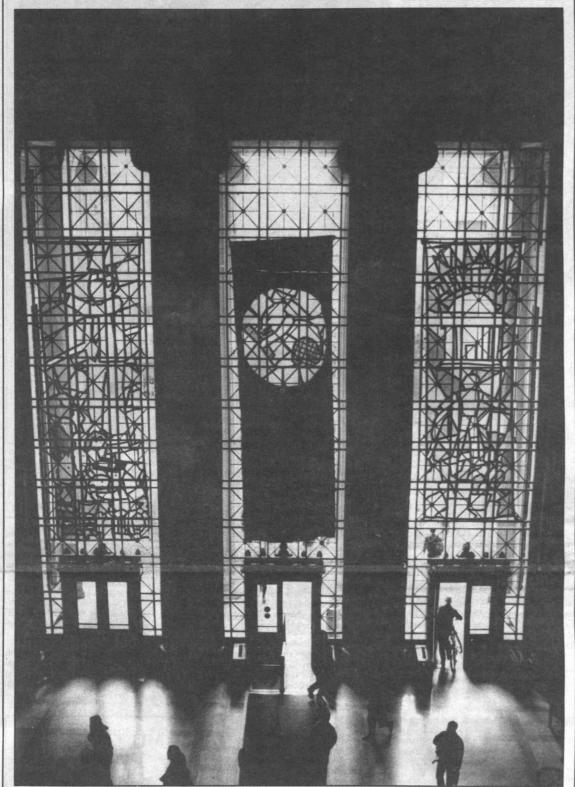
# MIT

# ROLUME 37 . NUMBER 12

# WEDNESDAY NOVEMBER 4, 1992



**HALLOWEEN HACK**—These "stained-glass" windows, the center one featuring the MIT beaver, were part of an elaborate Halloween hack in Lobby 7 that went up early last Friday morning. See page 8 for another photo and a story on the hack supplied by a representative of "The Devotees of Our Lady of the All Night Tool," as the hackers refer to themselves.

#### SEVERAL CHANGES

# Campus Safety To Be Improved

By Robert C. Di Iorio

News Office

To enhance campus safety, MIT will double its Safe Ride fleet to four vans, improve lighting at certain locations and add several outdoor emergency telephones, Campus Police Chief Anne P. Glavin has announced.

The two additional vehicles are expected to cut the Safe Ride waiting time to approximately 15 minutes, about half the longest wait now reported, she

said.

These actions, and several others detailed by Chief Glavin, follow a broad review of campus safety considerations and security procedures undertaken following the September 18 murder of an MIT student on Memorial Drive near the library.

The changes, recommended by Chief Glavin and by a number of ad hoc committees and review groups formed after the murder, were approved by Senior Vice President William R.

d. Dickson. The Institute Committee on Safety, which he chairs, also endorsed the recommendations.

Chief Glavin has set December 1 as a target date for the enlarged Safe Ride program, but whether that date can be met, she said, depends on how quickly dealers can deliver the new handicapped-accessible vans and the radio equipment each will carry. In addition, six new drivers must be hired to operate the vans.

(continued on page 4)

#### NOV. 20 REVIEW

# MIT Urges NSF to Take 'Longest View' of Science

How should American science serve the nation and the world in the 21st century?

This is the question being debated, with a Nov. 20 deadline, by the Special Commission on the Future of the National Science Foundation (NSF). MIT and more than 500 other individuals and institutions submitted comments on the topic to the agency last month.

The National Science Foundation, in the view of MIT, "should be the agency with the broadest and longest view of science and technology in the national interest.

"Its first responsibility should be to see to the health of basic research, research that is inspired by intellectual opportunity and the quest for fundamental understanding, and not necessarily by predetermined practical objectives," MIT said in a position paper submitted to William H. Danforth, cochair of the Special Commission and chancellor of Washington University (St. Louis).

(See full text on page 5.)

"This should be accomplished primarily by supporting research and graduate education," MIT said.

"It should be emphasized that it is the entire *system* of government, industrial, and academic components that is in need of attention, and we believe that the NSF review should be conducted in this context," said the paper signed by President Charles M. Vest, Provost Mark S. Wrighton, Associate Provost Sheila E. Widnall, Vice President for Research J. David Litster, Dean of Engineering Joel Moses and Dean of Science Robert J. Birgeneau.

In the statement, MIT said that the support of science and technology should be determined at the grass roots (continued on page 5)

#### GENE LOCATION

# Melanoma Breakthrough Is Reported by Biologists

A team of biologists led by a scientist at MIT has reported the rough location of a gene that may play a crucial role in the early growth of melanoma skin cancer.

The work, which could lead to new diagnostic strategies and treatments for melanoma, was published in the November 1 issue of the Proceedings of the National Academy of Sciences.

The first author of the paper is Jane W. Fountain, a postdoctoral fellow in the Center for Cancer Research (CCR) who works in the laboratory of Professor David E. Housman of biology, a coauthor of the paper. Other MIT authors are Maria Karayiorgou, a postdoctoral associate at the CCR, and Nicholas C. Dracopoli, a principal research scientist at the Center for Genome Research.

Their colleagues in the work are Marc S. Ernstoff and Linda Titus-Ernstoff of Dartmouth University; John M. Kirkwood and Daniel R. Vlock of the University of Pittsburgh; Brigitte Bouchard, Setaluri Vijayasaradhi, and Alan N. Houghton of the Memorial Sloan-Kettering Cancer Center, and Jill Lahti and Vincent J. Kidd of St. Jude Children's Research Hospital in Memphis.

According to Dr. Fountain, evidence from a number of studies, including the one just published, "suggests that a rearrangement or deletion of a gene on chromosome 9 (one of the 23 pairs of human chromosomes found in every cell) may be the first or an initiating event in the development of melanoma."

"This type of gene," she continued,

"is known as a tumor suppressor gene. It's normal function is to keep cell growth in check." When this gene is deleted from the chromosome or undergoes a mutation, "it presumably allows the predestined tumor cells to grow in an aberrant or uncontrolled fashion."

Dr. Fountain and colleagues have taken a step towards locating the tumor suppressor gene for melanoma by "narrowing the [search] on chromosome 9 down to a few million base pairs (there are approximately 145 million base pairs total on this chromosome)." The team is now "actively searching for candidate genes in this region."

Dr. Fountain expects that it will take from one to three years to identify the culprit gene, and from five to 10 years to potentially develop new diagnostic strategies and treatments for melanoma based on this information.

(continued on page 4)

### In Brief

#### **COPIOUS COPIES**

The Graphic Arts Copy Center in Rm 11-004 is now open until 9pm Monday through Thursday and until 6pm on Friday. The new hours are designed to provide overnight copy service, with delivery of material to offices the following morning. The self-service area will also be open to customers for the extended hours. The Copy Center, which opens every weekday at 8am, provides competitive prices and a variety of bindings.

#### INSIDE:

The Final Report of the Presidential Task Force on Career Development of Minority Administrators at MIT is included as a special section in today's paper.

#### INFORMATION TECHNOLOGY

# Productivity Is Focus of New Initiative at Sloan

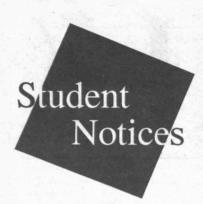
A new program, PROFIT (Productivity from Information Technology), has been established at Sloan to define new processes required to gain greater productivity from information technology (IT) in both the private and public sectors. The goal will be to "en-

hance productivity in areas ranging from finance to transportation, and from manufacturing to telecommunications."

MIT President Charles Vest and Provost Mark Wrighton announced the new PROFIT Program on October 23 when PROFIT welcomed its first charter sponsor, Bull HN Information Systems, Inc. Axel J. Leblois, president and chief executive officer of the sponsor company, was present at this occasion. Senior Research Scientist Amar Gupta and Stuart Madnick, John Norris

Maguire Professor of Information Technology, are the co-directors of the program.

PROFIT developed from a conversation Dr. Gupta had last year with Dr.
Vest about establishing a research pro(continued on page 8)



- \* -Open to public
- \*\*-Open to MIT community only
- \*\*\*-Open to members only

#### ■ ANNOUNCEMENTS

Career Services and Preprofessional Advising Recruitment Presentations\*\*—Nov 4: DIVA Corporation, 6-8pm, Rm 4-145. Oliver Wyman, 7-8:30pm, Rm 4-149. Smith Barney, 7-9pm, Rm 4-153. Nov 5: Cornerstone, 6-8pm, Rm 4-149. Nov 9: Gemini Consulting, 6-8pm, Rm 4-163. Morgan Stanley, 7-9pm, Rm 4-149. Nov 12: Sprint Corporation, 5-6:30pm, Rm 4-149. Cambridge Technology Group, 6:30-8pm, Rm 4-153.

So You're Interested in Law School?\*\*-Nov 4: A meeting for students interested in law. 4pm, Rm 4-149. Refreshments. Members of the MIT Prelaw Advisory Council will dis-cuss information about law school. For further information contact the Office of Career Services and Preprofessional Advising, Rm 12-185, x3-4737.

MIT Pistol & Rifle Club Basic Pistol Marksmanship Course\*\*-Starts Nov 5, 4 nights: Nov 5, 6, 12, 13, 6-9pm. DuPont pistol range. Course covers safe handling, storage and use of firearms as well as developing marksmanship skills to meet local police departmental requirements for pistol permits. Fee covers everything. Info/registration: Frank Gauntt, Draper x8-1476.

MIT's Unihoc Invitational Tournament\*—Nov 8: Come see the first ever Unihoc tournament—a sport played in 20 countries all over the world has finally hit America. 11am-2pm, 2nd floor of Dupont Gym. Organized by Henrik Martin.

A Safe Ride\*\*-Call 253-2997 for a free ride within MIT boundaries. Service operates Sun-Wed 6pm-3am; Thurs-Sat 6pm-4am. Guide to shuttle stops available.

MIT Student Furniture Exchange\*\*—If you have a great imagination, a sense of humor, very practical needs, a shoestring budget, a sense of adventure, the Furniture Exchange is the place for you. We have tons and tons of stuff right now! Great bargains, used furniture and more, Tues/Th, 10am-2pm, 25 Windsor St (MIT Museum bldg, 1st fl). Donations welcome. x3-4293.

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

Language Conversation Exchange\*\*-Internationals and Americans are invited to participate in this program which matches persons interested in practicing a language and getting to know someone from another country. At present, there is a need for English partners to fill continued requests of internationals wanting to practice and im-prove their English. Native French, Spanish and Italian speakers also needed for English speakers wanting to practice these languages. Sponsored by the Wives' Group, call x3-1614 for more information.

Arts Hotline-Recorded information on all art events at MIT may be obtained by dialing x3-

trespass warnings.

and escaped unharmed.

to MIT truck.

scrapes to a car.

Crimewatch

The following incidents were reported to the MIT Campus Police between

Oct 23: Tang, information received of suspicious activity, officers stopped

Oct 24: Westgate, rice cooker stolen, \$40; Bldg N9, malicious destruction

Oct 25: female student was the victim of an assault and battery on Memorial

Oct 27: Bldg E53, 1) clock stolen, \$20; 2) calculator stolen, \$80; Bldg 26,

Oct 28: Albany Garage, two males were placed under arrest for trespassing

Oct 29: Bldg 3, employee returned to office to see a male with her purse

and other related charges, one defendant had an outstanding warrant;

under his jacket, pulled purse away from suspect at which time he fled

area; Bldg 5, witness states suspect walked into office, looked through

desk and backpack, took wallet containing \$20 and calmly left area; Bldg

3, wallet containing \$100 removed from a coat pocket; Bldg E23,

scaffolding collapsed injuring two employees; Albany Garage, key

Oct 26: Bldg 10, suspicious activity; Bldg 20, bicycle stolen, \$10.

Bldg 2, jacket left unattended, wallet with \$21 stolen.

suspicious person; Bldg E25, chain letter.

Dr near Killian Court. A struggle ensued, the victim struck her attacker

three individuals, one arrested for an outstanding warrant, others issued

ARTS. Material is updated every Monday

#### **■ RELIGIOUS ACTIVITIES**

The Chapel is open for private meditation 7am-

Baptist Student Fellowship at MIT\*\*-Meet for supper on Tuesdays at 5:15pm at 312 Memorial Drive, then move to the chapel across the street for worship at 6pm. Call x3-2328 for more information

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

Graduate Christian Fellowship\*\*-We invite you to join us. Open to believers and seekers, GCF is a group of graduate students, faculty, and staff who desire to know God better and reflect the love and presence of Jesus Christ. Weekly meetings in Student Center, DR 1&2, Thursdays at 6pm. We also have Bible studies and a Faith & Technology Roundtable. Info: Andrew Parris x3-2319.

Christian Science Organization\*\*-Meets Thursdays at 7:30pm in the Chapel. We'll share thoughts about God, hear testimonies of Christian healing and read from the Bible. All are welcome! Call x3-8797 or <lnorford@eagle.mit.edu> for further information.

MIT Hillel\*-Nov 4: Israeli Folk Dancing, 7:30pm, Lobby 13. Nov 6: Conservative & Orthodox Svcs, 5:30pm, Rm 50-010. Sephardic Shabbat Celebration, 6:45pm, Walker Blue Rm. Sephardic foods & songs. 8:30pm, "The Jews of Spain: Their Journeys and History," guest speaker Victor Pereira, G. Reserve for dinner x3-2987. Nov 8: Voices and Echoes: 500 Years of Judeo-Spanish Culture, 10:30am-3pm, Student Ctr, 3rd fl. Nov 10: Seminar: Jewish Perspectives on Medical Ethics, 7pm, Rm 1-134. Nov 11: Israeli Folk Dancing, 7:30pm, Walker Morss Hall. Nov 13: Conservative & Orthodox Shabbat Services, 5:45pm, Rm 50-010. Shabbat Dinner, 6:45pm, Walker Blue Rm (reserve by Thurs. eve). Nov 14: Orthodox Shabbat Svcs, 9am, Walker 50-010. Tropical Party w/area Hillels, 9pm-1am, MacGregor Dining Rm. Nov 15: Jewish Women's Group, 5-7pm. Rm 14E-304. More info: x3-2982.

MIT Korean Baptist Student Koinonia (KBSK)\*\*—Friday Night Bible Study and Fellowship 7-8:30pm, Private Dining Room #3, 3rd floor of Student Center. Everyone is welcome, refreshments provided. For more information contact Chris Pak x3-9342 or

Lutheran-Episcopal Ministry at MIT\*\*— Wednesday worship, 5:10pm, MIT Chapel, followed by supper and conversation across the street at 312 Memorial Drive. Contact Rev. Susan P. Thomas x3-2325 or Rev. Scott Paradise x3-2983.

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

MIT Muslim Students Association\*-5 daily prayers in the prayer room, Ashdown House (Bldg W-1) west bsmt. Friday congregation: 1:10-1:45pm in Ashdown House (Bldg W-1) west bsmt. Info: x8-9755.

MIT Vedanta Society\*-Meditation and discourse on the Bhagavad Gita with Swami Sarvagatananda, MIT Religious Counselor and Head, Ramakrishna Vedanta Society of Boston, every Friday at 5:15pm in the MIT

#### ■ GRADUATE NOTICES

Academic Projects & Policies Committee\*\*-Nov 5: Committee meeting of the Graduate Student Council, 5:30pm, Rm 50-222. More

#### **■ OPPORTUNITIES**

Kathlyn Langford Wolfe Awards in Materials Science, Humanities, and the Arts. \$1000 Undergraduate Award and \$1000 Graduate Award. To be awarded upon completion of an imaginative and significant project combining research in materials and humanities or in materials and the arts. For further information contact Prof. Linn Hobbs, Rm 13-4062, x3-6835; Prof. Arthur Kaledin, Rm E51-118, x3-4144; Prof. Heather Lechtman, Rm 16-401, x3-2172. Preliminary project deadline: Nov 11.

Winston Churchill Scholarship. Provides financial support for students pursuing graduate studies in science, engineering, and mathematics at Churchill College, Cambridge University. MIT Program Advisor: Dean Isaac Colbert x3-4846. Applications available in the Graduate School Office. Deadline: Nov 13, 1992.

Natural Sciences and Engineering Research Council of Canada (NSERC) International Fellowships in Canadian Universities for 1993-94. These awards are available to recent non-Canadian doctoral graduates of universities outside Canada for research in any field in the natural sciences and engineering. Further information and applications available from Jackie Sciacca, Dean of the Graduate School Office, Rm 3-134A. Deadline: Nov 15, 1992.

BF Goodrich Collegiate Inventors Program for 1993. Open to any student enrolled full-time in a college or university in the U.S. Categories: (1) Utility: invention of a new and useful process, machine, manufacture or composition of matter, or product; (2) Design: New, original and ornamental design for an article of manufacture; (3) Plant: Development of a new and distinct breed or variety. Program winners each receive \$5000 cash prize, advisors receive \$2500 cash prize. Entry forms available in the Technology Licensing Office in Rm E32-300, contact person: Dave Krone.

#### **■ INTERNATIONAL**

MIT Language Conversation Exchange\*\*-This service assists members of the MIT community to practice a language with a native speaker and get to know someone from another country. Call x3-1614 for more infor-

MIT-Japan Program. A unique opportunity for MIT science, technology and management students to spend a year in Japan working at a major Japanese company or laboratory. Training, placement, travel and living expenses are covered by the Program. Call Patricia Gercik x3-3142, Rm E38-754.

#### **STUDENT JOBS**

There are more job listings available at the Student Employment Office, Rm 5-119. The Student Employment Office has many "one time only' jobs. Many students find these jobs a good way to earn money fast.

Off Campus, Non-Technical, Office administrator, data base manager needed, clerical tasks. 8 hrs/wk. Salary: \$12/hr. Contact: Sheila Maroney, 646-3160.

Off Campus, Non-Technical. Seeking a parttime typist. Duties include general/form typing, helping with the phones, etc. Salary: negotiable, 10-15 hrs/wk. Contact: Sherri Long, (617) 876-1719.

Off Campus, Non-Technical. Neuromedica is looking for part-time word processing and answering phones. Salary: negotiable. Contact: Don Hudson, (617) 492-6830.

Off Campus, Non-Technical. Babysitter/ mother's helper is needed to care for 4 year old girl. Must be non-smoker, speak English, excellent references required. Salary: negotiable. Contact: Cathie (617) 924-5911.

#### **■ VOLUNTEERS**

The MIT Public Service Center has compiled the following volunteer opportunies

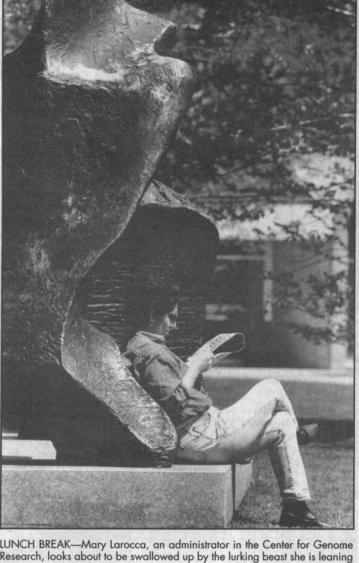
Recording for the Blind, Recording for the Blind with a technical, academic or professional background to tape educational books for the blind and print-impaired. Please join our team of volunteers at our modern recording studio in East Cambridge near the Lechmere T-stop. For more information: 577-1111.

Asian American Civic Association (AACA). The AACA is looking for volunteer mentors. Be a friend to recent immigrants from China and Vietnam on Thursdays and Fridays from 2:15 pm- 4:30pm. Volunteers are not required to speak English as a first language or Chinese Must commit through December 18, 1992. For more information contact: Sara Freed, 90 Tyler Street, Boston, MA 02111. Tel. 426-9492.

Foundation for Children with AIDS. Immediate volunteer opportunities with fundraising and awareness building campaign, "Give a Kid a Chance." Opportunities include organizing fundraising special events, distributing donation cans; staffing/sponsoring educational booths; or hosting a party for your friends. For more information contact: Douglas Spencer at 442-7442.

#### **■ UROP**

The UROP Office invites MIT and Wellesley students to join with faculty members to pursue



Research, looks about to be swallowed up by the lurking beast she is leaning against as she reads at lunchtime. **Photo by Donna Coveney** 

research projects of mutual appeal. For detailed information on procedures, please read the participation section of the UROP 1992-93 Directory, available in the Academic Affairs Offices, 7-104 and 20B-140. Please read the Fall 1992 Guidelines for current information. Proposals for Fall 1992 UROPs for Credit will be accepted until

Pertinent information and listings are posted regularly on the UROP bulletin boards in the infinite corridor near 3-103, in the UROP Office, 20B-140, as well as in Tech Talk.

Faculty supervisors wishing to have projects listed may send brief descriptions to 20B-140, call x3-7306, or email to <urop@athena>

Biology. UROP position in Professor Alexander Rich's lab. The work will involve: 1) construction of several expression vectors for overexpression of a putative yeast left-handed Z-DNA binding protein in both E.coli and yeast; 2) overexpression of the protein; 3) purification of the expressed protein using a metal affinity column; 4) characterization of the protein and 5) production of antibodies using the purified protein as an antigen. Completion of Course 7,011, minimal working 10-15 hours per week and long term commitment are preferred. If interested, please contact Dr. Shuguang Zhang at x3-4710 or come to visit the lab, 16-730.

**Development of Thermodynamics Computer** Programs. Work with Prof. L. B. Evans in conjunction with Aspen Technology, Inc., an international company supplying advance technology to enable companies in the pro-cess industries to model their manufacturing processes. AspenTech's customers cover the chemicals, petroleum biotech, food, energy, and metals industries. Requirements: chemical engineering/chemistry major, freshman to senior student with knowledge of chemistry and FORTRAN programming, knowledge of thermodynamics a plus. Work approximately 10-15 hours/week. Compensa tion will be for credit the first semester, with ters. Contact Beatriz Mooney, Aspen Technology, Ten Canal Park, Cambridge, MA 02141, 577-0310 x335, <mooney@aspentec.com

Mechanical Engineering and Programming/ Computer Hardware. Two UROP positions available testing various dynamics of tennis racquets. One student, non-senior, needed to design and build hardware for data acquisition systems and another needed to program and set up automatic data acquisition systems. Credit/pay available. Specific knowledge not mandatory, but interest and commitment required. Faculty Supervisor: Prof. R. Ramnath, Engineering. Supervisor: Wilber Su. If interested, please send email to <wilber@athena>

Internal Field Measurements in Tokamaks. A student is sought to develop an annotated bibliography of experimental techniques and results published during the past ten years. The major activity will be an exhaustive literature search, expected to uncover approximately fifty relevant papers. Student should have a background in the physical sciences, demonstrated ability to write coherently, and an interest in performing a detailed and rigorous 'hands-on' search using library facilities. Approximately 8-10 hrs/wk. The project should take 60 hours total. Faculty Supervisor: Ian Hutchison. Contact: Valerie Censabella, x3-5456, or email: <censabella@alcvax.pfc.mit.edu>

#### **CABLE**

Frequent schedule updates now appear on TechInfo. For more information about cable at MIT, call Randy Winchester at x3-7431, Room 9-050, e-mail: randy@mit.edu; tv-messages@mit.edu x3-9383, E19-722E.

Nov 9: Channel 8: 4-5:30pm—Live coverage of the MIT EECS colloquium: "Signal Process-ing and Clinical Applications in Medical Ul-trasound Imaging," J. Nelson Wright, Acuson Corporation, Mountain View, CA.

SCOLA Programming. Broadcasts from Poland, Kenya, Iran, Russia, Chile, France, Japan and many more countries are shown on MIT Cable Television Channel 13. For schedule call x3-7431.

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MIT TECH TALK . 3 **NOVEMBER 4, 1992** 

#### HISTORIAN

## Fitzgerald Appointed To Class of '56 CD Chair

Deborah Fitzgerald, associate professor in the history of technology in the Program in Science, Technology and Society (STS), has been named the Class of 1956 Career Development Professor.



**Fitzgerald** 

The career development chair was established by the class in celebration of its 25th reunion to recognize exceptional promise in gifted young faculty. In announcing the appointment, Philip S. Khoury,

dean of the school of humanities and social science, said that "Deborah Fitzgerald is one of the leading historians of technology of her generation and has contributed in important ways to the life of STS and the Institute through her intensive teaching and extensive service.

Professor Fitzgerald is the author of

The Business of Breeding: Hybrid Corn in Illinois (Cornell University Press 1990) and several articles on technological changes in agriculture in America and developing countries. Her current research focuses on the role of agricultural economists and engineers in redefining 20th-century American agriculture. Professor Fitzgerald is coeditor of a Johns Hopkins University Press book series on rural change and is an advisory editor for the journal Technology and Culture. She also sits on the editorial board of the MIT Press

Before coming to MIT in 1988, Dr. Fitzgerald was assistant professor and head tutor in Harvard's History of Science department. She received her BA in history and English at Iowa State University in 1978, and her MA in 1981 and PhD in 1985 in the history and sociology of science and technology at the University of Pennsylvania. In 1992 she was awarded MIT's Graduate Student Council Teaching Award for the School of Humanities and Social Science.

#### MUSICIAN

# Ziporyn Receives Wade Award, '58 Professorship

ssistant Professor Evan Ziporyn A of the Music and Theater Arts Section is the recipient of both the 1992 Wade Award and the Class of 1958 Career Development Professorship. Professor Ziporyn is a composer and



clarinetist whose work has been critically claimed on four continents.

In May 1992, Provost Mark S. Wrighton announced that Professor Ziporyn would be this year's recipient of the Wade Award,

a \$30,000 grant given annually since 1985 to a junior faculty member to support his or her research or other

### Fang \$1M Gift To Support Chinese

Dean Philip S. Khoury of the School of Humanities and Social Science has announced the receipt of a \$1 million gift from an MIT alumnus, Kenneth Fang of Hong Kong, to the school's recently established Chinese Language Program.

The gift will be used to create an endowment named after Mr. Fang's father, S.C. Fang, to support the Chinese Language Program within the school's Foreign Languages and Literatures Section.

"Kenneth Fang's gift will not only allow us to permanently anchor Chinese language in the MIT curriculum," Dean Khoury said, "but also to expand our offerings in Chinese literature and culture. Mr. Fang's generosity is an outstanding example of the continued commitment to MIT by our alumni in Hong Kong."

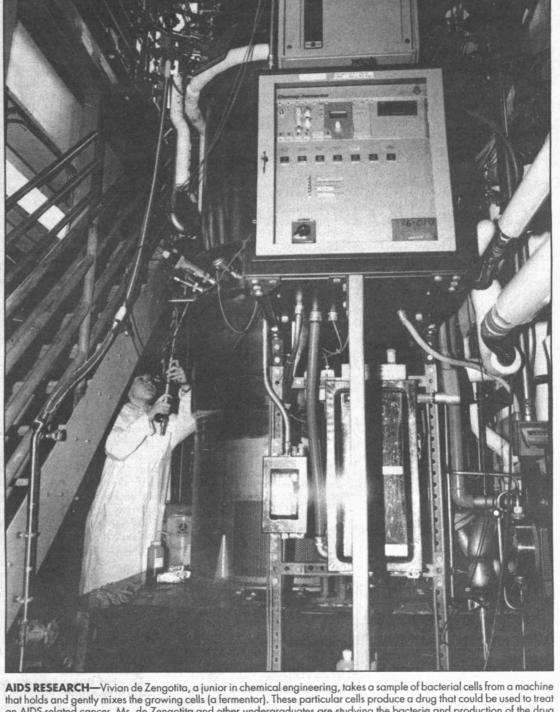
Mr. Fang, who received the SM in chemical engineering in 1961, is managing director and co-owner of Fang Brothers Knitting Limited, which produces and markets clothes throughout the world. Born in Shanghai, Mr. Fang left China with his family for Hong Kong in 1949. He holds the Order of the British Empire and has twice served as vice president of the MIT Club of Hong Kong.

creative projects. Professor Ziporyn is the first School of Humanities and Social Science faculty member to receive the award. The grant will be used to support Dr. Ziporyn's scholarly activities and to help produce his full-length opera based on the life of the seventeenth century mystic, Sabbatai Sevi.

In July, Dr. Ziporyn was appointed Class of 1958 Career Development Professor, a chair established to recognize and encourage innovative and imaginative teaching by junior faculty members who show exceptional promise.

Since 1980, Professor Ziporyn has divided his time equally to new music, jazz, and Balinese music, attempting in his own work to bring all these traditions together in a meaningful synthesis. He has made several extended trips to Bali, Southeast Asia, and Africa, performing, teaching, and studying. In 1987 he received a Fulbright Fellowship for his studies in Balinese music. He completed his undergraduate work at Yale University and received his MA and PhD in music composition from the University of California at

Since coming to MIT in 1990, Professor Ziporyn has taught harmony, counterpoint, and world music. According to Philip S. Khoury, dean of Humanities and Social Science, "Evan Ziporyn will play a critical role as the Music and Theater Arts Section expands its curriculum to include music from non-Western traditions. He possesses the wonderful ability to blend a wide variety of musical traditions in his teaching, composition, and perfor-



AIDS RESEARCH—Vivian de Zengotita, a junior in chemical engineering, takes a sample of bacterial cells from a machine that holds and gently mixes the growing cells (a fermentor). These particular cells produce a drug that could be used to treat an AIDS-related cancer. Ms. de Zengotita and other undergraduates are studying the bacteria and production of the drug through a course in the Department of Chemical Engineering that matches groups of undergraduates with projects suggested by local industries. This particular project was begun last fall, and was so successful that it was scaled up this semester to include a larger forments. include a larger fermentor. **Photo by Donna Coveney** 

#### OVERLAP UPDATE

# MIT Files Notice of Appeal

■ By Kenneth D. Campbell News Office

IT filed a formal notice of appeal M Friday on the ruling that MIT's procedures in giving out \$26 million a year in private scholarships violated the Sherman Antitrust Act.

The notice of appeal, to the Third Circuit Court of Appeals in Philadelphia, said in its entirety: "Defendant Massachusetts Institute of Technology hereby appeals to the United States Court of Appeals for the Third Circuit from the final judgment entered by United States District Court for the Eastern District of Pennsylvania on September 2, 1992 and from all orders and rulings that produced or led to that judgment.'

Oral arguments probably will occur sometime in the Spring, following MIT's submission of its brief in December or January, a court observer said. A deci-

sion by the three-judge panel is usually made within three months after the arguments in appeals court.

The lower court decision, by Federal District Court Chief Judge Louis Bechtle after a 10-day trial in Philadelphia, held that private scholarship gifts by a nonprofit university constituted commerce. He said it was a violation of the antitrust act for the colleges to agree to distribute their scholarship money solely on the basis of need as part of their policy of admitting students on the basis of merit regardless of their ability to pay.

The Ivy League colleges and MIT for more than 30 years had agreed to uniform principles for measuring need-essentially the same system adopted by the US Office of Education in the 1960s and later adapted by Congress, both of which require that most federal aid be awarded exclusively on the basis of need. In the case of applicants who had overlapping offers of admission from more than one of the colleges, the colleges agreed to discuss significant differences in their judgments of the individual students' financial need.

In the June 25-July 9 trial, MIT said that the Sherman act was never intended to apply to the kind of arrangements worked out by the colleges for the assigning of essentially charitable funds. In his summation on July 9, MIT's attorney, Thane D. Scott of Palmer & Dodge, said, "MIT's function is to teach, to discover and to build. It is to leave to the next generation a better and more knowledgeable world. Yet in the eyes of the Antitrust Division, such an institution is indistinguishable from a manufacturer of toaster ovens or porcelain fixtures."

He quoted US Supreme Court Chief Justice William Rehnquist in his dissent in the 1984 NCAA-Oklahoma football case: "No decision of the United States Supreme Court suggests that associations of nonprofit educational institutions must defend their self-regulatory restraints solely in terms of their competitive impact, without regard for the legitimate non-economic values they promote.'

In presenting its case, MIT said that financial aid is a gift policy, not a pricing policy, and that tuition covers only half the cost of a student's education. Fifty-seven percent of students receive aid at MIT. In Fiscal 1991, undergraduate scholarships totalled \$26

#### Polymer Gels Symposium Set

Polymer gels, regarded by many as one of the most promising new materials, will be the focus of a November 5 Industrial Liaison Program symposium, "Fundamentals and Technologies of Intelligent Gels."

The chairman of the symposium will be Professor Toyoichi Tanaka of the Department of Physics, internationally recognized as a pioneering researcher in this field.

The symposium, which will begin at 9am in Rm 9-150, will cover the field from fundamental principles to device development. Members of the Institute community are welcome to attend on a seating-as-available basis.

#### Nature, Nurture and All That

Dr. Charles R. Scriver, Professor of biology, human genetics, and pediatrics at McGill University in Canada, will speak on changing perspectives on child health, genetics, and the environment in a free public lecture sponsored by the Whitehead Institute for Biomedical Research on Wednesday, Nov. 4, at 6:30 p.m. in Rm 10-250.

Dr. Scriver will address issues such as how have public and child health changed the relative importance of genetic causes of disease and how current genetic research may impact human health in regards to both the length and the quality of life.

The discussant for the evening will be Dr. David Nathan, physician-inchief of The Children's Hospital, Boston, and the Robert A. Stranahan Professor of Pediatrics at Harvard Medical

Dr. Scriver's talk, "Nature, Nurture and All That," is the fifth lecture in the Whitehead series "Biology and the Future," supported by the Alfred P. Sloan Foundation. This series examines social, ethical, and environmental consequences of the revolution in molecular biology. For more information contact Eve Nichols or Denise Lintner at x8-5183.

4 MIT TECH TALK
NOVEMBER 4, 1992



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

INSTRUCTIONS: Ads are limited to one (of about 30 words) per issue and may not be repeated in successive issues. All must be accompanied by full name and extension. Persons who have no extensions or who wish to list only their home 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. Faxes will not be accepted.

All extensions listed below are campus numbers unless otherwise specified, i.e., Dorm, Linc, Draper, etc.

MIT-owned equipment may be disposed of through the Property Office.

Deadline is noon Friday before publication.

#### FOR SALE

- Q-sz futon, very thick, \$75; Blue Ridge guitar, \$175; Toshiba 20" color TV, \$200. Debra 495-7546.
- M's topcoat, sz 42, brown & blue tweed, woolblend, warmly lined, like new, orig \$295, will sell for \$40. Rosalie 776-3748.
- Brand new M's Raliegh Summit mountain bike, chromemoly frame, Shimano shifting, \$250. Call dorm x5-8206.
- Sears Kenmore microwave, full power, exc cond, \$150; Pollenex portable spa, \$50; BSR floor spkrs, 16" woofers, grt bass, exc cond, \$200/ pr. Dave, Linc x2246.
- Sofa from Crate & Barrel, dk blue w/narrow white stripes, 65"x36"x34", grt cond, must sell. Susan x3-9456 or 491-7103.
- Flotron Leaf Eater, LE700, used once, \$40; Allen hatchback bike rack, \$30. Larry, Linc x4195.
- Metropolitan Opera tickets, 2 balcony seats, Nov. 13 perf of Rossini's Semiramide, \$66. Pat, Linc x2402.
- Tennis racquet, Prince, Response 110 w/case, virtually brand new, \$95. Call x3-4978.
- Nikon FA: up to 1/4000 sec shutter sp, full-range manual, aperture priority, shutter sp priority, program exp modes, more, nr mint cond, \$299; lens: nw Vivtar 28-85mm, \$99. Subhendu x5-9897.
- Children's videos: Disney, Winnie-the-Pooh, Wee Sing, etc., \$7/ea. Anne 527-7993.
- Great tires, pair 205/75R15 ww 6/32 tread, v even wear, \$25/pr; Minispare T125/70D15 on Ford A-stud rim, unused, \$20. Ralph x3-8121.
- Scandinavian: 2 leather chairs, cognac, new cond, \$225/ea; sofa, blue, lrg, 100% wool; matching white corner desk & chr, \$45; 2 chests of drawers, \$65 & \$55. Call x3-3175 or 332-8251.
- 2 antique mirrors, \$85 & \$125; brass fplc screen, glass doors, \$45; cherry coffee table, \$55; teak coffee table, \$45; Canon electronic typewriter w/memoriy, used 1x, \$65. Call x3-6081.
- 14K diamond ring, 1/2 karat cluster, \$550 or bst; 14K 20" rope chain, \$75 or bst. Susan x3-0240 or 396-5209 eves.
- Electric cooktop, Caloric, 36"w, stainless, gd cond, \$35; exhaust fan, Broan, 36", dual fan, \$20. John, Draper x8-3955.
- Nikon N2020 body w/Nikon 50mm, f1.8 lens, fully automatic incl focus or fully manual, used v little, \$250 or bst. Phil, Draper x8-4442 or 508-583-9972.
- Road bicycle, Miele, 54cm, 14-sp, Columbus frame, Shimano, 2 yrs old, like new, sac \$285. Call x3-1723.
- Wooden 6-drawer dresser w/mirror & matching headboard (free, full-sz frame), \$100 or bst.
- Remodeling ktchn, beautiful cabinets, Corning stove top, wall oven, sink, like new, lots of cabinets (dark), reduced price, \$600. Call 224,0330
- Hand-made patch quilt, F-sz, reversible, double thick, \$300. Carmen x3-1484.
- Bike, F, Sears 3-sp, \$20. Lisa x3-0579.

#### **■ VEHICLES**

- 1982 Ford Fairmont Futura, recent inspection sticker, new exh & tires, 69K, a/c, v dependable, gd cond, \$795. Call 395-4128.
- 1982 Honda Accord, 4-dr, 5-sp, AM/FM/cass, gd cond, \$900 or bst. Linc x3516 or 861-9277.
- 1983 Ford Escort, tan, 4-sp, \$550 or bst. Call dorm x5-9863, lv mssg.
- 1986 Toyota Camry, 4-dr, 5-sp, sun roof, a/c, AM/ FM/cass, 72K, well-maint, timing belt replaced at 65K, \$4200. Paul x3-6161.
- 1990 Ford Probe, GL, white/grey/black int, 5-sp, exc cond, a/c, grt stereo, low mileage, all records kept, \$7700. Sue x8-5185.
- 1990 VW Golf, Wolfsburg Edition, 2-dr, 5-sp, charcoal, 30K, pull-out radio, exc spkrs, roof rack for skis/bikes, 1 ownr, all svc records, \$6300 or bst. Call x3-6081 or 242-5584.

#### **■ HOUSING**

- Ashmont Hill: sunny 1890s Victorian, 3.5BR, 2 full baths, LR, DR, eat-in kitchn, darkrm, porch/ study, 2 woodstoves, yd, much more, \$129,000 or bst. Call x3-0394 or 436-8341.
- Brookline: condo for rent, Coolidge Corner, Devotion School area, close to B line, 2B, 1b, DR, eat-in-kitchen, LR w/fplc, quiet resid area, \$950/mo incl ht. Call 731-5297.
- Loon Mt/Woodstock, NH: 4BR, 3b condo, reasonable rates, located off Rte 3. Call Linc x2473 aftr 2pm.
- Newton Corner: 2BR, 5th fl, mod condo, a/c, outdr pool, saunas, balc, indr garage, on T & express bus, conv to Hvd Sq/MIT buses, ht/ hw incl, avail immed, \$995/mo. Call 617-923-1333 bef 10pm.
- No. Conway, NH: condominium, 2 lrg BR, 2 full baths, secluded but nr everything, exc unit, \$47,500. Dave Hovey, Linc x4449 or 617-944-5055.
- Somerville: quality 3BR apt, eat-in-ktchn w/refrig, d/w, pantry, hdwd flrs, spacious, clean, back deck. Call x3-7361 or 942-2626.
- Winchester: 6 rms, 3BR, mod bath & ktchn, hdwd flrs, off-st prkg, quiet, avail now, \$850 +. Call x3-8328.

#### **■ WANTED**

- Experienced upholsterer needed to make slipcovers for 6' sofa, salary negotiable. Call 876-0302 aftr 11:30am.
- Seeking arts-related businesses interested in buying commercial space in recently-purchased artists cooperative building in Fort Point Channel area. Call x3-3094.
- Wanted: wall system or bookcases 72"-84" high, 80-90" long, light oak, decent condition. Harvey, Linc x4267 or 332-8753.
- Wanted: clean lrg 5-rm 2BR apt in 2 or 3 fam house on 1st or 2nd fl in Watertown or around, prkg 1car, mod k&b, \$600 or \$650 bef utils, 2 adults, for 1/1/93. George Arias x3-3160.
- Figure skates wanted, M's sz 9 and W's sz 8, new or used. Valori x3-8108.
- Driving to Pittsburgh for Thanksgiving? I'll share expenses with you if you have a spot for me. Ari, dorm x5-6777.

#### **ROOMMATES**

- Arlington: student w/9-yr-old child skg hsemate to shr 4BR apt. Yr space incl 2 lrg rms (BR, study). W/d, quiet nbrhd, porch, off-st prkg, nr pub transp, avail 12/1, \$433+ 1/2 util. Call x3-4063.
- Sharon: roommate wanted to share 6-rm house nr train sta, center & lake, 50 min from MIT, \$400 + 1/2 utils, avail 12/1. Cheryl Jones x3-5312.

#### LOST AND FOUND

Lost: jade earring, size of pearl, either Bldg 3 or Graphic Arts. Call x8-8408.

#### **■ CHILD CARE**

Part-time child care position available, 10-12 hrs/ wk, W. Camb, afternoons, competitive wages & transp, must have exp w/children & references. Call 547-6381.

#### ■ MISCELLANEOUS

- Free tickets for volunteers who help w/dance production to be held at Kresge Main theater, help out anytime betw Nov 9-15. Call x8-6679.
- Housecleaning: affordable, reliable, efficient, personal svc at reasonable rates. Cambridge, Arlington, Belmont, Medford, Somerville. David 628-8929.
- Moving? Let a professional w/over 20 yrs experience take the worry out of your next move.

  Low rates, insured, big & small jobs. Piano moving available. Ed 666-9576.

# Campus Safety To Be Improved

(continued from page 1)

Stephen D. Immerman, director of special services in the Office of the Senior Vice President, chaired the ad hoc committee that examined the Safe Ride program. Others who served on the ad hoc committee were Lawrence E. Maguire, director of housing and food service, the section that funded a major portion of the original Safe Ride program; James R. Tewhey, who heads the Residence and Campus Activities Section in the Undergraduate Affairs Office; and students from Project Awareness, a liaison group between the Undergraduate Affairs Office and the Campus Police Department.

The lighting improvements will be made in several areas, including at several of the stops made by the Safe Ride vans.

Other areas recommended for improved lighting by the ad hoc committee are Memorial Drive and certain areas of East Campus.

The additional lights along Memorial Drive will be placed near the sidewalk, either on MIT property or on Metropolitan District Commission property, depending on the outcome of negotiations with the MDC, the agency responsible for Memorial Drive. The negotiations involve MIT access to an unused MDC electrical conduit already buried along Memorial Drive. The conduit has been unused since the MDC moved its street lighting to the center island to provide better lighting on the road surface.

Chief Glavin said another ad hoc committee recommended adding to the 19 emergency phone locations by installing 7 more telephones along Memorial Drive between E52 at the east end of the campus and W91 at the west end.

"These will be outside locations, close to the sidewalks," Chief Glavin said, "so in an emergency one need not run to a building to reach a phone."

The chief also said she has altered Campus Police patrol patterns to provide more coverage and visibility at the perimeter of the campus. Chief Glavin said she is also in discussions with the Cambridge Police Commissioner to develop a cooperative "team policing" patrol plan.

In addition, the chief said, she and Mr. Dickson are reviewing the overall mission and operation of the Campus Police Department to ensure that it is appropriately staffed.

#### Melanoma

(continued from page 1)

New treatments for melanoma are important because although the disease is easily cured by surgery when caught early, advanced cases are still difficult to treat. According to Dr. Fountain, a number of therapies have been tested in treating advanced melanoma, but "none to date are very effective in arresting tumor growth."

In the United States about 32,000 individuals are diagnosed with melanoma every year. Of those, Dr. Fountain said, from 8,000-16,000 will die within 10 years after diagnosis.

She notes, furthermore, that "over the past 10 to 20 years the incidence of melanoma has increased dramatically, more so than for any other form of human cancer, with the possible exception of lung cancer." As a result, she said, "the additional need for earlier detection and treatment will foreseeably not decrease in the years to come."

The work was supported by the National Institutes of Health, the American Cancer Society, and a Whitaker grant from MIT.

#### Student Recovering

Bobby A. Apodaca, 18, a first-year student who lives in East Campus, was treated at the Mount Auburn Hospital emergency room Monday after he was hit by a car while crossing Massachusetts Avenue near the Student Center turn-around, Campus Police said.

Campus Police drove him back to his living unit about 6pm. Monday. No further information was available by deadline. Chief Glavin also reported that the department's Crime Prevention Unit, headed by Sgt. Cheryl Vossmer, has intensified its personal safety program and has visited about three-quarters of the MIT living units since the September 18 incident. Members of the unit

are also visiting fraternities, academic departments, labs, and centers.

Still being reviewed is the building lock-up schedule, the chief said. The often 24-hour nature of study and research at MIT are being taken into consideration.

#### **Assault is Latest Serious Crime**

A female student, grabbed from behind by a man October 25 on Memorial Drive and pulled into Killian Court, struck her attacker who ran off, Campus Police said.

The student, whom police did not identify, escaped unharmed.

The incident occurred about 8pm as the student was walking on Memorial Drive. The attacker was described as a slender, 25-to-30-year-old white man, about 6 feet tall, with dark blond hair and a full beard, police said.

From the first of the year through September 30, Campus Police statistics show, MIT has recorded 13 incidents on campus that fall into the category of serious crimes. Incidents reported were 1 armed robbery, 2 unarmed robberies, 1 assault, 4 assaults and batteries, 1 assault and battery on a police officer, and 3 assaults and batteries with a deadly weapon. The MIT statistics also include a report of an acquaintance rape that was alleged to have occurred in 1990. They do not include the September 18 murder of an MIT student on Memorial Drive because for reporting purposes the jurisdiction of a crime is determined by where it occurs.

# Sports at MIT

#### FOOTBALL

MIT record setting wide receiver Roddy Tranum has received a National Football Foundation and Hall of Fame Scholar-Athlete Award. The award, one of only 15 given to players in all Divisions throughout the entire nation, carries an \$18,000 postgraduate scholarship which is spread over two years. Tranum's selection marks the fourth consecutive year an MIT player has won an NFFHF Scholar-Athlete Award. No other collegiate institution in the country has ever had four consecutive winners of the award. Tranum will be honored with the other winners at a black-tie dinner at the Waldorf Astoria Hotel in New York on December 8.

#### **TENNIS**

The men's doubles tennis team of juniors Jay Muelhoefer and Alan Walpole returned from the Rolex National Small College Tennis Championships held in Texas with the national Division III doubles championship. Muelhoefer of Brussels, Belgium, and Walpole, from Turaunga, New Zealand, defeated Brent Poss and Chris Zolas of Trinity University in straight sets (6-3, 6-3), Andy Paley and Drew Fernelius of St. Thomas College 4-6, 6-2, 6-2, and took the title with a straight set 6-1, 6-2 victory over Dave Broderick and Stephen Ellis of Rowan College.

The women's tennis team captured the New England Women's 8 (NEW 8) Championship last week by a 7-2 score over Brandeis University. The championship is the first for the tennis team in the NEW 8. MIT finished the Fall portion of its schedule with a 13-2 record, and avenged each of its regular season losses with victories in the Tournament.

#### TWO CHAMPIONSHIPS

Two MIT teams—men's cross country and water polo—emerged with titles from championship competition last weekend. The men's cross country team was crowned champion of the Constitution Athletic Conference with a victory over Coast Guard, Babson, Norwich and WPI. MIT placed four of the top five runners in the competition with sophomore Ethan Crain of Windham, ME, claiming the individual title. Crain broke the existing course record on the Babson College layout by 31 seconds, covering the five-mile course in 26:26.

In water polo, MIT captured the title in the Northern Region Division III Championship Tournament. The Engineers defeated 10 other teams in the competition held at MIT's Alumni Pool.

#### CROSS COUNTRY

The women's cross country team returned from the recent New England Women's 8 Cross Country championships with two athletes named to the NEW 8 All-Conference team. Sophomore Marjorie Delo of Brockton, MA, and senior Stephanie Spencer from Spokane, WA, were selected by virtue of their sixth and seventh place finishes, respectively.

#### SOCCER

The women's soccer team defeated Clark University 1-0 on Saturday, and in the process the team upped its record to 11-4-0. The eleven wins are the most ever by an MIT women's soccer team.

#### VOLLEYBALL

MIT junior volleyball player Coleen Kaiser from Barneveld, WI, has been named to the All-Tournament team at the Volleyball Hall of Fame Invitational Tournament held last weekend at Smith and Mount Holyoke Colleges. MIT has played in four tournaments during the 1992 season, and Kaiser has been named to the all-tournament team at each.

Kamilah Alexander, a first year student from Grand Blanc, MI, has been named to the New England Women's Volleyball Association (NEWVA) All-New England First-Team for Division III. Alexander, a middle hitter, was also named the NEWVA Rookie of the Year.

#### **BETTS NAMED**

MIT Associate Director of Athletics Jane Betts has been named to the NCAA President's Commission Liaison Committee. The committee is being formed to assist the Commission in its contacts with the various constituent groups in intercollegiate athletics.

Roger Crosley

MIT TECH TALK # 5 **NOVEMBER 4, 1992** 

#### MIT ON NSF:

# 'Serving the Nation In the 21st Century'

The following, entitled The National Science Foundation: Serving the Nation in the 21st Century, is the text of an MIT viewpoint for consideration by the Special Commission on the Future of the National Science Foundation.

#### THE MISSION OF NSF

The mission of the National Science Foundation should be to ensure the long-term health of US science and engineering as an essential prerequisite for a vibrant national future. A central objective must be to secure and wisely disburse support for basic science and engineering research and education in pursuit of this mission. Fulfilling this mission will provide the nation with both new knowledge and a cadre of educated individuals prepared, through their independent careers, to address fundamental, industrial and societal challenges through science and

NSF's modest budget of under \$3B understates the importance of its role in the US R&D enterprise. It should be the agency with the broadest and longest view of science and technology in the national interest. Its first responsibility should be to see to the health of basic research, i.e., research that is inspired by intellectual opportunity and the quest for fundamental understanding, and not necessarily by predetermined practical objectives. This should be accomplished primarily by supporting research and graduate education. However, the environment, challenges and responsibilities of science and technology are changing, and this requires new mechanisms for accomplishing the Foundation's core objective and suggests new ramifications of its mission.

#### A TIME OF CHANGE

The changing challenges of the postcold war era are well known and present an opportunity to reexamine the nation's science and technology system. It should be emphasized that it is the entire system of government, industrial and academic components that is in need of attention, and we believe that the NSF review should be conducted in this context. A few of the many reasons for reexamination and potential change are:

1. The boundaries between basic and applied research have blurred and often disappeared.

2. The scale, complexity and interdisciplinary nature of many of the most interesting and challenging areas of frontier research are inconsistent with the currently dominant modes of research organization and funding.

3. "Economic security" is overtaking military security as a primary rationale for federal support of research.

Congress and the public expect a strong return on their investment in R&D, with a primary measure being a clear, positive effect on the nation's ability to compete or lead in the world marketplace.

5. We must learn to more rapidly and effectively build commercial successes from basic advances in science and engineering research.

6. Industrial laboratories are changing, with strong declines in basic research as industrial R&D organizations move away from centralized, corporate laboratories to use of "cross-functional" teams including researchers to address near-term problems and product development.

7. Attitudes in the US, particularly the "not invented here syndrome," often limit the effective use by development engineers of basic research infor-

8. No single organization, indeed no single country, can now be completely dominant or self-contained in technological areas of economic significance

9. The traditional linear path of basic research, development and finally commercialization no longer exists.

10. Shorter product life cycles and rapid reverse engineering discourage industrial investment in basic research.

11. Existing relationships among major research partners (government, industry and universities) are often perceived to involve excessive bureaucratic obstacles and impose excessive financial leveraging requirements on universities.

#### RECOMMENDATIONS

First and foremost, NSF must meet its central objective of supporting education and basic research in science and engineering. Whatever changes lie ahead, the NSF must rededicate itself to supporting the best ideas and people, wherever they are found, rather than supporting only bureaucratically determined areas and activities. Investigator-initiated projects will remain at the core of scientific creativity and discovery in the future as in the past. The disciplines must remain strong, but must not be allowed to "define away" exciting and important new areas of inquiry and activity that do not fit the traditional mold.

Once this central objective is secured, we recommend that the following be implemented:

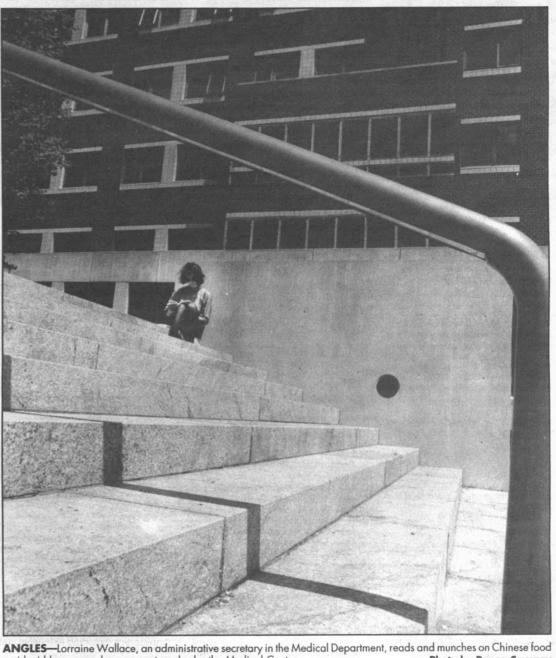
1. NSF should develop better means to couple frontier research to technological development. Developing the attitudes and aptitudes needed to translate new knowledge from research to practical ends should be a part of the education of scientists and engineers at all levels. NSF should encourage strong partnerships with industry, but studies must first elucidate difficulties in technology transfer and establish realistic expectations of the practical benefits stemming from basic research. It should be noted that it often takes many years for new scientific knowledge to become technologically and commercially important.

2. NSF should create programs intended to fulfill industry's future personnel needs in science and engineering. In designing such programs NSF should foster the development of partnerships between universities and industries, to bring about common understanding of industry's needs and the university's role in fulfilling them. Both research and education need to be emphasized in connection with making effective linkages between US universities and industry. (We note as a model the MIT Leaders for Manufacturing Program, a true partnership of academia and US industry to educate a new class of manufacturing engineers and managers.) It is also crucial to this endeavor that explicit programs to further the participation of women, minorities and the handicapped in science and engineering be continued and improved.

3. NSF should organize to support programs with the parallelism and disciplinary diversity to address globalscale issues such as environmental programs will develop and build appreciation for teamwork.

4. NSF should establish ways of taking advantage of basic and applied knowledge generated elsewhere. Conscious efforts to overcome the "not invented here syndrome" should be

5. NSF should develop programs that support and encourage exchange of personnel between industry and academia to undertake cooperative research, both basic and applied. The individuals involved need to be encouraged to develop genuine partnerships, and it is these people-not the NSF-who should select and drive the research areas. There may be merit in considering having industrial development personnel spend time on campuses, in addition to frontier industrial researchers. Such partnerships should serve the needs of both large corporations and small start-up companies. [A prototype endeavor might be the



ANGLES—Lorraine Wallace, an administrative secretary in the Medical Department, reads and munches on Chinese food amid midday sun and some great angles by the Medical Center.

Photo by Donna Coveney

# MIT Urges NSF to Take 'Longest View'

(continued from page 1) level through the individual initiative

of scientists in universities and industry, not through bureaucratic direction. "The NSF must rededicate itself to supporting the best ideas and people, wherever they are found, rather than

supporting only bureaucratically determined areas and activities." However, the statement said, the times do require some changes and new approaches

The MIT report made these recommendations:

NSF should develop better means

to couple frontier research to technological development.

 NSF should create programs intended to fulfill industry's future personnel needs in science and engineer-NSF should organize to support

programs with the parallelism and disciplinary diversity to address globalscale issues such as environmental change and telecommunications.

 NSF should establish ways of taking advantage of basic and applied knowledge generated elsewhere.

NSF should develop programs

search, both basic and applied. NSF should continue support of education, primarily at the graduate level but also at the undergraduate and K-12 levels.

that support and encourage exchange

of personnel between industry and

academia to undertake cooperative re-

 While stating that transfer of technology is most effective through "the training of skilled and well-educated students," MIT also recommended the "highly effective approach" of the MIT Technology Licensing Office in assisting in founding about 40 new companies since 1987 and in making about 50 licensing agreements per year.

On a related point, the MIT paper said, "The individuals involved need to be encouraged to develop genuine partnerships, and it is these peoplenot the NSF-who should select and drive the research areas. There may be merit in considering having industrial development personnel spend time on campuses, in addition to frontier industrial researchers. Such partnerships should serve the needs of both large corporations and small startup companies.

MIT said a prototype endeavor might be the DARPA-supported Consortium for Superconducting Electronics, which involves AT&T, IBM, and a small company, Conductus, in a cooperative effort with MIT (including Lincoln Laboratory), Boston University, Cornell and SUNY Stony Brook.

In an accompanying letter to Dr. Danforth, the MIT leaders thanked the Special Commission members for reviewing the mission of NSF "at this time of great transition and transformation in our nation and world."

They said, "We believe that MIT has demonstrated how pure science can be pursued synergistically with applied science and engineering in an environment that fosters very close ties to industry. We have also been quite successful in interweaving education and research at all levels. It is our hope that our experiences as well as our suggestions for change will be helpful to the Commission.'

DARPA-supported Consortium for Superconducting Electronics involving AT&T; IBM; and a small company, Conductus, in a cooperative effort with MIT (including Lincoln Laboratory), Boston University, Cornell and SUNY Stony Brook.]

We encourage continuing support of education by the NSF. Its primary role should be in graduate education through fellowships and research support, but it should also aggressively continue its efforts to enhance engineering and science education at the undergraduate level across the broad spectrum of colleges and universities. It should also play a substantial role of coordination and leadership in bringing about systemic change in science and mathematics education at the K-12 level.

#### **TECHNOLOGY TRANSFER**

The current environment will rightly encourage the NSF to explicitly consider ways to optimize technology transfer from universities to industry. We believe that the most effective mechanism for transfer of technology is the training of skilled and well-educated students. But there are additional ways of turning discovery into benefits to society, e.g. the development of new companies. Having observed many universities try to do this through the establishment of complicated centers, institutes and initiatives, MIT respectfully suggests that much is to be learned from the simpler and highly effective approach at MIT. The MIT Technology Licensing Office is currently making about 50 licensing agreements per year, has 350 active licenses, has assisted in the founding of about 40 new companies since 1987, and continues to assist the start-up of 6-10 new companies per year. A high density of high search, long term support, and support in amounts consistent with the quality and promise of the research are all critical elements of success in this endeavor. We would be pleased to share our experience in detail with the Commission, the NSB or the NSF.

#### **CLOSING COMMENT**

We are pleased that the National Science Foundation's mission for the future is being explored explicitly and carefully. Change is needed. But there is a possible vision of a future that must not be allowed to become reality: We must not find a new commission convened 10 or 20 years from now because our nation has learned to reduce product development cycles and manufacture high-quality products through continuous improvement, but is panicked because we have lost our edge in creativity and find that all the new ideas that are driving a knowledge-intensive world are generated elsewhere.



- \* -Open to public
- \*\*-Open to MIT community only
- \*\*\*-Open to members only

#### November 4 - 15

#### **SPECIAL INTEREST**

- Using the Athena Computing Environment\*\*— Nov 4: With Anne La Vin, Academic Computing Services, and Prof. August Witt Of Materials Science and Engineering. Part of the Teaching at MIT seminar/discussion series, sponsored by the Faculty Instructional Resources Program, School of Engineering and Undergraduate Academic Affairs, 4-5pm, Rm 1-115.
- Teaching at MIT For Teaching Assistants and Instructors\*\*—Nov 5: Social & Ethical Issues in Teaching, by Samuel Jay Keyser, Isaac M. Colbert, and Sasi Digavalli, TA, Dept. of Aeronautics and Astronautics, 4-5pm, Rm 4-163. Nov 10: How to Approach a Recitation, by August F. Witt, 3-4pm, Rm 4-159. Nov 12: Building Confidence and Morale, by Steven R. Lerman, 4-5pm, Rm 4-159. Sponsored by the Office of the Dean of the Graduate School. More info: x3-1958.
- Voices and Echoes: 500 Years of Judeo-Spanish Culture\*—Nov 8: Symposium sponsored by the Cultural Studies Project, Hillel Foundation, and Foreign Languages and Literature, starts at 10am, Student Center. More info: x3-8150.

#### **SEMINARS & LECTURES**

#### WEDNESDAY, NOVEMBER 4

- Pulse Forming Mechanisms in Fiber Soliton Lasers\*\*—Irl Duling, Naval Research Laboratory, EECS/RLE Seminar Series on Optics and Quantum Electronics, 11am-12pm, Rm 34-401B.
- Rebuilding Communities: The Role of the Real Estate Industry\*\*—Philip O'Brien, President, Devencore, Inc., Montreal. Center for Real Estate Rose Lunchbox Series, 11:30pm, Rm W31-301. Lunch served at 11:20 for those who have subscribed, otherwise bring your own lunch. More info: x3-4373.
- Flying Blind: Weapons Acquisition and the US Strategic Bomber Program\*\*—Michael Brown, Senior Fellow, International Institute for Strategic Studies. DACS Technology, Defense and Arms Control Seminar, CIS, 12-2pm, Rm E38-714. Bring a bag lunch; beverages provided.
- Has Deep Water Formed in the North Pacific Any Time in the Past 18,000 Years?\*\*— Dr. Ed Boyle, MIT. Oceanography Sack Lunch Seminar, 12:10pm, Rm 54-915.
- General Nodal Synthesis Model for Nuclear Reactor Transient Analysis\*\*—Weng-Sheng Kuo, MIT. NED Reactor Physics and Engineering Seminar, 2-4pm, Rm 24-115. Nuclear Engineering Department Doctoral Seminar.
- Heat Transfer and Friction Factor in Mixed Convection in Vertical Tubes\*\*—Yuksel Parlatan, MIT. NED Reactor Physics and Engineering Seminar, 2-4pm, Rm 24-115. Nuclear Engineering Department Doctoral Seminar
- Improved Approximation of the M-Terms in a Linearized, Time-Domain Ship Motions Calculation\*—Harry Bingham. Sponsored by the Dept. of Ocean Engineering, 3:30pm, Rm 5-314.
- Numerical Simulation of the Rise and Dispersion of Wind-Blown Buoyant Plumes\*\*—Xiaoming Zhang, Graduate Research Assistant, MIT. Thermal Science Seminar, Dept. of Mechanical Engineering, 4pm, Rm 5-234. Refreshments, 3:45pm.
- Agent of Empire: Science and the Establishment of British Colonial Hegemony in India, c. 1780-1850\*\*—Prof. Michael Adas, Rutgers Univ. The Political Uses of History, CIS, 4-6pm, Rm E38-714.
- On Techno-Idolatry\*\*—Hélène Lipstadt and Harvey Mendelson. HTC Forum sponsored by the School of Architecture and Planning, 5:30pm, Rm 5-216. More info: x8-8439.
- Nature, Nurture and All That\*—Dr. Charles R. Scriver, McGill Univ. Sponsored by the Whitehead Institute; fifth lecture in the series "Biology and the Future," 6:30pm, Rm 10-250.

#### THURSDAY, NOVEMBER 5

- Time Dependent Sheet Cavitation in a Potential Flow\*\*—Henk de Koning Gans, Delft Univ. of Technology, The Netherlands, Hydrofoil and Propeller Seminar sponsored by the Dept. of Ocean Engineering, 12-1pm, Rm 5-314. Bring your lunch, coffee provided.
- The Problems of Building a New Global ATC Systems\*—Dr. William R. Fromme, International Civil Aviation Organization. Flight Transportation Laboratory, 2-3:30pm, Rm 35-225.
- Mechanics of DNA Supercoiling\*\*—Dr. Yang Yang, Rutgers Univ. Special Applied Mechanics Seminar, sponsored by the Dept. of Mechanical Engineering, 3-4:30pm, Rm 3-370.
- What is the Value of an Aerospace Education in These Uncertain Times?\*\*—Aero & Astro Panel. Sponsored by the Department of Aeronautics and Astronautics, 3:30pm, Rm 35-225.
- Simulation of High Reynolds Number Flows Behind Axisymmetric Flame Holders\*\*— Van Luu, Graduate Research Asst., MIT. Sloan Automotive/Reacting Gas Dynamics Laboratory, 4-5pm, Rm 31-161.
- The Nature of the Vortex State in Layered Superconductors\*\*—Prof. John Graybeal, MIT. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

#### FRIDAY, NOVEMBER 6

- In Vitro Assembly of MHC Class I Molecules\*\*—Marie Jose Bijlmakers, MIT.

  Dept. of Biology Cell and Molecular Biology
  Seminar, 12pm, Whitehead Auditorium.
- Mixed-Layer Modeling II: What Doug Lilly Didn't Tell Us\*\*—Christopher Bretherton, Univ. of Washington. The 3rd of seven Houghton Lectures on Marine Boundary Layer Clouds and Climate, sponsored by the Center for Meteorology and Physical Oceanography, 3pm, Rm54-427.
- The Mechanics of Earthquake Interaction\*\*— Prof. Prof. Gregory Beroza, Stanford Univ. EAPS Department Lecture Series, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.
- The Role of Plasma in Advanced Accelerators\*—Prof. Jonathan Wurtele, MIT. Plasma Fusion Center Seminar Series, 4pm, Rm NW17-218.

#### MONDAY, NOVEMBER 9

- State of the Art Packaging of High Performance Fiber Optic Laser Modules for Telecommunications\*\*—Peter S. Whitney, Laserton, Burlington, MA. Heterostructure Device Seminar, sponsored by the Microsystems Technology Lab, 10am, Rm 34-401A.
- Hydrodynamic Permeability of the Wall of the Aorta\*—MacMurray Whale, Research Asst. Fluid Mechanics Seminar Series, 4-5pm, Rm 5-234.
- Signal Processing and Clinical Applications in Medical Ultrasound Imaging\*\*—J. Nelson Wright, Acuson Corporation, Mountain View, CA. MIT-EECS Colloquium Series, 4-5pm, Rm 34-101. Refreshments, 3:30pm.
- Pulling Nitrogen Out of the Air: Logistic and Environmental Implications of a New Approach to Nitrogen Fixation\*\*—Moshe Alamaro, Deshen International, Inc. Ralpin M. Parsons Laboratory for Water Resource and Hydrodynamics, Monday Seminar Series, 4pm, Rm 48-316.
- Mobile 25 Megawatt Electric Arc Nitrogen Fixation Fertilizer Plant\*—Moshe Alamaro, Deshen International, Inc. Sponsored by the MIT Program in Environmental Engineering Education and Research, 4pm, Rm 48-316.
- Transport Mechanics and Collection of Submicrometer Aerosol and Hydrosol Particles by Fibrous Filters\*\*—Prof. Howard Brenner, MIT. Fluid Mechanics Seminar, 4-5pm, Rm 5-234.
- European Politics of Genetic Engineering and Its Deconstruction\*\*—Herbert Gottweis, Mellon Fellow, MIT. Sponsored by the Program in Science, Technology, and Society, 4-6pm, Rm E51-004.
- Canonical Forms of Polynomials\*\*—Prof. G. Rota, MIT. Applied Mathematics Colloquium, 4:15pm, Rm 2-105. Refreshments, 3:45pm, Rm 2-349.

#### TUESDAY, NOVEMBER 10

- Genes and Enzymes of the Cellulosome Complex of Clostridium thermocellum\*\*— Pierre Beguin, Institut Pasteur, Paris. Fermentation Microbiology Seminar, sponsored by the Biology Dept, 1pm, Rm 16-318. More info: x3-1711.
- Teaching Recitation Sections\*\*—Arthur Mattuck, MIT. Part of the Seminar/Discussion Series "Teaching at MIT." sponsored by the Faculty Instructional Resources Program, School of Engineering and Undergraduate Academic Affairs, 4-5pm, Rm 2-105. Refreshments follow...

- On the Structure and Origin of Major Glaciation Cycles\*—Dr. John Imbrie, Henry L. Doherty Prof. of Oceanography Emeritus, Brown Univ. Fourteenth Annual Victor Paul Starr Memorial Lecture, sponsored by the Center for Meteorology and Physical Oceanography, 4pm, Rm 66-110.
- Emerging Migration Legislation in the Former Soviet Union\*—Doris Meissner, Carnegie - Endowment for International Peace. Inter-University Seminar on International Migration, CIS, 4-6pm, Rm E38-714.
- Research and Engineering at the Turn of the Century: Meeting the Challenge\*\*—Prof. E.E. Covert, AIAA Durand Lecturer, MIT. Sponsored by the Gas Turbine Laboratory, Dept. of Aeronautics and Astronautics, 4:15pm, Rm 31-161. Refreshments, 4pm.

#### THURSDAY, NOVEMBER 12

- Technical, Operational & Institutional Challenges to the Implementation of a Global ATC System\*—Dr. John J. Fearnsides, Center for Advanced Aviation System Development, Mitre Corporation. Flight Transportation Laboratory, 2-3:30pm, Rm 37-252.
- Rapid Compression Machine: Design Improvements and Experiments\*\*—Daeyup Lee, Graduate Research Asst., MIT. Sloan Automotive/Reacting Gas Dynamics Laboratory, 4-5pm, Rm 31-161.
- Disjoint Paths and Combinatorial Group Theory\*\*—Alexander Schrijver, CWI and Univ. of Amsterdam. Sponsored by the Operations Research Center and Decision Sciences Program, 4-5pm, Rm E40-298. Reception following, E40-106.
- The Ghost of the Executed Engineer: Technology and the Fall of the Soviet Union\*\*—
  Prof. Loren Graham, STS. Sponsored by the Program in Science, Technology, and Society, 4pm, Bldg E56 Conference Room.
- My Work and How I Do It\*—David McCullough, author. Jointly sponsored by the History Faculty and the Program in Writing and Humanistic Studies, 4pm, Rm 26-100. Call x3-7894.
- Quasi-elastic Electron Scattering from Nuclei at High Momentum Transfers\*\*—Prof. Richard Milner, MIT. Physics Colloquium, 4:15pm, Rm 10-250. Refreshments, 3:45pm, Rm 26-110.

#### FRIDAY, NOVEMBER 13

- Genetic and Molecular Analysis of mei-S332, a Gene Involved in Chromosome Segregation\*\*—Anne Kerrebrock, Whitehead Institute. Dept. of Biology Cell and Molecular Biology Seminar, 12pm, Whitehead Auditorium.
- Computer Supported Meeting Rooms\*\*—Lisa Neal. Friday Lunch Seminar Series, sponsored by the Center for Coordination Science, 12:10pm, Rm E40-170.
- The Dynamics of Trade Cumulus Boundary Layers\*\*—Christopher Bretherton, Univ. of Washington. The 4th of seven Houghton Lectures on Marine Boundary Layer Clouds and Climate, sponsored by the Center For Meteorology And Physical Oceanography, 3pm, Rm54-427.
- Lecture by Prof. Don Anderson, Caltech. EAPS Department Lecture Series, 4pm, Rm 54-915. Refreshments, 3:30pm, Ida Green Lounge.

#### ■ FILMS & VIDEO

Video News Tapes on India\*—Nov 12: Showing in a series of video tapes, covering events during October, from Newstrack, an independent news agency in New Delhi. Sponsored by the Center for International Studies, 4:30pm, Rm E38-615.

#### **COMMUNITY INTEREST**

- Alcoholics Anonymous (AA)\*\*—Meetings every Tues, 12-1pm; Thurs, 12-1pm, Rm E23-364. For info call Alice, x3-4911.
- Al-Anon\*\*—Meetings every Fri, noon-1pm, Health Education Conference Rm E23-297; every Tues, noon-1pm, Rm 1-246; and every Mon, 12-1pm, Lincoln Lab Bldg 1218, Family Support Ctr. The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Call Alice, x3-4911.
- Alcohol Support Group\*\*—Meetings every Wednesday, 7:30-9am, sponsored by MIT Social Work Service. For info call Alice, x3-4911.
- Cancer Support Group\*\*—Meetings every Thursday, 12-2pm, Bldg E51. For those with acute and chronic forms of cancer. Sponsored by the MIT Medical Dept. For information about weekly luncheon meeting, call Dawn Metcalf, Social Work Service, x3-4911.
- Co-Dependents Anonymous (CoDA)\*—Meetings every Thurs, 6:30-8pm, Rm 66-156. Info: Alice, x3-4911.
- Drop-In Playgroup\*\*—Ongoing, daily, Mon-Fri, 9:30-11:30am, Westgate Function Room. Sponsored by the MIT Child Care Office.
- Figure Skating and Ice Dance\*\*—Low-cost group lessons for students and other adult

- members of the MIT community. Bring figure skates and warm clothing to the rink at 9am Saturdays (freestyle); for ice dance refer to the rink schedule board for time of Sat. dance session. Info: Sally 437-3317, 8-10:30am, 12:30-4pm.
- MIT Gay, Bisexual, and Lesbian Employees (GABLES)\*\*—Come to discuss and work on issues ranging from harassment to domestic partner policies. Join us for social lunches and events. For meeting info, call Stephen, x3-6736. To sign up for the staff lesbigay email lists, send e-mail to <gables-request@athena.mit.edu>.
- Infant-Toddler Child Care Briefing\*\*—Nov 12: Introductory discussion for expectant parents, those considering their first child, and those new to MIT or to child care. Preregistration required, call x3-1592. Led by Kathy Simons, Co-Administrator, MIT Child Care Office. 12-1:30pm, Rm 4-144.
- Informal Embroidery Group\*\*—MIT Women's League, 10:30am-1:30pm, Upcoming dates are: Nov 4, 18, Dec 2, 16. Meets in the Emma Rogers Room 10-340. Info: x3-3656.
- Kundalini Yoga Classes\*\*—Beginners welcome, bring something on which to sit. Meets Fridays Sponsored by the VSG (Vegetarian Support Group). More info: Andy Rothstein x3-2276 or <adrothst@athena>.
- Narcotics Anonymous\*—Meetings at MIT, every Mon, 1-2pm, Rm E23-364 (MIT Medical Dept). Call 569-0021.
- New Overeaters Anonymous (OA)\*—Meets Friday, 12-1pm, Rm E23-364. Only requirement for membership is the desire to stop eating compulsively. Info: Alice, x3-4911.592 or x3-1316.
- Parents Anonymous\*\*—Ongoing meetings weekly on Wednesdays, 12-1pm. For those who would like ongoing support in dealing with the challenges of parenting. Led by Joanne Dougan, M.Ed., private practice, Boston. Sponsored by the Child Care Office. Contact Parents Anonymous at 1-800-882-1250 or Rae Simpson, Administrator, MIT Parenting Programs, Rm 4-144, x3-1592.
- Parenting Workshops\*—Nov 5: Discipline and Self-Esteem: Exploring the Relationship. Leader: Mary Mindess, Lesley College. 12-1:30pm, Rm 18-490. Nov 13: Stepparenting. Leader: Judy Osborne, Stepfamily Associates, Brookline. 12-1:30pm, Rm 14N-405. All workshops sponsored by the MIT Child Care Office. More info: x3-1592.
- Parenting Workshop Series\*/\*\*—Nov 9-30: Setting Limits. Four-part series. Mondays, 12-1pm, Rm 10-280. All workshops series sponsored by the MIT Child Care Office. More info: x3-1592.
- Playgroups\*\*—The MIT Wives Group, now with the cosponsorship of the MIT Child Care Office, sponsors and provides ongoing support for informal mother-child playgroups, currently in Arlington/Somerville, Belmont/ Watertown, Lexington, Somerville, and Cambridge/Boston. Prospective members contact Wives Group, Rm E23-376, x3-2916. Resources and consultation: Kathy Simons, Rm 4-144, x3-1592.
- Spend Fall in Vermont\*\*—Talbot House, MIT's retreat located near Woodstock, VT, is a cozy place for time in the country for hiking, canoeing, horseback riding, etc. Accomodations are for groups of 15-27 people. For more information contact Sarah, x3-4158, <stom@mit>, W20-549.
- Technology Children's Center\*\*—The only childcare center on the MIT campus has spaces available in all of its programs at Eastgate (half-day and full-day) for children ages 2 yr 9 mo to 5 yr 6 mo. Information: Olga Slocum, Director, x3-5907.
- MIT Toastmasters\*\*—Upcoming meeting: Nov 6: An organization that helps people improve and practice their public speaking skills. 12:14-1:30pm, Rm E19-220. Sponsored by MIT Personnel Office.
- Wives' Group\*\*—Nov 4: Tour of MIT with Charlotte Schwartz, Wives' Group Leader. Meet at 2:30pm in the Atrium of Bldg E25. Children who can walk or be carried are welcome. No babysitting service today. All women in MIT community welcome. Info: x3-1614.
- Working Mothers Support Group\*\*—Ongoing participant-led meetings monthly on the first Thursday of each month, 12:15-1:30pm, Rm 18-592. For all working mothers in the MIT community. No preregistration required. Cosponsored by the Child Care Office and the MIT Medical Dept. Contact Debbie Levey, volunteer coordinator for the group, x3-7112.
- Working Parents Support Group\*\*—Ongoing meetings weekly on Tuesdays, 12:30-1:30pm. For all working parents in the MIT community. Discussion of issues in parenting and the demands of balancing work and family. Led by Jackie Buck, Social Worker, MIT Medical Department. Cosponsored by the Child Care Office and the MIT Medical Dept. Preregistration required, call x3-4911.
- Yoga\*—Ongoing yoga classes. Beginner's Hatha, 5:15-6:30pm. Intermediate Iyengar Style, 6:30-8pm. Rm 10-340. Sponsored by the Women's League. For more information contact Ei Turchinetz 862-2613.

#### **HEALTH EDUCATION**

- Practical Parenting Series\*\*—Nov 4: Talking to Your Child About AIDS. Programs meet 12-1pm, Rm E23-297. No fee. No registration unless noted. Call x3-1316 for details. Sponsored by the MIT Health Education Ser-
- Health After 50 Programs\*\*—Nov 9: Sexuality and Aging. From the "Challenging Assumptions About Aging" series. Sessions meet 12lpm in Bartos Theater. No fee, no registration. Call x3-1316 for details. Sponsored by the MIT Health Education Service.
- Practical Parenting Series\*\*—Nov 14: Breastfeeding and Employment. Preregistration required, call x3-2466. Programs meet 12-1pm, Rm E23-297. No fee. No registration unless noted. Call x3-1316 for details. Sponsored by the MIT Health Education Service.
- A Breath of Fresh Air\*\*—Monthly noon-hour reunion and relapse prevention sessions for graduates of the From Smoker to Non-Smoker workshop. No fee. No registration. Call x3-1316 for dates, rooms, times. Sponsored by the MIT Health Education Service.
- Divorce Support Group for Students\*\*—A support group for students whose parents have recently separated or divorced. Led by experienced group therapists. For information about joining this group please call Marcia Yousik, C.S., or Elizabeth Engelberg, Psy.D., at x3-2916. Sponsored by the Psychiatry service of the Medical Dept.
- Nursing Mothers' Support Group\*\*—First Tues of each month, 10-11:30am and third Wed of each month, 4-5:30pm, Rm E23-297. No fee. No registration. Call x3-2466 for details. Sponsored by the MIT Health Education Service.
- Childbirth Preparation\*\*—Early Pregnancy, Lamaze Childbirth Preparation, and Lamaze Review classes are offered to patients of the MIT Medical Department's Obstetrics Service. Call x3-1316 for details.
- Tape Time for Health\*\*—A free video loan program. Topics include birth, parenting, baby care, smoking cessation, etc. Visit the Health Resources Center to borrow a tape or call x3-1316 for a list of titles available.

#### ■ MITAC

- Ticket locations and hours: Tickets may be purchased at the MITAC Office, Rm 20A-023 (x3-7990), I/Dam-3pm/Monday-Friday (except the third Monday of each month when MITAC is closed for inventory), Lincoln Lab sales in Rm A-218, 1-4pm Thursday and Friday. Further details on events are included in MITAC's monthly flyer. To avoid disappointment, make reservations and purchase tickets early. Because MITAC is nonprofit, refunds are not available.
- MITAC, the MIT Activities Committee, offers discount movie tickets for General Cinema (\$4/each), Showcase and Loews Cinemas (\$4.25/each, not valid the first 2 weeks a movie is released). Tickets are good 7 days a week, any performance.
- A Child's Christmas in Wales\*\*—Dec 2: At the Lyric Stage (Copley Place), 8pm. Tickets \$13/pp (reg. \$15/pp); must be purchased by Nov. 18th.
- New York City Shopping Madness\*\*—Dec 5: Your day in NYC is up to you. Buses leaves Hayward Lot and Lincoln Lab early in the morning and return around 11pm. \$26/pp includes round-trip bus. Please specify departure location/non-smoking/smoking bus preference at time of event purchase. Purchase tickets early.
- Boston Classical Orchestra—Dec 9: Handel's Overture to "Messiah;" Haydn's Symphony No. 30 (Alleluia); Handel's Arias from "Judas Maccabeus" and "Messiah;" Mozart's Duets from "The Magic Flute" (Karol Bennett, soprano; James Kleyla, baritone) and Contra Dances, K. At historic Faneuil Hall, 8pm. Tickets are \$10/ea (reg. \$15/each); must be purchased by Nov. 25th.
- George Winston, Solo Piano\*\*—Dec 12: At the University of Lowell Auditorium, 8pm. Tickets \$18.50/pp (reg. \$23/pp), and must be purchased by November 20th.
- Museum of Fine Arts—The Council for the Arts has 10 passes employees may borrow for free admission. Call the Office of the Arts at x3-4003 for availability. At Lincoln Lab, MFA passes are available in A-150.
- New Discounts for the Computer Museum— 300 Congress St., Boston. Present your MIT ID and receive \$1 off admission, Valid through Sept. 1, 1993.
- New England Aquarium Discounts—Purchase individual adult tickets (no discount on children's tickets) for \$5/ea (reg. \$7.50/ea). Valid through May 1993.
- Other Discounts—Plymouth County, Mrs. Fields Cookies, Storyland, Disney World, Improv Boston, Catch a Rising Star, Special Shopping Night at Jordan Marsh for MIT Employees Only, Boston Brownie, Greater Boston Books (\$25/ea), Entertainment Books (\$25/ea).

(continued on page 8)



#### **November at MIT**

#### 5 Thurs

Georgia on My Mind Music of the World Concert by Kartuli Ensemble, a capella men's chorus (below) performing music from the Republic of Georgia. 12noon, MIT Chapel.



#### 5-7 Thurs/Sat

Ruddigore

Sir Roderick Murgatroyd fights ghosts and a family curse in the MIT Gilbert and Sullivan Players melodrama (below). 8pm; 2pm matinee Nov 7. Student Center Sala de Puerto Rico. Tickets: \$9, \$8 MIT Community, \$7 outside students/ seniors, \$5 MIT/Wellesley students. Information/reservations: 395-8708



**Student-Written One Acts** MIT Dramashop Student Written One-Act Plays. Dating: A Monologue by Jonathan Amsterdam (G), directed by Sue Downing; God Have Mercy Upon Us by Joseph E. Bondaryk, directed by Jonathan Amsterdam (G); Confrontational Worship by Larry Taylor '92, directed by Adam Lindsay '94. Refreshments and open discussion with the authors, performers, and directors follows the performance. 8pm, Kresge Little Theater. 253-2908

#### 6 Fri

Los Munequitos de Matanzas The 12-member Cuban percussion, vocal and dance group makes its Boston debut with Patakin, featuring sacred music and dance from the Yoruba tradition ("Santeria") as well as popular Afro-Cuban rhythms and dances. Collaborative presentation by Inquilinos Boricuas en Acción, WGBH (La Plaza), Tufts University, and the MIT Office of the Arts. Tickets: \$10, \$8 students/seniors available at the MIT Museum Shop in the Student Center, or at the door the night of the performance. 8:30pm, Kresge Auditorium. 262-1342 or 253-4003

#### 8 Sun

**Dance Motifs of Sephardic Jews** Workshop led by Judith Brin Ingber, dancer/choreographer, "Voices of Sepharad." Participatory work with live music. 12:15pm, Varsity Club Lounge, DuPont Athletic Center. 253-FOLK

Voices of Sepharad Music and dance performance tradition which originated in

(below) exploring the Jewish cultural medieval Spain. 3:30pm, Kresge Auditorium. Admission: \$5, \$2/ students, seniors and children, free with MIT ID. 253-2982



#### 12 Thurs

(14W-111).

**Music of the World Lecture** "Discovering the Structure of African Polyphony and Polyrhythm." Lecture by ethnomusicologist and African music scholar Simha Arom, director of research, Centre Nationale de la Récherche Scientifique in Paris, and expert on traditional music of central African Pygmy tribes. 11am, Killian Hall

**African Drum Ensemble** Music of the World Concert -Agbekor Drum and Dance Society, David Locke, director. 12noon, MIT Chapel.

"My Work and How I Do It." Lecture presented by David McCullough (below), author of five works of history and biography. Mr. McCullough is also known as the host of the PBS series "The American Experience," and as the narrator of the documentaries "The Civil War" and "LBJ." 4pm, Rm 26-100. 253-7894



John Ash Reads Poetry Poetry at MIT series. Born in Manchester, England and now living in New York City, John Ash is the author of five collections of poetry and is currently working on his first full-length prose book, about his travels in Turkey. 7:30pm, Bartos Theater. 253-7894

### 12-15 Thurs/Sun

Romeo and Juliet

Shakespeare Ensemble at MIT production, directed by Jayme Koszyn. \$6, \$5 students/seniors. 8pm, Kresge Little Theater.

#### 13 Fri

**TRME Premiere Orchestra** Tech Random Music Ensemble, David Alt '93, conductor. Music written for orchestra and chamber ensembles including works by

Marek Zebrowski, David Alt, Alan Pierson '96, Boston area composers John Johnson, Paul McClellan, Elliott McKinley and others. Suggested donation \$2.8pm, Killian Hall. Information or reservations, call David Alt, 437-1043.

#### 13-15 Fri/Sun

The Baker's Wife

MIT Musical Theatre Guild production of the musical by Stephen Schwartz. 8pm, Student Center Sala de Puerto Rico. Tickets: \$8, \$7 students/seniors/MIT community, \$5 MIT/Wellesley students. Information/reservations: 253-6294

#### 14-15 Sat/Sun

**Dances of Macedonia** 

Workshops taught by Pece Atanasovski - Nov 14-15, 2pm; Kulture Korner - Nov 14, 7pm; Party - Nov 15, 8pm; Student Center Rm 491. Suggested donation: \$1 MIT and Wellesley College affiliation, \$5 others; good food for the party. 253-FOLK

"The Beauty Road"

A Dance of Community: an evening of dance and music with the Deborah Abel Dance Company with guest artists singer/songwriter Carla Sciaky, visual artist Pamela Shanley, and composer/musician Lee Perlman. \$12, \$9 students with ID, MIT staff and faculty, children under 12; \$5 MIT students with ID. Nov 14-8pm, Nov 15-3pm, Kresge Auditorium. 576-1973

#### 16 Mon

Japanese Film

Himatsuri ("Fire Festival"). Mitsuo Yanagimachi directed this 1984 film. Finale in a series of three films dealing with resistance to change Admission: \$3. 7:30pm, Rm 10-250.

#### 17 Tues

**Architecture Lecture** 

"Hygiene and Domestic Order: Toward a History of the Italian House in the Twentieth Century," by Maristella Casciato, University of Rome. 6:30pm, Rm 10-250. 253-4411

#### 18 Weds

Chants in Lobby 13

MIT Chamber Chorus, John Oliver, director. A capella concert of Gregorian Chant and music of Poulenc and Byrd. 5:15pm, Lobby 13.

**Affiliated Artist Recital** 

Charles Shadle, piano, and Margaret O'Keefe, soprano. Sacred and Profane Songs by Purcell/Britten, Georges Auric, Beethoven, Ives, Paul Bowles, Persichetti, Charles Shadle, Barber, and Virgil Thompson. 8pm, Killian Hall.

#### 19 Thurs

El Arte Flamenco

Glorianne Collver-Jacobson and Roberto Rios, guitar, with Gladys Isabella Rios Foreman, Flamenco dancer (below). 12noon, MIT Chapel.



#### What Should It Be?

Open Meeting with artist Mags Harries to discuss the Student Center 1% for Art Project. 5:30-7:30pm, Student Center Mezzanine Lounge. 253-4004

**MIT Affiliated Artist Concert** Eleanor Perrone, piano (below). Beethoven Sonatas Op. 27, No. 1 & 2; Chopin, Two Preludes from Op. 28, Scherzo in C# minor, Op. 39; Brahms' Variations and Fugue on a Theme by Handel, Op. 24. 8pm, Killian Hall.



#### 19-21 Thurs/Sat

"Wherefore Art Thou Romeo?" Romeo and Juliet continues; see 12-14 Thurs/Sat above.

The Dough Also Rises The Baker's Wife (below) continues; see 13-15 Fri/Sun above.



#### The Rhinoceros

MIT's Midnight Players present the Eugene Ionesco play. 12midnight, Rm 6-120. Donations accepted; proceeds to AIDS Research Fund. 494-8300

#### 20 Fri

**Jazz Bands Concert** 

MIT Festival Jazz Ensemble and the MIT Concert Jazz Band. A celebration of the FJE second CD release, "Go On." \$1 at the door. 8:15pm, Kresge Auditorium.

Peter Child World Premiere

The Boston Musica Viva presents the world premiere of Tableaux II by MIT Associate Professor Peter Child. 8pm, Pickman Hall, Longy School of Music, 27 Garden Street, Cambridge. \$12, \$6 students/seniors. 353-0556

#### 21 Sat

**MIT Concert Band** 

John Corley, director, Works of Mendelssohn, Holst, Tull, Nelson, and others. 8pm, Kresge Auditorium.

#### 22 Sun

List Closings

Michiko Kon. Surrealistic black and white photographs which hover between the grotesque and the

This Just In...Recent Additions to the Collection. Paintings, prints, and drawings added to MIT's publiclysited permanent collection over the past five years.

aleph. Site-specific installation by Ann Hamilton, featuring a 90' wall of books stacked floor to ceiling.

List Visual Arts Center Hours: Weekdays 12-6, weekends 1-5. Closed holidays. 253-4680

#### 22-24 Sun/Tues

Twelfth Night

Theater Arts Student Workshop production of Shakespeare classic, directed by Michael Ouellette, lecturer in Theater Arts. 8pm, Kresge Rehearsal Rm B. 253-5623

#### 23-24 Mon/Tues

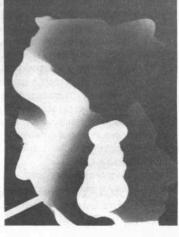
El Festival de Monologos

Theater production in Spanish consisting of monologues by Puerto Rican authors, ranging from comedy to tragedy, all reflecting contemporary social issues of Puerto Rico and other Hispanic countries. 8pm, Kresge Little Theater. 225-7553

#### All Month

**MIT Museum** 

Photograms: 1918 to the Present. The development and use of the photogram (below), heralded by the Dadaists as being anti-photography and anti-paintings, and hailed by others as "the interweaving of art and technology."



Works by Juliet Kepes. Works of painter, sculptor, and graphic artist, Juliet Kepes (below).



Ongoing Exhibits: Crazy After Calculus: Humor at MIT; Doc Edgerton: Stopping Time; Holography: Types and Applications; Light Sculptures by Bill Parker; Math in 3D: Geometric Sculptures by Morton G. Bradley, Jr.; MathSpace.

MIT Museum, 265 Mass Ave. Hours: Tues-Fri 9-5, Sat-Sun 1-5. Requested donation: \$2. 253-4444

**Compton Gallery** 

The Hurt Dance. Photographs of endurance athletes by Peter Moriarty. Off Lobby 10. Weekdays 9-5, 253-4444

Strobe Alley

Edgerton/Mili Photography Contest Prize Winners. 4th floor of Bldg 4. 253-4444

Hart Nautical Gallery

A Thousand Years of Voyages of Discovery — Exploring the Ocean from Surface to Seabed; Boston Fisheries 1900-1920. 55 Mass Ave. Weekdays 9-8. 253-5942

All events are free unless prices are noted All concerts: 253-9800 unless otherwise n MIT Arts Hotline: 253-ARTS Month-at-a-Glance is produced by the MIT Office of the Arts (253-4003) and ARTSNET. Celia Metcalf, design; Liz Ferry, producti



■ Dr. Stanley Backer, professor of mechanical engineering, emeritus, and senior lecturer, has been named the first winner of a prestigious new award, the Carothers Medal, given by The Textile Institute.

Established this year with the help of funding from Du Pont de Nemours Inc., the medal honors the memory of Wallace H. Carothers, who discovered nylon while working for the company in 1937. The discovery is said to have laid the scientific foundations for the many synthetic polymer fibers of today.

The medal will be conferred from time to time in recognition of creativity in the production or use of fibers.

The Textile Institute said that Dr. Backer, through research, teaching and nearly 40 years as a consultant for Du Pont, "has contributed greatly to the utilization of such synthetic fibers in textile materials." It added: "His career emphasizes the need to understand not only the fibers themselves, but also the fiber assembles bought and used by the consumers.

"Starting from the engineer's viewpoint with a special emphasis on performance characteristics, his important research includes seminal work on false twist texturing, on the mechanics of yarns and fabrics, on the structure and durability of marine ropes and on the utilization of synthetic fibers in the reinforcement of concrete.

"He was also instrumental in the formulation and production of the Thesaurus of Textile Terms in eight European languages and Japanese.'

Dr. Backer, who received three degrees from MIT, began his career in textile research with the US Quartermaster Corps before joining the MIT faculty.

He has been a member since 1947 of The Textile Institute, which has its international headquarters in England, and this year was elected to the National Academy of Engineering.

Dr. Robert C. Armstrong, professor of chemical engineering and executive officer of the department, is the recipient of the Professional Progress Award for Outstanding Progress in Chemical Engineering given by the American Institute of Chemical Engineers.

The \$4,000 award is given to a member who has not yet reached his or her 45th birthday and who has made a "significant contribution to the science of chemical engineering."

The Institute cited Dr. Armstrong's accomplishments as an educator and researcher in polymer fluid mechanics, numerical simulation of viscoelastic flows, transport phenomena, and applied mathematics.

The citation said that Dr. Armstrong "was responsible for the first systematic mapping of a flow transition diagram for complex flow of a polymeric liquid and the first

accurate numerical method for computing the complex flow of polymer

Dr. Armstrong is the author of a two-volume book, Dynamics of Polymeric Liquids, which was named a Citation Classic in 1988.

■ The 1992 recipient of the Turing Award, the most prestigious technical award given by the Association for Computing Machinery, is Dr. Butler W. Lampson, adjunct professor of computer science and engineering.

The award is given annually to an individual selected for contributions of a technical nature made to the computing community that are of lasting and major importance to the computer field. Previous MIT winners were Professors Marvin L. Minsky in 1969 and Fernando J. Corbató in 1990.

The award is named after Alan M. Turing, a British mathematician and pioneer in computing who made pivotal contributions in cryptography in World War II.

Dr. Lampson, a world leader in computer systems, has contributed to many major developments during the past two decades. He is a member of the National Academy of Engineering

■ Dr. Scott C. Virgil, assistant professor of chemistry, has been awarded a five-year fellowship worth \$500,000 by the David and Lucile Packard Foundation of Los Altos, CA.

Professor Virgil, whose field is organic synthesis, was among 20 of the nation's "most promising" science and engineering researchers awarded the 1992 fellowships.

The fellowships-each provides young faculty members with \$100,000 per year to support their research—represent the nation's largest non-governmental program of unrestricted grants to young university faculty in science and engineering.

Through the program, the foundation is supporting the work of 100 science and engineering faculty members with annual payments of

"Many of the most important technological contributions of this century have come from university faculty members who began their research early in their careers and have worked in their areas of interest over a long period of time," said David Packard, president of the foundation and cofounder and chairman of the Hewlett-Packard Company. "We want to nurture this kind of research."

■ The University of Salmanca in Spain has honored Dr. Bertram Kostant, professor of mathematics, with the title Doctor Honoris Causa in recognition of his achievements in mathematics. It was conferred at a ceremony in Madrid, Spain.

(continued from page 6)

#### **SOCIAL ACTIVITIES**

MIT Singles over 35\*\*-Group meets in the Faculty Club Lobby lounge 5:30-7pm every Friday evening. For more information call Mary Anne x3-3293 or Charlotte

Chinese Lunch Table. Meets Fridays 12-2pm. Walker Dining Room, Bring your own lunch and come meet some Chinese friends at MIT. All Chinese-speaking people are welcome. Organized by CSSA (Chinese Students and Scholars Association)

Chinese Lunch Table. Meets every Monday and Wednesday, 11am-1pm, Student Center, Private Dining Room #1. Bring your lunch and come practice your Chinese speaking. All levels welcome. Sponsored by the Chinese Students Club.

Japanese Lunch Table. Meets Tuesdays at 1pm in Rm 407 and 491 in the Student Center. Bring a lunch and talk with native Japanese speakers. All Japanese speakers,

especially beginners, are welcome. Call x3-2839

La Table Francophone. Meets Tuesdays at 1pm in Walker Memorial Dining Room.

#### MOVIES

Admission to below Lecture Series Committe Movies is \$1.50, and MIT or Wellesley identification is required. For the latest Lecture Series Committee movie and lecture information, call the LSC Movieline, x8-8881.

Nov. 6: Delicatessen, 7 & 10pm, Rm 26-100; High Noon, 7:30pm, Rm 10-250. Nov. 7: Alien 3 [R], 7 & 10pm, Rm 26-100. Nov. 8: Lethal Weapon [R], 7 & 10pm, Rm 26-100. Nov. 13: Far and Away [PG13], 7 & 10:30pm, Rm 26-100; The Court Jester, 7:30pm, Rm 10-250. Nov. 14: Lethal Weapon 2 [R], 7 & 10pm, Rm 26-100. Nov. 15: Brain Donors [PG], 7 & 10pm, Rm 26-100.

Send notices for Thursday, November 12, through Sunday, November 22, 1992 to Calendar Editor Rm 5-111, before 12 noon Friday, November 6.

#### 60-70 PARTICIPANTS

### Halloween Hack Transforms Lobby

(The following description of the elaborate Halloween hack in Lobby 7 was supplied by a representative of "The Devotees of Our Lady of the All Night Tool," as the hackers prefer to refer to themselves.)

can give you some information about the hack. My only request is that no real names be published. Part of our hacking ethic is that these things are done for the enjoyment of everyonenot to stroke individual egos. Besides it is that much the better to be able to pull something off and leave people wondering who did it (unfortunately, with 60-70 people involved, it's a bit harder to keep under one's hat).

The idea, which surfaced in April or May in a brain-storming session, grew out of two things:(1) ORK (The Order of Random Knights-a hacking group based in Random Hall) had done a "performance hack" during finals one year in which members wandered down the hall in monks' robes carrying course catalogs and handing out flyers for "Our Lady of The All Night Tool" along the way, and (2) the observation that Lobby 7 was very cathedral-like.

Around June, the "Archbishop of Tooling" (to be known as Father Tool for short) became quite inspired by the idea and decided that it would really go over well if everything could be brought together at once. Each little piece was nice, but many hacks have been lost because people just wandered by during their busy day and failed to take note. One theme here was to transform the lobby sufficiently so that no one could help but notice that something was amiss. Once you get someone to stop and look around to see what's abnormal, then he/she will get a chance to take in what is really taking place. So, the faithful tools decided to bring together a very strong transformation.

Owing to the scope of things, Father Tool appointed several ministers each to be in charge of a separate portion of the hack. The idea was to divide the task into manageable portions and allow each sub-group the freedom to do their part very well. A "Heavens Crew" was responsible for the skylight, a "Stained-Glass Crew" was responsible for the 77 Mass Ave. windows, an "Organ Crew" was responsible for the construction of the organ, an "Electronics Crew" was responsible for the audio and working computer (Father Eliza), a "Media Crew" was responsible for the actual music and signs, and a "Grounds Crew" was responsible for the ground floor artifacts (gilded computers, pews, altar, relics, etc.). Alas, as a matter of practical application it was necessary to omit some of the original ideas (e.g., adding a Michaelangelo-style painted false ceiling, for example.



THE SOUND OF MUSIC—Luis Uribarri, a sophomore in mechanical engineering, plays an "organ" (a mocked-up computer) that was part of the Halloween Hack. It was located on the second-floor balcony over Lobby 7. (One of the stained-glass windows from the hack can be seen ahead of Uribarri.) Photo by Donna Coveney

Each of the handful of ministers then proceeded to prepare his or her contribution to the hack. The ministers and Father Tool coordinated on interactions and high-level issues while all the details were arranged within each ministry. It is impossible to quantify exactly how many hours sub-groups spent preparing their portions. Most of the groups had about a dozen people at various stages of preparation. Earnest construction and detailed planning started just after Rush week. On average, groups probably met for major work sessions once every other week between Rush and deployment.

Thursday night (Friday morning) the faithful tools (numbering in excess of 60 by this time) met at midnight. Father Tool gave a brief sermon concluding with a prayer for a successful evening. Many workers suited up in monks' robes for deployment. The tools waited for the Physical Plant staff to vacate Lobby Seven before beginning deployment. Once initiated, the bulk of the installation occurred within half an hour. Father Tool then offered a prayer giving thanks to the successful construction and blessing the Cathedral and its constructors. Monks and faithful tools hung around and added finishing touches for another half hour before calling everything complete.

I'm sure you've seen most/all of the hack. A few subtle things to point out in case you missed them:

The donut stand's coffee pot was labeled "Holy Water," the plaque of William Barton Rogers was labeled "Saint Rogers" and had a spotlight shining upon him, the keyboards on the organ said several things, the skylight shines much more brightly than normal and a wedding was performed in the Cathedral Saturday morning.

# Productivity Is Focus of Initiative

gram at MIT that would relate to the IT industry in much the way the Leaders for Manufacturing Program relates to the manufacturing industry. Just as LFM sponsoring organizations benefit from their association with the program, PROFIT sponsors will attend seminars and symposia, serve as study or test sites for research activities, use knowledge gained from the program, and have access to material developed by the research teams. Ultimately PROFIT expects to involve about 10 sponsors drawn from a wide range of industries, including finance, transportation, manufacturing, and telecommu-

nications. According to Dr. Gupta, four themes are driving PROFIT to make data the truly valuable corporate resource it has long promised to be. Research teams will work to integrate disparate information systems, to lift information automatically from paper, to measure IT productivity, and to redesign business processes so that they derive more benefit from their computer-generated in-

(continued from page 1) formation processing than they are pres-

ently doing.

"In spite of all the technological advances that have occurred during this century," Gupta says, "white collar workers still spend a large amount of their time retrieving information from various sources in order to perform their jobs. Some information resides on computers of different makes and types, some exists on paper and other traditional media, and some must be accessed through personal interactions. The overhead involved in managing and integrating these relevant pieces of information is a major barrier to enhancing productivity.'

"Previous research at MIT shows that the likelihood of success in using technology to increase prodictivity is a function of several technical and nontechnical factors," Professor Madnick added. "The three essential prerequisites are a careful determination of strategic applications, an intelligent selection of technologies and an ability to incorporate appropriate changes in the organizational structure. The PROFIT program will define new business processes required for gaining productivity from information and key technologies for the support of these business processes, making data a truly valuable corporate resource.

In addition to co-directors Madnick and Gupta, PROFIT has an Advisory Committee consisting of Professors William Pounds, Arnoldo Hax, Michael Scott Morton, Thomas Allen, and Gabriel Bitran. The associate director is Michael Siegel. One of PROFIT's first activities will be to work with Bull and MIT to host Enterprise '93, a forum on current business issues and IT as a strategic business tool that will take place June 16-18 at the World Trade Center in Boston.

#### It's a Fact

In 1887 Thomas A. Edison gave MIT a dynamo and 150 lamps to be used in teaching electrical engineering. The dynamo still exists at the MIT Museum.

# PRESIDENTIAL TASK FORCE ON CAREER DEVELOPMENT OF MINORITY ADMINISTRATORS AT MIT

#### **Executive Summary**

This executive summary outlines the salient points contained in the final report of the Presidential Task Force on Career Development of Minority Administrators at MIT. Its purpose is to provide a brief overview of the key issues resulting from an analysis of various data compiled for the study. The report provides a set of recommendations which are based on the findings.

#### Overview

This report analyzes and summarizes the results of a six month study conducted by the Presidential Task Force on Career Development of Minority Administrators at MIT. The Task Force was charged by President Charles M. Vest to identify and present a set of recommendations on ways MIT could provide maximum opportunity and support for professional development and career advancement of the minority members of its administrative staff.

The study included interviews with sixteen (16) members of the senior administration; the dissemination of a written survey to one hundred and eight (108) Underrepresented Minority administrators; a series of focus group sessions, facilitated by external consultants, to explore the perceptions of Underrepresented Minority administrators and others regarding professional development and the quality of professional life at the Institute; and an analysis of Equal Employment Opportunity and other employment statistics in order to assess the effectiveness of equal opportunity initiatives for administrators at MIT over the past ten years.

#### **Major Findings**

Two major images developed as a result of the analysis of all data compiled as to the nature of Underrepresented Minority administrator career development at MIT: 1) Underrepresented Minority administrators have not been recruited or promoted into higher management levels at a rate consistent with the Institute's Affirmative Action/Equal Employment Opportunity goals; and 2) most Underrepresented Minority administrators, though concerned about their professional development, career advancement, and quality of professional life at the Institute, remain committed to extraordinary performance and to contributions to improve the quality of professional life for all members of the administrative staff.

The study identified three major interrelated areas of concern as expressed by Underrepresented Minority administrators or as seen by an analysis of the statistical data:

#### 1. Recruitment and Retention

Over the ten year period between 1982 and 1991, Underrepresented Minority administrators experienced only a two percent net gain in representation on the administrative staff. During that decade, 8 percent of all new administrative staff hires were from Underrepresented Minority groups. Over that same period, 6 percent of all administrative staff terminations were Underrepresented Minorities. In

addition, Underrepresented Minority administrators seemingly lost significant ground with the termination of the only Underrepresented Minority senior officer on the Academic Council.

#### 2. Recognition and Reward

One consistent theme presented in the survey and focus group session analyses was the perception among many Underrepresented Minority administrators that their contributions and extraordinary job performance often went unrecognized and unrewarded in the system. Many Underrepresented Minority administrators attributed this lack of recognition and reward to the application of stereotypical images by their immediate supervisors.

Among the most convincing indication of the lack of recognition and reward is the disparity in salary levels of most Underrepresented Minority administrators. Based on an analysis of Equal Employment Opportunity data and survey responses, the salaries of Underrepresented Minority administrators seem to fall in the lower salary ranges of the administrative ranks in which they are represented.

#### 3. Professional Mobility

Study findings suggest that, as was the case in a 1981 study, even though the aggregate numbers of Underrepresented Minority administrators have increased over the past ten years, Affirmative Action/Equal Employment Opportunity goals have not been achieved. This lack of achievement is particularly dramatic as it relates to upward mobility and promotion for Underrepresented Minority administrators. The lack of professional development mechanisms, coupled with inconsistent annual performance evaluations, appears to be directly related to the lack of professional mobility for Underrepresented Minority administrators. In the end, there has been some gain with regard to the representation of Underrepresented Minority administrators in the lower and middle level management ranks in terms of new hires or transfers, but there has not been significant upward mobility to senior or upper management ranks.

#### Recommendations

The Task Force submitted a set of nine recommendations from their analysis of the study findings:

- 1.The President should issue a policy statement reaffirming the Institute's commitment to Affirmative Action/Equal Employment Opportunity through diversifying the Institute's work force.
- 2.A senior-ranking Underrepresented Minority administrator should be appointed to a vice presidential position on the Academic Council with line and budgetary responsibilities that might include, but should go beyond, minorityrelated issues.
- 3. The Affirmative Action/Equal Employment Opportunity responsibilities should be reorganized to create a department that would report directly to the President. Under this reorganization, the Af-

firmative Action/Equal Employment Opportunity Department should assume a more pro-active role within the Institute and be provided with the financial resources to carry out its official mandate as established by the President.

- 4. The MIT Equal Opportunity
  Committee should be restructured
  to become a Presidential Oversight
  Committee with a mandate to
  conduct, on a yearly basis, a critical
  review of the progress of diversity
  throughout the Institute and report
  to the Academic Council and
  community on the hiring,
  promotion, and retention of Underrepresented Minorities.
- 5.The number of Underrepresented Minorities on the Administrative Council should be increased through in-house promotion and recruitment.
- 6.The number of Underrepresented Minorities in the ranks of Administrative Officers in Academic Departments, Laboratories, and Centers should be increased.
- A structured, but voluntary, Institute-wide Mentoring Program should be developed and implemented.
- 8.The Institute should, under the auspices of the Personnel Office:
  - Sponsor a comprehensive Management Training Program for all management personnel.
  - Establish a Career Development Center.
  - Develop a more comprehensive Orientation Program for all new employees.
  - Re-institute exit interviews in conjunction with the Affirmative Action/Equal Employment Opportunity Department.
- 9.By the year 2000,\* the number of Underrepresented Minorities in the work force of the Institute, at all levels, should reflect the regional and national labor pools.
- \*The entering work force is projected to be 33% minorities by the year 2000. Information gathered from Opportunity 2000 prepared by the Hudson Institute for Employment Standards Administration, U.S. Department of Labor.

#### 1.0 Introduction

In September 1991, The Presidential Task Force on Career Development of Minority Administrators was charged by the President to identify and present a set of recommendations on how M.I.T. could "provide maximum opportunity and support for professional development and career advancement of the minority members of its administrative staff". To accomplish this charge, the Task Force engaged in a six month study to identify the perceptions and realities of career

development opportunities for Underrepresented American Minority administrators\* at the Institute.

The study included interviews with sixteen (16) members of the senior administration; the dissemination of a written survey to one hundred and eight (108) Underrepresented Minority administrators; a series of focus group sessions, facilitated by an external consultant team from International Management and Research Associates, Inc. and Jane C. Edmonds & Associates, Inc., designed to explore the perceptions of Underrepresented Minority administrators and other Underrepresented Minority personnel regarding professional development and the quality of professional life at the Institute; and, an analysis of Equal **Employment Opportunity statistics and** other employment statistics in order to assess the effectiveness of equal opportunity initiatives for administrators at MIT over the past ten years.

This final report presents a summary of the findings of the Task Force and its recommendations which are based on analysis of the compiled data. The appendices include a compilation of statistical data and the final report of focus group sessions and minority administrator survey analyses prepared by the consultant team engaged by the Task Force.

\* For the purposes of this study, Underrepresented Minority is defined as African American, Puerto Rican, Mexican American, and Native American Indian.

#### 2.0 Background and Context

In 1981, an Equal Opportunity Committee, chaired by Professor Michael S. Feld, conducted a study to "evaluate the extent of growth and turnover in the administrative staff at each management level, to compare the status of three employee groups (i.e., white male, white female, and minority administrators), to compare the status of the three employee groups, and to assess the effectiveness of our equal opportunity efforts over the past five years". Each administrative group was studied separately and compared at all management levels utilizing statistics and information compiled by the Personnel Office.

The study concluded that the presence of minority administrators on campus had increased at a rate considerably below that of their white male counterparts over a five year period. While minority administrators comprised 5 percent of the administrative staff in 1981 and some gains in mobility in lower and mid-level management could be identified on the whole, the numbers were too small to be significant and stated hiring goals for minority administrators had not been met.

The situation at MIT regarding the low representation of minority administrators was not unique. Early in the decade of the 1980's, many institutions were faced with the reality that minority faculty and administrative representation had not increased in proportion to either minority student enrollments or demographic trends. Often,

the focus was placed on increasing the number and representation of minority faculty in academic institutions. As the numbers of minority students enrolled in predominantly white institutions increased, the need for minority role models in the classroom seemed apparent.

Within this context, less attention was paid to the role and status of minority administrators on these same campuses. Minority administrators have a critical role to play in the success and retention of minority students on predominantly white campuses. Although the pool of minority educators interested in administrative career paths was sufficient and highly competent, the numbers and professional mobility for minority administrators has not increased appreciably. In cases where increase can be identified, the rate of retention and professional mobility for minority educators has remained low relative to their white counterparts in academia. Joseph Silver, Assistant Vice Chancellor for Academic Affairs, Board of Regents, University System of Georgia, has noted the following: "Real change in American society (regarding affirmative action) has been slow." Continuing, he goes on to say, "However, changes in the academy, especially as it relates to hiring patterns, have been extremely slow." He concludes that in order for real change to occur, "the attitudes of those who control the academy must change and the environment in which the academy operates must change". (Black Issues in Higher Education:1992:84)

In response to these trends, the Association of Black Administrators at MIT planned and coordinated two major national conferences in 1982 and 1984 to explore the issues facing minority administrators on predominantly white campuses. During these conferences, noted national scholars addressed over nine hundred conference participants on issues of recruitment and retention; professional mobility; stress; gender; leadership and competency; and strategies for success.

In closing remarks at the 1984 conference, Paul E. Gray, then President of MIT, observed "a retreat from the principles of affirmative action and equal opportunity" in Washington. He concluded that to despair or to focus energy on changing the external context of affirmative action was "a trap". President Gray suggested that the mandate for American universities and colleges in 1984 was to be concerned with the "daily struggle of making our own institutions places which invite and nurture talented people, no matter how different they may be, in settings which have traditionally been white and male in composition and outlook". President Gray challenged everyone "from trustees and presidents to those just beginning their careers" to be catalysts for institutional change.

Over the ten year period from 1982 to 1991, Underrepresented Minority representation on the administrative staff has been maintained at the level of approximately 6 percent of the total administrative pool. During this period, Underrepresented Minority adminis-

trators have not been recruited, retained, or promoted at the level and to the degree of white male and female administrators. Only one minority senior administrator has served on the Academic Council (1981-1990). Further, at present only one Underrepresented Minority administrator sits on the Administrative Council in a nonminority focused position. Three other Underrepresented Minority administrators serve on the Administrative Council in minority focused positions.

In this context, the Association of Black Administrators, now known as the Association of African American Administrators, has functioned as one of few support mechanisms for Underrepresented Minority administrators at the Institute. While many minority administrators have identified significant benefit to their affiliation with MIT, still many others have left the Institute over the last decade to gain professional mobility elsewhere. 'To move up one must move out" is a phrase that has resulted in a revolving door and a lack of growth in the numbers of minority administrators.

In July 1991, the Association of African American Administrators held a one day seminar at Endicott House to consider the nature and scope of underrepresentation of minority administrators at all management levels, but particularly at the level of senior administrator. The seminar served as the impetus for the need for a study of the underrepresentation of minority admin-

As a result of the comments and observations generated in July, the Presidential Task Force on Career Development of Minority Administrators at MIT was established. Within the charge, President Vest requested that the Task Force explore the validity of perceptions that professional development for minority administrators had not occurred at a rate comparable to the professional mobility of white male and white female administrators. Implicit in the charge to the Task Force was the determination of whether a "glass ceiling"\* might exist for minority administrators at MIT. Finally, President Vest requested that, based on their findings, The Task Force "identify new approaches or initiatives" on minority administrator career advancement.

\*For the purposes of this report, the Task Force has utilized the US Department of Labor definition of "glass ceiling" as those artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing in their organization into management level positions.

#### 3.0 Recommendations

Based on the findings of this study, the Task Force has submitted a set of nine recommendations. These recommendations address the particular set of issues that result from the analyses of the statistical data on recruitment, retention, and professional mobility of Underrepresented American Minority administrators and the areas of concern or perceptions expressed by them in written survey and focus group responses. These recommendations are intended to provide immediate redress to the disproportionate level of professional advancement experienced by Underrepresented American Minority administrators.

- 1. The President should issue a policy statement reaffirming the Institute's commitment to Affirmative Action/Equal Employment Opportunity through diversifying the Institute's work force.
  - •The Academic Council should develop a statement on its support of diversity in the work place at MIT. The Statement on Diversity should be disseminated periodically to the entire work force of the Institute.
  - •The members of the Academic Council should be held

individually and collectively accountable to the President and Provost for achieving the Institute's goal of diversifying its work force. Each Senior Officer should inform his or her management team that their efforts in achieving the Institute's goal of diversifying the Institute's work force at all levels will form an integral part of their annual performance and salary reviews.

- •The Academic Council should meet regularly for the specific purpose of assessing the results of affirmative action on an Institute-wide ba-
- •The Academic Council should adopt a policy aimed at standardizing the Performance Review Process for all nonbargaining unit personnel of the Institute that will ensure interactive evaluations, both written and oral, between supervisors and employees.
- 2. Asenior-ranking Underrepre-sented Minority administrator should be appointed to a vice presidential position on the Academic Council with line and budgetary responsibilities that might include, but should go beyond, minorityrelated issues.
- 3. The Affirmative Action/Equal Employment Opportunity responsibilities should be reorganized to create a department that would report directly to the President. Under this reorganization, the Affirmative Action/Equal Employment Opportunity Department should assume a more pro-active role in the Institute and be provided with the financial resources to carry out its official mandate as established by the President.

More specifically, the Department should:

- ·Work with the President and Provost to convey to Senior Officers and their management teams that affirmative action responsibilities include hiring, retaining, and promoting Underrepresented Minorities to supervisory and management roles.
- ·Work with Senior Officers and their management teams to develop and implement a process to create a critical mass of Underrepresented Minorities at all levels of the Institute's employment struc-
- ·Provide support and training to assist Senior Officers and managers in strategic planning for diversity in the work place.
- Assist in providing Diversity Training for Senior Officers and other managers and employees at the Institute.
- ·Communicate, on a regular basis, the existence of this department as an additional resource for conflict resolution.
- ·Increase visibility of Underrepresented Minority recruitment goals in the local and national minority communities through advertising, professional affiliations, etc.
- ·Establish a Job Bank for Underrepresented Minorities and promote professional networking.
- ·Establish mechanisms for identifying Underrepresented Minority administrators for sponsorship to regional and national leadership development programs.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY STRATIVE STAFF NEW HIRE COUNTS BY GENDER AND RACE FOR THE YEARS 1981, 1983, & 1985

The State of the				TOTAL		1				MALI	E			FEMALE					
	BLACK	HISP	NAT AM	ASIAN	MIN	CAUC/O	ALL	BLACK	HISP	NAT AM	ASIAN	CAUC/O	ALL	BLACK	HISP	NAT AM	ASIAN	CAUC/O	ALL
	A	В	С	D	Ε	F	G	Н	1	J	К	L	М	N	0	P	0	R	S
1981 Exec/Admin/Mgr	5	1		4	10	182	192	4	1			155	164	1				27	28
96	2.6%	0.5%	135	2.1%	5.2%	94.8%		2.4%	0.6%	7	2.4%	94.5%		3.6%			150	96.4%	THE P
Other Professionals	50	12	1	151	214	1624	1838	26	11		117	1093	1247	24	1	1,000	34	531	591
*	2.7%	0.7%	0.1%	8.2%	11.6%	88.4%		2.1%	0.9%		9.4%	87.7%		4.1%	0.2%	0.2%	5.8%	89.8%	
1983 Exec/Admin/Mgr																			
•	9			3	12	226	238	6			3	187	176	3		100	10-44 B	59	82
*	3.8%			1.3%	5.0%	95.0%	933	3.4%			1.7%	94.9%		4.8%				95.2%	
Other Professionals	58	15		148	221	1848	2069	35	10		115	1205	1365	23	5		33	643	704
%	2.8%	0.7%		7.2%	10.7%	89.3%		2.6%	0.7%		8.4%	88.3%		3.3%	0.7%		4.7%	91.3%	
1985 Exec/Admin/Mgr	13	2			18	270	288					175	188						
	2500	NOT THE	E355.C	200	Section 1	10.000	200					-185 V	188		1	1		95	100
San Francisco Marion	4.5%	0.7%	100	1.0%	6.3%	93.8%		4.8%	0.5%		1.6%	93.1%		4.096	1.0%	113	1000	95.0%	
Other Professionals	72	32	1	143	248	1863	2111	38	23		106	1205	1372	34	9	1	37	658	739
%	3.4%	1.5%	0.0%	6.8%	11.7%	88.3%		2.8%	1.7%		7.7%	87.8%		4.6%	1.2%	0.1%	5.0%	89.0%	

Table 1

																SOUR ALBERT			
	BLACK	HISP	NAT AM	ASIAN	MIN	CAUC/O	ALL	BLACK	HISP	NAT AM	ASIAN	CAUC/O	ALL	BLACK	HISP	NAT AM	ASIAN	CAUC/O	ALL
	A	В	С	D	8	F	C	н	1	J	K	L	М	N	0	Р	9	R	S
1987 Exec/Admin/Mgr	11	•	1	3	19	289	308	5	•		3	183	195	6		1		106	11
4	3.6%	1.3%	0.3%	1.0%	6.2%	93.8%		2.6%	2.1%		1.5%	93.8%		5.3%		0.9%		93.8%	
Other Professionals	78	26	3	82	189	2013	2202	44	16	N. K.	49	1297	1406	34	10	3	33	716	71
*	3.5%	1.2%	0.1%	3.7%	8.6%	91.4%		3.1%	1.1%		3.5%	92.2%		4.3%	1.3%	0.4%	4.1%	89.9%	
1989 Exec/Admin/Mgr	11	4	1	14	30	442	472	8	3	1	12	384	408	3	1		2	58	
96	2.3%	0.8%	0.2%	3.0%	6.4%	93.6%		2.0%	0.7%	0.2%	2.9%	94.1%		4.7%	1.6%	2 7 7	3.1%	90.6%	
ther Professionals	101	41	5	155	302	3398	3700	59	27	2	99	2381	2568	42	14	3	56	1017	11
*	2.7%	1.1%	0.1%	4.2%	8.2%	91.8%		2.3%	1.1%	0.1%	3.9%	92.7%		3.7%	1.2%	0.3%	4.9%	89.8%	
1991 Exec/Admin/Mgr	11	5	2	16	34	461	495	9	3	2	12	395	421	2	2		4	66	
*	2.2%	1.0%	0.4%	3.2%	6.9%	93.1%		2.1%	0.7%	0.5%	2.9%	93.8%		2.7%	2.7%		5.4%	89.2%	
ther Professionals	110	35	3	156	304	3366	3670	66	22	1	101	2319	2509	44	13	2	55	1047	11
%	3.0%	1.0%	0.1%	4.3%	8.3%	91.7%		2.6%	0.9%	0.0%	4.0%	92.4%		3.8%	1.1%	0.2%	4.7%	90.2%	

4.The MIT Equal Opportunity Committee should be restructured to become a Presidential Oversight Committee with a mandate to conduct, on a yearly basis, a critical review of the progress of diversity throughout the Institute and report to the Academic Council and community on the hiring, promotion, and retention of Underrepresented Minorities.

5. The number of Underrepresented Minorities on the Administrative Council should be increased through in-house promotion and recruitment.

The Senior Administration should:

- ·Identify and promote Underrepresented Minorities into positions of increased responsibility and leadership roles within the Institute.
- ·Identify and promote more Underrepresented Minorities from the support staff to administrative positions.
- ·Expand the number of Underrepresented Minorities in the support staff pool.
- 6. The number of Underrepresented Minorities in the ranks of Administrative Officers in Academic Departments, Laboratories, and Centers should be increased.
- 7.A structured, but voluntary, Institute-wide Mentoring Program should be developed and implemented.
- 8. The Institute should, under the auspices of the Personnel Office:
  - Sponsor a comprehensive

- Management Training Program for all management personnel.
- ·Establish a Career Development Center.
- ·Develop a more comprehensive Orientation Program for all new employees.
- •Re-institute exit interviews in conjunction with the Affirmative Action/Equal Employment Opportunity Department.
- 9.By the year 2000\*, the number of Underrepresented Minorities in the work force of the Institute, at all levels, should reflect the regional and national labor pools.
- \*The entering work force is projected to be 33% minorities by the year 2000. Information gathered from Opportunity 2000 prepared by the Hudson Institute for Employment Standards Administration, US Department of Labor.

#### 4.0 Project Findings

Generally, two images develop as to the nature of minority administrator career development at MIT. First the analysis of Equal Employment Opportunity and other statistical data suggests that minority administrators have not been recruited or promoted at a rate consistent with the total administrative staff. The second image that emerges from the analysis is that most Underrepresented Minority administrators, although concerned about their professional careers at the Institute, remain committed to working to improve the quality of professional life for all members of the administrative

The study identified three major areas of concern for minority administrators: recruitment; recognition and reward for contribution; and mobility. In many ways these issues are interrelated. The lack of overall success in increasing the numbers of minority administrators through ineffective recruitment efforts results in a limited pool from which promotions and professional mobility can occur. Coupled with limited recognition of minority administrator contributions and quality performance, these areas of concern have led to limited rewards for accomplishment and upward professional mobility in the administrative ranks, particularly at the senior levels of man-

At present, the MIT work force consists of eight thousand two hundred thirty-five (8,235) employees. Five hundred ninety-five (595), or 7.2 percent, are from ethnic minority populations. There are sixteen hundred and twenty-five (1,625) employees in the administrative force at the Institute, including Lincoln Laboratory. Of this number, one hundred and eight (108) or 6.6 percent are from minority groups. This figure represents only a 1.6 percent increase over the ten year period from 1981 when forty-three (43) minority administrators represented 5 percent of the total administrative staff. Currently, the number of Underrepresented Minority administrators consists of eighty (80) African Americans; eleven (11) Puerto Ricans and Mexican Americans; and, two (2) Native American Indians. (Source: Office of Personnel as of December 31, 1991. Figures include Lincoln Laboratory

#### 4.1 Recruitment

Between 1982 and 1991, eightyfive (85) Underrepresented Minority administrators were hired at the Institute. This figure represented 8 percent of all new administrative hires at all levels. However, during this same period, seventy-seven (77) or 6 percent of the Underrepresented Minority administrative work force terminated for various reasons, thereby yielding a net gain of only 2 percent in overall minority administrator recruitment over the decade. A detailed analysis of the growth, distribution, and mobility of administrative staff (including minority administrators) for the period 1982-1991 is presented in Appendix C. Summary data can be found on Table 3. There are some highlights to this analysis which warrant mention here.

Minority administrators have lost ground with regard to their representation at senior management levels at the Institute. In 1982, there was one Underrepresented Minority administrator in the senior management ranks. However, over the decade, the senior officer in this rank terminated employment and no additional minority administrators were promoted to or hired into this rank. As a result, there is no minority representation on the Academic Council which consists of senior management, and no role model or mentor to provide a model for professional development and success within the senior officer ranks.

#### 4.2 Recognition and Reward

There was one consistent theme presented in the survey and focus group sessions. It was the perception among many Underrepresented Minority administrators that their contributions and extraordinary job performance often went unrecognized or unrewarded. Many Underrepresented Minority administrators suggested that their professional contributions were ignored or "devalued" by their immediate managers. As a result, their job-related achievements were not conveyed through the managerial line thus limiting their promotional opportunities.

Many respondents in the focus group sessions seemed to suggest that this devaluation and lack of recognition of their contributions may be the result of stereotypical images held by their non-minority managers. Some African American administrators referred to being perceived as either "too black" to be considered appropriate for a position or set of administrative responsibilities, or "not black enough" to be suited for upward professional mo-

It is interesting to note that those Underrepresented Minority administrators who perceived themselves as upwardly mobile in their professional careers at MIT attributed this success to a mentor relationship. The mentor usually provided the recognition of accomplishment and often bypassed the immediate supervisory structure to communicate the professional contributions or competence of the Underrepresented Minority administrator to higher administrative levels. each instance where an Underrepresented Minority administrator identified a mentor relationship as responsible for their promotion or upward mobility, there was often the inference that this was a unique or fortuitous ad hoc relationship.

Salary is perhaps the greatest indicator of reward for outstanding performance and accomplishment in the work place. An analysis of salary range data for most Underrepresented Minority administrators suggests that their perceptions of lack of recognition and reward may be valid. A clear majority of all Underrepresented Minority administrators are employed in the middle and lower management levels. Based on survey responses and an analysis of Equal Employment Opportunity data, the salaries of these administrators tend to fall in the "\$25,000 to \$34,000 range for those in the lower management levels and in the \$35,000 to \$44,000 range for mid-level Underrepresented Minority administrators. When compared to the overall salary ranges for these administrative ranks, as indicated in Table 2, Underrepresented Minority administrators fall clearly in the lowest salary ranges for their managerial levels. From this vantage point, Underrepresented Minority administrator perceptions of the existence of a "glass ceiling" may be sound.

#### Table 2

Administrative Staff Salary Ranges 1991 Figures

Upper Management Levels Highest Range\$66,400-110,900 Lowest Range\$42,100-69,900

Middle Management Levels Highest Range\$40,800-68,000 Lowest Range\$31,000-51,600

Lower Management Levels Highest Range\$30,000-50,500 Lowest Range\$21,900-36,800

(Source: Office of Personnel)

#### 4.3 Professional Mobility

The impetus of the study was the perceived lack of professional mobility for Underrepresented Minority administrators, as compared to other administrative staff groups. In fact, the statistical reviews and analyses conducted suggest that even though the aggregate numbers of Underrepresented Minority administrators grew over a ten year period, Affirmative Action/Equal Employment Opportunity goals have not been achieved. This lack of achievement is particularly dramatic as it relates to upward mobility and promotion to the upper management levels (Cluster A).

At present, there are no Underrepresented Minority administrators who have been promoted to senior management. Over half (55 percent) of minority administrators are employed in the lower management levels. Generally, promotion rates into or out of this administrative level have remained at the 5 percent rate. Yet, even this percentage is deceptive in

Most of the Underrepresented Minority administrators surveyed, as well as those participants in the exit interview process, seem to perceive a lack of opportunities for professional development at MIT. Many respondents suggested the need for a structured mechanism to enhance professional development for Underrepresented Minority administrators.

It is difficult not to make some comparisons of the professional mobility of minority administrators and other groups which have perceived underrepresentation in management. For example, when compared to white women administrators, minority administrators have made fewer gains in recruitment, retention, and professional development. Over the decade under study, white women represented 71 percent of the promotions from support staff to administrative staff as opposed to 7 percent mobility from support staff to administrative staff for Underrepresented Minorities. Overall, of all promotions, white women administrators represented 49 percent as compared to 5 percent for their Underrepresented Minority counter-

These comparisons, taken at face value, may account for some of the perceptions of differential treatment advanced by many Underrepresented Minority administrators, However, the reasons for the difference may be more straightforward. In fact, over the decade, white women administrators were hired at a rate of 44 percent as compared to 8 percent for Underrepresented Minority administrators. The 1981 Equal Opportunity Committee Report concluded that gains in the overall numbers of white women administrators could be attributed to the "transition of support/exempt employees into entry level management positions". Conversely, the 1981 report also concluded that "The minority pools at lower management levels" had not been "effective for filling openings in higher cat-

#### Table 3

GROWTH, DISTRIBUTION AND MOBILITY OF THE ADMINISTRATIVE STAFF JANUARY 1982 - DECEMBER 1991

3 0	4.2% 0.0% 0.0%
0	0.0%
	0.070
8	11.1%
61	84.7%
0	0.0%
72	100%
	61 0

Cluster B	1982			
African-American	11	3.9%		
Other Under- represented Minorities	0	0.0%		
Other Minorities	6	2.1%		
White Female	96	33.8%		
White Male	171	60.2%		
Non-Citizen	0	0.0%		
Total	284	100%		

Cluster C	1982			
African-American	18	4.5%		
Other Under- represented Minorities	0	0.0%		
Other Minorities	9	2.3%		
White Female	246	62.3%		
White Male	122	30.9%		
Non-Citizen	0	0.0%		
Total	395	100%		

Cluster U	1	1982			
African-American	0	0.0%			
Other Under- represented Minorities	0	0.0%			
Other Minorities	0	0.0%			
White Female	5	29.4%			
White Male	12	70.6%			
Non-Citizen	0	0.0%			
Total	17	100%			

		4		
TOTAL	1982			
African-American	32	4.2%		
Other Under- represented Minorities	0	0.0%		
Other Minorities	15	2.0%		
White Female	355	46.2%		
White Male	366	47.6%		
Non-Citizen	0	0.0%		
Total	768	100%		
	_			

1991 1991 498 From Support Promotions Termination 107 Staff

Cluster A	1991			
African-American	2	1.8%		
Other Under- represented Minorities	0	0.0%		
Other Minorities	0	0.0%		
White Female	31	28.2%		
White Male	77	70.0%		
Non-Citizen	0	0.0%		
Total	110	100%		

Cluster B

African-American	34	6.8%
Other Under-	0	0.0%
represented Minorities		
Other Minorities	14	2.8%
White Female	212	42.6%
White Male	234	47.0%
Non-Citizen	4	0.8%
Total	498	100%
Cluster C	19	91

1991

Ciuster	****			
African-American	43	6.4%		
Other Under- represented Minorities	3	0.5%		
Other Minorities	19	2.8%		
White Female	369	55.2%		
White Male	225	33.6%		
Non-Citizen	10	1.5%		
Total	669	100%		

Cluster U	1991			
African-American	1	4.3%		
Other Under-	0	0.0%		
represented Minorities				
Other Minorities	0	0.0%		
White Female	12	52.2%		
White Male	, 10	43.5%		
Non-Citizen	0	0.0%		
Total	23	100%		
lotal		100		

19	91
80	6.2%
3	0.2%
	2.5%
624	48.0%
546	42.0%
- 14	1.1%
1,300	100%
	80 3 33 624 546 14

In the end, the issue relates more to the size of the pool than the rate of growth. The pool of white women administrators is larger, across all administrative ranks, than the pool of Underrepresented Minority administrators. In fact, Underrepresented Minority administrators have been promoted at a rate consistent with their numbers. The problem is that the size of the pool is so small relative to other administrative and staff pools. The analysis clearly suggests a need to increase the numbers of Underrepresented Minority staff at all levels with an aggressive recruitment campaign that is more in keeping with the Affirmative Action/Equal Employment Opportunity goals of the Institute.

Inherent in these findings is the conclusion drawn from the assessment of personnel data regarding the growth, distribution, and mobility of the administrative staff. In the end, although it appears that Underrepresented Minority administrators experienced a very substantial percentage increase in growth (159 percent as compared to a 69 percent increase for all administrative staff), the overall aggregate numbers have not increased for the Underrepresented Minority group in relation to all other administrators. In fact, Underrepresented Minority administrators may have lost ground in that there is no presence in senior officer ranks.

This conclusion is further substantiated in an analysis of responses of key administrators regarding their success in achieving affirmative action goals within their respective organizational units. Of the fourteen Deans and Vice Presidents interviewed, only three indicated success with regard to stated affirmative action goals. Other interview participants suggested that the institutional affirmative action goals were unrealistic, due in part, to the difficulty experienced in recruiting minority candidates.

#### 5.0 Project Design

Support 462 Staff

Staff 21

TOTAL

Promotions

1991

888

Transfers

New Hire

The Presidential Task Force on Career Development of Minority Administrators conducted a six month fact finding study to determine the career advancement opportunities of minority administrators at M.I.T. and to recommend policy and operational changes to improve those opportunities. To accomplish this study, the Task Force utilized a variety of methodological approaches to develop an accurate and objective data base for analysis. Between October 29, 1991 and March 4, 1992, the Task Force met thirty-two times for a total of fifty-six plus hours.

The Task Force devoted over thirty hours to in-depth interviews with senior officers. (Interview questions and a list of those interviewed are provided in Appendix F.) In addition to President Vest, five School Deans and six Vice Presidents participated in the interview process. The Task Force also interviewed the Dean for Undergradu ate Education and Student Affairs, the Executive Director of the Alumni Association, the Chair of the 1981 Equal Employment Opportunity Committee, and the Director of Personnel.

The administrators were requested to share their perspectives in response to a set of open-ended questions regarding career development for Underrepresented Minority administrators in their respective areas. They were also queried as to their perceptions of institutional goals with respect to affirmative action and as to their goal-setting strategies for addressing changing demographics and affirmative action plans within their respective areas. All interview participants were requested to provide copies of their organizational chart with positions currently held by Underrepresented Minority employees indicated.

The data base for the study also included responses to a written survey distributed to one hundred and eight\* Underrepresented Minority administrators. Sixty-one surveys were completed. The 56 percent response rate to a written survey conveys the depth of commitment and confidence that Underrepresented Minority administrators had for the process of inquiry for the study. Next, the Task Force engaged a team of external consultants to conduct four one and one half hour focus group sessions. All Underrepresented Minority administrators were invited to participate in the focus groups whether or not they had submitted a completed written survey. At least four members of the Task Force attended all focus group sessions.

\* This number varies from the Equal Employment Opportunity and other Task Force statistics on Underrepresented Minority administrators in that it includes employees at Lincoln

The external consultants prepared a set of questions as guidelines for the sessions and began each session by describing the purpose of the focus group approach and by assuring the confidentiality of the process. Most focus group participants seemed open and willing to share their opinions and experiences. The fact that the consultant team was from the outside created a "more secure" environment for participation. The results of the focus group sessions and of the written survey were analyzed by the consultant team. Their findings are presented in their entirety in Appendix E.

Select Task Force members identified eleven (11) Underrepresented Minority administrators who had terminated from the Institute during the last ten years to conduct exit interviews. Of this number, only seven (7) responded. The remainder either indicated their

unwillingness to participate or failed to respond. The exit interview data provided some interesting insights regarding perceptions of growth, the quality of professional life and career affiliation with MIT, and the apparent existence of an administrative "glass ceiling". Although small in number, the findings of these interviews were in line with the survey results of presently employed Underrepresented Minority administrators. It is clear that more than eleven (11) Underrepresented Minority administrators terminated employment from the institute over the ten year period and that the opinions and impressions of this pool are valuable; hence, the need to have a more formalized structure for exit in-

A final data compilation and analysis included a review of recruitment, salary, attrition, and promotion statistics from employment data prepared by the Equal Employment Opportunity and Personnel Offices. Two separate analyses were performed on these data by members of the Task Force.

#### 6.0 Summary

Administrative officers occupy a unique position on the Massachusetts Institute of Technology campus. They provide services to faculty, students, and the community. Given the wide range of administrative jobs on campus, the Institute should find it easier to recruit minority individuals for administrative positions than to recruit for faculty positions. Based on the premise that the supply of candidates in the non-academic areas is significant, searches for individuals to fill positions outside of academic departments should be easier. In general, administrative positions are often perceived as developmental in one's career and therefore do not have the rigid focus on advanced terminal degree requirements that faculty searches have. The administrative areas, development areas, and other related segments of the Institute have considerable flexibility to recruit minority administrators with appropriate credentials and work experience.

This flexibility has not been exercised with respect to Underrepresented Minorities. The 1981 report analyzing the growth, distribution, and mobility of administrative staff on the main campus of the Institute, while acknowledging that there had been some gains for "specific members of the minority population" over a five year period between 1976 and 1981, concluded that the numbers of minority administrators remained small and "stated hiring goals", based on Affirmative Action and Equal Employment Opportunity guidelines, "had not been met". In 1991, the goals still have not been met.

It is hoped that this report will serve as a catalyst for the redress of underrepresentation and disenfranchisement experienced by many minority administrators at the Institute. Over the ten year period covered by this study, there have been few gains in the recruitment and professional mobility of minority administrators. Often, in response to such an institutional assessment, the focus is placed on recruitment. However, the identification and recruitment of minority administrators is only the first step. The Institute must be pro-active in retaining minority administrators and enhancing their professional development. In the end, MIT must come to grips with the term "full participation". The redress of these issues for Underrepresented Minority administrators will result in a significant contribution to the growth and development of MIT as it moves toward work force 2000.

#### Members of the Task Force on Career Development of Minority Administrators

William R. Dickson (Co-Chair), Senior Vice President

Leo Osgood (Co-Chair), Assistant Professor of Athletics

Cheryl L. Blankenship, Associate Bursar/Student Services

Lawrence Dean, Senior Project Manager (Ops & Systems), Information Systems

Stephanie Harriston-Diggs, Assistant Dean for Student Affairs, Residence and Campus Activities

Thomas H. Jordan, Professor & Department Head, Earth, Atmospheric & Planetary Sciences

Evelyn L. Perez, Assistant Dean for Personnel Administration, School of Science

> Ann Davis Shaw, Associate Director, Career Services & Preprofessional Advising

Margaret Daniels Tyler, Assistant Dean of the Graduate School for Recruitment

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# Project Summary Report to the Presidential Task Force On Career Development of Minority Administrators at MIT

Prepared by Holly M. Carter, Ph.D. International Management and Research Associates, Inc. and Jane C. Edmonds & Associates,

#### **EXECUTIVE SUMMARY**

This executive summary outlines the main points contained in the Project Summary Report to the Presidential Task Force on Career Development of Minority Administrators at MIT. Its purpose is to provide a brief overview of the issues therein addressed.

#### Overview

This report analyzes and summarizes the perceptions of the Institute's underrepresented minority administrators<sup>1</sup> and is based upon their responses to a written survey, as well as open discussions emanating from four (4) focus groups conducted by consultants Douglas H. Johnson, Ph.D., of Jane C. Edmonds & Associates, Inc. and Holly M. Carter, Ph.D., president of International Management and Research Associates, Inc. One hundred eight (108) confidential surveys were disseminated to underrepresented minority administrators by the Presidential Task Force. Sixty-one (61) responses were received, representing a response rate of 56%. Four (4) focus group meetings were held between January 13th - 16th, 1992. A total of sixty-seven (67) persons attended, representing 62% of those persons invited to attend.

#### **Central Issues**

Numerous issues were identified by both the written surveys and focus group comments. These issues, stated generally, revolved around:

#### A. Institutional Environment

The Institute is seen as a great educational institution espousing liberal ideals where white males enjoy a large degree of power and influence. Most underrepresented minority administrators perceive that the "old boy" network largely determines how far one can rise within the Institute; they also perceive that they have little access to that network.

B. Differential Treatment of People of Color

Participants strongly communicated their perception that people of color are habitually treated less favorably than whites in similar positions; participants referred to salary discrepancies between whites and blacks as well as harassing and racist remarks directed at them by both coworkers and supervisors. In addition, they mentioned the existence of certain positions specially earmarked for minority administrators, positions which in effect "ghettoize" their presence at the Institute and disallow their acceptance into other desirable, upwardly mobile jobs.

1 For the purpose of this report, the terms "underrepresented minority," "minority" and "people of color" refer to individuals of African-American, Mexican-American, Puerto Rican and Native American descent, as defined by the Institute. No individuals of Puerto Rican descent responded to the survey.

C. Lack of Professional Development for Underrepresented Minority Administrators

Many participants expressed the opinion that there are no growth opportunities for people of color at the Institute, and that underrepresented minority administrators looking to advance professionally must eventually leave the Institute. A great majority of the respondents stated that they believe a "glass ceiling" exists for underrepresented minority administrators which limits their advancement opportunities. They indicated that this perception is substantiated by the absence of people of color in middle and upper-level administrative positions. In addition, participants expressed a belief that the lack of delineated job descriptions, of a standardized performance evaluation mechanism and of a standardized job posting system may allow, and even encourage, discriminatory practices to flourish in the individual departments.

D. Absence of Advocacy or Formalized Redress for the Grievances of Minority Administrative Staff

Most minority administrators indicated that the decentralization of the Affirmative Action office contributes to the lack of formalized avenues for the redress of their grievances and to the lack of a process of advocacy within the Institute for their concerns. Many stated that they were never told that someone in their respective departments served an Affirmative Action administrative function, so that they were unable to utilize this person's services. Moreover, participants indicated discomfort with a process wherein the same person often serves the dual functions of personnel officer and Affirmative Action administrator, thereby raising confidentiality concerns.

#### **Major Themes**

Three major themes permeate the experience of the underrepresented minority administrators at MIT: a) feelings of isolation within the workplace; b) a sense of being stereotyped into certain job categories; and c) a sense of being devalued both by coworkers and supervisors.

A. Feelings of Isolation

Minority administrators reported strong feelings of isolation from one another and a belief that the institutional culture itself contributes to these feelings. They indicated that an additional effect of this sense of isolation was the lack of access to information about promotional opportunities within the departments.

B. Stereotyping

Minority administrators indicated that their coworkers and supervisors tend to deal with them based upon ethnic and racial stereotypes, that this stereotyping tends to preclude their ability to receive fair and accurate feedback about their work, and, most importantly, promotions and raises.

#### C. Devaluation

African-American administrators told of having their professional credentials and experiences devalued in their

work setting. Some participants related that they felt unable to "be themselves" and were discouraged from participating in minority-related activities. Specifically, many indicated that this sense of devaluation manifests itself most notably in the perceived existence of "ghettoized" positions for minorities, the harassing and insensitive comments directed at underrepresented minority administrators by their peers, and the perceived lack of mobility for minorities at the Institute.

#### Recommendations

A. Minority Administrators' Recommendations

This is a listing of participants'ost pertinent recommendations:

- · Demonstrate institutional commitment to valuing diversity through policy
- · Promote and hire more minorities into top management positions;
- · Promote more minorities from support to administrative positions;
- · Establish a formal mentoring program for minority administrators;
- · Centralize Affirmative Action office;
- Standardize written job descriptions;
- · Standardize regular performance evaluations; and
- · Institute cultural diversity training in order to sensitize managers to ethnic, economic and gender differences which occur in the work environment.
- B. Consultant Team's Recommen-

Based upon its study of the focus group and survey results as well as its extensive experience with identifying and addressing diversity-related issues in corporate and institutional cultures, the consultant team makes the following recommendations in priority order:

- 1. Appoint a minority administrator to a newly created senior-level management position;
- 2. Promote minority administrators into middle management and director level positions;
- 3. Establish diversity valuation as a high-priority policy for the entire Insti-
- 4. Establish a presidential oversight committee on managing diversity and minority career development; and
  - 5. Develop a Minority Job Bank.

#### 1.0 INTRODUCTION

The Presidential Task Force on Career Development of Minority Administrators has engaged consultants Jane C. Edmonds & Associates, Inc. ("JCEA") and International Management and Research Associates, Inc. ("IMRA") to work with the Task Force to explore the perceptions of the Massachusetts Institute of Technology's ("the Institute's") underrepresented minority administrators regarding their

opportunities for professional development and career advancement. The objective of this summary report is to a) document the perceptions of African-American and other underrepresented minorities at the Institute regarding institutional culture, differential treatment, recruitment/retention and management issues, and b) provide recommendations designed to improve the opportunities for advancement for people of color within the institutional culture. These perceptions and recommendations are based upon information obtained from a series of focus group meetings attended by underrepresented minority administrators, together with the results of a survey documenting the experiences of underrepresented minority administrators at the Institute. The focus groups were facilitated by Holly M. Carter, Ph.D., president of IMRA and Douglas H. Johnson, Ph.D., of JCEA. This report is prepared by Dr. Carter and the JCEA project team consisting of Jane C. Edmonds, Dr. Douglas Johnson and Linda Brothers.

#### 1. 1 Background and Context

Many institutions have recently focused their organizational attention on the nature and value of diversity in their work force. Often this focus is generated as a result of comments or concerns raised by members of underrepresented ethnic groups internal to the workplace. The institution and members of its administrative leadership recognize the need for a focus on diversity. Once the decision to focus on some aspect of diversity is made, the question of how to proceed is central to the success of the approach. Ideally, the institution's internal and external resources are utilized to study the issues. Whatever the catalyst, an institutional focus on the nature and value of diversity usually benefits the entire

A one-day seminar held at Endicott House in July 1991 under the sponsorship of the Association of African American Administrators at MIT served as the impetus for this study of the professional and career development of underrepresented minorities at the Institute. At that seminar, participants discussed a variety of issues, including a lack of professional and career development, and their underrepresentation in senior policymaking positions at the Institute. At present, MIT has an estimated work force of eight thousand two hundred thirty-five (8,235) employees (not including union workers), of whom roughly five hundred ninety-five (595) are members of underrepresented minority groups. There are approximately one hundred eight (108) minority administrators on staff at MIT. This figure is compared to a total administrative force of sixteen hundred twentyfive (1,625) employed by the Institute.

As a result of the comments and observations generated by the seminar, a Presidential Task Force on Career Development of Minority Administrators at MIT was established to provide new approaches to professional development and career advancement for MIT's minority administrators. The Task Force enlisted this consultant team to provide an additional analysis and assessment of these issues from an independent perspective. This report documents our findings and analysis.

#### 1.2 Program Overview

This report analyzes and summarizes the perceptions, complaints, and suggestions of the Institute's underrepresented minority administrators based upon a) answers to a written survey instrument designed, disseminated and collected by the Task Force as well as b) open discussions emanating from four (4) focus groups.

On December 23, 1991, one hundred eight (108) confidential surveys were disseminated to underrepresented minority administrators by the subcommittee of the Presidential Task Force on Career Development of Minority Administrators. As of January 23, 1992, sixty-one (61) responses had been returned, representing a substantial response rate of 56%.

The consultant team facilitated four (4) focus group meetings between January 13th and 16th, 1992. Participants attending the confidential focus groups represented a broad range of Institute administrative functions. Although participants at the focus groups did not self-identify their ethnic/racial affiliations, most participants appeared to be African-American. Attendance at these focus groups was voluntary and participants were allowed to attend more than one focus group if they so desired. In those few instances where individuals attended more than one focus group, their comments and presence were noted only once. Counting each participant only once, seventeen (17) persons attended focus group one; fourteen (14) persons attended focus group two; thirteen (13) persons attended focus group three; and twenty-three (23) persons attended focus group four, representing a total attendance rate of 62%, or sixty-seven (67) persons out of one hundred eight (108) administrators surveved, a significant proportion of the population of underrepresented minority administrators at MIT.

In analyzing the results of the surveys and focus groups, we have sought to identify theme, issues and recommendations only as they presented themselves from the data. These themes are supported by specific responses from the focus group and survey results. Language appearing in quotation marks is taken from either the surveys or focus groups.

#### 2.0 PROJECT ISSUES

There were numerous issues identified in both the written surveys and focus groups. A number of the survey respondents and focus group participants expressed concern regarding the lack of support for minority administrators at MIT. At the same time, however, most of the participants highlighted some positive features of the MIT workplace, including the health and tuition benefits afforded MIT employees, the stimulating intellectual environment, the resources and programs available, and the prestige of the name and reputation of MIT. One focus group participant who admitted to having had many problems with the Institute observed, nevertheless, that these resources helped to make the Institute "a good place to be from ...

Additionally, it was observed that MIT has increased the representation of minority employees over the years, but it has not increased significantly in relation to the total growth of the work

Nevertheless, several of the comments and observations by underrepresented minority administrators pointed to concern related to several areas which will be addressed within this summary report. These areas are as

- · the institutional environment;
- · the differential treatment of people of color;
- · the lack of professional development for underrepresented minority administrators; and
- · an absence of advocacy or formalized redress for the grievances of minority administrative staff.

In addition, administrators specifically identified at least three (3) key themes which permeate their entire experience at MIT. Minority administrators and staff referred to a) a sense of isolation within their departments or area of employment, b) a stereotyping of minorities by others in their departments, and c) a sense of devaluation with regard to their competency and worth as professionals.

15 Isolation:

Participants reported that the environment at MIT, coupled with the workloads and demands placed on minority administrators, resulted in a feeling of isolation. This was substantiated by observations of the consultant team: many minority administrators were genuinely surprised to hear of the exi periences, policies and procedures described by their colleagues during the focus group sessions.

Some focus group participants suggested that their sense of isolation resulted in an inability to take advantage of professional growth opportunities because they learned of them "after the fact." This sense of isolation has also resulted in an information vacuum for certain underrepresented minority administrators because their professional accomplishments were not brought to the attention of senior administrators whose recommendations and referrals for professional advancement held weight. Finally, some participants also expressed a vulnerability and a loss of efficacy which they attributed to their sense of isolation.

Stereotyping:

Many administrators stated that nonminority employees at MIT interact with minority professionals based on ethnic or racial stereotypical images: one could either be "too black" and therefore not appropriate for a position or set of administrative responsibilities, or one could be "not black enough" and therefore not suited for upward professional mobility.

In the end, there seemed to be general consensus that minority professionals were not being hired or evaluated based on individual competency or performance but rather on how they fit the stereotypical image of their ethnic group and the advantage or disadvantage of that image in the department or office in which they were emis a doub ployed: oil el scionic

Devaluation:

Minority administrators and staff at MIT consistently described experiencing a sense of being devalued in the workplace, indicating that there appear to be two distinct systems operating for whites and people of color. They also felt that stereotyping has led naturally to the devaluing of the contributions of minority employees. For example, the point was made that a manager's perception of his or her minority administrators might lead that manager to ignore or diminish the positive achievements and contributions of the particular minority administrator. As a result, his or her achievements might not be reported to the next supervisory level, where they might have resulted in a promotion. At the same time, however, these same perceptions might cause the manager to recognize and report any negative actions on the part of the minority administrator, making upward mobility that much more difficult.

We note that the survey and focus group results appeared to document differing levels of employee satisfaction in certain areas, with survey respondents seemingly more satisfied with their MIT experience than focus group participants in two areas: institutional culture and the number of promotions. It is impossible to state, without further research, the basis for this apparent discrepancy, although possible reasons suggest themselves. One hypothesis is that because focus groups participants could elect to speak or remain silent, some participants who did not feel particularly compelled to do so may not have expressed some of their opinions, particularly if those opinions ran contrary to the opinions expressed by the majority of the focus group participants.2 A second, and perhaps more compelling, hypothesis is that participants in the survey may have been reluctant to articulate many of their negative anecdotal experiences on paper because of confidentiality fears that their handwriting could somehow be traced and that they would be penalized.3

2. 1 Institutional Culture

2.1. a Focus Groups

There appeared to be a perception among some of the focus group participants that the Institute functions in a "rigid, hierarchical fashion" while the real decisions to advance and reward employees "[are] made in the back room." People of color at MIT are likely to be outside of this theoretical hierarchy and have little hope for advancing within it, also expressed that they rarely profit from the back room decisions to reward non-minority employees. Several participants referred to themselves as being separate and apart from everything - "[feeling] like an outsider" because the culture refuses to acknowledge their"efforts: 'We [people of color] are not rewarded for good works."

In all focus groups, participants echoed the sense that people of color were not in the loop for crucial information, and that they were not really a part of the greater organization. Moreover, the perception remained strong that the Institute had no real interest in including people of color in key or powerful positions within the organization. One man, for example, pointed to the obvious differences between the diligent efforts of certain private companies to

2 This fact is also suggested by the apparent discrepancy between the number of focus group participants who indicated profound dissatisfaction with the institutional culture but who also indicated that they would recommend employment to a friend (albeit many would only make such recommendations to certain friends and under certain conditions).

3 Several focus group participants commented to the consultant team that they were afraid to hand in their surveys because "someone" might be able to decipher their handwriting; other participants indicated that they took pains to type their surveys and disguise some of the anecdotal information contained in the essay responses for the same reason. Whether or not such discretion is actually warranted, the very fact that many minority administrators found it necessary to articulate their fears to the consultant team indicates that the lack of confidentiality and fear of retribution are real issues at the Institute, and that many minority administrators are unable to communicate their true concerns as a result.

promote minorities (citing IBM, Xerox, and Kraft) and the "non-efforts" of the

2.1.b Survey Results

Numerous individuals responding to the surveys reported a better MIT experience than many of those who attended the focus groups. One individual noted that "I love this place...[it's] pretty fair to most people. [In addition] there are fascinating, fabulous people here." Other individuals commented separately that their experience at the Institute went from being "most rewarding" to "exceptionally positive and supportive."

Nonetheless, other individuals responding to the survey reported a very different experience, more in line with that reported by some of the focus group participants. One respondent characterized the work climate as being "extremely humiliating." Another pointed to a "bureaucracy slow to respond to change and new ideas."

2. 1.c Analysis All employees interviewed tor this study share certain basic perceptions of their work environment; many view MIT as a great educational institution espousing liberal ideals, where, nevertheless, whites predominate and white males in particular enjoy a measurable degree of power and influence to the detriment of minority professionals. The "old-boy" network is perceived as being alive and well, and respondents stated that the "people at the top" tended to be white males with over twenty (20) years of experience who "knew the right people. "

People of color, on the other hand, are present at the Institute only in small numbers. Only five hundred ninety-five (595) out of eight thousand two hundred thirty-five (8,235) total employees are people of color, approximately 7.2% of the work force. There are only one hundred eight (108) minority administrators represented out of a total administrative staff of sixteen hundred twentyfive (1,625), approximately 6.6% of the work force. The Institute hires a total support staff of one thousand seven hundred seventeen (1,717), of whom one hundred ninety (190) are minority, approximately 11%. The Institute employs nine hundred fifty-seven (957) total faculty, but only eighteen (18) minority faculty, or 1.8%. No people of color are represented at the middle or upper administrative managerial levels in nonminority focussed jobs.

The point also was made during one of the focus groups that, owing to the small numbers of minority administrators within the system, white managers had little experience dealing with people of color, especially in peer relationships. One participant commented that very few individuals at the Institute have ever had to report to a person of color, and that this fact alone makes it difficult for a white manager to feel accountable to a person of color. Most importantly, the lack of numbers appears to translate into a lack of power, since the popular perception is that it is "who you know" or "who knows you" which determines an individual's progress at the Institute, and that people of color are penalized for not "knowing" the right people.

2.2 Differential Treatment

2.2.a Focus Groups

Focus group participants strongly indicated that, at a minimum, they felt themselves to be taken less seriously than their white coworkers; more often, they felt themselves to be the targets of discriminatory and racist behaviors. One person spoke about the kinds of pressure with which he had to deal on a daily basis, stating that the white infrastructure "devalues every black who comes in; even the janitor, if he's white, wants to devalue you." Others in the focus groups were more philosophical; one woman suggested that she was not surprised by the racism within the Institute, as it reflected the racism in the larger society.

Some individuals told dramatic stories of personal travails. One participant told of having had each and every piece of writing severely criticized by a supervisor. The supervisor even disparaged work by a non-minority (which had been previously lauded) based on the mistaken assumption that the work had been generated by the minority administrator. This administrator concluded that the entire experience gave the impression that "[black] competence is perceived as a threat" by white administrators.

Other participants hinted at more persistent problems of discrimination, as well as legal actions against the Institute. "There have been lawsuits," stated one person, "but they have been hushed up.'

2.2.b Survey Results

Comments from individuals in response to the survey essay questions seemed to coincide with the perceptions of the focus group participants; many written comments supported the sense that people of color are habitually treated differently than whites in similar positions within the respective departments. One individual wrote that there was a "salary disparity between myself and others performing similar tasks"; others indicated that they believed that their salaries are lower "because I am black."

Even more distressing, several individuals wrote of blatant instances of harassment, including racial slurs. Individual respondents told of being treated in a suspicious, accusatory manner with regard to the use of departmental equipment and facilities. Another wrote of hearing a third party in the department remark that it was impossible for someone to be "black, look good and be competent."

2.2.c Analysis

It would be accurate to state that the majority of the people of color working at the Institute see themselves as vulnerable, without power and often victimized by either the blatant racism or the well-meaning insensitivity of their white coworkers.

Administrators spoke of a purposeful devaluation of the experiences of ethnic minority groups on campus, particularly those of African-Americans. Most minority administrators who participated in the focus group sessions suggested that they could not "be themselves" at MIT. Some participants indicated that their participation in minority-sponsored events on campus was discouraged.

Related to this issue is the "ghettoization" of minority professionals at MIT. Some participants suggested that there were administrative positions earmarked for minority professionals, usually in the student services area, and that minority professionals might not even be considered for more "mainstream" senior administrative positions. While this observation remains a perception expressed by a number of minority administrators, the fact that no key senior-level administrative positions are held by people of color tends to lend credence to this percep-

Nevertheless, at least one focus group participant placed partial blame for the continuing nature of the abuse upon the minority administrators themselves. Noting that many people of color are treated badly at MIT, the participant contended that "[these] people take it because they are hung up with working at a place like Harvard or the Institute" because of the prestige of these institutions.

2.3 Professional and Career Developmenty of the same of the sam

2.3 a Focus Groups April 200

Focus group participants expressed, on average, little confidence in the Institute's recruitment, promotion and professional growth opportunities as applied to minority administrators. One person spoke of having no expectations from the Institute at all in this area, and spoke of leaving soon. The participant reported speaking to a supervisor about career development and

being told that minorities at the Institute are "promoted up and out."

Another participant indicated that a manager had expressed the opinion that there were no growth opportunities for minorities in the participant's department. "The supervisor said I have nothing for you to grow into...[and when I asked the supervisor to conduct a performance evaluation interview] told [me] that if I wished..., [I would be recommended] for a new position elsewhere." An administrator downplayed professional development for minorities at the Institute. "When asked," the administrator said, "I say I have a job; I don't have a career here." Most minority administrators seemed to believe that to move up in the professional ranks, one must move out of MIT. Other focus group participants characterized the Institute's commitment to minority career development as "benign neglect."

Adding to the sense of frustration for many minority administrators is the lack of a consistent job posting mechanism alerting them to the existence of new job opportunities. One focus group participant complained that although there was job posting in his department, the jobs were posted for "no definite number of days" and often went to "an internal candidate who gets first bid on the job." Other participants added that in their respective departments "posting can be waived," so that only certain people would know about the jobs.

Moreover, participants state that they often have no idea of their own actual job descriptions. One individual complained that "I haven't seen a job description [for my position] since I've been here."

There was also dissatisfaction with the performance evaluation process, which appears to be administered haphazardly and without standardization. Participants complained that the entire performance evaluation process is different for people of color. Several individuals stated that their evaluations contained the aggregate comments of their coworkers (to whom they do not report) evaluating them and their work product. They mentioned that they, on the other hand, were not asked to contribute to the group evaluation of their white peers.

On the other hand, a small minority of the participants appeared to have had relatively good experiences in receiving promotions and consistent growth opportunities. One participant admitted that people of color "have to put out 150%" at the Institute in order to be recognized, but suggested that most of the participant's contemporaries - white or black have to do the same. The participant also suggested that people of color have to join committees and undertake outside activities in order to "become visible" to those who are in a position to help advance their careers. Perhaps most significantly, both this participant and others with similarly good experiences pointed to the acquisition of a mentor as perhaps st useful tool in helping to gate through the system. This employee, however, was unable to explain how a minority within the Institute could obtain a mentor, saying that in this participant's case " it just happened."

2.3.b Survey Results

Survey respondents expressed a strong feeling that a glass ceiling exists at the Institute which acts - purposely and consistently - to keep underrepresented minorities out of higher level administrative positions. The bitterness expressed by one of the written essay responses is real: "It would appear that one is allowed to struggle to third base and then the game rules are revised just as that person nears home...my belief is that the 'system' would be pleased if the underrepresented minorities would go through their careers sleeping, so that time would not have to be spent devising new game rules for a select few."

Others wrote about the fact that "no

African-Americans have reached senior administrative positions" and that "quite a few [people of color] have left because of [the] glass ceiling." One person expressed the belief that many employees at the Institute "would rather hold minorities back"; and another person related the story of being next in line for a position which was suddenly vacated: "I was not consulted as to whether or not I was interested in the position, [but] a new person was brought in from the outside whom I had to train."

#### 2.3.c Analysis

Although there were some exceptions, most of the Institute's minority administrators voiced extreme dissatisfaction regarding the Institute's recruitment, career planning and personnel practices, believing that these practices actually preclude their hiring and development within the Institute.

Additionally, it has been observed that no minority administrators sit on the Academic Council and only one with a non-minority focus sits on the Administrative Council. The lack of minority representation on these two important councils directly relates to the issue of upward mobility for minorities at the Institute. In addition, the presence of only one minority on the Administrative Council with a nonminority focus adds to the sense that minorities can only be utilized as an interface in minority-related issues.

As stated above, many minority administrators referred to the existence of a "glass ceiling" which prevents professional and career advancement at MIT, suggesting that advancement to "below" line authority levels is possible for those individuals with a strong sense of efficacy and the "entrepreneurial" initiative to advance their own career. At the same time, they point to an institutional culture that a) defines a "slow track" for career advancement, b) functions on an informal basis for advancement and promotion, and, c) ignores or nullifies the professional contributions made by minority administrators in the work

Numerous focus group participants indicated that only lateral movement was available to minority administrators, rather than outright promotions. The survey results, however, did appear to indicate that many of the respondents described themselves as having been promoted. Nonetheless, the survey does not indicate at what level these promotions occurred, and it is probable that they occurred at levels low enough to keep the glass ceiling intact. In addition, some survey participants may have defined "promotion" to include any pay increase in their current position, whether or not the increase included any additional responsibility or new job title.

Yet another area of concern was the inconsistency of the implementation of standards regarding delineation of specific job descriptions, regular, written performance evaluations, and mutually defined expectations for job performance and job-related responsibilities. Many focus group participants indicated that they had not received clearly delineated job descriptions which detailed responsibilities and expectations. Further, there was consistent indication that few minority administrators have received written evaluations of their job performance on a regular basis. In those cases where written performance evaluations were received, there was rare opportunity for feedback, comment or reaction from the minority administrator being evaluated.

Especially troubling is the lack of standardization in the performance evaluation and job posting mechanisms. This can prove to be problematic for the Institute, since such a lack of standardization can allow discriminatory practices to flourish within the departments, even if this is not the Institute's

Moreover, both the focus groups

and the survey results appear to indicate that the Institute relies heavily upon personal contacts and referrals for many of its best positions. Many minority administrators, on the other hand, indicated in the focus groups that they obtained their positions through ads in the Boston Globe and the Bay State Banner. Ads and search firms are used only as a means of supplementing the basic applicant pool. Since word of mouth is the primary mechanism for filling the Institute's job openings, minorities are not even in the loop to be considered for the bulk of the positions. Numerous minorities reported hearing about the positions after they had already been filled, or hearing that the positions were already earmarked for the "majority" friend of the person filling the position.

Participants stated that they felt obliged to put in extra effort with no indication that this extra effort would be recognized and little confidence that they would be rewarded with professional growth in their department. In the end, most minority administrators expressed the belief that professional advancement at MIT is based on "personal contacts rather than competency' and that color, and in some instances gender, is a barrier to career advancement to the senior administrative ranks.

2.4 Advocacy/Grievance Procedures

Most minority administrators and staff attending the focus group sessions4 agreed that they did not have the benefit of advocacy or appropriate application of grievance procedures to redress legitimate complaints or concerns regarding employee relations, evaluation and performance reviews, or differential treatment. The observation was made that most grievances involving a minority administrator would be resolved with the minority administrator being laterally moved to another position.

Accordingly, numerous participants indicated that they believe that they have no avenue for redress when they are confronted with inappropriate and offensive racist behaviors in the workplace. One participant told of having to report to a supervisor who is well known (by other whites as well as blacks) as being a racist. The participant reported the supervisor's actions to the department director, but the director's method of dealing with the situation was to have the black employee report directly to the director rather than to discipline the supervisor. In so doing, the director, whether intentionally or not, communicated that the complaining black employee is the problem, rather than the discriminating supervi-

Participants indicated that the decentralization of the Affirmative Action and personnel management offices further limits the advocacy and grievance options available to many minority administrators and staff. Some suggested that often the personnel administrator in a department serves the additional function of Affirmative Action Officer and, in such instances, the confidentiality and effectiveness of the process might be in question. In the absence of advocacy or grievance procedures deemed equitable many minority administrators seemed to suggest that it was best "not to make waves."

Even more distressing, a great number of minority administrators indicated that they did not know that there was a person in their department who was responsible for the Affirmative Action duties. Some participants expressed shock to learn of this, stating that they were "never told" that anyone in their department served that function. Obviously, where participants are unaware of the existence of a possible advocacy and/or grievance option, that option cannot be exercised.

4 The consultants' analysis of the administrators' concerns about the Institute's advocacy and grievance procedures is based upon the focus group sessions. The survey did not ask questions specifically directed to this issue.

2.5 Summary of Findings

We, the project team, describe our role in this process as being the conduit of issues identified by MIT minority administrators. Nevertheless, as a result of our observations and experience in the fields of diversity training, intercultural relations and organizational management, we have also included in this section summary observations which are based on our familiarity with diversity issues as they relate to corporate and organizational

While many of the respondents to the survey and participants in the focus group sessions identified issues which caused them concern or discomfort as MIT employees, it should be clarified that, on the whole, most minority administrators seemed committed to remaining at MIT and working to make the environment more conducive to their growth, as well as to the professional growth and development of their non-minority counterparts. It is interesting to note, however, that when asked on the survey to rank the factors necessary for career advancement at MIT, four of the five responses - access to professional networks, mentoring, increased visibility, and skill development - are areas which most of the participants in the focus group sessions observed were not consistently available to minority administrators at MIT.

While most minority administrators pointed to specific negative experiences or issues which have arisen during their employment at MIT, few characterized their professional experience at MIT as wholly negative.

Additionally, although the scope of this project was the career development of minority administrators at MIT, we would suggest that the issues raised by the participants in the process may be equally applicable to all MIT employees. Feelings of isolation and professional stagnation or insecurity may be shared by other minority employees in the support staff ranks whose numbers are also proportionally low. Any future studies and initiatives should include minority employees at the In-

An analysis of the survey results proved surprisingly more positive than the comments at the focus group sessions would have suggested. We can arrive at several plausible explanations for this occurrence. It is a safe assumption that many of the focus group participants also completed survey questionnaires, in most instances prior to attending a focus group session. The opportunity to mull over responses or rethink their experiences at MIT may have resulted in a refocusing on their more negative experiences. The isolation factor evidenced during the focus group sessions may have had the consequence of prompting some minority administrators and staff to assess their experience at MIT within narrow parameters. The opportunity to hear the experiences of others may have given context and credence to their own more negative experiences. Several participants suggested that they often felt the need to "do a reality check" to make sure their responses to negative experiences were valid. In many instances the focus group sessions may have provided such a reality check. Moreover, many focus group participants indicated that they were wary of recording written survey responses because of confidentiality concerns. This fear may have contributed to their being less than candid with the survey responses which were returned.

#### 3.0 RECOMMENDATIONS

Throughout the focus groups, and in their responses to the individual survey questionnaires, many administrators made concrete suggestions which, if implemented, could considerably alter the working environment at the Institute, and serve to foster the increased career development of all employees, including people of color. These recommendations by the administrators follow naturally from our report, and are therefore, self-explanatory; the consultant team's recommendations follow thereafter.

3.1 Minority Administrators' Recommendations:

The minority administrators were not asked to rank order their recommendations either on the survey or in focus group sessions. However, we have presented their recommendations based on the frequency with which certain recommendations were made, or an observed intensity of feeling regarding issues related to these recommendations, as evidenced by focus group and survey comments. It should be noted, though, that many of these recommendations are interrelated and to implement some without others will diminish the level of accomplishment in achieving stated goals related to minority professional advancement at

· Demonstrate institutional commitment to valuing diversity through policy reformation:

There should be a clear articulation of MIT's commitment to achieving the objectives relative to managing a culturally and ethnically diverse workplace. Critical to this stated commitment must be a statement of the specific diversity goals for the institution which include specific targets and timelines for the professional mobility of all existing and new minority administrators, the identification of expected measurable outcomes, and the identification of appropriate resources to effect the necessary growth and change in the MIT environment.

These goals related to valuing diversity in the MIT work force must be communicated by the President and his chief senior administrators in order to demonstrate senior-level support and specific mechanisms for accountability at all management levels for the Institute-wide accomplishment of these goals. Specifically, annual performance reviews of all management must include an assessment of individual and departmental initiatives to increase the number of minority employees at the middle and upper-level management

· Promote and hire more minorities into top management positions:

The absence of minority role models at the senior levels of the academic administration contributes to a lack of efficacy for many minority professionals at MIT. Indeed, this phenomenon reverberates down to student ranks and impacts overall minority student performance as well. However valid the perception of a "glass ceiling" at MIT, the absence of senior-level minority administrators in positions with line and budgetary management authority reinforces the notion that success and accomplishment is unattainable for minority professionals in academia. Whatever other practices and procedures are in place, a commitment to the career advancement of minority administrators must be evidenced by the actual hiring and promotion of these people into positions of authority within the Institute.

· Promote more minorities from support to administrative positions:

This recommendation is directly tied to the two preceding recommendations.

Establish a formal mentoring program for minority administrators:

It is clear that an effective mentoring relationship is directly correlated with professional mobility at MIT for minority and non-minority administrators alike. In the case of minority administrators, mentoring relationships are informal and available to a select few. A formal mentoring program should be developed and made available to all minority administrators. The mentoring program should be a formalized element in professional development programs available at MIT.

· Centralize Affirmative Action office:

Many minority administrators and staff perceive the decentralized Affirmative Action procedures as ineffective. The need for a centralized Affirmative Action effort with presidential

mandate seems clear. Above all, the Affirmative Action component should operate and function separately from (yet in concert with) personnel management at MIT.

Standardize written job descriptions:

Minority administrators at MIT have described the non-delineation of job descriptions, with vague expectations for performance, as a debilitating feature which impacts every employee at the Institute. Internal job descriptions should be standardized and readily available to employees.

- Standardize regular performance evaluations: The absence of Total Quality Management at MIT leads to perceptions of "back room promotions" and exclusive "old boy" networks that allocate promotions and merit raises. A program of standardized, regular written performance evaluations should be instituted immediately. The program should include a standardized schedule for evaluations and provide mandatory opportunities for written comment on the evaluation by the employee. In addition, performance evaluations should be interactive, providing an opportunity for both administrator and supervisor to give one another feedback. Promotions, merit and performance recognition, and salary increases should be based on these written evaluations, rather than on the subjective perceptions of competence and performance in the informal review process which is currently in place.
- · Institute cultural diversity training in order to sensitize managers to ethnic, economic and gender differences which occur in the work environment:

Training workshops on intercultural relations and managing diversity should be instituted across all departments and offices to further assure the accomplishment of specific goals related to valuing diversity.

3.2 Consultant Team's Recommendations:

Based upon its study of the focus group and survey results and the consultants' related experience at other institutions, the consultant team makes the following recommendations in priority order:

1. Appoint a minority administrator to a newly created senior-level management position:

It is clear that the absence of a senior-level minority administrator in MIT's management structure has contributed to a perception by minority administrators of a lack of support and devaluation of the minority presence throughout the campus. We suggest that the feelings of a lack of advocacy, upward professional mobility, and efficacy expressed by minority administrators are in part attributable to the absence of senior minority authority

Specifically, we recommend that a senior-level position with scope and authority at a vice presidential level be created and filled by a minority professional with commensurate qualification and experience. The newly-created senior management position should report directly to the President and include line budgetary authority with reporting authority for several departments and functions. While a minority professional in such a vice presidential line authority position could interface with a centralized Affirmative Action effort (see minority administrators' recommendation), the position should not be limited to such a focus. Ghettoization at any level diminishes the efficacy and valuation of minority professionals and students.

2. Promote minority administrators into middle management and director level positions: Many minority administrators expressed frustration that their professional development opportunities were limited. In particular, they perceived that they were rarely considered for mid-level management or director level positions in the organizational hierarchy. In line with these perceptions the consultant team noted that an overwhelming majority of minority administrators had supervisory responsibilities limited to support staff.

We would recommend that serious efforts be made to identify and promote minority administrators who have demonstrated competence and management abilities.

3. Establish diversity valuation as a high-priority policy for the entire Institute:

A majority of institutions and organizations have focused on the need to value and better manage diversity. However, in many instances this focus is a response to concerns raised by minority employees and institutional concerns regarding the demographic

projections of Workforce 2000. If the management and valuing of diversity is to be effective, it must be viewed as a community-wide concern and not simply the concern of minority constituents. The consultant team recommends the establishment of diversity valuation as an inclusive, institute-wide policy which incorporates the concerns of, and values the contributions of, all Institute employees, including both those of minority and majority background. The design and establishment of future committees and program initiatives on the subject of diversity should include members from all constituencies in the Institute community in order to prompt a more universal investment in the definition and identification of these problems and the implementation of the solutions.

4. Establish a presidential oversight committee on managing diversity and minority career development:

A presidential oversight committee should be established and charged with the following tasks:

- survey all MIT departments to identify and ensure the implementation of exemplary models of employee performance review and minority professional advancement;
- coordinate the development of a Minority Job Bank, mentoring program and related skill enhancement and career counseling components;
- monitor the effectiveness of newlyestablished and existing career development programs for minority administrators and staff at MIT;
- design and conduct exit interviews for all minority administrators and staff

who elect to leave the MIT work force or are otherwise terminated from employment; and

 design and coordinate an evaluation plan which incorporates a rigorous model to assess measurable outcomes as related to stated institutional goals on managing diversity and career advancement for minority administrators and staff.

5. Develop Minority Job Bank:

Participants expressed a need for the development of uniform procedures for advertising positions that become available within the Institute. Minority administrators observed that, under the current system, job announcements are available in the Personnel Office and are published in the Tech Talk campus newspaper. This system was not deemed to be effective for or accessible to minority employees. Some sug-

gested that the publishing of available jobs is only a formality and that successful candidates have been identified long before positions are posted.

The establishment of a Minority Job Bank would serve the dual function of maintaining a current file of resumes of minority employees seeking career advancement and providing another opportunity for minority employees to identify available internal positions. Within the framework of such a support mechanism, the Institute could begin career counseling for minority administrators seeking upwardly mobile professional development. Additionally, the Institute could offer career development seminars and specialized skill enhancement training programs under the auspices of the Minority Job Bank program.