubar Afeyan, Chemical Engineering Seminar, 2pm, Rm 66-110.

Statistical Mechanics of Small Systems: Drops and Pores** - Prof Keith Gubbins, director, Dept of Chemical Engineering, Cornell University, Chemical Engineering Seminar, 3pm, Rm 66-110.

Instability and Turbulence in Combustion** - Prof Forman Williams, Robert H. Godard Professor, Mechanical Aerospace Dept, Princeton University, Mechanical Engineering Seminar, 3pm, Rm 3-133. Refreshments follow, Rm 1-114.

Technical Issues of SDI* - Dr. Kosta Tsipis, principal research scientist, MIT Program in Science and Technology for International Security, Plasma Fusion Center Seminar, 4pm, Rm NW17-218. Refreshments, 3:45pm.

Transient Growth of Damped Baroclinic Waves** - Brian Farrell, Center for Earth and Planetary Physics, Harvard University, Center for Meteorology and Physical Oceanography Seminar, 4pm, Rm 54-915.

Self-Deception and the Nature of Mind* - Prof Mark Johnston, Princeton University, Dept of Philosophy and Linguistics Seminar, 4pm, Rm 37-212. Advance copy of paper on file in Philosophy Library, Rm 20B-217.

Monday, November 25

Revising Your First Draft** - Writing and Communications Center Writing a Paper mini-session, 12:30-1pm, Rm 14N-317.

Contribution to the Study of Metallic Structures Under Mechanical and Cyclical Thermal Loading** - Prof Jean-Francois Jullien, Institut National des Sciences Appliquées de Lyon, Dept Genie Civil et Urbanisme, Laboratory Concretes and Structures, Villeurbanne, France, Dept of Nuclear Engineering Seminar, 1:30-3pm, Rm 1-350.

Cellular Automata and the Complexity in Nature** - Prof S. Wolfram, Institute for Advanced Study, Princeton, NJ, Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments served, 3:30pm, Rm 2-349.

Anthropogenic Lead in the Sargasso Sea** - Prof Ed Boyle, MIT Dept of Earth, Atmospheric and Planetary Sciences, Civil Engineering Division of Water Resources and Environmental Engineering Seminar, 4pm, Rm 48-316.

A Dynamic Model for the Stock Market* - Prof Robert M. Fano, MIT, Electrical Engineering and Computer Science Colloquium 4pm, Rm 34-101. Refreshments served, 3:30pm.

An Evaluation of the Thermal Storage and Heat Pump Systems at the Massachusetts State Transportation Building: A Thesis Review* - Abbe Bjorklund, S.M.Arch.S and S.M.Mech.Eng degree candidate, Joint Program for Energy Efficient Buildings and Systems Seminar, 1-2pm, Rm 1-214. Bag lunches welcome.

Monday, December 2

Magnetic Field Effects on Charge Density Waves in Niobium Selenide* - Prof R.V. Coleman, University of Virginia, Francis Bitter National Magnet Laboratory Colloquium, 4pm, Rm NW14-2209. Refreshments served, 3:30pm.

Recent Results and Problems on f-vectors and h-vectors** - Prof R. Stanley, MIT, Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments served 3:30pm, Rm 2-349.

Models and Mirrors* - Michael Sorkin, architect, critic and columnist, The Village Voice, Design Communication Lecture, 6-8pm, Rm 9-150. Wine reception precedes lecture.

Tuesday, December 3

Depression in the Physiologically Compromised Patient** - Dr. Dermot A. O'Rourke, MD, assistant program director, CRC, Clinical Research Center Seminar, 10:30-11:30am, Rm E25-401.

Tests of Lorentz and Time Reversal Invariance Using Polarized Helium 3 and Neon 21** - Timothy Chupp, Harvard University, Laser Research Center/George R. Harrison Spectroscopy Laboratory/Research Laboratory of Electronics Seminar on Modern Optics and Spectroscopy, 11-12noon, Rm 37-252. Refreshments served following seminar.

Unsteady and Nonlinear Effects Near the Cusp Lines of the Kelvin Ship-Wave Pattern** - Prof T. Akylas, mechanical engineering, Civil Engineering/Ocean Engineering Informal Hydrodynamics Seminar, 3:30pm, Rm 5-314.

VLSI Layout Programming** - Y.E. Lien, Microelectronics and Computer Technology Corporation (MCC), Austin, TX, VLSI Seminar, 4pm, Rm 34-101. Refreshments served 3:30pm.

Planning a New Engine: From Blank Piece of Paper to Configuration to Definition* - Dr. D. Crow, Pratt & Whitney Aircraft, Gas Turbine Laboratory Seminar, 4pm, Rm 31-161. Refreshments served.

Determining Soil Strength by Piezo-Cone Penetrometer** - Dr. James K. Mitchell, University of California-Berkeley, Ctr for Scientific Excellence in Offshore Engineering (Depts of Civil and Ocean Engineering in cooperation with the Civil Engineering Constructed Facilities Division SOHIO Seminar on Offshore Engineering, 4:30-6pm, Rm 3-370. Refreshments served, 4pm.

Wednesday, December 4

The Twin-Core Fiber Optic Sensor and Applications** - J. Dunphy, United Technologies, EECS/RLE Seminar on Optics and Quantum Electronics, 11-12noon, Rm 36-428.

Residential Photovoltaic Systems Development at MIT* - Ed Kern and Miles Russell, research engineers, MIT Northeast Residential Experiment Station, Joint Program for Energy Efficient Buildings and Systems Seminar, 1-2pm, Rm 1-214. Bag lunches welcome.

Cost/Benefit Analysis of Eliminating Soluble Poison Control in PWRs** - Galal Abu-Zaid, Seminar in Nuclear Engineering, 3-4pm, Rm 24-213.

Paleogeographic Evolution of China** - Prof Alfred Ziegler, Dept of Geological Sciences, University of Chicago, Dept of Earth, Atmospheric, and Planetary Sciences Colloquium, 4-5pm, Rm 54-915. Tea served, 3pm, Rm 54-923.

Modeling of Acid Deposition in Eastern North America** - Subramanyam Kumar, doctoral candidate, Mechanical Engineering Doctoral Thesis Presentation, 4pm, Rm 1-150.

Thursday, December 5

The Sinking of the Ekofisk Field** - Dr. F.G. Nielsen, Norsk Hydro, Bergen, Norway, Depts of Civil Engineering/Ocean Engineering Seminar, 3pm, Rm 48-316.

High-Definition Television* - Robert Hopkins, National Association of Broadcasters; Kerns Powers, RCA; Edward Horowitz, Home Box Office, MIT Communications Forum Seminar, 4-6pm, Rm E15-070.

The Individual Context and a Macroeconomic Model of Internal Migration* - Prof Jerome Rothenberg, Economics Dept, MIT-Harvard Research Seminar on Migration and Development, 4-6pm, Harvard Ctr for Population Studies, 9 Bow St.

Using Articles (a, an, the)** - Writing and Communication Center English as a Second Language workshop, 4:15-5:15pm, Rm 14N-317.

Friday, December 6

Theory of Glass Transition** - Prof Alf Sjollander, Chalmers Institute of Technology, Center for Materials Science and Engineering Colloquium, 12:15pm, Rm 12-132. Lunch provided, 12noon.

Financial Management of the New York City Transit System* - Mortimer L. Downey, chief financial officer, Metropolitan Transit Authority, Center for Transportation Studies Luncheon Seminar, 12:45-2pm, Student Ctr West Lounge. Optional luncheon, 12-12:45pm. Luncheon fee: \$2/students; \$4/non-students.

Soft X-Ray Laser Experiments at Livermore* - Dr. Barbara Whitten, Lawrence Livermore National Laboratory, Plasma Fusion Center Seminar, 1pm, Rm NW17-218.

Imperfect Micromixing in Turbulent Reacting Flows** - Andreas Kridiotis, Chemical Engineering Seminar, 2pm, Rm 66-110.

Limitation of Microbial Growth Rate by Two Complementary Nutrients** - Prof Arnold Fredrickson, University of Minnesota, Chemical Engineering Seminar, 3pm, Rm 66-110.

A Collage of Design Experiences and Their Underlying Philosophies* - Ernesto Blanco, adjunct professor, MIT Dept of Mechanical Engineering, Mechanical Engineering Den Hartog Award Lecture, 3pm, Rm 3-133. Refreshments follow, Rm 1-114.

Readings

Toni Cade Bambara* - author of *The Salt Eaters*, 1981 National Book Award winner, MIT Women's Studies Freedom, Fiction, Family: Black Women Today Seminar, Wed, Dec 4, 8pm, Rm 34-101.

Films

Witness to War and Central America: Roots of the Crisis* - Political Science Committee on Central America movies and discussion on situation in Central America, Nov 20, 7pm, Rm 2-190. Discussion led by Prof Peter Smith, Dept of Political Science.

Films on Iran: Isfahan and The Shahnama by Oleg Grabar; **Persian Crafts and Rug Weaving** by Stephen Nyman, associate, A.U. Pope (includes rare footage from the 1930s), Aga Khan Program for Islamic Architecture MIT/Harvard film, Nov 22, 8pm, Sackler Museum Basement Lecture Hall, Harvard, Broadway & Quincy St, Cambridge.

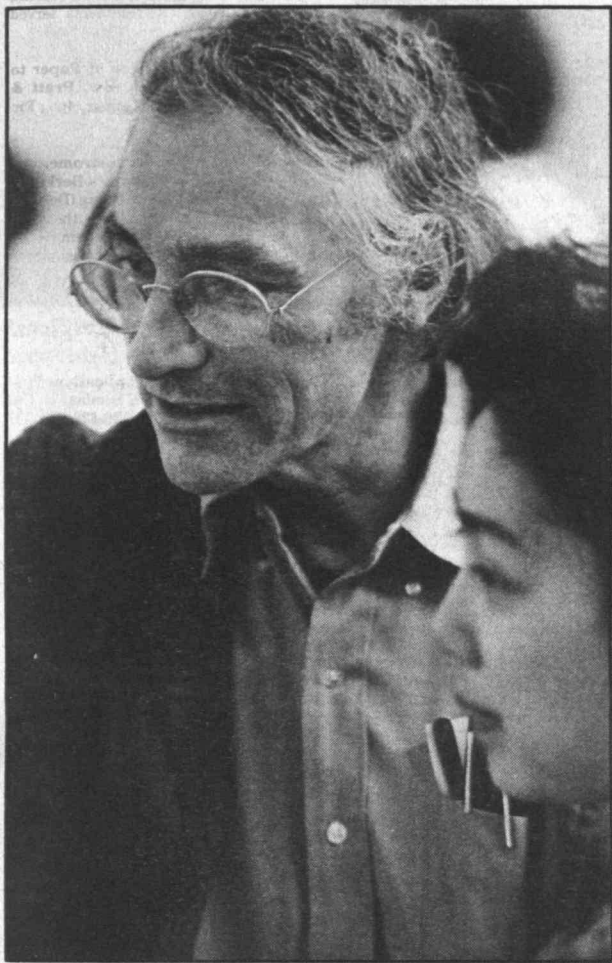
Wednesday, November 27

Jewish Lab: Jewish Conversation** - Rabbi Dan Shevitz, MIT Hillel Seminar, 1-2pm, Hillel, W2a.

Massachusetts Institute of Technology

Report of the President

For the Academic Year 1984-1985



MIT people have come to exercise a cardinal influence on higher education throughout the nation and the world.

The genius of MIT is that on every hand its people are caught up in the idea of the future. They may be guided by tradition. They may be inspired by history. But they are driven by excitement about the future — what will be, what may be, what can be.

As I remarked in this report a year ago, the spirit of inventing the future was an essential element in the organizing concept of MIT put forth 125 years ago by our founder, William Barton Rogers, a spirit we will celebrate in our quasiquicentennial observances early in 1986. It is a source of pride for all connected with MIT that this university and its people have for so long kept faith with that spirit.

By a coincidence of calendar, this annual report is written at about the time students are returning for the start of the fall term. They bring with them all the eagerness, anticipation, and hope of a new generation. And they bring talent. Looking at them, we cannot help but recognize that these are the faces of the future, and that MIT has a pact with that future.

Concern with the future has invested MIT with international stature. We have evidence at every hand that MIT enjoys a position in the first rank of the great research universities of the world. This is true if you consider formal appraisals of the quality of academic institutions or if you rely on reports of a more personal, impressionistic, or anecdotal character. The exceptional stature of this remarkable university is evident to all.

This happy state has developed in the decades since the Second World War — decades that have marked both the beginning of MIT's involvement with sponsored research on a large scale and the remarkable flowering of several key scientific disciplines where MIT people have demonstrated special leadership.

They have been marked, too, by the cardinal influence that MIT people have come to exercise on higher education throughout the nation and the world. It is an influence felt in the shape and substance of curricula, of textbooks, of the educational encounter itself. Many of the educational programs in which we pioneered — such as the project laboratories and the Undergraduate Research Opportunities Program — set standards that are followed at many of our sister colleges and universities. And newer programs, such as Project Athena, hold similar if not greater potential for affecting the ways in which we learn and teach.

Beyond the activities in our own classrooms and laboratories, perhaps MIT's most profound influence on education and research rests with the 4,000 graduates who now serve on the faculties of colleges and universities around the globe.

While institutional leadership such as ours does not submit to easy analysis or to a quick listing of

the several qualities on which it critically depends, it is clear that the *sine qua non* for academic leadership is a faculty comprising individuals who possess uncommon energy, insight, and intellectual capacity, and who share a vision of institutional mission and potential, a vision of the future.

By definition, such faculties can never be static. Faculties that lead are those that are continuously engaged in processes of change and renewal. The same can be said for the scholarly disciplines that underlie MIT's organizational structure. Individuals, acting in pursuit of the challenging ideas and questions of their fields, break new intellectual ground, and in so doing, contribute both to the common store of knowledge and to our capacity to educate our students.

One important element in sustaining faculty leadership may be found in the unending process of renewal that results inevitably from the arrival each year of women and men at the beginnings of their academic careers. These are the agents who bring new and different perspectives to MIT. They enrich the intellectual fabric of the place, whether their stay is of a few years' duration or whether it is permanent. In either case, it is these people who are of critical importance in sustaining MIT's position of leadership in the future.

These faculty colleagues — and our ability to provide the setting and conditions which foster excellence and achievement — hold the key to MIT's future. Let me give substance to these assertions by citing specific examples from the ranks of those who have joined the faculty in recent years.

In the Department of Urban Studies and Planning, Assistant Professor Lynne B. Sagalyn is in the second year of a two-year appointment to a career development professorship endowed by the Class of 1922. Professor Sagalyn, trained in urban economics and planning, has conducted research that has won national attention in an area of keen interest to all Americans — the cost of buying and the methods of financing housing, particularly for minorities and those of modest means. More recently, she has extended her studies to the analysis of the rejuvenation of downtown areas undertaken with varying combinations of public and private finance. She has found teaching far more stimulating than her original forays into this area as a doctoral student had led her to expect. Her fresh introduction of financial aspects of housing and development into the department's curriculum, together with her spirited teaching manner, have gained special recognition for the department and have attracted students from a variety of disciplines.



Peng Chong Sien

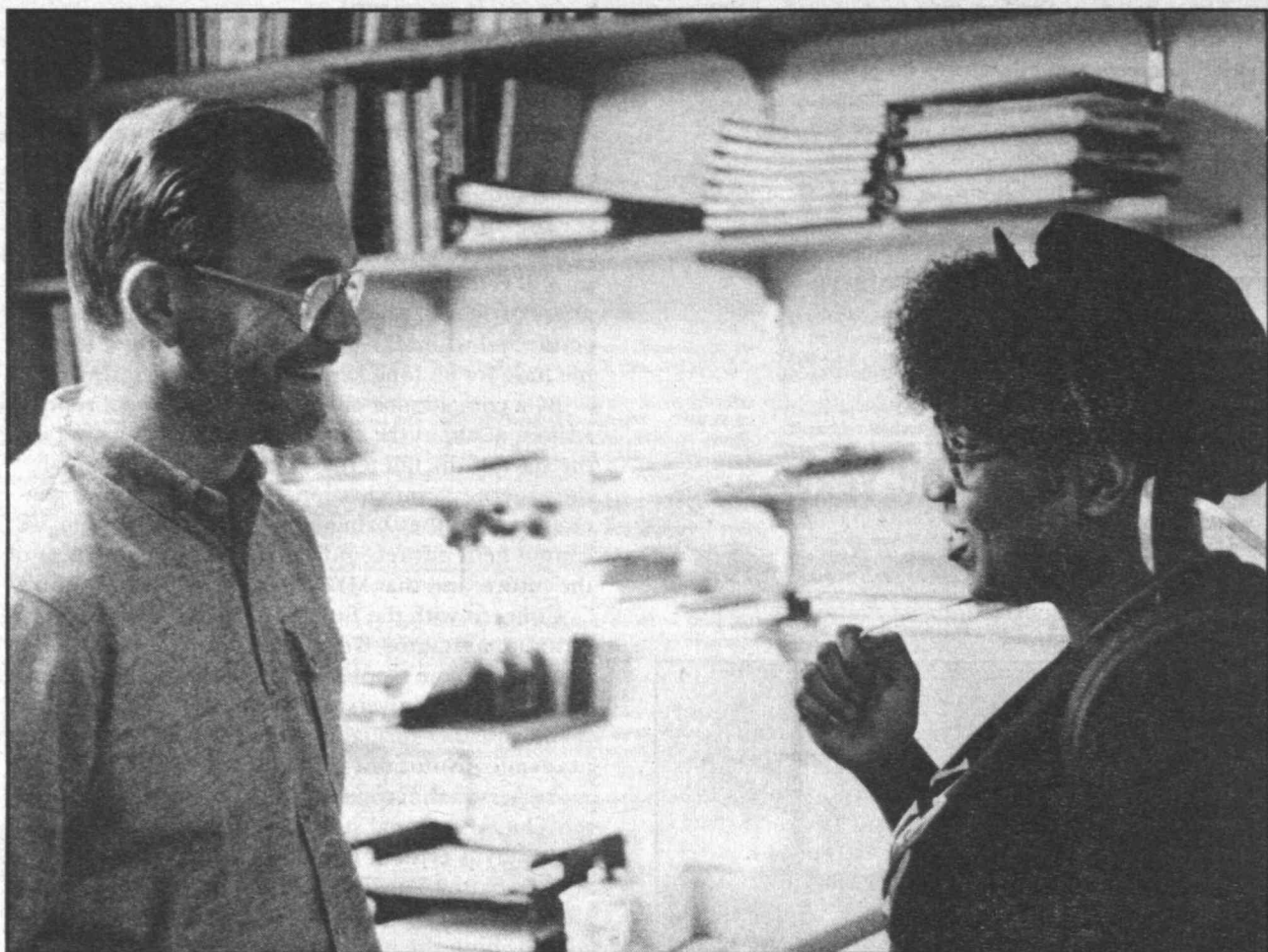
Faculties that lead are those that are continuously engaged in processes of change and renewal.

Dr. Philip S. Khoury, Associate Professor of History in the Department of Humanities, also a recipient of a Class of 1922 Career Development Professorship, has brought to MIT special distinction for rigorous scholarship in the study and teaching of the political and social histories of the peoples and the nations in the Middle East. His books and articles have earned wide praise, particularly for the new understandings he has been able to present in comparative urban history in the Middle East and in comparative nationalist movements in that region. Students — and faculty from his own and other departments — fill his classes on contemporary Middle Eastern affairs, seeking insights gleaned from scholarship and from personal heritage on the tragic and seemingly interminable conflict that rages in that part of the world.

In the Department of Chemical Engineering, where he held the Atlantic Richfield Career Development Professorship until last December, Assistant Professor T. Alan Hatton has proven to be an important asset as teacher, research scientist, and faculty resident in an undergraduate house. Professor and Mrs. Hatton, who live in MacGregor House with their two young sons, regard their interaction with undergraduates as emblematic of what we are all about here. A recipient of the Everett Moore Baker Award for Excellence in Undergraduate Teaching, Professor Hatton takes obvious pleasure in working with undergraduates. He is in charge of a new undergraduate process laboratory, which forms an important part of new educational initiatives underway in his department. His research interests on continuous bio-separation processes relate to assuring an industrial future for genetic engineering. Professor Hatton's laboratory focus is on development of continuous and industrially useful methods of separating out biologically valuable molecules from the heterogeneous media that are the typical products of genetically engineered biotechnology systems. Without efficient methods of separation, many of the promises afforded by genetic engineering and recombinant DNA techniques may not be realizable in an industrial setting.

In the Department of Biology, Assistant Professor Barbara Jean Meyer, a recent recipient of the Whitehead Institute Career Development Assistant Professorship Award, is pursuing an exciting line of research in molecular and developmental biology. Her basic interests focus on trying to understand how genetically derived programs of development are implemented in an organism as a single cell matures into an adult. These interests have been channeled into an investigation of sex determination in nematodes, simple microscopic soil-dwelling worms that exist either as males or as self-fertilizing hermaphrodites. Professor Meyer's particular concern is the identification of the genetic and biochemical signals that are responsible for transmitting information carried on the sex-determining chromosomes to other genes that are responsible for bringing about either the male mode or the hermaphrodite mode of development. Professor Meyer is attracted to an academic career since it allows her the freedom to pursue basic research unfettered by the requirement of producing marketable items. Like many at MIT, she finds too little time in each day to accomplish all she has set for herself. She is an energetic and effective teacher who takes seriously the need to provide her students with the advice, criticism, and inspiration that mark a good mentor.

The Department of Electrical Engineering and Computer Science is currently one of the bases for a young scientist with an extraordinary range of interests and talents — Dr. Raphael C. Lee, a surgeon and an electrical engineer. His scientific interests relate to how physical forces in developing skeletal and connective tissues are translated into biochemical events, and, toward that end, he

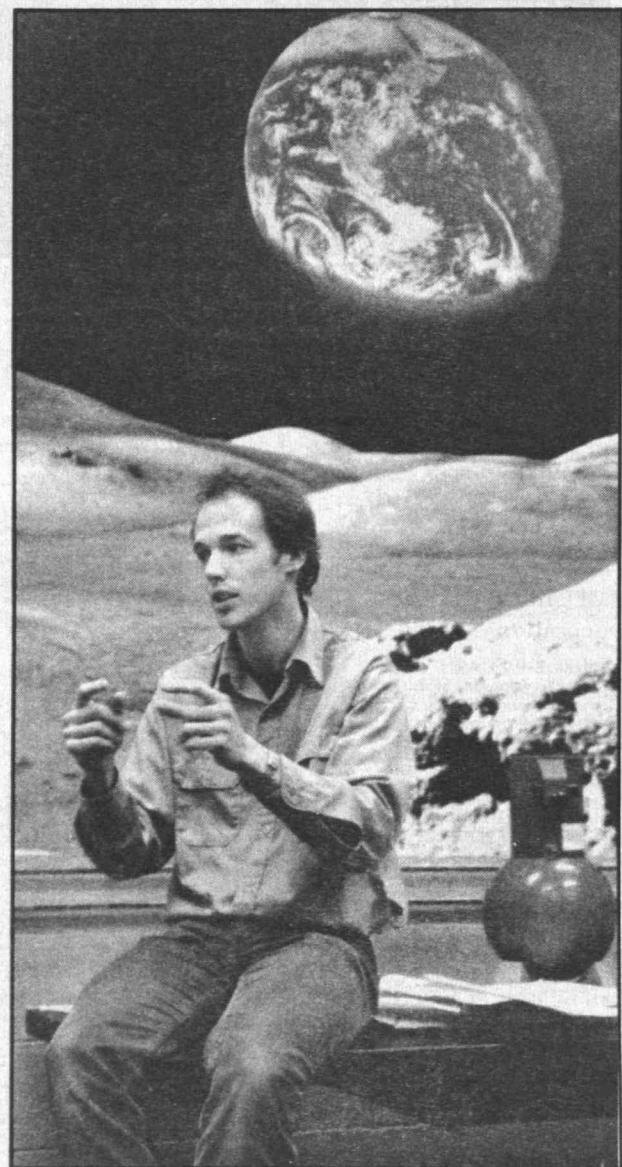


Holly Sweet

Academic leadership arises from a faculty comprising individuals who possess uncommon energy, insight, and intellectual capacity, and who share a vision of institutional mission and potential, a vision of the future.

pursues careers in both engineering and medicine. On MIT's side of the Charles River, he is Karl Van Tassel Career Development Assistant Professor of Electrical Engineering and Biomedical Engineering and is a faculty member in the Harvard-MIT Division of Health Sciences and Technology. On the other side of the Charles he is Assistant Professor of Plastic Surgery at Harvard Medical School and a member of the surgical staffs at Children's Hospital and Brigham and Women's Hospital. He also holds appointments at several other Boston area hospitals. In addition to his research, Professor Lee teaches electromagnetic theory and muscle physiology in our EECS department, the anatomy of hand and facial nerves in HST, and supervises a variety of thesis research projects by both undergraduate and graduate students. In 1981 he was selected as one of the first MacArthur Prize Fellows by the John D. and Catherine T. MacArthur Foundation, and earlier this year he was named recipient of a three-year Searle Scholar Award from the Chicago Community Trust.

Associate Professor Randall Davis is now a tenured faculty member in the Sloan School of Management where he is helping to mold the School's innovative programs in management information systems. From 1979 to 1981, when he was a newly appointed assistant professor in the Department of Electrical Engineering and Computer Science, he held an Esther and Harold Edgerton Career Development Professorship. His particular interest focuses on knowledge-based systems, a subfield of artificial intelligence. These systems are computer programs that abstract and systematize the specialized knowledge of recognized experts in a given field, enabling the systems to perform as well as experts, using much the same sort of reasoning. Management scientists look forward eagerly to the development of a variety of knowledge-based systems that will extend markedly the skill and effectiveness of industrial managers employing computer-based information systems. Professor Davis sees this field of research as especially suited to his interest in how people process information, that is, how they understand, reason, and learn.



Shari Jackson

Individuals at MIT are driven by excitement about the future—what will be, what may be, what can be.

These brief profiles provide some sense of the stimulating, demanding activities of our faculty. Their interests and talents are far-ranging and compelling. While their fields are disparate, each of these faculty colleagues has one thing in common: significant and timely career development support including, for each of them, a career development chair. This financial support has made a critical difference — providing not only the freedom and funds to pursue research interests, but also the encouragement and vote of confidence at timely points in their academic careers.

We have an obligation to provide the conditions necessary to stimulate and support this kind of creativity in research and teaching. Salaries are, of course, an important factor in our ability to attract and keep the best teachers and scholars. In terms of basic salary, the Institute is competitive, school by school, with its peer institutions, but we still must ask most of our faculty to raise a portion of their own academic-year salaries through research funding. This includes those who are at the beginnings of their careers, and may not yet be well established in their research programs.

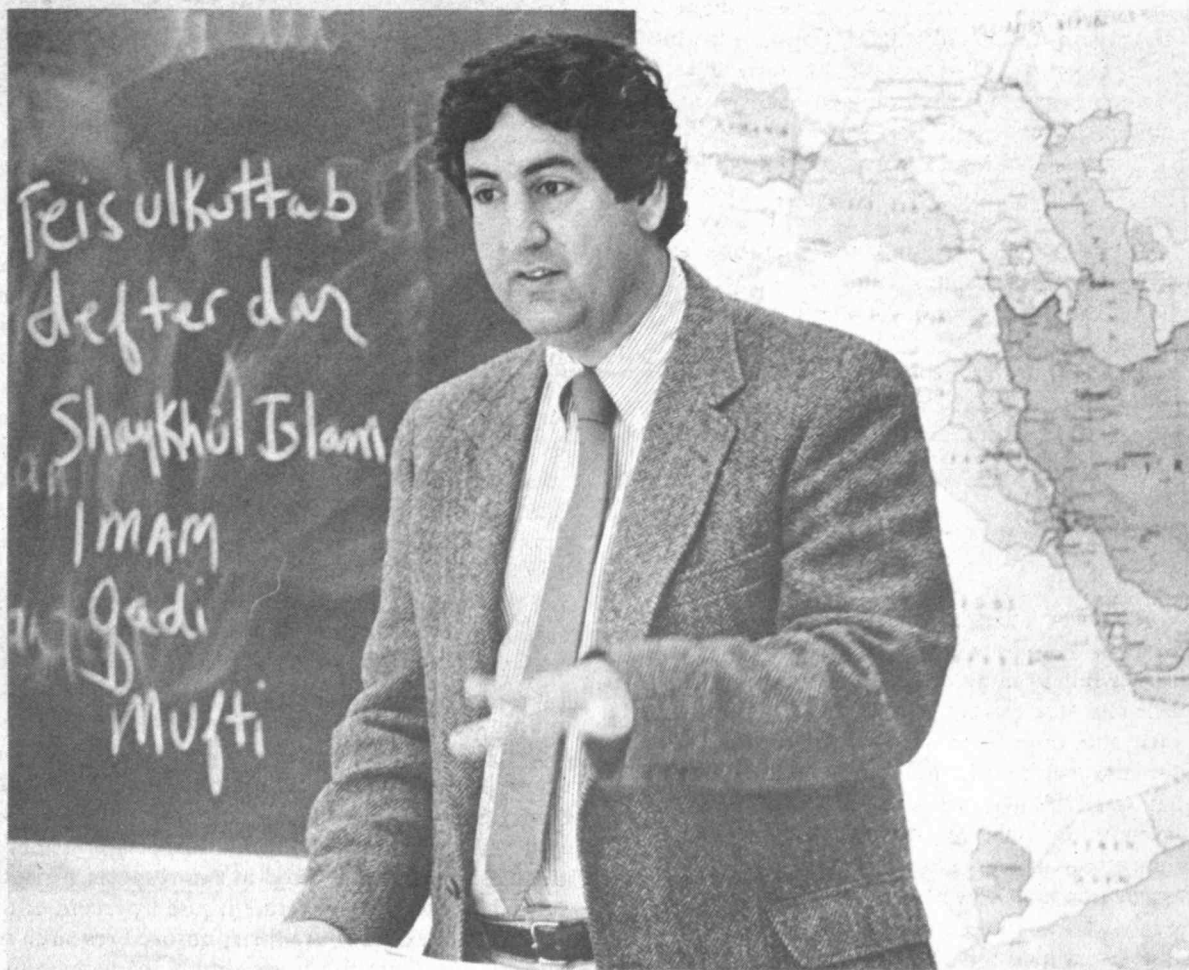
At present about 18 percent of our academic-year faculty salaries are charged to sponsored research grants or contracts. (In the Schools of Science and Engineering this fraction is 24 percent.) The practice of charging academic-year salaries to sponsored research funds began at MIT in the 1950s; it was one of the ways the Institute leveraged the rapidly growing federal investment in research to increase its size at a time of very strong demand. But there is a cloud over this general practice at present and it holds special portent for newly appointed faculty and for our ability to compete with better endowed institutions.

The practice of paying a part of faculty salaries from research grants and contracts works to the disadvantage of our faculty in the competition for research support. By requiring that research pay a part of the cost of faculty salaries, we put the cost of doing research higher than comparable costs for research performed at those universities, such as the large, publicly supported institutions, which pay all academic-year faculty salaries out of general funds. In any case, MIT's practice places heavy demands upon members of the faculty, including those who are just beginning careers as independent investigators, to generate a steady stream of grants and contracts to support not only the students, technicians, and postdoctoral fellows who are engaged in their research, but also a portion of their own salary and benefits. It strains loyalty to the institution and to undergraduate education.

Basic salary, which is compensation for a faculty member during the September-to-May academic year, is not the only dimension in which we must compete. Research, scholarly activity, and preparation for teaching, particularly the development of new educational materials, continue during the summer. For all, summer is a time when energies can be concentrated, without the regular, repetitive schedule characteristic of the academic year.

We encourage faculty members to be employed by MIT during the summer and to earn additional compensation of up to two months of academic-year basic salary. For most, summer employment is an essential part of their total personal income needs. This tends to be especially true for those just starting careers.

But again, in order to be paid for summer activity, a faculty member must be engaged in activities that have funding available to support summer salaries and benefits. Such activities include teaching in the summer session, working on curriculum development projects, and, primarily, conducting sponsored research. As one might guess, summer support tends to be concentrated in the Schools of Engineering and Science, which have a great many sponsored research programs, and among the more senior faculty. Junior faculty who are not yet experienced in developing research support are much more likely to seek essential summer employment outside of MIT. While they usually pursue outside work that is supportive of personal growth, these individuals are not active members of this community during the summer, and MIT is diminished by their absence.



Calvin Campbell

Professor Philip S. Khoury

Philip S. Khoury, a 36-year-old American-born student of middle eastern history and politics, brings to his teaching and research at MIT the qualities of rigor and detached analysis that the traditions of scholarship demand.

But when middle eastern talk turns specifically to Beirut and Lebanon of today, his otherwise cheerful countenance takes on a touch of despair.

Lebanon is the land of Professor Khoury's forebears and his family still has relatives in Beirut where the waring has gone so far that Moslems are fighting other Moslems and Christians are fighting other Christians in what seems to Professor Khoury like the mindless conduct of war for its own sake.

"It is madness," says Dr. Khoury, Associate Professor of History at MIT and since 1984 the holder of an MIT Class of 1922 Career Development Professorship. "Some experts suggest that it's beyond the point where historians and political scientists can offer explanations. I'm not certain! But it's up to psychiatrists and psychologists to help tell us what is happening there now."

So concerned is Professor Khoury that he recently began to focus his research on the phenomenon of war itself, on how wars have reshaped political, social, and economic life in the middle east and on what wars have done to usher in new systems of ideas in the region.

For MIT, Professor Khoury has introduced teaching and research in middle eastern history and civilization where none existed before he arrived. A subject he developed in comparative 20th-century middle eastern history draws a large number of undergraduates plus a host of auditors—students and faculty eager simply to understand events they hear about almost every day from news media. Professor Khoury understands that motivation, but believes that a second subject he developed—this one on comparative history before World War I—offers more insight into the roots of contemporary events in that area of the world.

Professor Khoury was born and grew up in Washington, DC, where his late father, who immigrated from Palestine as a young man and who worked his way through law school at Boston's Northeastern University, practiced law for many years. Professor Khoury's mother, part of a family of Lebanese intellectuals in Beirut, gave up an academic career as professor of sociology at the American University in Beirut immediately following World War II to represent her country in the then-new United Nations. It was in Washington that she met and married Professor Khoury's father.

Professor Khoury, growing up with a command of both Arabic and English, attended the Quaker-run Sidwell Friends School in Washington and then went on to Trinity College in Hartford, Connecticut, where he majored in Arab studies, graduating in 1971 with honors.

Electing an academic career for himself, Professor Khoury went on for graduate work in the Center for Middle Eastern Studies at Harvard University, where he received the Ph.D. in History and Middle Eastern Studies in 1980. The focus of his studies was Syria in the 19th and early 20th centuries and that nation's socioeconomic and political history under the rule of the Ottoman Empire and later under colonial rule. His most recent book, *Syria and the French Mandate* (Princeton University Press) will appear in 1986.

While at Harvard, Professor Khoury spent several years engaged in research in Egypt, Lebanon, Syria, and France as well as in England where he was an Associate Fellow of St. Antony's College, Oxford University. In Cairo he met another American-born middle eastern scholar who was to become his wife, Mary Christina Wilson, now a professor of middle eastern history at New York University. They live in Cambridge and not infrequently collaborate on papers.

In 1981, Professor Khoury chose a faculty appointment at MIT over the offer of a postdoctoral fellowship at Stanford, and the following year chose to remain at MIT when offered a faculty appointment at Stanford. During his years at Harvard, he says, he became increasingly aware of growing strengths at MIT in history and the social sciences and decided that it was at MIT that he would have the opportunity to introduce middle eastern studies and eventually build an integrated program of middle eastern teaching, research, and related activities.

Here, he has developed subjects in middle eastern history and affairs, and collaborated with scholars in MIT's Aga Khan Program for Islamic Architecture in the Department of Architecture on comparative studies and development of middle eastern cities. His Class of 1922 career development appointment has allowed him time to pursue more deeply his interests in comparative urban history and nationalist movements in the middle east as well as initiate work on war and society in that region.

His general ambitions for an eventual middle eastern studies program at MIT received reinforcement earlier this year when the family of the late Emile Bustani of Beirut, a 1933 alumnus of MIT, provided funds for a series of middle eastern seminars to be directed by Professor Khoury under the auspices of MIT's Center for International Studies.

The grant held special meaning for Professor Khoury. It was Professor Khoury's grandfather—a noted professor of astronomy and mathematics at the American University in Beirut—who, in the late 1920s, recognized Mr. Bustani as a potentially gifted engineer and directed him, despite Mr. Bustani's meager resources, to MIT. Here, Mr. Bustani received his degree in civil engineering and then returned to Lebanon where he formed a company that eventually became the most prominent construction firm in the middle east.

Beyond salary support, there are other things a flagship institution should do to give newly appointed faculty members the start they need. We should be in a much better position to help new faculty members, particularly those beginning an academic career following graduate or post-doctoral study, begin their research programs. The largest share of the costs of research and scholarly activity will continue to be provided by federal and industrial sponsors, as at present. However, the person striking out for the first time as an independent investigator needs some assistance in developing his or her interests to the point where an outside agency is likely to take an interest in the work. Such start-up funds are usually required to equip a laboratory and to support a graduate student colleague for a year or two. The men and women who are members of the MIT faculty are remarkably effective in generating research support on the basis of the quality, innovativeness, and impact of their work. Nevertheless, new junior colleagues remain greatly in need of institutional assistance in getting started.

For many years we have relied on two endowed research funds for this purpose. The Alfred P. Sloan Fund for Basic Research and the Godfrey L. Cabot Solar Energy Fund together generate just over \$2 million per year, which is allocated by a small committee chaired by the Provost. Several of the persons whose profiles appear in the previous section of this report have benefited from these internally generated and controlled seed funds. Important as they are, these funds are limited in two respects. First, the annual income they generate is just 1 percent of the total annual expenditure for sponsored research on this campus; these funds are simply inadequate to the task at hand. Second, they are constrained in their application to work in engineering, the physical sciences, and in nuclear physics. Consequently, important areas of activity, such as the humanities and social sciences, architecture, and management are without institutional sources of seed funds.

Another element of faculty support that relates directly to leadership in academic affairs is our ability to support new educational developments. The development of a new subject, the revision of a departmental course of instruction, or the development of a new text or other form of instruction, all require major investments of thought and energy. They are not activities that are easily undertaken as adjuncts to a normal commitment to teaching and

research activities. Such investments in our future as an educational institution are greatly aided by releasing a faculty member from some portion of his or her normal duties for a term or two or by supporting that person during the summer so that time can be spent on educational development. Of course, this requires some source of institutional funds, analogues in many respects to seed funds for research.

Each of these conditions for leadership — necessary to ensure a position in the first rank of the great research universities — places demands on the resources of the Institute. They are demands that cannot be met by increasing tuition charges or by expanding the research programs. If we are to respond to these needs regularly and steadily, we must garner substantial additions to the Institute's invested capital base: our endowment. These additions may take many forms:

- Unrestricted endowment, the income from which can be used to support any of these needs, but which is essential if we are to continue our efforts to support a much larger fraction of basic academic-year faculty salaries with MIT funds.
- Endowed professorships, which provide the holder both with important recognition and with secure funding for salary and for initiatives related to the chairholder's educational or research interests.
- Endowed funds, which can be used to seed new research initiatives or to support new educational developments. These funds provide an essential element of institutional flexibility, and their leverage is very great.

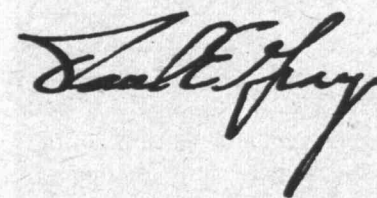
Such support is essential if we are to attract and retain new faculty members of the first rank, the individuals who ultimately will sustain into the future this university's leadership in teaching and research.

Perhaps no one understands the need, and the conditions, for institutional renewal more than our much-loved former president and chairman of the Corporation, James R. Killian, Jr. In over six decades of association with this university, he has had an extraordinary influence on the shaping of MIT's character and its devotion to excellence in all things.

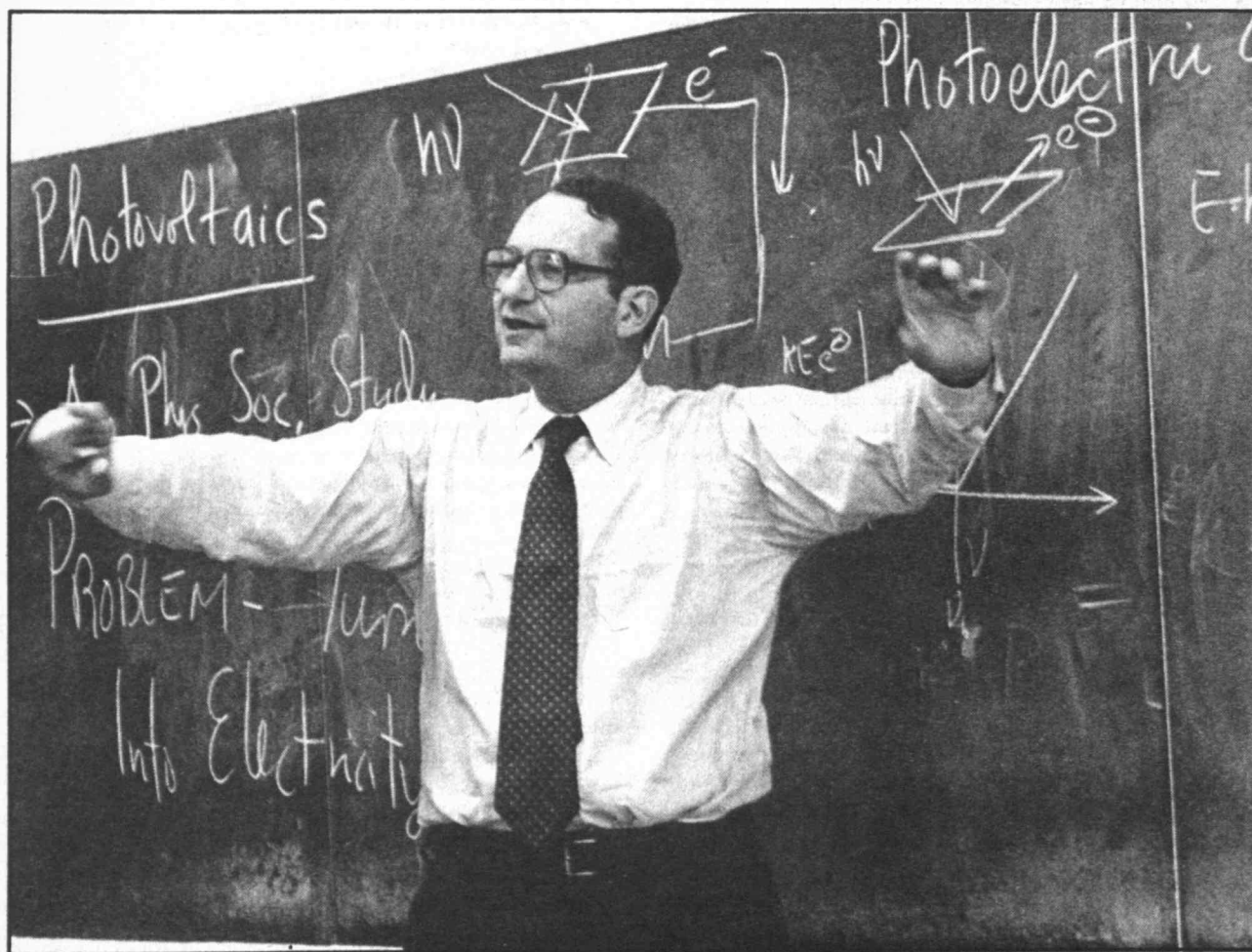
This spring, the MIT Press published Dr. Killian's book, *The Education of a College President: A Memoir*. In a reflective chapter at the end of the book, he gives warmth and depth to this university's unending need for renewal through new generations of faculty:

My hope of progress comes naturally from my having lived so long in the regenerative sanctuary of a research university deeply committed to the pursuit of the first-rate. Along with this circumstance has come the sustained invigoration provided postmeridian by association with a singular fellowship of young men and women working in a contagious atmosphere of excellence, discovery and high spirits.

I look to all within the MIT family — teachers, students, staff, alumni — to join together to sustain this "contagious atmosphere." This is our heritage and our future.



PAUL E. GRAY
September 1985



Professor Deutch brings to his post as Provost a background in a broad range of intellectual fields, wide experience in academic administration, extensive involvement in national science policy, and a dedication to excellence in teaching and research.

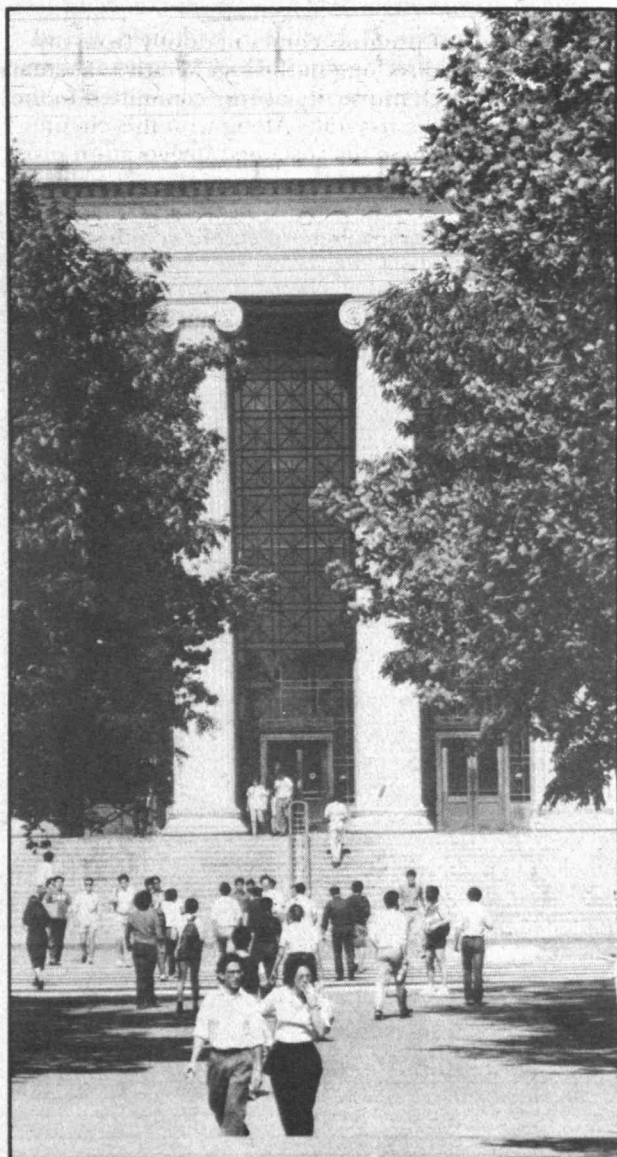
Calvin Campbell

In Special Recognition

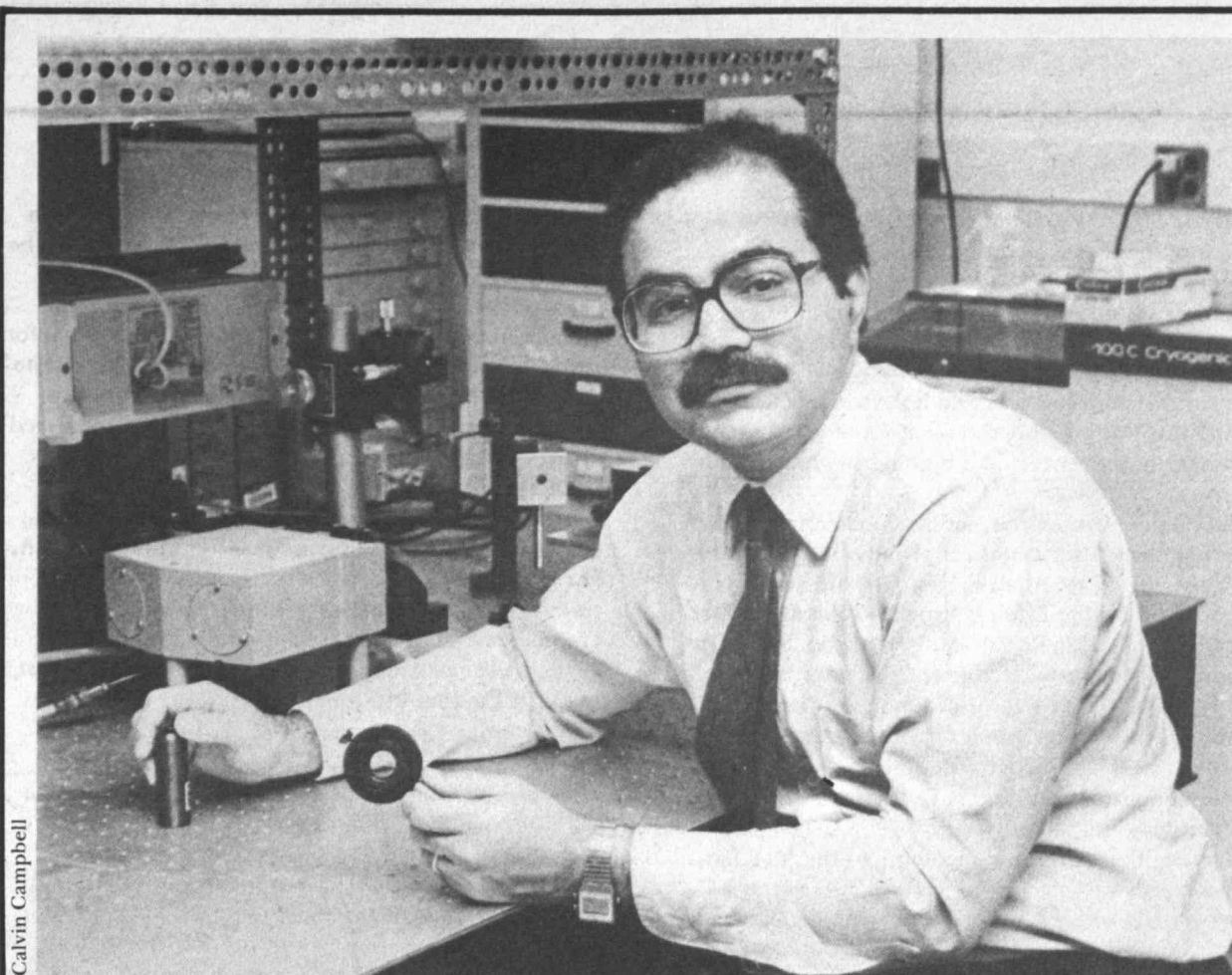
Every year there are occasions which remind us of the special character of the many individuals who collectively mold the character of MIT. This past year several key leadership roles at the Institute changed, and those transitions were occasion for special recognition.

In the fall of 1984 Francis E. Low announced his intention to step down as Provost when the 1984-85 academic year ended in order to return to teaching and research. During his tenure as Provost, Professor Low led an Institute-wide academic planning process that will give guidance to the university, its Schools, and its departments in the management and allocation of its resources. In addition, he served as MIT's principal representative in shaping the MIT affiliation with the new Whitehead Institute for Biomedical Research. Above all, Francis Low has consistently displayed a concern for the intellectual vitality of the Institute and for the people who make up the Institute community. As my closest colleague for five years, he brought sound judgment, a balanced and incisive perspective, a gentle humor, and high energy to the affairs of the Institute. In recognition of his leadership, accomplishment and service as scholar, scientist, and administrator, he was named an Institute Professor in the spring of 1985.

John M. Deutch, Arthur C. Cope Professor of Chemistry, who has served as Dean of the School of Science since 1982, was appointed Provost of MIT effective July 1, 1985. Professor Deutch brings to his post a background in a broad range of intellectual fields, wide experience in academic administration, extensive involvement in national science policy, and a dedication to excellence in teaching and research. A member of the MIT faculty since 1970, Professor Deutch is a former Under Secretary of the US Department of Energy. He is a recognized authority in nonequilibrium statistical mechanics, the structure of fluids, dielectric and magnetic relaxation, light scattering and polymer physical chemistry. Professor Deutch's commitment to the mission and values of MIT, together with his enthusiasm for exploring new horizons, will contribute enormously to his effectiveness as Provost of MIT.



The spirit of inventing the future was an essential element in the organizing concept of MIT put forth 125 years ago by our founder, William Barton Rogers.



Calvin Campbell

Professor Raphael C. Lee

To some, Raphael C. Lee, M.D., Sc.D., might appear to be leading a double life.

In one incarnation, on the Boston side of the Charles River, he is a plastic and reconstructive surgeon. He is on the surgical staffs at Children's and Brigham and Women's hospitals, where, among other things, he rebuilds broken and disfigured faces and reattaches severed hands and fingers. And he is an Assistant Professor of Plastic Surgery at the Harvard Medical School, where he supervises resident surgeons as they learn the art of reconstructive surgery.

In a second incarnation, this one on the Cambridge side of the river, he is an electrical engineering scientist at MIT where he received his Sc.D. in 1979. In MIT's Department of Electrical Engineering and Computer Science, he is Karl Van Tassel Career Development Assistant Professor, pursuing research in the electro-mechanics of cartilage and connective tissues and teaching the electrophysiology of cells and tissues to electrical engineering students. On the faculty of the Harvard-MIT Division of Health Sciences and Technology, he teaches still other subjects in the anatomy of the hand and face.

To Professor Lee, of course, there is nothing at all double about his life. He sees the lines of work he pursues simultaneously in Boston and Cambridge as converging into one seamless, scientific career. Others see it as an unconventional career with astonishing ultimate goals. First, he hopes to discover how electrical and mechanical forces control and shape the development of cells and tissues. Second, he hopes to develop materials with the necessary bioelectrical, biomechanical, and biochemical properties to substitute for vascular and skeletal tissues in humans and animals.

At 36, academic conventionality has never been one of Professor Lee's long suits. Unconventionality, in fact, may have been one of the characteristics that figured in his selection in 1981 as a MacArthur Prize Fellow by the Chicago-based John D. and Catherine R. MacArthur Foundation and in his selection in 1985 by *Science Digest* magazine as one of America's 100 outstanding scientists under the age of 40.

One of five children in a black professional family of Charleston, South Carolina, he had no original ambition to become a physician like his father or like two other forebears. Instead, he opted for electrical engineering, receiving the B.S.E.E. from the University of South Carolina in 1971. But he was led back to medicine by what he perceived to be a unity and a commonality between engineering and biology. He pursued a double degree program of engineering at Drexel Institute of Technology in Philadelphia and medicine at nearby Temple University School of Medicine, and received the M.S. from Drexel and the M.D. from Temple, both in 1975.

After Temple and Drexel, Professor Lee won his surgical internship appointment at the University of Chicago Hospitals in Chicago and embarked on a residency in surgery there starting in 1975.

By then, however, he had become acquainted with Professor Alan J. Grodzinsky of MIT's Department of Electrical Engineering and Computer Science and his research on the dynamic coupling of electrical and mechanical stresses in biological tissues. Moreover, Professor Lee had begun to concentrate his surgical interests on connective, vascular, and skeletal tissues. These are the tissues of primary concern to reconstructive surgeons. At the same time, they are also the tissues which many believe profoundly susceptible to electrical and mechanical forces.

In 1977, Professor Lee applied for and received an unusual leave of absence from his residency program in Chicago and came to Cambridge as a doctoral student working with Professor Grodzinsky. Not only was he granted leave, but the University of Chicago gave him a

two-year surgical research fellowship to help support his doctoral studies at MIT. He also held fellowships from the Southern Fund, from the Harvard-MIT Division of Health Sciences and Technology, and from the Uncas A. Whitaker Health Sciences Fund. In 1978, he was named Schering Scholar in Surgery by the American College of Surgeons, and in 1980 he was named Collier Surgical Travel Scholar by the Frederick A. Collier Surgical Society.

Professor Lee did not leave surgery entirely during his electrical engineering doctoral studies at MIT. While in Cambridge, he was also a research fellow in Orthopedic Surgery at the Harvard Medical School, working at Children's Hospital.

At MIT, Professor Lee's thesis research for the Sc.D. focused on electromechanics of cartilage and the relationship of physiochemical properties of cartilage to its mechanical properties.

With Sc.D. in hand, Professor Lee returned to Chicago for the period 1979-81, completing his surgical residency first as senior resident and then as chief resident in surgery at the University of Chicago Hospitals.

In September of 1981, Professor Lee returned to the Boston area where he had been appointed senior resident in plastic surgery at the Massachusetts General Hospital. In November, he was selected a MacArthur Prize Fellow. In January, 1983, he became chief resident in plastic surgery at MGH and a principal research scientist at MIT. In July of that year, he was appointed assistant professor at MIT, and in 1984 he was named assistant professor at Harvard Medical School and an associate in surgery at the Brigham and Women's Hospital. He became associate in surgery at Children's Hospital earlier this year. He has held surgical appointments, also, at several other Boston area hospitals, including Cambridge Hospital, Shriners' Burns Institute, and the New England Deaconess Hospital.

Professor Lee's reserved manner tends to obscure the excitement he feels about the new fields he and his colleagues are opening up at MIT.

For example, over the past two years at MIT, Professor Lee and his colleagues have developed a model tissue which permits the study of the effects of applied electrical fields on cellular metabolism and have demonstrated in a well-defined manner that small electrical fields can produce changes in cellular biosynthesis. In addition, Professors Lee and Grodzinsky have developed methods to distinguish between the response of cartilage cells to electrical and mechanical signals. Presently, Professors Lee and Thomas F. Weiss are planning to use microelectrode techniques to search for mechanical receptors on the membranes of connective tissue cells.

Beyond that, the MIT laboratory Professor Lee has established is as unique as Professor Lee himself in that it permits a wide range of bioengineering experiments to be carried out with living mammalian cells.

"Our plans over the next five years are to make the laboratory more unusual still," he says. "With help from the Office of Naval Research, we are planning a facility where we can study the mobility of charged proteins on the surfaces of cultured living cells in a tissue environment and the interactions between externally applied electric fields and cellular responses."

What about artificially produced living connective tissues to replace defective ones?

"My expectation is that will happen and possibly happen here," he says. "When, no one can say."

Dr. Lee and his wife met at the University of Chicago Hospitals when she was a resident physician in pediatrics and he was a resident in surgery. She is now a pediatric psychiatrist at Harvard. They make their home in the Jamaica Plain section of Boston and are the parents of two children, one born just last month.

Gene M. Brown, Head of the Department of Biology, was appointed Dean of the School of Science effective July 1, 1985. A noted enzymologist, Professor Brown has headed the Department of Biology since 1977.

The special character of MIT is also seen each year in the achievements and honors of its faculty. While it is not possible to take note of every such distinction, there are some highlights which deserve mention.

In the late winter, the National Academy of Engineering elected six members of the MIT faculty. New MIT members are: Allan F. Henry, Professor of Nuclear Engineering; Erich P. Ippen, Professor of Electrical Engineering; Ronald M. Latanision, Shell Distinguished Professor of Materials Science; the late Philip M. Morse, Professor of Physics, Emeritus; Claude E. Shannon, Donner Professor of Science and Professor of Electrical Engineering and Mathematics, Emeritus; and Sheila E. Widnall, Professor of Aeronautics and Astronautics.

During the spring, six members of the MIT faculty were also elected to the National Academy of Sciences. Those new MIT members are: B. Clark Burchfiel, Schlumberger Professor of Geology; Mildred S. Dresselhaus, Abby Rockefeller Mauzé Professor of Electrical Engineering and Physics; Victor W. Guillemin, Professor of Mathematics; Professor Ippen; K. Barry Sharpless, Professor of Chemistry; and Robert A. Weinberg, Professor of Biology.

Five members of the MIT faculty were among those elected as Fellows of the American Academy of Arts and Sciences at its meeting in May. New MIT members are: David Botstein, Professor of Genetics; Mary Lou Pardue, Professor of Biology; W. Gilbert Strang, Professor of Mathematics; Christopher T. Walsh, Professor of Chemistry and Biology and Uncas and Helen Whitaker Professor in the Whitaker College; and Daniel I.C. Wang, Professor of Chemical and Biochemical Engineering.

In February three members of the faculty were presented the National Medal of Science. Those honored by this recognition are: Bruno B. Rossi, Professor of Physics, Emeritus; Isadore M. Singer, John D. MacArthur Professor of Mathematics; and the late John G. Trump, Professor of Electrical Engineering, Emeritus.

The John D. and Catherine T. MacArthur Foundation awarded a MacArthur Prize Fellowship to Alar Toomre, Professor of Applied Mathematics. Professor Toomre, an applied mathematician and theoretical physicist, was awarded the prize for his work as an astronomer and his work in the dynamics of galaxies.

Within the Institute, Franco Modigliani, Institute Professor and Professor of Economics and Finance in the Sloan School of Management and the Department of Economics, was selected by his colleagues to be the 1985-86 recipient of the James R. Killian, Jr., Faculty Achievement Award. The Killian Award, established in 1971 as a tribute to MIT's 10th president, recognizes extraordinary professional achievements and service. The committee's citation reads, in part, "Franco is an economist of extraordinary professional accomplishments. He is also a colleague of exceptional insight, energy, and enthusiasm. . . . Franco has not been an ivory tower economist. His work is always of central importance for macro policy, and he has taken an active part in policy discussions and debates over the years."

In May, Robert C. Berwick, Assistant Professor of Computer Science and Engineering, was named the 1985 recipient of the Harold E. Edgerton Faculty Achievement Award. The Award recognizes young faculty members for outstanding achievements in research, scholarship, and teaching. A computational linguist, Professor Berwick is developing computational models of language acquisition and processing, drawing on the work of modern linguists in explaining how people acquire language.

Several changes in senior posts in the academic administration were announced this past year. In the spring the Provost-designate, John M. Deutch, announced plans to reorganize the Office of the Provost in order to implement a major new initiative for the improvement of undergraduate education at the Institute. The reorganization includes the appointment of Professor Samuel Jay Keyser, who has served as Head of the Department of Linguistics and Philosophy and Director of the Center for Cognitive Science, to the post of Associate Provost for Educational Programs and Policy. Professor Margaret L. A. MacVicar, Cecil and Ida Green Professor of Education, Professor of Physical Science and Director of the Undergraduate Research Opportunities Program, has been appointed to the newly created post of Dean for Undergraduate Education.

New department or program heads appointed or announced during the past year are: E. Cary Brown, Head, Foreign Languages and Literatures, and Associate Dean of the School of Humanities and Social Science; Richard L. Cartwright, Linguistics and Philosophy; Eugene E. Covert, Aeronautics and Astronautics; Peter A. Diamond, Economics; Maurice S. Fox, Biology; Lowell E. Lindgren, Music; Kenneth R. Manning, Writing Program; and David H. Marks, Civil Engineering.

Other new academic appointments include: David E. Hardt, Director, Laboratory for Manufacturing and Productivity; Jack L. Kerrebrock, Associate Dean of the School of Engineering; Ronald M. Latanision, Director of the Materials Processing Center; Roger G. Mark, Acting Co-Director of the Harvard-MIT Division of Health Sciences and Technology; Phillip A. Sharp, Director of the Center for Cancer Research; Daniel Roos, Director of the Center for Technology, Policy, and Industrial Development; and Richard J. Wurtman, Director of the Clinical Research Center. In the late spring, Mary C. Potter of the Department of Psychology was elected to head the MIT faculty and J. Kim Vandiver of the Department of Ocean Engineering was elected associate chairman of the faculty. Professor Jack P. Ruina will continue as secretary.

Several changes in the Institute's central administration also were announced during the year.

In June, Vincent A. Fulmer, Secretary of the Institute, announced that he would take early retirement after 34 years of service to the Institute. As we noted at the time of his announcement, 34 years is not a true measure of Vince's tenure. It has been 34 years of weekdays, weeknights, and weekends at the Institute, years of foregone vacations and holidays as well. These years have been marked by extraordinary dedication and service to MIT. It is difficult to imagine any single person who could bring the stamina, the knowledge, and the sense of perfection that Vince has brought to this and to every position he has held at the Institute.

Other new administrative appointments include: Michael C. Behnke, Director of Admissions; Laurence H. Bishoff, Executive Director of the Medical Department and Acting Department Head; Michael A. Kane, Acting Medical Director; Helvi McLelland, Executive Director, Council for the Arts; and Shirley M. Picardi, Bursar.



Bradford Herzog

Many of the educational programs in which MIT pioneered set standards that are followed at many of our sister colleges and universities.



Stephen G. Sisak

The Institute was saddened this year by the deaths of several longtime friends and colleagues. We miss their presence among us and are grateful for their contributions to this community.

Raymond L. Bisplinghoff, Dean of the School of Engineering from 1968-70 and a member of the MIT faculty from 1946-70, died in March 1985. An internationally known aeronautical engineer, he was responsible for the development of research and instruction in flight vehicle structures. Following his years at MIT, he successively was deputy director of the National Science Foundation, chancellor of the University of Missouri-Rolla, and senior vice president for research and development at Tyco Laboratories.

In March 1985, William W. Buechner, Professor Emeritus, died at age 71. He served on the MIT faculty for 36 years and was widely known for his work in nuclear physics. Professor Buechner, a widely known experimental nuclear physicist, helped develop the Van de Graaff generator and played a role in planning for the Bates Linear Accelerator.

Prescott D. Crout, Professor Emeritus of Mathematics, died at age 77 in September 1984. Professor Crout came to MIT in 1925 as a freshman and, except for four years in industry, spent his entire professional life at the Institute. He was highly regarded for his ability to apply mathematics to the solution of complex engineering problems.

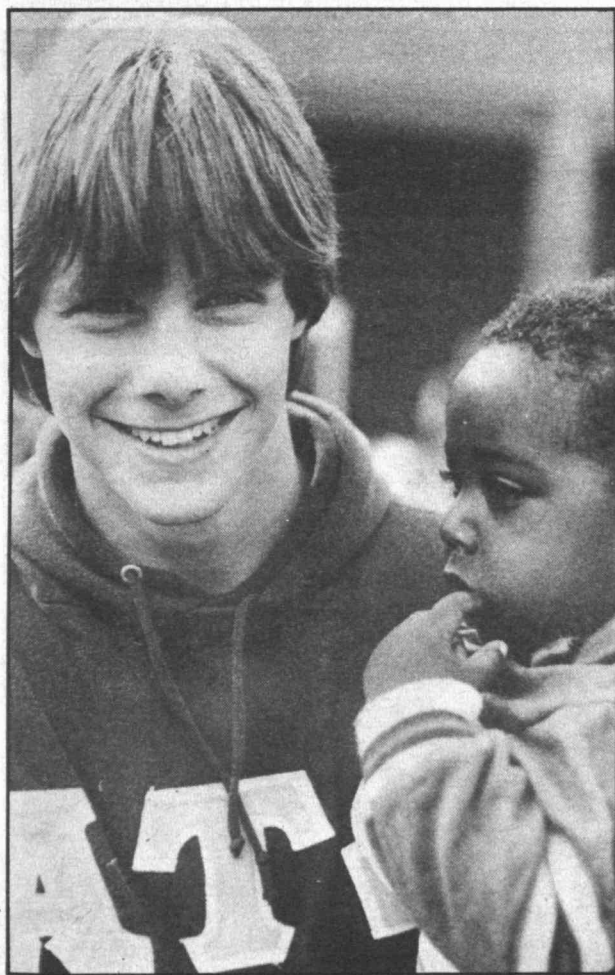
In May 1985, Thomas B. Drew, Professor Emeritus in the Department of Chemical Engineering, died at age 83. A pioneer in the use of tensor mathematics in chemical engineering, Professor Drew is a graduate of the MIT Class of 1923 and returned to MIT in 1965 as a professor of Chemical Engineering.

Walter H. Gale, Professor Emeritus, died in July 1984 at the age of 77. A graduate of MIT, Professor Gale was the originator of the Summer Session at MIT and served as the first Secretary of the Institute. He was also a founding member of the MIT Sustaining Fellows.

Jerome H. Holland, who served as member of the MIT Corporation for 10 years, died in January 1985 at the age of 69. Dr. Holland was an educator, civil rights advocate, and former United States ambassador to Sweden. He served two consecutive terms on the MIT Corporation from 1969-79.

J. Herbert Holloman, a member of the MIT faculty from 1972-83 died May 1985. Professor Holloman, an MIT alumnus, returned to the university in 1970 as a consultant to the president and provost and in 1972 was appointed as the first director of the Center for Policy Alternatives, a position he held until he joined the Boston University faculty in 1983.

In July 1984, Earl B. Millard, Professor Emeritus, died at the age of 96. He came to MIT in 1914 and from 1935-53 was a professor of physical chemistry.



Looking at our students, we cannot help but recognize that these are the faces of the future and that MIT has a pact with that future.



Calvin Campbell

Professor Barbara Jean Meyer

Professor Barbara Jean Meyer, a molecular and developmental biologist, has embarked on a course of scientific research at MIT that focuses on a particular genus of nematodes called *Caenorhabditis elegans*.

This particular nematode is a microscopic worm composed of only a thousand or so cells when fully matured. Its normal habitat is the soil. *C. elegans* occur as males and as self-fertile hermaphrodites. The major genetic difference between the two sexes is that males possess only a single X chromosome, whereas the hermaphrodites possess two X chromosomes.

The question of how this organism, or indeed any organism, determines and implements the correct pathway of sexual differentiation is a fundamental, yet complex, problem in developmental biology.

One aim of Professor Meyer's research is to trace and identify, step by step, the chain of genetic and biochemical signals that transmit information concerning the number of chromosomes in the young organism to the genes that then bring about the proper development of a male or of an hermaphrodite.

A second aim is to understand the mechanism of "dosage compensation." Dosage refers to the number of sex chromosomes present (one in males and two in hermaphrodites). Developing organisms must compensate for this imbalance in genetic dosage between the sexes.

"Because sexual differentiation is determined by chromosomal composition, it is often necessary to impose a further mechanism to insure that expression of genes on sex (X) chromosomes is kept equal in the different sexes," she explains. "Some organisms have evolved the means to compensate for the different number of sex chromosomes. Mammals inactivate one of the two X chromosomes in females; the fruit fly compensates by hyperactivating the single X chromosome in males to raise the level of X-specific gene expression to be equal to that found in XX females."

Professor Meyer is presently a Whitehead Institute Career Development Assistant Professor of Biology at MIT and head of her own laboratory where colleagues include postdoctoral fellows and graduate students.

Nematodes have not always been at the center of Professor Meyer's scientific interests. As a graduate student studying for her Ph.D. in Molecular Biology and Biochemistry at Harvard University, she worked with lambda viruses, a tiny organism that possesses only a few dozen genes. The research she did for her Ph.D., using the techniques of gene splicing to study the control of gene expression in lambda, was regarded as exemplary and she received an invitation to join the faculty in the Department of Biology at MIT.

As attractive as that invitation seemed, Professor Meyer decided to continue her training as a postdoctoral fellow with biologist Sydney Brenner of the Medical Research Council in Cambridge, England.

It was an important career decision. The techniques of recombinant DNA had made possible in the 1970s an enormous rush of discoveries concerning virus development and gene expression in bacteria, discoveries she had been associated with at Harvard. It would not be long, she reasoned, before genetic expression in viruses would be well understood.

Professor Meyer decided to change her research focus to higher diploid animals with genetic systems orders of

magnitude more complex than those of the virus. In that area of science, there would be research enough to fill several lifetimes.

It was Dr. Brenner in England who began research on the genetics of nematodes and for several years his was the only major laboratory in the world with this interest. Thus, Professor Meyer elected to spend three years there taking up a new research focus. When she completed the fellowship in 1982, she began her appointment at MIT.

Work with nematode genetics, although widely respected, is only beginning to be widespread. A couple dozen nematode research programs have been established, mainly by former students of Dr. Brenner, and the program Professor Meyer has begun at MIT is one of these.

An academic career attracts Professor Meyer because academia allows her the freedom to pursue basic research without the requirement of producing some marketable product or process that another career path might impose.

One of Professor Meyer's outside activities is mountain hiking, a pursuit she has enjoyed since her own student years in California. She has hiked trails throughout the U.S., Europe, and Asia. One memorable hiking trip took her to the Himalayan mountains of Nepal; she keeps in her office the print of a wide-angle photograph of the mountain range centered on Mount Everest.

A scientific career always seemed attractive to Professor Meyer as she was growing up in Stockton, California. But, looking back now, she expresses mild surprise that the specific science that finally attracted her was biology. In high school, she remembers biology as primarily a descriptive science, one requiring memorization of orders, families, classes, etc. It wasn't until her junior year at Stanford, after a year spent in Germany, that she was captivated by the analytical aspects of biology.

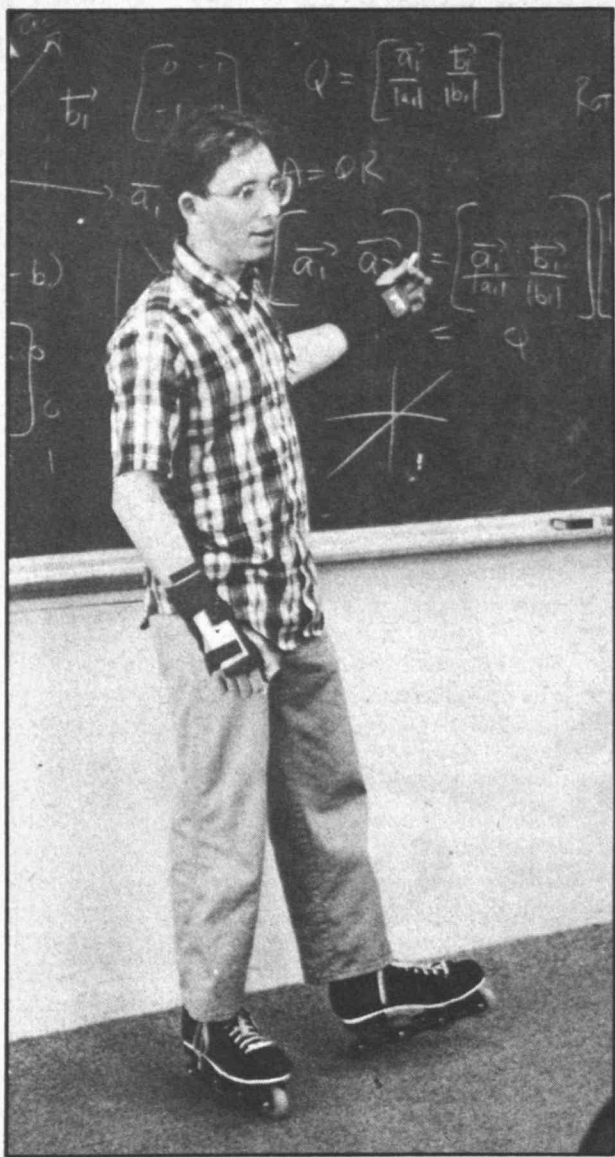
She received her B.A. degree in biology from Stanford in 1971 and took a year to decide what direction she would follow. She had considered medical school and the M.D. degree. In the end, she chose the road to a Ph.D. in biology, and began graduate study at the University of California, Berkeley. After two years, acting on advice of mentors, she accepted an invitation to continue her graduate work with Professor Mark Ptashne at Harvard, receiving her Ph.D. there in 1979.

At Harvard, she came to know molecular biologists at MIT, and during one Harvard summer she assisted MIT geneticist David Botstein in an advanced bacterial genetics course at the Cold Spring Harbor Laboratory in New York. The MIT scientists exhibited what she considered to be a rare degree of interaction and cooperation with each other, and, in addition, an intense enthusiasm for science. Moreover, she says, the MIT group struck her as people who "really cared about students and junior faculty and about the quality and rigor of science."

If there has been a surprise for Professor Meyer at MIT, it has been as the result of her teaching.

"The students here are incredibly smart and excited about their work," she says. "It's delightful to see their minds mature scientifically."

Professor Meyer was appointed to the Whitehead Institute Career Development Professorship in 1985. She values it for the encouragement it gives and for the money that eases somewhat the search for funds elsewhere.



Holly Sweet

As students return for the start of the fall term, they bring with them all of the eagerness, anticipation, and hope of a new generation.

Gwilym A. Price, retired Chairman and President of Westinghouse Electric Corporation and Life Member Emeritus of the MIT Corporation, died in June 1985. He was 89 years of age and the eldest member of the Corporation. A lawyer, banker, and industrialist, he was a distinguished leader of industry and a statesman for the business community. In addition, he participated in extraordinary measure in the affairs of the Corporation and the Institute.

Paul Rosenstein-Rodan, whose career at MIT as an economist and faculty member spanned nearly 20 years from 1953-72, died at the age of 83 in May 1985. Dr. Rosenstein-Rodan was one of the early major theorists in development economics, and was credited with coining the term "underdeveloped countries."

In February 1985, John G. Trump, Professor Emeritus in the Department of Electrical Engineering and Computer Science, died at the age of 77. Dr. Trump was associated with MIT for more than 50 years, serving as a professor of electrical engineering. From the early 1940s until 1980, he directed the MIT High Voltage Research Laboratory, now part of the Laboratory for Electromagnetic and Electronic Systems.

In October 1984, David Floyd Waugh, professor of biophysics in the Department of Biology, died at age 69. He served on the MIT faculty for 43 years and was recognized as an authority on mild proteins, on the chemical and physical processes involved in the coagulation of blood, and on the chemical and physical processes involved in the interaction of protein molecules.

John Wulff, Professor Emeritus of Metallurgy, died in May 1985 at the age of 82. Professor Wulff, who began his career as a physicist, was widely recognized as a metallurgical engineer and known for his contributions to several fields, including surgical bone implants. He was the first holder of the Class of 1922 Chair, a professorship established in 1962 to recognize and support conspicuously effective undergraduate teaching.

Statistics for the Year

The following paragraphs report briefly on various aspects of the Institute's activities and operations during 1984-85.

Registration

In 1984-85, student enrollment was 9,626, compared with 9,577 in 1983-84. This total comprised 4,536 undergraduates (compared with 4,602 the previous year), and 5,090 graduate students (compared with 4,975 the previous year). Graduate students who entered MIT last year held degrees from 386 colleges and universities, American and foreign. The international student population was 2,145, representing 13 percent of the undergraduate and 31 percent of the graduate population. These students were citizens of 97 countries.

Degrees awarded by the Institute in 1984-85 included 1,131 bachelor's degrees, 1,045 master's degrees, 56 engineer's degrees, 447 doctoral degrees — a total of 2,679.

In 1984-85, there were 2,211 women students (1,157 undergraduate and 1,054 graduate) at the Institute, compared with 2,066 (1,090 undergraduate and 976 graduate) in 1983-84. In September 1984, 309 first-year women entered MIT, representing 29 percent of the entering class.

In 1984-85, there were 1,189 minority* students (1,021 undergraduate and 168 graduate) at the Institute, compared with 1,107 (914 undergraduate and 193 graduate) in 1983-84. The first-year class entering in September 1984 included 289 minority students, representing 27 percent of the class.

Student Financial Aid

During the academic year 1984-85, the student financial aid program was again characterized by an increase in the overall need for financial aid and in the aggregate amount of grants made available. There was an increase in the amount of MIT loans awarded. Federally guaranteed loans obtained from commercial sources showed a small increase.

*Minority students include 315 Blacks (non-Hispanic), 19 Native Americans, 200 Hispanics, and 655 Asian Americans.



Jim Harrison

Beyond activities in our own classrooms and laboratories, perhaps MIT's most profound influence on education and research rests with the 4,000 graduates who now serve on the faculties of colleges and universities around the world.

A total of 2,461 undergraduates who demonstrated the need for assistance (54 percent of the enrollment) received \$14,863,000 in grant aid and \$3,085,000 in loans. The total, \$17,948,000, represents a 5 percent increase in aid compared with last year.

Grant assistance to undergraduates was provided by \$3,953,000 in income from the scholarship endowment, by \$2,033,000 in outside gifts and federal allocations to MIT for scholarships, and by \$2,399,000 in direct grants from outside sources to needy students. In addition, \$5,432,000 in scholarships from MIT's unrestricted funds was provided to undergraduates. The special program of scholarship aid to minority group students represented an additional \$118,000 from specially designated funds. An additional 826 students received grants from outside agencies, irrespective of need. The undergraduate scholarship endowment was aided by the addition of \$2,275,000 in new funds, which raised the principal of the endowment to \$38,389,000.

Loans totaling \$3,085,000 were made to needy undergraduates, a 28 percent increase from last year. Of this amount \$738,000 came from the Technology Loan Fund and \$2,347,000 from the National Direct Loan Fund. Not included in the foregoing summary is an additional \$5,719,000 obtained by undergraduates from state-administered Guaranteed Loan Programs and other outside sources. This represents a 4 percent decrease in the use of these programs over last year.

Graduate students obtained \$1,420,000 from the Technology Loan Fund, \$363,000 of which was loaned to international students and did not qualify for the federal interest subsidies and guarantees available under the Guaranteed Student Loan Program. In addition, \$202,000 was loaned by MIT under the Guaranteed Student Loan Program. The total, \$1,622,000, represents a 15 percent decrease from last year's level. Graduate students obtained \$3,390,000 from outside sources under the Guaranteed Student Loan Program — 13 percent above last year's level. The total loaned by MIT to both graduate and undergraduate students was \$4,707,000, a 10 percent increase over last year's level.

Finances

As reported by the Vice President for Financial Operations and the Treasurer, the total financial operations of the Institute, including sponsored research, amounted to \$717,187,000, an increase of 9 percent over 1983-84. Education and general expenses — excluding the direct expenses of departmental and interdepartmental research and the Lincoln Laboratory — amounted to \$299,035,000 during 1984-85, compared with \$270,180,000 in 1983-84. The direct expenses of departmental and interdepartmental sponsored research on campus increased from \$156,811,000 to \$168,311,000; and direct expenses of the Lincoln Laboratory's sponsored research increased from \$231,620,000 to \$249,841,000.

Current revenues used to meet the Institute's operating expenses totaled \$710,345,000, augmented by \$6,842,000 in unrestricted revenues. After meeting these expenses, a surplus of \$1,512,000 in current unrestricted gifts was held at year-end.

The construction program of the Institute continued to make progress in 1984-85, with book value of educational plant facilities increasing from \$298,935,000 to \$306,490,000.

At the end of the fiscal year, the Institute's investments, excluding retirement funds, students' notes receivable, and amounts due from educational plant, had a book value of \$679,820,000 and a market value of \$920,658,000. This compares to book and market values of \$605,378,000 and \$771,319,000 last year.

Gifts

Gifts, grants and bequests to MIT from private donors increased significantly in 1984-85 to a new high of \$61,714,000, as compared with \$49,122,000 in 1983-84. The Alumni Fund reported gifts of \$10,128,000 for the year, a new record.

Physical Plant and Campus Environment

The Arts and Media Technology Building was substantially completed by the end of the year. The first occupant, the Committee on the Visual Arts, moved into the building during January and the Albert and



Calvin Campbell

Professor T. Alan Hatton and his family

T. Alan Hatton, assistant professor of chemical engineering, came to MIT nearly four years ago to begin a career of academic research and teaching.

That he's made a splendid beginning is evidenced by awards and honors he's begun to accumulate for research and for teaching. He won MIT's Everett Moore Baker Award for Excellence in Undergraduate Teaching in 1983 and earlier this year he was one of 200 nationwide to receive a Presidential Young Investigator Award from the National Science Foundation.

But when he goes home at night — or, for that matter, on those occasions when he goes home for lunch with his wife and two small sons, ages 3 and 1 — Professor Hatton finds himself in what he calls a "separate life," that of a faculty resident at MacGregor House, one of MIT's undergraduate dorms.

"The experience has been a surprise," he says. "We never imagined ourselves in this role. But it's turned out great, knowing students on a personal level and being involved with them in their lives outside the classroom and laboratory. This is what university life is all about."

Professor Hatton and his wife, Marianne, came to the U.S. from their native South Africa in 1977 when Professor Hatton began graduate studies in chemical engineering at the University of Wisconsin with Professor Edwin N. Lightfoot. Professor Hatton had received the bachelor's degree in engineering from the University of Natal at Durban in 1972 and the master's from there in 1976. Marianne Hatton was a schoolteacher.

At Wisconsin, where he received his Ph.D. in December of 1981, Professor Hatton had his first taste of teaching when he took over a senior undergraduate course in mass transfer for Professor Lightfoot who took time off to prepare the syllabus for a new course in toxicology. The experience added teaching to Professor Hatton's original ambition for a career in research, and he considered himself fortunate when he was appointed to the chemical engineering faculty at MIT in January of 1982 as Atlantic Richfield Assistant Professor of Chemical Engineering.

"I knew it was a department on the move, heading for number one in the nation, with new faculty and excellent graduate students," he says.

Professor Hatton plunged ahead immediately, organizing his own research program in bioseparation processes, undertaking the supervision of thesis research by graduate and undergraduate students, and teaching. In his first three years, he supervised the thesis research of a dozen doctoral candidates, served as reader for another dozen, and supervised research by one S.M. candidate and five S.B. candidates. Moreover, he has developed and directs a new departmental chemical engineering process laboratory for undergraduates. The laboratory integrates classroom teaching with experiments in extraction by liquid membranes, in biochemical fermentation, in combustion, and in chemical separations. For the summers of 1983 and 1984, Professor Hatton directed the department's practice school at Brookhaven National Laboratory on Long Island in New York.

His own research has flourished, drawing support from six industrial concerns and the National Science Foundation as well as MIT's own Sloan Basic Research Fund. (The Sloan Fund is one of the few endowments MIT has to support basic research by faculty members, including those just beginning academic careers.) Professor Hatton has been the coauthor of nearly two dozen papers published or soon to be published in professional journals, and has lectured and participated in symposia all over the U.S. and in Europe.

Specifically, Professor Hatton's research interest is in exploring and understanding various methods of extracting biologically valuable molecules (such as amino acids and proteins) from the heterogeneous "soups" that are the end products of biotechnology processes. Professor Hatton's long-term goal is to identify and describe thoroughly those separation processes that will prove commercially valuable to the still-emerging biotechnology industry.

For example, Professor Hatton and his colleagues are pioneering research into the use of organic solvents, which normally are unsuitable for protein extractions, in the recovery of biological macromolecules. To this end, they are exploiting the ability of certain surfactants to aggregate in these solvents to form "reversed micelles." These micelles contain small quantities of water in which the proteins are effectively solubilized, shielded from the hostile organic environment, and thus provide an efficient means for extracting the bipolymers from aqueous solutions, often selectively. Their initial success on the separation of simple protein mixtures has prompted Professor Hatton to look at more interesting problems. His group presently is embarking on a study of the recovery of the protein known as interferon using this technique.

Professor Hatton says the Atlantic Richfield Career Development Assistant Professorship that he held for his first two years at MIT played an important part in his early achievements here.

"To say it was helpful is to put it mildly," he says. "It provided equipment, supplies, and, most important, research. Of all the support, the latter is probably the most essential for someone just starting on an academic career."

It was in mid-1983 that colleagues, impressed with Professor Hatton's interest in and rapport with undergraduate students, suggested to him that he and Mrs. Hatton consider serving as family residents in one of MIT's undergraduate residences where they would function as counselors, crisis managers, and supervisors.

"That idea had never occurred to us before," he recalls. "I really had to be pushed. But as Marianne and I looked into it, the idea became more and more attractive."

Following a series of interviews (in which their older son, Ross, then 16 months old, proved to be the star), the family moved into an apartment at MacGregor House. Their second son, Kent, now a year old, was born after they became faculty residents there and the two boys are often the "ice breakers" in bringing Professor and Mrs. Hatton into close acquaintanceships with MacGregor undergraduates.

These interactions go well beyond simple academic assistance for students. Professor Hatton and his wife find themselves more and more drawn into the social and emotional lives of the young people at MacGregor.

"We seem always to be engaged in something with the people around us," he says. "It really is very much a different life, one my wife and I enjoy very much."

"The most valuable thing for me has been to come to know each student as a human being and not just as one in a mass of undergraduates."

The job of a faculty resident is not without heart-break, however.

"The ones who bring me the greatest sadness are those few who must withdraw because of inferior academic performance," he says. "The students who come to MIT are fundamentally extraordinary people and they should not be failing. But a few do and not just for reasons of inability. There is often more to it. These are the people we really try to reach."

Vera List Visual Arts Center was dedicated in March with opening exhibitions of contemporary painting, sculpture, and performance art in the Center's three galleries.

Major renovation projects completed during the year included the Martin Center for Engineering Design on the fourth floor of Building 3, Chemistry research laboratory facilities on the second and third floors of Building 2 (north), and the Center for Real Estate Development on the top floor of the Armory (W31) on Massachusetts Avenue. Athena renovation projects continue to be a major source of design and construction activity, with seven new computation clusters slated for completion during the next year.

The first phase of the campus computer network has been completed. This network has been designed to provide high-speed data communications to as many on-campus computer systems as possible. Gateways connecting the campus computer network to local area networks are located in a number of campus buildings. The major network client, at present, is Project Athena.

In the Housing and Food Services area, substantial changes were implemented in an effort to assure that we continue to meet our goal of providing the best possible services for our students. The Housing operation was reorganized to decentralize much of the immediate decision-making authority and responsibility by moving it to the individual House Managers. House Managers now have the authority to respond quickly to situations that arise, and have the full responsibility for the physical environment, employee resources, and budgeting within their respective Houses.

More than \$1 million in renovations and repairs was spent in an ongoing effort to upgrade the housing system. Major structural work took place at East Campus where extensive lintel and brick restoration was performed. New bathroom construction was also completed. At the West Campus houses, a recarpeting program was initiated. A comprehensive program for mechanically updating elevators located in Housing and Food Services department areas was also implemented.

The Food Service operation in the majority of dormitory dining rooms was changed to an à la carte system during the year in response to the students' desire for variety and flexibility. Baker House residents did express a desire to continue its Commons dining program, with some à la carte adjustments to meet their dining objectives, and will be the only House on a Commons dining plan next year.

So that the Faculty Club might better serve its primary function as a center of academic and social exchange, the Advisory Board and management of the Club recommended a full-scale renovation, which began this summer.

During the year, proposals were received for a state-of-the-art digital switching system to replace the Institute's Centrex telephone service as well as the dormitory system called DormLine. Following an exhaustive review of the proposals, an ad hoc committee of faculty and staff working with Telecommunications Systems recommended acceptance of the proposal submitted by AT&T Information Systems. Assuming acceptance of this recommendation by the senior administration, the Institute's Centrex Service and DormLine will be replaced by an Institute-owned PBX in the fall of 1987.



Chris Maynard

One career field on which the sun certainly shone was architecture. As many as half a dozen firms came recruiting—and salaries were up as much as 10 percent from the previous year.

Career Services and Preprofessional Advising

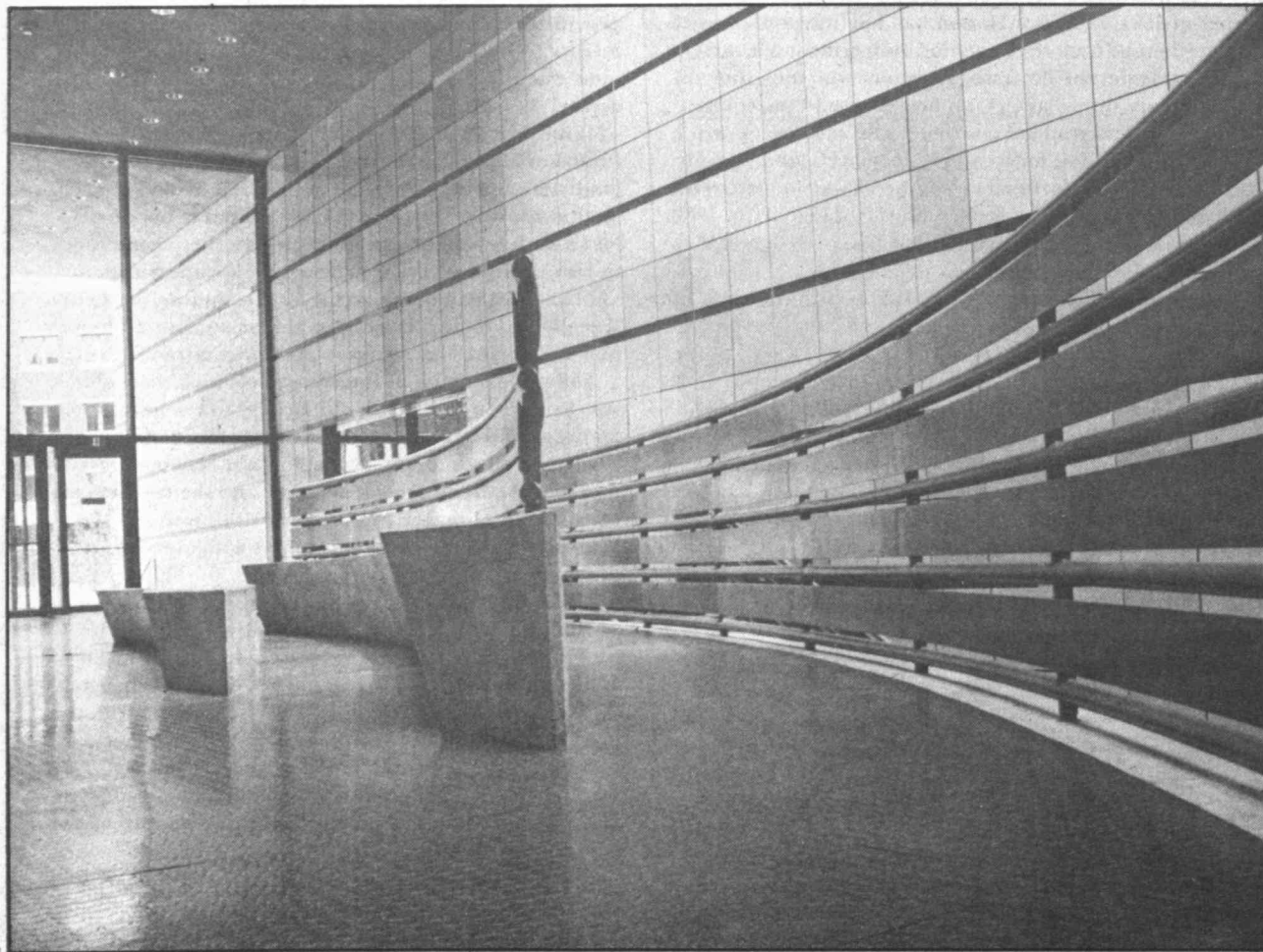
In spite of the slowing of the economy and of a marked pause in the growth of the electronics industry, which has been the destination of large numbers of MIT graduates in recent years, it was a good year for graduates seeking employment. The number of companies and government agencies which came recruiting totaled 431, not much short of 1982's record of 450. (The number compares with 405 in 1982-83 and 407 in 1983-84.) Students, perhaps more confident of their employment prospects, signed up for fewer interviews than the year before — 9,012, down from 9,898 in 1983-84.

If the change in the economic climate was apparent anywhere it was in the level of salary offers. Offers to seniors in electrical and mechanical engineering were up less than 4 percent; offers to seniors in chemical engineering did not move up at all (with the result that chemical engineering dropped to second place, below electrical engineering, in the ranking of undergraduate majors by salary). The largest salary increases in engineering — up to 8 percent — were at the Ph.D. level. The premium paid for a Ph.D. degree in electrical engineering over a bachelor's, which was down to 1.4 five years ago, is back to 1.6 (where it stood in 1974).

One field on which the sun certainly shone, however, was architecture. As many as half a dozen firms came recruiting — a rare event because most of the time architectural firms count on candidates coming to them — and salaries were up as much as 10 percent.

For the second year in a row there was an increase in the number of MIT applicants to medical school. They totaled 115, including 81 undergraduates, 10 graduate students, and 24 alumni. (There were 105 applicants in 1983-84 and 101 in 1982-83.) The increase runs counter to a leveling in the number of candidates in the country at large. The final results are not in, but it appears that 88 percent of the undergraduate applicants and 80 percent of the total applicant group were successful. This compares with a national acceptance rate of 48 percent.

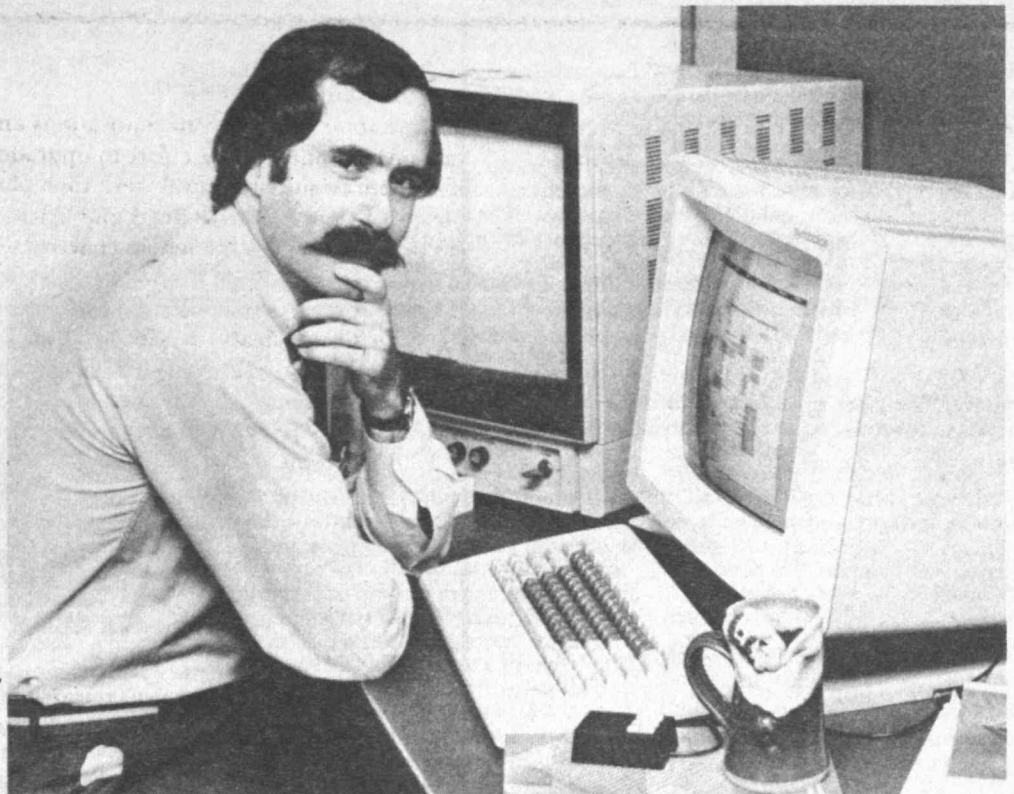
Twenty-seven MIT candidates are known to have applied to law school, among them 16 undergraduates.



John Y. Hong

The Arts and Media Technology Building was substantially completed by the end of the year, and opening exhibitions in the Albert and Vera List Visual Arts Center included contemporary painting, sculpture, and performance art.

Calvin Campbell



Professor Randall Davis

Some people want to know everything about something.

Other people want to know something about everything.

And then there are those people in the world of artificial intelligence who develop "expert systems."

They want—nay, **need**—to know everything about everything. Dr. Randall Davis counts himself among the latter.

"When you work on an expert system for a particular field, you must learn everything you can about that field," Professor Davis says. "I find myself wanting to know everything about everything."

Dr. Davis is Associate Professor of Management Science at MIT's Sloan School of Management and a member of the research staff at the Artificial Intelligence Laboratory.

In both capacities, Professor Davis is concerned with developing and applying computer-based expert systems. These are computer programs that are crammed with knowledge about a field and with the skills of logic and reason to manipulate that knowledge. In the long term, they may be used in virtually any field—medicine, law, engineering, management, finance, petroleum geology, etc.—where a large amount of specialized knowledge is the key to performance. Expert systems—some of which already exist in commercial form—will enable a computer to converse with a user about his or her problem and then provide the kinds of high quality advice the user could expect from an expert in the field.

At the Sloan School, Professor Davis teaches the principles of expert systems as part of the School's recently expanded activities in the overall realm of management information systems. For more than a decade, MIS has been revolutionizing the way managers do their work, and the addition of expert systems will make MIS an even richer tool for managers of the future.

At the AI Lab, Professor Davis is principal investigator of the Hardware Troubleshooting Group, composed of computer scientists who are trying to formulate a theory of what it means to "understand how something works." They use as their experimental model the problems an engineer has when he or she must diagnose and repair a faulty computer; hence, the group's title.

Professor Davis is a relative newcomer to management science, but, though only 36, he has been a part of research on expert systems since the field began opening up more than a decade ago.

His original ambitions were to be a physicist, however. He grew up in a New York city suburb on Long Island and in 1966 entered Dartmouth College as a National Merit Scholar. He received the bachelor of arts degree in physics from Dartmouth in 1970, summa cum laude, Phi Beta Kappa. His senior research project in optics was supported by a grant from the National Institutes of Health. The senior thesis that resulted was ultimately published in the *American Journal of Physics*.

But physics did not hold him. During his junior year, the wide accessibility of computer time at Dartmouth gave Professor Davis a first-hand introduction to computers and to the larger epistemological questions about knowledge and reason and thought that are the concerns of artificial intelligence.

His AI interest became more than passing in the fall of 1970 when he was admitted to Stanford University as a physics graduate student and became a research assistant with the Computation Group at the Stanford Linear Accelerator. From that vantage point, he recalls, he watched the comings and goings of the people in the nearby Stanford AI Lab with increasing interest. Within six months, Professor Davis had dropped nuclear physics and embraced AI as his major. By the following fall, he was a research assistant in the AI Lab and later a part of the group in the Heuristic Programming Project that developed MYCIN, a computer-based expert consultant

for physicians in infectious diseases. Professor Davis' seminal contribution was the TEIRESIAS program, a system for knowledge acquisition that allowed a physician to "educate" an expert system in much the same way that he or she would educate medical students. Professor Davis received his Ph.D. in artificial intelligence from Stanford in 1976 and remained there for two additional years as a Chaim Weizmann Postdoctoral Scholar.

While working on MYCIN, Professor Davis entertained ideas of becoming a physician himself and in 1975 he was offered admission to the Harvard Medical School. He declined, at least temporarily, electing instead to complete his doctoral studies in artificial intelligence. When HMS offered him admission for a second time the following year, he again declined, making a career commitment to artificial intelligence and knowledge-based expert systems.

As it turned out, however, he did move to the academic environment of Boston and Cambridge when he began his professorial career. Stanford and MIT are and always have been two of the best AI research centers in the nation. Thus, it was not surprising in 1978, when Professor Davis' postdoctoral appointment came to an end at Stanford, that he sought and was offered the opportunity to embark on an academic career at MIT. He was appointed an Assistant Professor in the MIT Department of Electrical Engineering and Computer Science and a research staff member in MIT's AI Lab. In 1979-81 he held an Esther and Harold Edgerton Career Development Assistant Professorship. He was made Associate Professor in 1983.

Also in 1983 Professor Davis was invited to join a group at the School of Management that was in the process of expanding the School's research and teaching in management information systems. His contributions in the area of expert systems formed an important part of the effort, and in 1984 he was asked to join the Sloan faculty on a permanent basis.

At the AI Lab, Professor Davis' research focuses on expert systems that work from descriptions of structure and function and are capable of reasoning from "first principles." The concept of reasoning from first principles can be grasped by comparing two kinds of reasoning we all see in experienced engineers as they contemplate why an electronic circuit failed.

When they can, veterans think their way through the problem by drawing on accumulated experience, reasoning about similar situations they have encountered. When this fails, perhaps because the problem is novel, the expert will fall back on "first principles," i.e., relying on theory and schematics, reasoning from descriptions and behavior.

"Where much of the existing work on expert systems has focused on building rule-based systems in the first of these styles, our work has centered instead on reasoning from first principles using descriptions of structure and behavior," a recent group report says. "We want to construct a theory of what it means to 'understand how something works.'"

Professor Davis has lectured throughout the U.S. and abroad and soon will be one of four computer scientists in a symposium via a satellite hookup organized by Texas Instruments, Inc., for people working in companies, universities, and laboratories nationwide. He is the author of numerous articles in professional and popular journals and is coauthor with Douglas Lenat of *Knowledge-based Systems in AI*.

As a matter of fact, Professor Davis is well regarded by many colleagues for his ability to write about his work in clear and plain English, an ability Professor Davis attributes, in part, to a style of thinking that is particularly suited for work on knowledge-based expert systems.

"I've always searched for the essence of things," he says. "I think you can't really understand something until you've made it understandable to others. You do that by simplifying, getting to the core of it."



Calvin Campbell

Professor Lynne B. Sagalyn

Professor Lynne B. Sagalyn's research interests have ranged from exclusive suburban developments to disadvantaged inner-city neighborhoods to revitalized downtown shopping areas. Her focus has been to understand how and why cities change and the role public policy plays in shaping urban development.

Professor Sagalyn is Class of 1922 Career Development Assistant Professor in the MIT Department of Urban Studies and Planning. She has been an assistant professor since 1980 when she received her Ph.D. from MIT.

"You could say I'm a product of the late 1960s," she says. "When I was an undergraduate, war, prejudice, justice, and poverty were burning campus issues. I was debating between graduate study in art history or in urban planning. The social commitment of the times made the choice a clear one."

Professor Sagalyn grew up in Queens and later Westchester County outside New York. She began college at the University of Wisconsin and finished at Cornell. Her undergraduate years coincided with the period when student protest swept university campuses. At Wisconsin, she majored in international relations; by her junior year, she had focused on social problems, particularly housing and poverty.

"The intellectual climate was conducive to such studies," she recalls. "The problems were widespread and the nation's political priorities reinforced the personal convictions of many of us who were looking at different ways to understand how change within the system could be implemented."

For this and other reasons, she transferred to Cornell's School of Human Ecology, majoring in housing and design and receiving the bachelor's degree with distinction in 1969.

She continued with graduate work at Rutgers University. After receiving the master's degree in city and regional planning in 1971, she became a research associate at Rutgers' Center for Urban Policy Research where she studied the impact that land-use restrictions have on housing costs in suburbia. Her research was one of the earliest analytical studies in the area and her findings gained wide attention.

"I was surprised that little research had been done to assess the cost effects of land-use restrictions," she says. "Land-use controls, such as large-lot zoning and excessive development requirements, were controversial. Yet not much was known about their impact on housing costs and patterns of suburban growth."

"I had to begin from scratch building a data base to study this issue systematically," she recalls. "I spent 14 months designing a survey, interviewing developers, identifying land-use restrictions, and developing a statistical model to measure the portion of housing prices related to restrictions."

In the mid-1970s, Professor Sagalyn decided to pursue doctoral studies at MIT in urban studies and planning.

"This is a well-known department," she says. "I had already heard of many of the people here. Moreover, the doctoral program here gave me the flexibility to design my own course of study and it fostered independent inquiry along interdisciplinary lines. I wanted to understand urban housing markets the way an economist would look at them, and also to understand the social and political institutions through which housing policy is formed and implemented."

Soon after beginning (she held a Charles Abrams Fellowship for 1977-78 from the MIT-Harvard Joint Center for Urban Studies), Professor Sagalyn decided to focus on housing finance. Once again, her research attracted wide attention.

"There had been shifts in the real costs of housing, concern over affordability of homeownership, and shock to the traditional system of housing finance," she says. "Public policy was in flux and pressures for reform were strong. New types of mortgages were being offered by financial institutions. Home buyers were confronted with both increasing costs and complexity in mortgage instruments."

"Urban home buyers faced a different problem. There was growing awareness about red lining—financial institutions delineating specific parts of inner cities where they would not make home mortgage loans. Red-lined areas were usually disadvantaged neighborhoods populated by blacks and other minorities, and there was vigorous debate over what to do."

Despite loan refusals, houses in neighborhoods undergoing racial change were being bought and sold. In fact, during the post-war decades, homeownership among non-whites increased. Houses once occupied by whites were being acquired by blacks through real estate speculators. Installment contracts were the means most commonly used. Professor Sagalyn's research looked at the dynamics of this market.

"About all that was known about these transactions was anecdotal," she recalls. "Installment sales are private contracts, rarely recorded because, typically, title does not change hands until the purchase price has been paid in full. The seller retains ownership and collects installments from a purchaser. In many states, an installment buyer has few rights as an owner and little protection as a renter. Again, I was into a research topic with no systematic data base and no strong case history literature."

As it turned out, civil rights activism provided a source. In the late 1960s, a Chicago law firm brought a class-action civil rights suit against a group of real estate speculators on behalf of black home buyers and, in the process, amassed case histories on installment sales contracts.

"I spent several months in the firm's deep-storage rooms drawing out data to document this alternative housing finance market," Professor Sagalyn recalls. "It was exciting. I felt I was working on something of historical importance which was also at the center of a contemporary housing problem."

Professor Sagalyn's thesis, completed in 1980, drew the attention of urban planners because of the understanding she provided on an important mechanism in neighborhood racial change.

After receiving her Ph.D. in 1980, Professor Sagalyn decided to devote half her time to spending the early childhood years with her daughter, who had been born during the period Professor Sagalyn was working on her dissertation. For two years Professor Sagalyn held a part-time appointment at MIT as an assistant professor. In 1982, she resumed full-time work with an appointment as assistant professor, and in 1984 she was appointed to the Class of 1922 Chair.

More recently, Professor Sagalyn's research has shifted to downtown redevelopment and changing relations between city governments and private developers. She and Professor Bernard Frieden have collaborated on a study of downtown retail centers (i.e., Boston's Faneuil Hall, San Diego's Horton Plaza). Case studies they have prepared form the basis for a new subject they are teaching.

"The effort to document and write case studies has been important to understanding how complicated and innovative these projects are," Professor Sagalyn says. "We emphasized how developers are chosen, what the public and private sectors do to implement the projects, and what the problems are and how they are resolved."

In 1984, their working paper, "Downtown Shopping Malls and the New Public-Private Strategy," was published by MIT's Center for Real Estate Development, describing a new approach to revitalizing downtown shopping areas.

The key, they say, has been changing relations between public and private sectors to make development a joint venture. City governments have developed entrepreneurial styles, sharing decisions with private developers and substituting negotiation for confrontation to bring about projects that draw people back to cities. The authors presently are expanding their study into a book.

An important part of Professor Sagalyn's growing academic life at MIT has been teaching. Students and colleagues rate her an excellent teacher. Moreover, she has designed new subjects, including one in real estate finance and another in downtown redevelopment, which she teaches with Professor Frieden.

Community Meetings

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

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

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

Narcotics Anonymous* - Meetings at MIT, every Mon, 1-2pm, Rm E23-364 (MIT Medical Dept). Call 569-8792.

FRAP Meetings** - Compensation Office meetings on the Flexible Reimbursement Account Program, Wed, Nov 20, 10:30-11:30am & 12-1pm, Rm 10-105; Thurs, Nov 21, 9-10am & 10:30-11:30am, Linc L-277.

Institute Colloquium Committee Meeting** - To discuss topics and formats of future colloquia, Thurs, Nov 21, 3-5pm, Rm 10-280.

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.

Commodore Users Group** - meets monthly at noon time. For more info, call Gil, x8-3186 Draper.

Children in the Afternoon: Choices, Options and Dilemmas* - Dr. Lois Eichler, psychologist, MIT Medical Dept, MIT Child Care Office Meeting, Nov 25, 12-1pm, Rm 4-144. Bring brown bag lunch.

Winter Crafts Fair - Tech Community Women will accept applications for those wishing to sell at the Winter Crafts Fair, Dec 10-11, through Nov 22. For info, call Mary Helen Miller, x3-5225 or 494-5217 eves.

Exercise Class** - Tech Community Women class, Tues, 7:30-8:30pm. Call 494-4825 or 651-3697 for information on location.

Wives' Group - Morning Group: Nov 27, J.F. Kennedy's Birthplace** - info: Rhonda Thomson, 924-3848 or Lynda Merican, 577-9519; Dec 4, New England Aquarium, inc dolphin and sea-lion shows, and Caribbean Coral Reef Exhibit - info: Catarina Bacos, 723-3449 or Francine Peytrignet, 367-9141. For all trips, meet at 9:15am, Eastgate (60 Wadsworth St). Children welcome. **Afternoon Group: Nov 27, Selection of American Folk Songs** - Janet Green, folksinger & administrative asst, MIT Treasurer's Office; Dec 4, Alaska: A Slide Presentation - Mrs Arthur Ippen, chairman, MIT Honorary Matrons. All meetings, 3-5pm, Student Ctr Rm 491. Babysitting provided in Student Ctr Rm 407.

Craft Group** - sponsored by Wives' Group, meets every Thurs, 2-4pm, Student Ctr Center Lounge or Student Ctr Rm 407. Please call x3-1614 to check on location of meetings.

The Language Conversation Exchange** - sponsored by the Wives' Group, seeks persons interested in practicing languages with a partner. Many international students and spouses wish to practice English with a native speaker. If you are willing to help an international visitor practice English and/or interested in practicing or learning a foreign language with a native speaker, call the secretary to the Wives' Group, x3-1614.

MIT Women's League Informal Needlework Group** - Wednesday lunchtime gatherings, 9:30am-1:30pm, Rm 10-340. Bring sack lunch, projects, swap ideas. Coffee & tea served. Meeting dates: Nov 27, Dec 11, Jan 8, 22, Feb 12, 26, March 12, 26, April 9, 23, May 14, 28. For more info, call Lillian Alberty (491-3689), Nancy Whitman (x3-6040) or Beth Harling (749-4055).

Alumni Activities

As You Like It: A Selection of Scenes from Shakespeare and Contemporary Authors** - performed by MIT Shakespeare Ensemble, MIT Alumni Council Dinner-Meeting, Nov 25, 6:15pm, Faculty Club. Cocktails, 5:30pm. Cost \$12.50pp; \$10/sponsor-a-student. Walk-in registration begins, 6pm, first-come, first-served; advance registration advised. See Ms. Pina Levermore, Rm 10-110.

MIT Activities Committee

MITAC, the MIT Activities Committee offers discount movie tickets for General Cinema (\$2.50), Showcase and Sack Theaters (\$3.00). Tickets are good 7 days a week, any performance.

Tickets may be purchased at MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm. Mon through Fri and Lobbies 10 and E18 on Fri, 12-1pm. Lincoln Lab employees may purchase tickets in Rm A-270 from 1-2pm, Tuesday through Friday only. Check out our table of discounts for camping, dining, musical and cultural events available to you through MITAC and MARES (Mass Assoc of Recreation and Employee Services).

Messiah. Thurs, Dec 5, 8pm, Symphony Hall. Decorate the mantel with holly and jaunt over to Symphony Hall to complete the holiday trimmings. A Boston tradition since 1815, the *Messiah* is a holiday treat, this year performed in the 1753 version. Tickets: \$23.50/pp (reg \$28) and can be purchased in Rm 20A-023.

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. *Note: The Renoir exhibit is a separate admission price, and one must designate a day and time one wants to see the exhibit. Please call the Museum of Fine Arts directly for more information. MITAC is not offering Renoir Tickets.*

Museum of Science Tickets. Available for only \$1. (To see just the museum, pay another \$1 at the door, for a total savings of \$3/person - reg. \$5/person admission). For the China Exhibit, pay another \$5/adults, \$3/children at the Museum, for a total savings of \$1/pp (reg \$7/adults, \$5/children).

City Books are here! Only \$.75 ea. Great stocking stuffers.

Ski-Key Books. Containing valuable discount lift ticket coupons for the greater New England area are here! Only \$9 ea.

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

Gourmet Dessert Soiree** - MIT Hillel Board event, Fri, Nov 22, 9pm, Ashdown House Dining Room.

Dance Party for South Asian Students* - Sangam (MIT Indian Students Association) Party, Sat Nov 23, 9pm, Student Ctr Rm 491. Entrance: \$3. Liquor served with ID only.

Thanksgiving in the Woods** - MIT Outing Club trip to North Groton, NH, Nov 28-Dec 1. Enjoy hiking, deserted woods, streams, beaver ponds, old mica mines and lots of food. Try out our wood stoves. Info: MITOC Office, Student Ctr Rm 461, M/Th, 5-6pm, x3-2988.

Christmas Potluck Dinner** - Tech Community Women dinner, Dec 6, 7:30pm, Rm 10-340. Semi-formal attire required. Bring a main dish, dessert or salad. RSVP by Nov 29. For more info, call Peck Ha Tan, 494-8582 eves.

Table Francaise** - sponsored by Foreign Languages & Literatures Section. Venez dejeuner avec nous et parler francais! Votre hote: Christophe Lecuyer. Tous les Lundis, de 12:15 a 13:45, Muddy Charles Room a Walker Dining Hall

GAMIT Sunday Discussion Meeting* - Gays at MIT, Suns, 5pm, GAMIT Lounge, Walker Memorial Rm 50-306. Dinner served at 6:30pm.

GAMIT Study Break* - Gays at MIT, Thurs, 9pm, GAMIT Lounge, Walker Memorial Rm 50-306.

Movies

Everything Must Change, by Michael Majoros; **Address Unknown,** collectively-made feature film* - MIT Film/Video Section Movies, Nov 21, 7pm, Wiesner Bldg Bartos Theater.

Wuthering Heights* - LSC Classic Movie, Nov 22, 7:30pm, Rm 10-250. \$1/MIT-Wellesley ID.

The Flamingo Kid** - LSC Movie, Nov 22, 7&9:30pm, Rm 26-100. \$1/MIT-Wellesley ID.

The Purple Rose of Cairo** - LSC Movie, Nov 23, 7&9:30pm, Rm 26-100. \$1/MIT-Wellesley ID.

Cat People** - Student Ctr Committee Movie, Nov 23, 11pm, Student Ctr 2nd flr (Lobdell). Free/MIT-Wellesley ID.

Silent Movie** - LSC Movie, Nov 24, 6:30&9pm, Rm 26-100. \$1/MIT-Wellesley ID.

Foul Play** - LSC Movie, Nov 29, 7&10pm, Rm 26-100. \$1/MIT-Wellesley ID.

The Lion in Winter** - LSC Movie, Nov 30, 7&10pm, Rm 26-100. \$1/MIT-Wellesley ID.

To Sir With Love** - LSC Movie, Dec 1, 6:30&9pm, Rm 26-100. \$1/MIT-Wellesley ID.

The Lavender Hill Mob** - LSC Classic Movie, Dec 6, 7:30pm, Rm 54-100. \$1/MIT-Wellesley ID.

Road Warrior** - LSC Movie, Dec 6, 7&9:30pm, Rm 26-100. \$1/MIT-Wellesley ID.

And Now for Something Completely Different** - LSC Movie, Dec 7, 7&9:30pm, Rm 26-100. \$1/MIT-Wellesley ID.

Chitty-Chitty Bang-Bang** - Student Ctr Committee movie, Dec 7, 11pm, Student Ctr 2nd flr (Lobdell). Free/MIT-Wellesley ID.

Casablanca** - LSC Movie, Dec 8, 6:30&9pm, Rm 26-100. \$1/MIT-Wellesley ID.

Music

Noon Hour Chapel Series* - Gaston Baroque Ensemble, Thurs, Nov 21, 12:05pm, MIT Chapel. Free.

MIT Choral Society* - John Oliver, director perform Beethoven's *Missa Solemnis*, with soloists and full orchestra, Nov 22, Sacred Heart Church (6th & Otis Sts, E Cambridge). Tickets: \$7; \$3/MIT students w/ID. Information: x3-3210.

2nd Annual Boogy Woogie Bugle Boy of Company B Concert* - The Choralaries of MIT with guest groups: Wellesley Tupelos and the University of New Hampshire Gentlemen, Sat, Nov 23, 7:30pm, Rm 34-101. Free.

MIT Faculty Series* - John Buttrick, associate professor of music, piano performs Mozart, Reger, Beethoven, Debussy, Ravel and Chopin, Sat, Nov 23, 8:30pm, Kresge Auditorium. Free.

MIT Chamber Music Society* - conductors Marcus Thompson, Jean Rife, John Buttrick and Melissa Howe, Mon, Dec 2, 5:15pm, Music Library. Free.

Noon Hour Chapel Series* - Charles Mokotoff and Robert Strizich, classical and baroque guitar perform Coble, Rodrigo, Koshkin, Foscari, Corbetta, Pellegrini, De Visee and De Murcia, Thurs, Dec 5, 12:05pm, MIT Chapel. Free.

MIT Concert and Festival Jazz Bands* - Jamshied Sarifi and Everett Longstreth, directors, with guest bands, Fri, Dec 6, 8pm, Kresge Auditorium. Admission \$1.

MIT Concert Band* - John Corley, director, performs works by Milhaud, Guppy, Mahr, McGah, Williams, & Ciaizza, Sat, Dec 7, 8pm, Kresge Auditorium. Free - tickets available the week before in Lobby 10.

MIT Rogge Ensemble* - Greg Hopkins, conductor and Myron Roman, pianist, Sun, Dec 8, 4:30pm, Kresge Auditorium.

Chinese Intercollegiate Choral Society* - Meets Suns, 3-5pm, Rm W20-491. Currently rehearsing Chinese folk songs. Free voice lessons and music theory class, 1pm.

MIT Gospel Choir* - Rehearsals: Nov 23, Student Ctr Rm 491; Dec 7, Student Ctr Rm 491; Dec 14, Student Ctr Rm 491. All rehearsals, 11-1:30pm. Info, x5-8563 dorm.

Theater

El Arquitecto y el Emperador de Asiria* - by Fernando Arrabal, traditional Spanish Cafe Theater presented by the MIT Spanish Drama Workshop, Nov 22, 8pm, Student Ctr Mezzanine Lounge. Donations accepted.

Leben Des Galilei* - by Bertolt Brecht, Foreign Languages and Literatures Deutsche Theaterwerkstatt play in the original German, Nov 22-23, 7:30pm; Nov 24, 2pm, Kresge Little Theatre. Donations: \$1/students; \$2/general. An English summary of the events of the play will be presented for those who need it.

Dramashop Auditions for The Cavern** - by Jean Anouilh; directed by Robert N. Scanlan; Drama Program's IAP Major auditions, Dec 2, Kresge Little Theatre; Dec 3-4, Rm 9-150, 7:30pm. Sign up also to work on design and technical crews.

Dance

MIT Dance Workshop* - An evening of student works-in-progress, presented by director Beth Soll, Dec 6-7, 8pm, Kresge Little Theatre. Free.

MIT Ballroom Dance Club Workshops* - Nov 24: Beginning Viennese Waltz, 12:30-1pm; Intermediate Foxtrot, 1:30-2:30pm; Advanced Quickstep, 4-5pm. Dec 1: Beginning Hustle, 12:30-1pm; Intermediate Viennese Waltz, 1:30-2:30pm; Advanced Foxtrot, 4-5pm. Dec 8: Beginning Charleston, 12:30-1pm; Intermediate Hustle, 1:30-2:30pm; Advanced Viennese Waltz, 4-5pm. All classes at Student Ctr Sala de Puerto Rico. Admission: Beginning - \$.25/members, \$.50/non-members; Intermediate - \$.50/members, \$1/non-members; Advanced - \$2/members, \$3/non-members. Info: x5-9171 dorm.

Western Square Dancing* - Tech Squares 10-week class now in progress, Tues, 8-11pm, Student Ctr 2nd Floor. Combined club/class level dancing. Dennis Marsh, club caller & instructor; Veronica McClure, club cuer.

Modern Dance Workshop** - Beth Soll, director. Workshop. Regular meetings: Beginning Technique, M/W, 3-5pm, DuPont Ctr T-Club Lounge; Composition/Improvisation, Thurs, 3-5pm, T-Club Lounge; Intermediate Technique, T/Th, 5:30-7pm, Walker 201.

Children's Dance Classes** - Pamela Day, instructor. Creative Movement/Modern Dance classes for children ages 3-8. Ages 3-4: Fri, 2:15-3pm; Ages 5-8: Fri, 3:30-4:30pm. West campus location convenient to Westgate. Children do not have to speak English. For info, location, and registration, call Pamela, x3-5791 Tues/Thurs mornings, or 648-4834 eves/wkends.

Epstein wins von Humboldt award

David Epstein, professor of music and music director of the MIT Symphony Orchestra, has been named a recipient of the Senior US Scientist Award of the Alexander von Humboldt Foundation in Bonn, West Germany.

It was presented in recognition of his research into questions of time process and time structure in music, which has amalgamated musical theory with aspects of neurophysiological timing mechanisms that seem to control timing in music making.

The award will provide for two six-months periods of research and writing, from January through June of the next two years, when he will be in residence at the Institute for Medical Psychology, a division of the University of Munich that nominated him for the award from the von Humboldt Foundation, which is devoted to supporting scientific research.

Plans call for him to work with neurophysiologists and cognitive scientists at the University of Munich and with ethologists and anthropologists at the Max Planck Institute for Behavioral Physiology in Seewiesen.

Research into time in music has occupied Dr. Epstein for the past 13 years. Some parts of his early research appeared in *Beyond Orpheus* published by the MIT Press in 1979.

The award will provide time for him to complete another book, underway for the past two years. The Schirmer Books division of MacMillan recently contracted to publish the new book, tentatively entitled *The Sounding Stream: Studies on Musical Time*.

In explaining the nature of his work, Professor Epstein suggested that musicians throughout the centuries have built theories of rhythm, meter and tempo upon musical inferences based upon either intuition and/or musical scores. The current research suggests that some of these theories are congruent with ways in which the body itself seems to regulate and control the passage of time during musical performance.

This congruence of physiology and musical theory indicates that there may be "preferred" ways of performing—modes of performance,

MIT Folk Dance Club* - weekly dancing-Sundays, International Dancing, 7:30pm, Student Center Sala de Puerto Rico; Tuesdays, Balkan and Western European Dancing, 7:30pm, Rm 407 Student Center; Wednesday, Israeli Dancing, 7:30pm Sala de Puerto Rico.

Yoga* - ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 7:20pm; Intermediates: Mon, 5:45pm. For information call Ei Turchinetz, 862-2613.

Exhibits

COMMITTEE ON THE VISUAL ARTS
Albert and Vera List Visual Arts Center
Jerome & Laya Wiesner Building
20 Ames Street

Hayden Gallery - Private Works by Public Artists: Scott Burton, Richard Fleischner, Kenneth Noland. Examines each of these artist's studio-produced work, for displaying more private environments than their collaborative efforts with architect I.M. Pei in MIT's new Wiesner Building. A major publication will document the pioneering process of this collaboration, through Nov 24.

Sculpture Archives Gallery - Henry Moore: Figures and Forms. Examines one of the most important topics in the British sculptor's work: the figure in relation to the natural setting, through Jan 5.

The Reference Gallery - Richard Kriesche: Cultech. Internationally-recognized Austrian artist-in-residence, known for his film, video, and installation work, seeks to understand and comment upon the social conditions which mass communication and the media convey and create, through Dec 29. Hours, M-F, 10-4; Weekends, 1-5pm.

THE MIT MUSEUM

MIT Museum Bldg - Berenice Abbott: Vision of the 20th Century. Five decades of photographs by Berenice Abbott, including portraits from the '20s, images of a vanishing NY City from the '30s and scientific photos illustrating waves and light refraction, through Dec 27. I.M. Pei: **Selected Projects**, through December. **Red Weights:** Sculptor Carol Keller and painter Kathleen Soles use a variety of materials to explore spatial ambiguity as a metaphor. Nov 21 through Jan 31, 1986. **Opening Reception**, with artists in attendance, Nov 21, 5-7pm. **Gjon Mili '27: A Tribute**, Born in Rumania, world famous photographer Gjon Mili studied electrical engineering at MIT and pioneered in the use of electronic flash and multiple exposure photographs. In 1938 he began doing stories for Life magazine, ongoing. **Of Aerostatic Machines: Early Ballooning in France and Britain**, Prints from MIT's Vail Collection illustrate the development of ballooning as a science and sport including fanciful inventions for steering balloons, and aerial views of Paris and other cities, ongoing. **Physics at the Laboratory for Nuclear Science: 35 Years** at LNS, ongoing. Hours: Weekdays 9am-5pm, Saturdays 10am-4pm.

Compton Gallery - Piece By Piece, Works by Italian architect Renzo Piano 1964-84, MIT Dept of Architecture exhibit, through Jan 11, 1986. Hours: Weekdays 9am-5pm, Saturdays 10am-4pm.

Hart Nautical Gallery

Ongoing exhibits: Currier & Ives Prints From the Hart Nautical Collections - Colored lithographs of sailboats, steamboats, clipper ships and whalers. **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; **Collection of Ship Models** - Half-models and drawings. Historical view of the design and construction of ships.

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: **Rogers Building**, **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**. Building 8: **Solar Energy**, Society of the Sigma XI. Building 14N, across from Rm 14N-118.

OTHER EXHIBITS

Humanities Retrospective - Memorial Gallery, Hayden Library Bldg, Documentation of the Humanities at MIT: 1865-1985 and the first 30 years of Course XXI (the humanities major): 1955-1985, through Nov 30.

that is, likely to be successful, affectively, because of their compatibility with physiological fundamentals, he said.

Should this be the case, he said, pending further substantiation, musicians would have more powerful grounds for deciding matters of articulation, rhythm, inflection, tempo and other time-based aspects of performance.

"These issues are the very essence of making music," Dr. Epstein said. "Should it be demonstrated that our musical intuitions are aligned with our basic physiological mechanisms, we will have a richer and broader framework within which to think through some of the deepest questions of musical interpretation."

Professor Epstein published a major article concerned with the possibility of universal modes of tempo relations in the most recent issue of Music Theory Spectrum, the journal of the Society for Music Theory.

He has presented other aspects of his theories over the past three years when he was invited annually to the Herbert von Karajan Salzburg Symposia on Music and Neurobiology, a set of conferences sponsored by the widely known conductor.

Golf group elects Barry

MIT golf coach Jack Barry has been elected 1985-86 president of the New England Intercollegiate Golf Coaches Association. He succeeds Lowell Lukas of Central Connecticut State University.

Mr. Barry, who also serves as assistant director of athletics, is in his 14th year as golf coach at MIT. His team posted a 4-1 record this fall, beating Assumption, Bentley, Merrimack and Northeastern, while losing to Boston College by only 11 strokes. Since coming to MIT, Mr. Barry's squads have compiled a 154-90 record for a 63.1 winning percentage.

A resident of Methuen, Mr. Barry also serves on the selection committee for the NCAA Division III Golf Championships and is the director of the Greater Boston League Intercollegiate Golf Tournament.

Institute Archives and Special Collections - Planning the New Technology. Part Two: Constant Desire Despradelle. Part two of a three-part series about the relocation of MIT from Copley Square to Cambridge portrays the impressive design of architect and teacher Despradelle. Though he died before the project began, several of his ideas were incorporated into the ultimate plan by his successor, William Welles Bosworth. Hall exhibit case across from 14N-118.

Monhegan Landscapes - through Nov; **Island Interiors** - Dec through Jan. Architecture & Planning Computer Resource Laboratory sequential exhibit of photographs by S. Leland Smith, teacher of filmmaking and photographic darkroom skills at the MIT Student Art Association. Hours: M-F, 9am-5pm, Rm 9-514.

Staying Healthy - An exhibition of drawings by the youngest members of the MIT Health Plan, Health Services Center, Atrium Bldg E23, through Nov 22.

Jerome B. Wiesner Student Art Gallery - for 1985 scheduling, any MIT student or student group interested in showing or performing art in the Gallery, call Andy Eisenmann, x3-7019 in Rm W20-429, M-F, 9-5.

Sports

HOME EVENTS: Nov 21: M's Fencing vs Tufts, 7pm; W's Fencing vs Tufts, 7pm. Nov 23: M's Basketball vs Yeshiva, 8pm; M's Fencing vs Alumni, 3pm; Pistol vs Ohio State & WPI, 9am. Nov 26: Wrestling vs Plymouth State, 4pm. Nov 30: M's Ice Hockey vs Tufts, 7pm. Dec 3: M's Basketball vs Brandeis, 7:30pm; W's Swimming vs Regis, 7pm. Dec 4: Wrestling vs Bowdoin, Wesleyan, 4pm; Squash vs Navy, 5pm; M's Ice Hockey vs Hartford, 7pm. Dec 5: W's Basketball vs Colby-Sawyer, 5:30pm; M's Swimming vs Coast Guard, 7pm. Dec 7: Rifle vs Boston U, Coast Guard, Northeastern, Norwich, Wentworth, 8am; M's Fencing vs Penn, 12:30pm; W's Fencing vs Penn, 12:30pm; Indoor Track vs Brandeis, Holy Cross, WPI, 1pm; M's Gymnastics vs Harvard, 2pm; W's Basketball vs Elms College, 2pm.

Wellesley Events

Jewett Arts Center* - **Isla Negra Tapestries**, Chilean genre scenes, organized in collaboration with Wellesley Spanish Dept, through Dec 1. **Paintings, Drawings and Sculpture from the Permanent Collection**, continuing. **Contemporary Prints from the Permanent Collection**, opens Dec 7, continuing.

Wendy Osserman Dancers of New York City* - Unique modern dance program, Nov 20, 8pm, Alumnae Hall. Admission: \$3; free/members of Wellesley College Community.

Responses of Health Workers to AIDS Patients, Their Families and Friends* - Joseph H. Pleck, acting Ctr Director; Lydia O'Donnell, project co-director, Ctr for Research on Women, Ctr for Research on Women Luncheon Seminar, Nov 21, 12:30-1:30pm, Cheever House. Bring a bag lunch; coffee provided.

Film Critic on Truffaut* - Vincent Canby, film critic, New York Times, College French Dept and La Maison Francaise lecture, Nov 21, 7:30pm, Science Ctr Rm 277.

Some Things Children Learn From and About Language* - Virginia Valian, PhD, Henry R. Luce Prof of Language, Mind and Culture, Henry R. Luce Lecture on Language and Mine, Nov 21, 7:30pm, Science Ctr Rm 377.

The Winter's Tale* - Performed by the Wellesley College Shakespeare Society, directed by Jennifer Rosner, Nov 21-23, 8pm, Shakespeare House. Tickets: \$2, available in Schneider Link 1 week before performance dates.

Concert* - Chamber Orchestra, Nov 22, 8pm, Jewett Auditorium.

Concert* - Chamber Music Society, Nov 24, 8pm, Jewett Auditorium.

Medieval Works from the Wellesley Collection* - Prof Peter J. Fergusson, Wellesley College Museum ArtBreak, Dec 3, 12:30pm & 4:15pm, Jewett Arts Center Main Gallery.

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

Send notices for Wednesday, December 4 through Sunday, December 15 to Calendar Editor Rm 5-111, before noon, Friday, November 29.

CLASSIFIED ADS

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INSTRUCTIONS: Ads are limited to one (of approximately 30 words) per person 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 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.

Deadline is noon Friday before publication.

For Sale

Zenith ZT-1 series trmnl: NEC mntr, bit-in modm, 25 line screen, 20 mo old, exc cond, \$250. Bernard, x3-4990 or 497-5122.

Bl & wh couch, \$130 JC Penny ktchn tbl & 6 chrs, \$70; Gibson gas stv, \$200. Jack, x3-1450.

Sears chainsaw, 16", 2.3 CID in orig bx, w/bar, 16" chain, xtra plugs, bar cvr, used 2X, lists \$249, sell for \$190. Craig, x4838 Linc.

Lowrey heritage dix mnl organ, \$250. Chet, x4525 Linc.

Atari hm cmpr sys w/800XL cmpr, 64K, dsk drv, AT-100 prntr, Koalpad, dsk cabnt, lots of stwr, docmntn & books, \$400. Les, x3-6903 or 494-9084 eves.

Benjamin Miracord trntbl, \$30 or bst. Jane, 648-4883 aftr 6pm.

Violin, 1/4 sz, Suzuki, case & bow, \$100; 3/4 sz, German, \$175. Call 861-9821.

Lvng cntry: tbls, chrs, couch, lgths, beds, mtrsses, bikes (1 w/chld's seat), baby bath, crib, Germn-styl baby carriage, all cheap. Gabriele, 623-7328, late aftrnoons-eves/wkends.

4HP, 4 cyl, vertl shaft B&S gas eng, like nw cond, \$80 or bst. Vic, x8548 Linc.

M's 10-sp bike, Columbia Formula 10, exc cond, \$70; Kryptonite lck, \$15; pump, \$5; Tetraillon bthrm scale, wh, alstnt nw, \$10; steam iron, \$5; toolbx w/tools, \$15; W's fig skts, sz 9, \$12; coolr, \$5. Jill, x3-6706.

KLH trntbl/amp w/Realistic FM tmr & spkrs, \$35; Craig AM/FM stereo 8-trk w/spkrs, \$45. Jim, x2508 Linc.

Emerson a/c, 5900BTU/hr, thrv-wall (wndw adpr avlbl), inc instrctns, cnd by Lid Wrrnty until 6/86; v gd cond, \$200 nego. Evangelos, x3-4029 or Evie, 494-1349.

Epson MX80 w/Graphtrax, exc cond, 2 boxes of papr & mailing lbls, \$180 or bst. Patrick, x5-8471 dorm, 577-1764 or lv mssg Burton Dsk.

Pro Kennex Copper Ace tennis rcqt, used about 5 hrs total, \$40; Pioneer RX-30 stereo rcvtr/tape dck, 25w/chnl, tape dck nds touch of MechE, \$85 or bst. Rachel, x5-8618 dorm.

Inversion mach - hng upside dwn in cmfrt & straightn your spine, gd for bck prblms, was \$300 nw, 2 yrs old, \$150 nego. Tim, x3-5297/3252.

APL*+PC, latst Versn 5.0, \$250; Versn 3.1, \$100, bth complt w/chartr ROM. Bruce, x3-4895.

1917 Chickering upr piano, not a flashy pec of furn, bt v gd instrmnt, tght pins, hlds tuning for lng time, \$900 or bst. Laura, x3-2281 or Laura/Fran, 321-4372 eves.

Q-sz mtrss & bx spkrs, \$40. Claire, x3-6458 or 783-1112.

Elec stv, 4 brnrs, all wrking well, ovrn a lttl funky, \$75 or bst. Derek/Susan, x3-6533/4073 or 354-3329 eves.

DR set, oval tbl w/3 lvs, custm glss top, breakfrnt, 6 chrs, fruitwd, elegnt ltn, \$1,500. Call x3-2009.

Pr of snw trs for VW bug, on rims, exc cond, \$35. Carey, x3-6902 or x5-6380 dorm.

2 snws, like nw, mtd on GM 14" rims, F78-14 subs for P195/75R14 195R-14 or any 78-14, \$10 ea. Harry, x3-5837/4819.

2 15" Sears univrsl whls, \$15; Allied bx stv, takes 28" wd, \$65; mapl syr. Call x3-7235.

Bed, 6' Lx3' W, \$15. lto, x3-1833.

Fiat 128 parts, nw Mich tr, Fiat tool kit, thermostat assmbly, price nego. Ron, x3-5820 or 646-1641.

Stark spinet piano, fruitwd, 22 yrs old, exc cond, easy move, \$800. Art, x3833 Linc or 897-6082.

27" frame bikes, Motobecane, Reynolds tubng, 10-sp, inc lcks, sockt set & 2 helmets, \$130; X-C skis, waxd, 210cm, inc poles & waxes, \$60. Trevor, x3-8591 or 492-7442 aftr 10pm.

Vehicles

'66 Ford Mustang, auto w/console, no rst, nw paint, rns gd, gd rad trs, all orig, bst offer, mat sell. Bob, x3-2238 or 696-7383 eves.

'69 Austin Healey Sprite cnvrtbl, 4 cyl, rns well, gd cond, deseptr to sell, \$1,000. Bob, 494-8858 or 735-4565.

'71 Ford Maverick, 6 cyl, gd trans, gd trs, mntd snws, \$400 or bst. Call x3-4730 or 625-1406.

'71 Volvo 144, rns well, some bdy rst. Call x3-6801 or 237-6807.

'72 Buick Sky, 4-dr sdn, rns exc, nds bdy wrk, nw muff, insp stckr, snw trs inc, \$500 or bst. Bob, x8-3942 Draper.

'72 Volvo 145E wgn, looks & rns well, eagr to sell, ask \$1,500. Call 863-5770 or 259-0642 eves.

'72 Plymouth Valiant, slnt 6 eng, a/c, bdy gd cond, cstm int, nds some wrk, ask \$300. Jean, x3-4629 or 924-7124 aftr 10pm.

'73 Olds Omega B27, 8 cyl, rns v well, exc trs, AM/FM, \$700. Christian, x3-3413 or 497-2265 eves.

'73 Chevy Impala, 4-dr, gd transprt, \$500 or bst. Call x4336 Linc.

'74 Ford LTD, nw trans, gd eng & bdy, exc int, mat sell, \$500 or bst. Ray, x3-3353 or 628-5092.

'74 Ford Maverick, 56K, exc mech cond, auto, ps, a/c, 2-dr snws, some rst, \$800 or bst. Call x3-4817 or 965-5073 eves.

'74 Fiat 128, 4-dr, rning cond, no rst, nds nw muff, 4-spd mnl, rad trs, \$250 or bst. Aleksandar, x3-3555 or 497-7763.

'75 Suzuki GT250 str bike, 6.4K, exc cond, always gard, \$350; 3 rail Holsclaw trailr w/Honda 100 trail bike, \$150. Phil, x3-7422 or 522-7310.

'76 Ford Gran Torino, auto, as, pb, a/c, 88K, exc mech cond, \$650 or bst. Call x3-1662.

'77 Honda Accord hthbck, nds wrk (main gask), 18K on rbit eng, well-card for, papr wrk avlbl, mat sell, bst offer, cheap. Sonja, x5-6605 dorm or 497-4836.

'77 Mercury Marquis, 8 cyl, a/c, ps, pb, AM/FM stereo, rns well, no rst, nw hvty rad, \$900 or bst. Jean-Luc, x3-3222.

'78 Chevy Blazer, trailng specl, 2-whl drv w/locking diffrential, auto, ps, pb, reg gas, a/c, AM/FM stereo, cruise cntrl, all wthr rads, v gd in snw, rns v well, ask \$4,200. Dan, x3-1372 or 1-372-9813 aftr 6pm.

'78 VW Rabbit, nw eng, AM/FM radio, sunfr, gd bdy, \$1,500 or bst. Jim, x3-6712 or 354-6267.

'78 Buick Skyhawk, 6 cyl, auto, AM/FM stereo, a/c, looks & rns gd, \$1,300. Dan, x8-1498 Draper.

'79 Malibu Classic 4-dr Chevy, \$2,800 or bst. Evelyn, x3-3361.

'79 Datsun 210 wgn, 4-dr, auto, AM/FM, 76K, gd cond, nw prts, ask \$1,850. Call x3-2772 or 396-4221 eves.

'80 Chevy Citation, 8 cyl, 2-dr sdn, auto, ps, pb, AM/FM/cass, sunfr, \$1,500 firm. Call x4880 Linc or 665-4019.

'80 Mazda 626, 5-spd, silvr bl, rstprfd, exc cond, lvng US, mat sell, \$2,600. Laura, x3-9546 or pref 868-1134 anytime.

'80 Buick Regal, V6, a/c, ps, pb, Sony stereo, 40K; '75 Toyota Celica, 4 cyl, 4-spd, \$550 or bst. Ruth, 862-9550 eves.

'80 Chevy Monza, 4-spd hthbck, nw trs, batt & cltch, exc cond, ask \$3,000. Patty, x3-7750.

'81 Datsun 210, 2-dr, silvr, auto, nw trs, exc cond, \$3,000. Call x8-5232 Whitehead or 641-2508.

'81 Buick Skylark, auto, a/c, pb, ps, AM/FM, wh, 7 mo comprhnsv break-dwn wrrnty, 59K, \$3,900. Jon, x3-6802 or 494-1534.

'82 Buick Skylark, perf cond in & out, only 12K, only 1 ownr, provrbll ltl-old-ldy (hndicpdd), a/c, 4 cyl, grt mpg, \$6,000 or bst. George, x3-6781 or 862-3760.

'82 Chevy Cavalier dix wgn, auto, perf cond, 41K, ask \$4,500. Call x3-6021 or 369-0588.

'83 Chevy Camero, silvr, 38K, exc cond, nw Dunlop raised wh ltr trs, std trans, AM/FM, replcd orig fctry spkr sys w/Pioneer, \$5,700 or bst. Tony, 769-8228 aftr 5pm.

'85 Pontiac Grand Am, AM/FM/stereo/eqlizr, a/c, pwr drs, wndws, seats, sunfr, auto, rstprf, Chapman & wrrnty, 30mpg, below bl book \$, mat sell. Chuck, x8-3361 Draper or Chuck/Scott, 774-2045 aftr 6pm.

Housing

Arlington apt sublt, compltly furn, Jan-July, 2BR, LR, DR, garg, yrd, wshr, \$850/mo unhtd. Call 643-1366 aftr 4pm.

Quiet 2BR apt, see sunsets & pond w/wildlife frn priv balcny, 20 min drv to Camb, all utls, prkg, pool inc, nr twn ctr, pub trans, \$780/mo. Scott, x3-3531.

Cambridge, Ctr'l Sq/Inman Sq, area, lrg 1BR fully furn, sublt 1/1-4/1/86, 15 min wlk to MIT & Hrvd, \$400/mo inc ht. Seth, x3-8049 or 492-3014.

Animals

Himalayan kttns, Persn-type breed w/Siamese colrng & Persn temprmnt, 3hty, delgthf, ltr-trained, born 9/10/85, 3M; 2 flamepoint, 1 choc point, exc type, \$175-250. Caroline, 3-1631 or 491-8307 6:30-9pm.

AKC Norwegian Elkhound, adorbl gr-bck, 7-mo-old puppy, mat sell, \$400 or bst. Call 436-9497 (lv mssg w/Mike G) or 287-0017 eves.

Lvabl 3-yr-old orange cat, M (fixd) w/lots of chartr, nds nw hm, my lndrd dsn't allow pets. Mine, x3-5656 or 267-7222.

Wanted

Prsn to teach Final Word prgrm, \$8/hr. Louise, x3-7607.

Mains trnsfrmer to cnvrt 110V to 220V 1 amp or more; pr sm hi-fi loudspkr rated 30w or more. Andrew, x3-2125.

Used elec bass guitr. Bruce, x3-1206/7718.

Rm/abt by cln, considrt, frndly MIT emp & wrrt, for 12/1. Hank, x3-7380.

Roommates

Prof F, 25+ wrntd to shr 2BR apt bordr by Belmont consrvtn land, \$300+ utls. Call x3-6346 or 489-0214 eves.

Carpool

Rd wrntd, Nashua, NH-MIT, 8-5, will shr expnses. Steve, x3-4765.

Lost and Found

Found: wtch, 10/6, in Albany St prkg lot, call w/dscrptn. Gail, x3-8369.

Lost: 1 14K gld earring, 2 leaf-shaped gld strps on gld hangr, on 11/8, reward. Linda, x3-1782.

Miscellaneous

Pro typng on Compaq cmpr or IBM typwrr, thesis, tech pprs, resume, etc, rsnl rates. Marianne, x3-1994.

Bed & Brkfst is the new way to travl. If you have an xtra rm, be a host hm & get pd for hostng. Accmtds needed in the MIT cmnty for profs, stndt's parents, alumni, etc. Call T. Palty, 1-334-4810.

Exprt typng on wrd prssr, fct, effent, gd rates, all knds. Karla, x3-2203.

Pro tech illstrng, btrr qlty/less expnsv thn Graphic Arts. Rebecca, x3-2566 or 332-6183 eves.

POSITIONS AVAILABLE

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.

This list includes all nonacademic jobs currently available on the MIT campus. Duplicate lists are posted on the Women's Kiosk in Building 7, outside the offices of the Special Assistants (10-215, 10-211) and in the Personnel Office (E19-239).

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

Persons who are NOT MIT employees should call the Personnel Office on extension 3-4251.

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

- | | |
|--------------------------|---------------|
| Oveta Perry | 3-1594 |
| Dick Higham | 3-4278 |
| Vivian Bishop | 3-1591 |
| Appointments: | |
| Therese McConnell | 3-4274 |
| Ken Hewitt | 3-4267 |
| Kenneth W. Chin | 3-4269 |
| Sally Hansen | 3-4275 |
| Appointments: | |
| Kim Bonfiglioli | 3-4076 |
| Appointments: | |
| Nancy McSweeney | 3-4077 |

Administrative and Academic Staff

Assistant to the Director, Office of Minority Education, to assist in the development, preparation, monitoring, and execution of departmental budgets. Will prepare, analyze, and monitor internal financial statements for review by director; check and approve invoices for payments. Maintain liaison with accounting, payroll, budgets, Office of Sponsored Programs, and other administrative offices. Coordinate office workload with support staff; supervise and train undergraduate assistants; maintain liaison and good relations with students, faculty, visitors, alumni and other pertinent individuals within and outside the Institute who have an interest in OME. Assist in interpreting and advising office staff on departmental and Institute policy. Perform other duties as assigned by the Director. Must have Bachelor's degree or equivalent education and work experience. Accounting experience or a background in the administration of financial matters is required. Good communication skills and the ability to work effectively with minority students and other university personnel essential. Office management skills desirable. A85-643

Assistant to the Bursar/Student Accounts, Bursar's Office, to manage the Student Accounts Section. Will be responsible for about 9,000 accounts, totaling \$115 million last year, and supervising eight MIT employees. Will function as chief liaison on student matters with the Student Financial Aid Office, the Registrar's Office, and Deans' Offices. Will exemplify and instill in staff an attitude of caring, helpfulness, and collegiality, without loss of efficiency and effectiveness. Will ensure consistency and fairness of policies and procedures, develop and implement written communications with students and parents, other MIT offices, and outside sponsoring agencies; handle those inquiries and complaints which are special cases with potential impact on Bursar's Office policies or "image"; regularly review the status of financial delinquencies, and develop and implement procedures for minimizing them; and counsel students with financial problems. Master's degree or equivalent combination of education

and experience required. Exceptional communications and human relations skills; extensive experience working with students; strong managerial experience necessary. A facility and accuracy with numbers and knowledge of basic accounting needed. Experience with computer systems and personal computers is highly desirable. A85-642

Assistant to the Bursar/Student Accounts, Bursar's Office, to ensure the timely payment of student fees due MIT. Will help students and their parents understand the accounting of charges and credits to their accounts. Responsible for the proper charging, billing, and collection of 2000 student accounts. Will assist students in the registration process, and explain and arrange payment plans. Counsel students with financial problems, consult with and advise as necessary Deans, faculty, department administrators, financial aid officers, and other MIT personnel concerned with a student's account problems. Recommend appropriate action to ensure collection of past due fees, including assessment of late payment fines, withdrawal of student status, and withholding of degrees. Advance cash to needy students based on credits to their accounts and cooperate with the Student Financial Aid Office in advising students on financing their education. Bachelor's Degree or equivalent combination of education and experience required. High degree of communication and human relations skills, desire to assist others, patience to listen, and ability to apply rational analysis to their problems. A facility and accuracy with numbers and computer systems, respect for order, and ability to systematically organize thousands of written and oral transactions necessary. A85-641

Librarian IV, Head, Engineering Libraries, MIT Libraries, will administer MIT's Barker Engineering Library and its branch and the Aeronautics and Astronautics staff, under the Associate Director for Public Services. Will manage a staff of eight librarians and 16 support staff and will participate in and oversee the provision of information services and the development of collections. In addition, will participate in systemwide policy formulation as a member of the Divisional Librarians Group which coordinates the public services of the MIT Libraries and as a member of Library Council. MLS from an ALA-accredited library school required. Minimum of five years increasingly responsible professional experience in an engineering or science research library required. Demonstrated effective management skills required. Experience in information services and collection management as well as demonstrated knowledge of the application of technology to libraries are essential. Degree in engineering or science highly desirable. Final candidates must demonstrate well-developed interpersonal skills and the ability to work in groups. C85-168

Administrative Officer, Office of the Dean for Student Affairs, to be responsible for the central ODSA budgets, monitoring of expenditures against accounts as well as overall monitoring of all accounts within the ODSA. The Administrative Officer will participate in development of budget recommendations; will be responsible for preparation of all materials relating to personnel matters and for facilitating the search process for ODSA vacancies. Specific duties include keeping the Dean informed of changes in Institute personnel procedures; serving as the primary source of information for existing policies and procedures within the Accounting, Purchasing, and Physical Plant areas; and performing other special projects as requested by the Dean. Bachelor's degree or equivalent combination of experience and education is necessary. Knowledge of MIT (in particular the Comptroller's Accounting Office, Purchasing and Personnel) and accounting experience desirable. The ability to operate under pressure is essential as is the handling of sensitive information in a confidential manner. The position is highly visible, requiring frequent interaction with a number of offices and individuals around the Institute. Good writing, problem-solving, and interpersonal skills are critical. A85-640

Animal Facilities Manager, Division of Comparative Medicine, to supervise the animal technologists and technicians, act as liaison with the research community, and direct administration of the animal facilities. Supervision will include maintaining records on attendance; preparing and approving payrolls; establishing and coordinating work schedules to ensure adequate coverage; handling grievance charges; monitoring personal health program; acting as Safety Coordinator; conducting comprehensive job training program for animal care personnel; and interviewing applicants. As a liaison with the research community, duties will include meeting regularly with Principal Investigators and their staffs to discuss implementation or research projects; will make recommendations regarding suitable animal housing system as dictated by the research protocol; recommend animal vendors based on results of an ongoing health screening program; coordinate many aspects of the research protocols; refer experimentation utilizing biohazardous materials to the appropriate DCM or EMS staff for consideration. As Facilities Manager will perform general administration and conduct the cost-recovery program by regularly monitoring the animal population to ensure maximum collection of per diem charges. BS in Biology, Animal Science or related field preferred. Minimum 2-5 years directly related supervisory experience required. A85-639

Librarian III, MIT Libraries-Preservation and Collections, to plan, design, evaluate, and coordinate the MIT Libraries preservation program. Will coordinate collection management projects; direct collection assessment program; recommend and implement preservation and collection review and assessment policies. Will develop system-wide priorities; oversee and coordinate storage, transfer, and weeding decision-making and implementation; recommend for environmental, security, and physical state of the collections; develop training and education programs for staff and library users; serve as liaison with department heads, collection managers, processing librarians and subject specialists; direct work of the binding and repair unit; work

with Libraries Conservation Consultant in introducing new preservation techniques and in planning special projects. Develop fund-raising proposals, chair the Disaster Team; serve on the Collection Management Group and on the Joint Committee for Technical Processing. MLS from an ALA-accredited library school, and a minimum of three years of professional library experience are required. Advanced preservation training or significant preservation experience is desired. Good organizational, managerial and supervisory skills are required. Excellent interpersonal skills essential. C85-167

Staff Writer/Editor, Communications/Resource Development, to work with four other writers in preparing proposals, publications, and correspondence in support of MIT's overall fund-raising objectives. Demonstrated writing, editing and research skills; high degree of initiative; and ability to work independently and well under often severe time constraints. Strong science writing skills preferred. Bachelor's degree and three to five years of professional writing experience, preferably in a related setting required. Knowledge of MIT and of graphic design/production is helpful. Four nonfiction writing samples, and cover letter explaining interest in position must accompany resume. A85-637

Sponsored Research Staff

Technical Assistant, Chemical Engineering, to assist in a long-term program designed to study the energy metabolism and general biochemistry of animal cell systems. Work includes small-scale animal cell cultivation in fermentors and on microcarriers and ceramic supports, monoclonal antibody production, and biochemical analytical and separations techniques (electrophoresis, gas chromatography, affinity and high pressure liquid chromatography, ultracentrifugation, fluorometry and UV and visible absorbance spectrophotometry). Individual will also perform some alcohol and organic acid fermentation work and oversee ordering supplies and other general maintenance tasks. Requires BS in Biology, Biochemistry, or Chemistry. Previous research laboratory experience and course work in biochemistry and applied microbiology preferred. R85-862

Research Scientist, Earth, Atmospheric, and Planetary Sciences, to study stratosphere-troposphere exchange. PhD in Atmospheric Physics is required. Several years postdoctoral experience in radiative transfer computations and analysis of experimental atmospheric composition measurements for aircraft also required. Should be familiar with large-scale atmospheric general circulation. R85-861

Technical Assistant, Applied Biological Sciences, to include technical supervision of animal carcinogenicity testing programs, involving the dosing of rats and mice, performance of necropsies, preparation of slides for histopathology examination, record-keeping, and data analysis. Additional responsibilities include rat and mouse tissue distribution, metabolism, and excretion studies and performance of monoclonal antibody assays. Bachelor's degree (or Associate's degree plus experience) in Biology or related field is required. Candidates should have experience in handling and dosing of rats and mice and the ability to keep detailed records and perform calculations. Basic knowledge of biochemistry and biochemical techniques is desirable. R85-860

Research Scientist, Earth, Atmospheric, and Planetary Sciences, to act as Director for the MIT seismic network. A PhD in seismology and at least 1-2 years postdoctoral experience are required, as well as computer programming expertise and a demonstrated ability to incorporate a wide variety of geophysical and geological data in the interpretation of seismic observations. R85-858

Technical Assistant, Center for Cancer Research, to work in a laboratory concerned with the molecular analysis of oncogene function. Will be responsible for maintaining animal cell lines in tissue culture and will collaborate in experiments to determine the molecular and biological consequences of introducing oncogenes into cultured animal cells. Will also be responsible for maintaining some laboratory supplies and equipment. BS degree in basic science and working understanding of molecular biology, microbiology or biochemistry and previous laboratory experience, particularly with tissue culture techniques, is desirable. The ability to work with others on a common problem is essential. R85-857

Research Specialist, Statistics Center, to design, implement and maintain a computing environment (including operating system) for numerically intensive real-time applications. Will develop libraries, debugging tools and monitoring programs for analyzing system performance. Will assist research staff in developing and testing mathematical software for parallel computing. Will serve as system programmer for group's Intel microprocessor systems as well as the VAX 11/730. Graduate degree and experience in computer architectures, operating systems, and parallel computation required. Experience in using C, FORTRAN, P/IM, and x86's assembly languages, as well as Berkeley UNIX 4.2, iRMX, and Xenix operating systems preferred. R85-856

Technical Assistant, Energy Laboratory, to act as a member of an interdisciplinary team of materials scientists, chemical engineers and inhalation toxicologists. Will assist in research involving the physical and chemical study of inorganic reactions and processes at high temperatures. Work will involve design and construction of apparatus, preparation of test samples, use of a variety of analytical instruments and carrying out experiments. BS required, preferably in Chemistry, Physics or Engineering. Ability to work as part of a team essential. R85-855

Research Associate, Earth, Atmospheric, and Planetary Sciences, to conduct vigorous research programs on the general problem of three-dimensional earth structure and its relationship to mantle convection, specifically on the

structure and dynamics of descending lithospheric slabs. PhD and some previous experience in structural seismology and large-scale numerical computation required. R85-854, R85-853

Accelerator Physicist, Laboratory for Nuclear Science, to develop the accelerator system. Will acquire hands-on familiarity with operation of the accelerator-recirculator system and help establish new operational protocols. Develop diagnostics for upgrading the power-handling capability of the accelerator system (this is crucial for the operation at the 1 GeV beam energies which will be available at the end of 1986); take part in the development and implementation of an advanced computer-based control system for the accelerator; perform calculations and develop prototype elements for a 1 GeV pulse stretcher ring. Will develop methods for providing longitudinally polarized electron beams inside storage rings; evaluate various CW alternatives; originate other research projects in accelerator physics. PhD in Physics and the demonstrated ability to perform the above duties essential. R85-852

Library Support Staff

Library Assistant IV, Rotch Visual Collections-MIT Libraries, to research, identify, catalogue, and classify slides and photographs of art, architecture and urban planning. Will assist faculty members and students in locating appropriate visual materials; process slides and photography requests; type catalogue cards for visual materials; demonstrate use of video equipment; participate in collection management routines, including circulation control and statistics, shelf reading, weeding and replacement processes. May direct student assistants in routine tasks. High School graduate or equivalent; two years of college preferred. Minimum 2.5 years direct/related experience required. Reading knowledge of one foreign language (German, French, Italian, Spanish) required. Subject background in architectural or art history required. Candidate should be familiar with library research methods and be able to communicate well with staff and faculty members. Typing skill required. NON-SMOKING OFFICE L85-090

Library Assistant IV, MIT Libraries-Catalogue Department (temporary

End-of-Term Regulations

The Faculty Policy Committee would like to call to the attention of the teaching staff and students the Faculty Regulations which deal with the schedule of exams and work assignments in subjects at the end of the term. These Regulations were amended in 1984 with the primary change being to restrict exams and assignments during the six days preceding the reading period.

Each term undergraduate and graduate students from various departments contact the Chairman of the Faculty to protest subjects which have requirements that are in conflict with the rules. While generally well intended, requirements that are in violation of the rules often work hardships on students, given their overall loads. It is usually difficult and awkward to resolve such situations in a way that is fair to the students and that preserves the educational value intended by the instructor.

The Faculty Regulations governing the end of term follow—and apply to both undergraduate and graduate subjects. This term the last day of classes is Thursday, Dec. 12; Reading Period is December 13-16, and the Final Exam Period is Tuesday-Friday, Dec. 17-20.

The FPC asks that the teaching staff read the regulations carefully and cooperate fully in complying with them. Questions regarding the interpretation of any of these provisions should be addressed to the Chair of the Faculty, Professor Mary C. Potter, x3-5526.

—Major assignments should be assigned early enough to allow students the opportunity to manage their time effectively.

—No classes, examinations or exercises of any kind may be scheduled beyond the end of the last regularly scheduled class in a subject—no later than December 12 this term—except for final exams that have been scheduled through the Registrar's Office. (The Architecture design reviews that occur during the final exam period are considered to be equivalent to final examinations and are scheduled by the Department.)

For each subject which has a final exam, no other examination may be given after December 6 and no assignment may fall due after that date.

—Each subject in which no final exam is given may have at most one of the following during the last week of classes (December 7-12): either a one-hour quiz may be given during a regularly scheduled class period or one assignment (term paper, lab report, take-home exam, problem set, oral presentation, etc.) may fall due. (A quiz of one-and-one-half hours is allowed, but only if done within a regular class period.)

—It is inappropriate for comprehensive examinations (exams covering most of the term's work) to be given at any time other than during the final exam period.

—No assignment of any kind may be given which falls due after the last regularly scheduled meeting of the class for that subject—no later than December 12 this term. This does not prevent an instructor from giving an extension to an individual student, but an extension should not be given to the majority of the class.

—Students are entitled to expect that no faculty member will deviate from these rules except with prior permission of the CAP for undergraduate subjects and the CGSP for graduate subjects. Having students vote on some deviation from the rules is not an acceptable procedure.

vouchers, requisitions, purchase orders, travel advances and petty cash. Will maintain gift records; originate and maintain files; receive visitors; assist with special projects as assigned. Discretion is necessary in handling confidential material. Excellent typing (60 wpm), proofreading, and word processing skills. Excellent organizational, interpersonal and communication skills necessary. Ability to operate in a busy office with frequent interruptions essential. Minimum 4.5 years direct/related experience required. NON-SMOKING OFFICE B85-093

Administrative Secretary, Planning Office, to act as the administrative officer of the department, working closely with the Director and coordinating all administrative functions. Duties will include typing and proofreading all correspondence and reports, with assistance in the preparation, distribution and composition of other routine correspondence. Will monitor all office expenditures and custodian of petty cash; review and analyze monthly accounting statements and comparisons of actual expenditures with budgetary projections; and help prepare the annual operating budget. Additional duties include maintaining Director's calendar; sorting incoming mail with review for response and priority purposes; answering phones and directing visitors; making travel arrangements and preparing Institute forms such as requisitions, vouchers, and receipts. Will maintain database of all archived Planning Office files, currently using Lotus 1-2-3, and maintain and update current project files with the Director's and other staff members' direction. Attention to detail and excellent organizational skills essential. Strong background in word processing (DECmate preferred) with skills in transcription required. Background in accounting or managing office budgets helpful, familiarity with spreadsheets, list processing, or other microcomputer applications an asset. Minimum 4.5 years direct/related experience required B85-073

Sr. Secretary, Electrical Engineering and Computer Science, to perform secretarial duties for Executive Officer and Assistant. Responsibilities include preparation of faculty promotion and tenure cases on word processor, maintaining records and processing appointments for Department graduate teaching assistants, providing support in preparation of class schedules and catalogue copy, typing faculty and staff appointments and terminations and assisting with visa applications. Will use Department's interactive computer system to maintain records and generate reports. Will type general correspondence and some reports from rough draft, be responsible for mailings, general correspondence, and respond to frequent telephone inquiries from within and outside the Institute. Strong organizational skills and attention to detail required. Frequent contact with faculty, students, and other Institute offices required. Knowledge of Department or Institute desirable. Minimum 2.5 years direct/related experience required. Word processing experience, and/or willingness to learn interactive computer system desirable. B85-087

Sr. Secretary, Architecture (temporary 12/1-2/28), to perform secretarial duties for the Head of Department of Architecture while present secretary is on maternity leave. Will answer phones, screen calls and visitors, and schedule meetings of department committees. Will maintain schedule; make travel arrangements; open and route mail; reply to routine letters independently; type reports and correspondence; assist in compiling tenure, promotion and reappointment cases; maintain excellent and complete filing system. Excellent typing skills, good educational background, ability to recognize priorities of requests, good organizational skills, ability to work independently with interruptions, and good judgment necessary. Familiarity with word processing preferred. B85-086

Sr. Secretary, Electrical Engineering and Computer Science, to work for two Electrical Engineering and Computer Science Faculty members. Will check monthly research accounts, and will type course material, technical reports, proposals, journal articles, and correspondence. In addition will maintain filing system, answer phones and student questions, and will arrange appointments, meetings, and travel. Word processing experience and technical typing skills necessary. 2.5 years direct/related experience required. NON-SMOKING OFFICE B85-081

Sr. Staff Assistant, Office of the Chairman, to perform a wide variety of administrative and secretarial tasks for a Special Assistant in that office. Will perform special activities related to MIT's external community relations, the MIT Community Service Fund and MIT Cor-

poration meetings, as assigned. Will type letters and reports, schedule meetings and appointments, process Institute requisitions and accounting statements, and assist with routine office procedures. Must be able to set priorities, work independently, handle detail with accuracy and exercise discretion and good judgment. Ability to maintain communications with the top level office of the Institute and with the Greater Boston community necessary. Enthusiasm, reliability, initiative, excellent typing (word processing experience preferred), excellent organizational skills, and pleasant telephone manner essential. Should enjoy working with a wide variety of people. Minimum 2.5 years direct/related experience required. B85-077

Sr. Staff Assistant/Receptionist, Admissions Office, to act as receptionist in a busy service-oriented office, responding to requests for graduate, special student and transfer admissions on the phone and in person. Will read letters of inquiry, decide and send the appropriate application materials; maintain statistics on type of materials sent; provide assistance to graduate, special and transfer sections as needed; direct student employees; type freshman admitted certificates; organize and mail admit packets. Excellent typing skills, strong organizational skills important for managing heavy workload and ability to work well under pressure essential. Necessary to be even-tempered and personable with ability to work effectively with a variety of people. Minimum 2.5 years directly related experience required, secretarial experience preferred. B85-074

Secretary, Office of Sponsored Programs, to perform secretarial duties for two contract administrators who are responsible for submission of research proposals, negotiation of grants, contracts and post-award administration for various departments within MIT. Work will include typing correspondence, maintaining filing system, and answering telephones. Discretion, tact, and good organizational skills essential. Willingness to work as part of a team necessary. Minimum 1 year direct/related experience required. B85-085

Technical Support Staff

Sr. Technical Typist, Chemistry (part-time), to type technical manuscripts and proposals, file, and photocopy. Will work as part of a team. Excellent technical typing skills and general office skills needed. Word processing experience or willingness to learn necessary. Minimum 2.5 years direct/related experience required. Will work Tuesday and Thursday, 14 hrs/week. T85-088

Sr. Technical Illustrator, Research Laboratory of Electronics (part-time), to be in charge of the operation of RLE Drafting Room. Will schedule work, meet own deadlines, estimate work time for jobs, send work to free-lance artists where necessary, create camera-ready illustrations from rough sketches for publications, reports, slides, and conferences. Will produce schematic diagrams, graphs of experimental data, and graphics. Required knowledge of Leroy lettering, ability to draw simple isometrics, familiarity with drafting and graphic arts supplies. Will contribute ideas and design for Documents and Publications Group. Minimum 2.5 years directly related experience required. Graduation from a two-year art school desirable. (21 hrs/week) NON-SMOKING OFFICE T85-076

Office Assistant

Administrative Assistant, Dean of Engineering, to act as secretary and administrative assistant to the Dean. Will perform complex and diverse secretarial/administrative duties. Responsibilities will include setting priorities, coordinating and scheduling appointments, meetings and travel; transcribing, typing, editing and proofreading of correspondence and reports; preparing agenda materials for meetings; screening incoming mail and telephone calls. Good knowledge of MIT is desirable. Strong organizational skills, attention to detail, and absolute discretion in handling confidential materials required. Must be able to work as part of a team as well as independently. Minimum 4.5 years direct/related experience required. B85-089

Administrative Assistant, Research Laboratory of Electronics (part-time with potential to become full-time), to provide administrative and technical support to Electromagnetic Wave Theory Research Group. Duties will include typing and editing technical papers and reports, maintaining files, preparing requisitions, and participating in research projects such as assistance in computer computation and programming. BA degree and willingness to learn use of VAX comput-

ers as a word processor for routine secretarial and technical activities preferred. Excellent typing and organizational skills are essential. Some background in computer programming is preferred but not essential. Minimum 4.5 years direct/related experience required. B85-068

Office Assistant, Architecture (temporary - late November to late April; full time; some flexible evening overtime), will assist Admissions Coordinator in processing applications for four graduate programs. Duties will include extracting and recording data from applications, and answering routine telephone and personal inquiries. Position requires accurate attention to detail, ability to handle confidential information, and willingness to work independently on assigned tasks. Good interpersonal and typing skills required. Minimum one year direct/related experience. NON-SMOKING OFFICE B85-082

Data Entry Operator, Student Financial Aid Office, to be responsible for the input of financial aid information for incoming freshmen and returning students. Will work closely with two aid officers, other members of the office, as well as other departments in the Institute. Will have daily contact with students and their parents to answer questions about MIT and about federal policies regarding financial aid. In addition, will keep track of applications and other necessary forms which are part of the aid process and will serve as a backup to the receptionist. Excellent organizational and interpersonal skills required, and experience in data entry and in working with figures. Applicants must be able to work with minimal supervision and able to work toward specific mailing dates and deadlines. College experience/degree helpful. One to three years experience necessary. NON-SMOKING OFFICE B85-083

Service Staff

Technician C (E-M) or (M), Francis Bitter National Magnet Laboratory, to assist in construction and assembly of water-cooled Bitter magnets. Work will include disassembly and cleaning of parts, assembling turns consisting of copper plates and insulators, stacking turns, assembling stacks of turns in the high pressure water housing and testing for water leaks and electrical integrity. Must be familiar with use of common hand tools. Familiarity with mechanical and electrical measuring equipment such as vernier calipers and volt-ohm meters desirable. Must be able to accurately follow written and verbal instructions and drawings. B85-300

Waiter/Waitress, Faculty Club, to perform such duties as may be necessary to the effective operation of the dining facilities including but not limited to setting up tables, taking orders, serving customers, clearing tables, carrying food and dishes to and from the dining room and kitchen, setting up and clearing buffets, cleaning and filling serving dishes, stocking side-boards with placemats, napkins, and condiments and keeping side-boards, pantry, closets and furniture clean and in good order. Will perform other related duties as required. Ability to read and speak English required. Experience in service oriented environment preferred. B84-298

Bus Person, Faculty Club, to perform such duties as may be necessary to the effective operation of the dining facilities, including but not limited to serving banquets, bussing dishes to and from the kitchen and dining room, unloading dishes into racks for the dish machine, polishing copper and assisting waitresses when necessary. Will perform related duties as required. Ability to read and speak English; experience in service-oriented environment preferred. B85-296

Counter Person, Faculty Club (part-time), to set up and break down sandwich/salad area and assist in the preparation of foods for each area. Will restock items on counters as needed, serve customers during business hours in assigned station and maintain proper sanitation standards in work areas. Will perform related duties as assigned. Ability to converse in English and some food service experience preferred. B85-290

Technician C-Mechanical, Plasma Fusion Center, to perform various routine jobs of skilled or semi-skilled nature, such as chassis wiring, keeping apparatus in good condition and performing laboratory tests and analyses. Experience with basic hand tools, both electric and manual, and ability to perform skilled and semiskilled machinist tasks, such as simple set-ups on lathes and milling machines needed. The ability to thread, exercise tapping, and single pointing is important. A knowledge of raw materials, ferrous, nonferrous and composites such as G-10 and Phenolics is highly desirable. B85-294



Professor John M. Deutch, MIT provost, accepts a \$200,000 check from the General Electric Foundation from William J. Cimonetti, second from left, manager of strategic accounts for GE. Others from the left are Paul M. Ostergard, secretary of the GE Foundation, and Walt Keating, manager of components technology at GE's Plainville, Conn., plant. The funds will support four Athena projects, one in the Department of Aeronautics and Astronautics, two in the Department of Chemical Engineering and one in the Department of Materials Science and Engineering.

—Photo by Calvin Campbell

Arts Council announces grants

This year the Grants Committee of the Council for the Arts will award \$75,000—the largest amount ever—to individuals and organizations formally associated with MIT.

The Grants Program is designed to encourage artistic activity at the Institute by providing financial and technical assistance to members of the MIT community. As in the past, priority will be given to student-initiated projects, and projects which involve, or have an impact on, a large number of students.

The Grants Committee meets four times a year to review proposals. At this year's first meeting the Committee granted 14 awards totalling \$23,070 to graduate and undergraduate students, faculty, student organizations, and various non-curricular programs. Awardees were:

The MIT Concert Band received \$2,000 to help defray the costs of its 1986 winter tour to Central Florida. Another \$5,000 was given to support a visiting artist residency—the first to be sponsored by the Film/Video Section of MIT's Media Laboratory located in the Wiesner Building. This project will bring San Francisco artists Diamanda Galas and Richard Zvonar to MIT in the spring of 1986 to develop visual and audio elements of Ms. Galas' one-person opera.

Constantine Kriezis '86, Course 4, received \$500 to prepare photographs and drawings of small churches built on islands in the Aegean Sea for exhibition in the Wiesner Student Art Gallery later this year. Another photography project, documenting the plight of the homeless, and student involvement with local soup kitchens, was supported with a grant of \$500. The photographer, Dimitry Zarkh '87, Course 16, will also exhibit his work in the Wiesner Art Gallery.

Lees Ruoff, a student in the Master of Science in Visual Studies Program was awarded \$1,000 for development and installation of a pneumatic-acoustical environment at MIT and at the 1986 Sky Art Conference. Also awarded \$1,000 was S.M. Vis.S. candidate Ebon Fisher, who will collaborate with undergraduate musicians to develop *Urban Viscera*, a multimedia project at the Center for Advanced Visual Studies in mid-December. Gitta Salomon and Amy Fisch, graduate students in the Media Laboratory, were awarded \$500

Choral Society to sing Missa Solemnis

The MIT Choral Society, directed by John Oliver, will perform Beethoven's Missa Solemnis, Opus 123, at Sacred Heart Church in East Cambridge on November 22 at 8pm.

Tickets are \$7 for general admission and \$3 for MIT students. Information: x3-3210.

Four professional soloists will appear with the Choral Society, which numbers 178 voices this fall. They will be accompanied by a 49-piece professional orchestra assembled by Concertmaster Maynard Goldman.

The soloists are: soprano Margaret Cusack of New York, a winner of the International American music Competition for Vocalists; mezzo-soprano Valerie Walters who premiered in opera at the Brucknerfest in Linz, Austria; tenor Marcus Haddock, winner of the 1984 Metropolitan Opera National Council Auditions, and bass Keith Kibler who has toured with the Opera New England.

Beethoven composed the Missa Solemnis during the last ten years of his life, at a period when he was reputedly almost deaf. Writer Maynard Soloman, known as a Beethoven specialist, describes this work as "Beethoven's absorbing passion for four years, replacing *Fidelio* as the great 'problem work' of his career." At the beginning of this score the composer wrote: "From the heart... May it go to the heart."

Music writer Marc Mandel said the work "speaks of joy and suffering, of faith, hope and trust... (but also) of self-awareness, of knowledge of one's place, and of awe in the face of greater powers and events."

for initial planning of a 15-minute video piece emphasizing the application of computer graphics and animation in a painterly and filmic way. One Thousand dollars was awarded to project supervisor John Gianvito, lecturer in the Film/Video Section, for assistance in the production of materials to promote a film made by MIT students.

To SANGAM, the Indian Students' Association at MIT, the Grants Committee awarded \$1,070 to help underwrite a program to expose the MIT community to Indian culture. C.V. Berney, a senior research associate in chemical engineering, received \$1,000 in support of a symposium marking the 150th anniversary of the birth of Victorian dramatist William S. Gilbert, which will provide performance opportunities for MIT students. MIT Women's Studies Program received \$1,000 to help bring noted author Toni Cade Bambara to the Institute to conduct a reading and to lead two classes as part of "Freedom, Fiction and Family," a year-long program on black women.

The Grants Committee awarded a total of \$5,500 to the Committee on the Visual Arts. \$3,000 was granted to commission the collaborative team TODT to conceive, design and construct a new environmental installation as part of "Nude, Naked, Stripped," a thematic group exhibit in Hayden Gallery December 13 through February 4. The CVA was also awarded a challenge grant of \$2,500 to help defray the costs of printing a color supplement to *Artists and Architects Collaborate: Designing the Wiesner Building*.

To graduate students in the Department of Architecture, the Committee awarded \$3,000 in support of a week-long symposium entitled "An Architecture of Substance." Lectures, exhibitions, a design studio, workshops and other events involving renowned architects, theorists and historians, as well as students and young architects from around the world, will be held January 28 through February 2.

Funds for the Council's Grants Program and operating expenses are contributed or raised entirely by Council members and friends. To learn more about the Council's Grants Program, call Alison Shafer, Program Officer, x3-4003.

Microcomputer training sessions set for January

The MIT Choral Society has been conducted since 1972 by Mr. Oliver. The group has sung most of the masterworks of the choral repertoire since it was established in 1947. A senior lecturer in music at MIT, Mr. Oliver is widely known to Boston audiences as the founder and director of both the John Oliver Chorale and the BSO's Tanglewood Chorus.

Sacred Heart Church is located at the corner of Sixth and Otis Streets in East Cambridge.

Microcomputer training sessions set for January

Information Services is planning a series of hands-on microcomputer training sessions to be held during IAP. Among the topics are daylong sessions on Introduction to the IBM PC and IBM PC-DOS, and two-day sessions on Introduction to Lotus 1-2-3, Advanced Lotus 1-2-3, dBASE III and R:base 5000.

The sessions cost \$150/day, excluding materials, and are open to everyone at the Institute. A complete list of dates, times and locations, and instructions for registering, will be distributed to employees in early December. The list will also be posted on the Building 11 first-floor bulletin board and the schedule will be listed in Institute Notices.

To request other topics, drop a note to Andrew Schwartz, manager of training at Information Services, Rm 11-309.

\$5M Fairchild grant to advance brain science

(continued from page 1)

years, will be used in several ways. The endowment portion includes \$2,200,000 for a faculty development fund whose annual income will support the salaries of several faculty members. Another \$125,000 will support a lecture series. Of the expendable funds, \$2,125,000 will be used for graduate and post-doctoral fellowships, \$300,000 for start-up funds for new appointments and \$250,000 for equipment.

In a broad sense, MIT traces the roots of its computational efforts to Norbert Wiener's *Cybernetics*, which in 1948 first drew together the studies of communication processes in both the natural world and machines. The presence of Wiener at MIT attracted a number of outstanding young researchers in linguistics,

mathematics, the sciences and engineering who realized that whether they were studying natural or man-made systems, they were studying the common phenomenon of information—its generation, processing, storage and transfer.

The work begun by Wiener was advanced by MIT's Claude Shannon, with the development of information theory in the 1950s. That theory, together with the theory of feedback control and the development of more powerful computers—also begun at MIT by Vannevar Bush—made possible large-scale networks for information transmission.

Although the various pieces of information theory did not necessarily apply directly to natural systems, they did lead to important rethinking of many related problems, including various aspects of the brain sciences. Over the past 30 years, many of these reformulations have become basic to the development of information sciences, whether in artificial or naturally occurring systems.

They have formed the framework for basic studies that combine knowledge of living and artificial systems, and have also led to applied results. Among the practical applications developed at MIT have been a series of advanced prostheses, including the "Boston Arm," and various forms of optical character recognition equipment, including computer-controlled text-to-speech converters.

More recently, following initiatives begun by David Marr at MIT before his death from leukemia in 1980 at the age of 35, scientists from various disciplines have joined with researchers in the field of artificial intelligence to develop computational approaches to the brain. In essence, their goal remains what it was in Wiener's day: understanding the brain's function as a biological information processor which is inherently related to man-made processors. But the complexity of today's studies is vastly greater, and the work is more focused on the process of human thinking than on simple relation of stimuli to response.

Symposium to focus of future of India

"India in the 21st Century," a symposium sponsored by the Indian Students' Association at MIT (SANGAM) to probe Indian polity, economics and technology, will be held tonight at 7pm in Rm 10-250.

Held in conjunction with the Festival of India celebrations, the symposium will explore India today and in the next century. The festival is a year-long celebration of Indian culture in cities throughout the United States. At the Museum of Fine Arts in Boston, "Life At Court: Art for India's Rulers—16th-19th Centuries," will be featured through January 1986, and will include 100 paintings from the Mughal and Rajput rulers.

The symposium, moderated by Dr. Roderick Macfarquhar, professor of government at Harvard University, will feature panelists K. Shankar Bajpai, India's ambassador to the United States; Natarajan Krishnan, India's permanent representative to the United Nations; Dr. James Manor, visiting professor of government, Harvard University; Dr. Raj Reddy, professor of computer science and director of the Robotics Institute, Carnegie-Mellon University, and Dr. Subramaniam Swamy, visiting professor of economics, Harvard University.

Further information on the symposium may be obtained by calling Gurumurthy Kalyanaram (G.K.) at 577-1796 or Vikram Chaudhry at 225-8278.

Fairfield E. Raymond

Fairfield E. Raymond of Peterborough, N.H., an MIT alumnus and a faculty member from 1928 to 1939, died November 10 at the age of 89. He had been a former business manager of the old Browne & Nichols School in Cambridge and a member of its board of overseers.

A native of Boston, Mr. Raymond graduated from Harvard in 1918 and received the SB in mechanical engineering from MIT in 1921. He taught as an assistant professor of industrial research in the Department of Economics from 1928 to 1930 and as an associate professor in the Department of Business and Engineering Administration, the forerunner to the Sloan School of Management, until 1939.

During World War II he was manager of regional appeals for the old War Production Board. Following his retirement in 1956, he became chairman of the New Hampshire Conservation Commission.

Henry Banach

Word has been received of the October 25 death of Henry Banach, 77, a mechanic at the Draper Laboratory from 1962 until his retirement in 1973. He is survived by his widow, Ella Banach of Portsmouth, N.H.

Priscilla S. Gosling

Priscilla Strickland Gosling, 82, of Natick, a matron in Physical Plant from 1941 until her retirement in 1968, died November 4. She is survived by her husband, Samuel, who also worked in Physical Plant, and several nieces and nephews.

John A.C. Kimball

John A.C. Kimball, 85, of Acton, died November 12. He was a mechanic at Lincoln Laboratory from 1955 until his retirement in 1965. He leaves a widow, Alice, and a son, John.

Dorothy Meigs

Dorothy Meigs, 74, of West Acton, a secretary in the Development Office from 1946 until her retirement in 1974, died October 16. She leaves a brother, Martin Meigs of Acton.

Nicholas C. Vlahakis

Nicholas C. Vlahakis, 60, of Dracut, died suddenly November 10. He had been a technician at Lincoln Laboratory since 1952.

Mr. Vlahakis is survived by his widow, Nora Sarantos Vlahakis; two daughters, Evanthea Vlahakis of Brookline and Mary Ann Davirris of Waltham; and a sister, Fotene Vlahakis of Dracut. Memorial contributions may be made to a fund in his name at the Greek Orthodox Church of the Transfiguration of Our Savior in Lowell.

Microsystems center to open in renovated Brown Building

(continued from page 1)

control, computation and communications."

Coordinating MIT's research in all these areas is the responsibility of the Microsystems Research Center which will be directed by Professor Paul Penfield Jr. of the EECS Department.

Professor Dimitri Antoniadis will be the director of the Microsystems Technology Laboratories.

Professor Penfield said that having a center with a name "will give recognition and greater visibility to this program. We work with several departments and interdepartmental laboratories. There is research under way in electronic materials, submicron lithography, semiconductor processing, semiconductor devices, circuits, computer-aided design, VLSI architecture and VLSI theory. Overall, the research support exceeds \$7,500,000 and is growing rapidly. A big part of this work will go on in the new laboratory complex in the Brown Building."

Professor Antoniadis said the primary goals of the MTL "are to be able to fabricate large integrated circuits, and to consolidate activities in microelectronics and microstructure fabrication. MTL does not, by itself, administer any research, but instead is responsible for providing the environment in which research in semiconductor processes, devices, circuits, and submicron structures can be carried out. A team of about 15 technical staff in MTL operates the Integrated Circuits Laboratory (ICL), an extremely clean 7000-square foot area on the second floor, and manages all the building facilities and operations."

Besides ICL, the laboratory complex includes the Submicron Structures Laboratory (SSL) and the Technology Research Laboratory (TRL) on the fourth floor, a computer facility on the third floor, and several Research Group Laboratories on the fifth floor.

Professor Henry I. Smith is the director of SSL. "Our laboratory was established in 1978 in Building 13," he said. "After our move to Building 39 we were able to get back in operation very fast. We are delighted with our new facilities, and are looking forward to combining our sub-1000-Angstrom technology with the capabilities of ICL and TRL, to develop a new generation of advanced devices."

The facilities in what will soon be known officially as the Brown Building are unique at MIT. Anthony Colozzi, assistant to the director for operations at MTL, has worked closely with the architects and contractors for the past four years. "The greatest challenge was providing the ultraclean environment in a building not originally designed with laboratory space in mind," he said. "We expect Class 10 operation in both ICL and SSL. By Class 10 we mean that there are fewer than 10 dust particles larger than 0.2 micron in size in a cubic foot of air. In addition, the temperature and humidity must be precisely controlled, and the air must flow without turbulence, which tends to stir up dust. Half of the third floor of the building is devoted just to air-

South African intern learns library skills

(continued from page 1)

ture, no useful books. And we blacks have no money to buy books. We are referred to as not having a love for reading. But I do not see this as becoming possible when we are not exposed to good literature to give us a clear and full insight of reading," she said.

A building to house her collection would be ideal, she said. She doubts, however, if she will be able to obtain one. "I may have to start a personal collection in my house and as time goes by raise more funds. I want black children to learn to develop a love for literature. I also want black children to learn to read leisurely on their own, be exposed to books at an early age to open the way for their future usage of literature. I was not exposed to good literature—I learned it the hard way."

Ms. Seromo said she is not from a "very educated family." Her mother is an elementary school teacher and her father is a laborer. She has two brothers, one is in high school and the other works.

handling equipment—giant fans and arrays of filters. The second greatest challenge was providing all the house utilities—various gases, vacuum, chilled water, deionized water, and so on."

The building, during renovation, had wiring for computer terminals placed in all labs and offices. "This is a very fully wired building," said Professor Donald E. Troxel, whose research in Computer-Aided Fabrication systems requires this. "From any office or lab people can access our new VAX 785 computer or any of dozens of other computers on campus."

Paul Maciel is the Technical Manager of ICL. "We have ordered most of the equipment and some has been delivered already. We are in the process of installing it and trying it out. By next spring we expect to have installed all the equipment necessary to process semiconductor wafers, from starting material right through to testing and packaging."

The MTL is already getting organized, according to Antoniadis. "We have a policy committee and two task committees at work, one for overseeing the base line technology for ICL, and the other to operate TRL."

"Setting up this laboratory complex was expensive" Professor Adler said. "Without the support of both the federal government and a group of private companies, we would not have been able to pull it off. We are grateful to them all." The total cost exceeded \$21,000,000. "But now, we have an educational and research facility second to none among universities in the world. The combination of submicron structures technology and IC processing in the same building is very powerful. We can undertake research that can only be dreamed about elsewhere."

Dean of Engineering Gerald L. Wilson, who promoted this project actively when he was head of the department, agreed. "This facility greatly increases our capabilities in VLSI and the related technologies and applications, so that truly interdisciplinary projects can be undertaken."

Professor Penfield said it is the role of MRC to see that these interdisciplinary opportunities are not missed. "We run several activities to promote interaction and a sense of community within the microsystems effort." Barbara B. Lory, assistant to the director of MRC, said that these include "a weekly VLSI Seminar Series, an Institute-wide VLSI Memo series, semiannual research reviews, and a biannual university-oriented VLSI Conference. These events are all open to the public. The next VLSI Research Review is scheduled for Monday, Dec. 16. The next VLSI conference is April 7-9, 1986. The VLSI seminars are held each Tuesday afternoon and are announced in Tech Talk."

Professor Moses said that the effort in microsystems "has been the major initiative of the Electrical Engineering and Computer Science Department for the past seven years. We are very pleased to see it reach this stage, and we look forward to exciting new results in the MTL and MRC."

Nominations?

Professor Gene M. Brown, dean of the School of Science, has issued a call for nominations for the Science Council Prize for excellence in undergraduate teaching.

The prize recognizes outstanding instructional performance and is intended to emphasize the importance the Science Council places on teaching. Those eligible include any faculty member in the School of Science who has achieved distinction in his or her teaching. The prize carries a \$5,000 honorarium.

Nominations may be made by any member of the community by March 28. The Science Council will select the recipient based on the advice of a nominating committee composed of Professors Vernon Ingram (chairman), Robert Alberty, Francis Low and James Munkres.

Auditions scheduled for Anouilh play

An audition call has gone out for the MIT Dramashop's major IAP production, which will be *The Cavern* by French playwright Jean Anouilh.

There are roles for six women and ten men plus two children in this play, written in modern times but set in the late 19th century as an exploration of the murder mystery melodramas prevalent at that time.

"It's a stunning play dramatically," said Dr. Robert N. Scanlan, director of drama. One of the characters is the author of the play who constantly intrudes on the play, even re-winding it entirely at one point. The central character is a cook who is murdered and then brought back to life as the author tries another approach to the dilemma he is creating.

The "cavern" in the title is the below stairs habitation of a cast of servants to an aristocrat family who live in luxurious surroundings upstairs.

Dr. Scanlan has decided to introduce a new element to the play through use of a live small orchestra to accompany and heighten the melodramatic elements. The orchestra will be conducted by Jane Coppock, associate professor of music, who will design and arrange the music.

In addition to actors, the production is open to other assistants and participants in design and all backstage technical aspects.

All those interested in auditioning or helping in other ways should appear at auditions to be held in Kresge Little Theatre at 7:30pm on December 2 in Kresge Little Theatre and in Rm 9-130 on December 3 and 4. Information: x3-2877.

The play will be staged on two consecutive weekends at the end of January.

Buttrick recital scheduled Nov. 23

Pianist John Buttrick, associate professor of music, will present a recital in Kresge Auditorium on Saturday, Nov. 23, at 8:30pm, as part of the MIT Faculty Series. Admission is free and open to the public.

The program will feature Mozart's *Fantasia and Sonata in C Minor, K. 475, 457*; *Six Pieces from Dreams by the Fireside*, Op. 143 by Reger; Beethoven's *Sonata No. 28 in A*, Op. 101; Debussy's *Voiles*; Ravel's *Une Barque sur l'océan*; and Chopin's *Barcarolle*, Op. 60.

Professor Buttrick will spend the spring semester in Europe, primarily in Switzerland, concertizing and giving seminars for pianists and piano teachers.

His most recent recordings on the Swiss label, Jecklin, include Beethoven *Sonatas Op. 109 and 110*, *Op. 312 and Op. 57*; Brahms' *Piano Pieces*; Strauss' *Enoch Arden*; Reger's *Piano Pieces Op. 45 and Op. 143*; Brahms and Schubert *Lieder* with Elisabeth Speiser; and the Reger *Piano Trio*, Op. 102 to be released in the spring.

South African intern learns library skills

She came to the United States as a Fulbright Fellow when one of her professors who was from California suggested she apply to Simmons College or UCLA. She applied and received the MLS degree from Simmons this past August.

Ms. Seromo believes her experience at MIT is valuable. "I should have arranged to stay here for a few more months," she lamented.

"In school I was only taught theory, which is good, but I didn't have enough practice. I think my experience here will help me deal with problems I may encounter back home," she said.

She may have a job at a black academic library.

Although Ms. Seromo will be at MIT until November 29, books or money to complete her dream can be forwarded to Julian Green, head of the Science Library, or Hope Brand, secretary, Rm 14S-132, or call x3-1294.