

Dr. Charles M. Vest

SPECIAL MEETING CALLED

Executive Committee Recommends Michigan Provost as MIT President

■ By Kenneth D. Campbell
News Office

The members of the MIT Corporation are being called to a special meeting to receive the recommendation of its Executive Committee that Charles M. Vest, 48, the provost and former dean of engineering of the University of Michigan, be elected the fifteenth president of MIT.

The call to the meeting of the MIT Corporation went out Tuesday. The special meeting, to be held in Cambridge, is expected to happen within a week. MIT by-laws require that a president receive a majority vote (33 votes) from the 65 members currently eligible to elect the president of the Institute.

The chair of the faculty, Professor Henry D. Jacoby of the Sloan School of Management, told the faculty in a letter delivered to their offices Tuesday:

"I had the opportunity to meet Chuck Vest a couple of times during the search

process, and I share the view of our Faculty Advisory Committee and the Corporation Committee on the Presidency that he is an outstanding choice for MIT. He is a tested and admired academic leader, who knows engineering in depth but who also has a broad view of the issues and opportunities of the university as a whole. He has a thoughtful leadership style and personal qualities that should make him very effective with the faculty and in relations with students and staff."

Dr. Vest is provost and vice president for academic affairs at the University of Michigan. He is the chief academic officer and chief budget officer. A leading research university, Michigan enrolls 35,000 students, 40 percent of whom are graduate and professional students. It has 3,100 faculty members.

The deans of the university's 17 schools and colleges report to him, and he is responsible for overseeing the university's \$1.6 billion budget. Dr.

Vest's office also oversees research, information technology, medical affairs, minority affairs, academic personnel, admissions, financial aid, and a large number of research centers and institutes.

From 1986 to 1989, he was dean of the university's College of Engineering, which he also served from 1981 to 1986 as associate dean for academic affairs. His responsibilities in the College of Engineering were undertaken during a period of substantial change, including tripling the level of sponsored research in the college, recruiting some 150 faculty members, restructuring the budgets, and building a \$70 million unified engineering campus. In his roles as provost and dean, Dr. Vest has had significant interaction with the state and federal governments, and has played a significant role in corporate outreach and development activities.

Dr. Vest is a professor of mechanical engineering. (continued on page 3)

DEEPLY COMMITTED

Smith Is Acting Dean for Student Affairs

■ By Charles H. Ball
News Office

The provost, Professor John M. Deutch, has announced the appointment of Professor Arthur C. Smith to a one-year term as acting dean for student affairs, effective July 1.

Dr. Smith, professor of electrical engineering, graduate officer in the Department of Electrical Engineering and Computer Science and former

chairman of the faculty, has involved himself deeply in student matters, chairing several committees dealing with student affairs and academic policy.

He will succeed Dean Shirley McBay. She has resigned the post and is taking a two-year leave from MIT to become president of the national Quality Education for Minorities Network (MIT Tech Talk, April 11).

"We are fortunate, indeed, that Art Smith has agreed to serve as acting dean," Professor Deutch said. "His deep understanding of the institution and of the concerns of the students, developed over more than 30 years as a teacher, faculty leader, advisor and father of two graduates, make him uniquely suited to this position."

Dr. Deutch added that he and President Paul E. Gray will recommend to MIT's new president that a study be undertaken of the relationship between student support services and the educational program, to determine what its role should be.

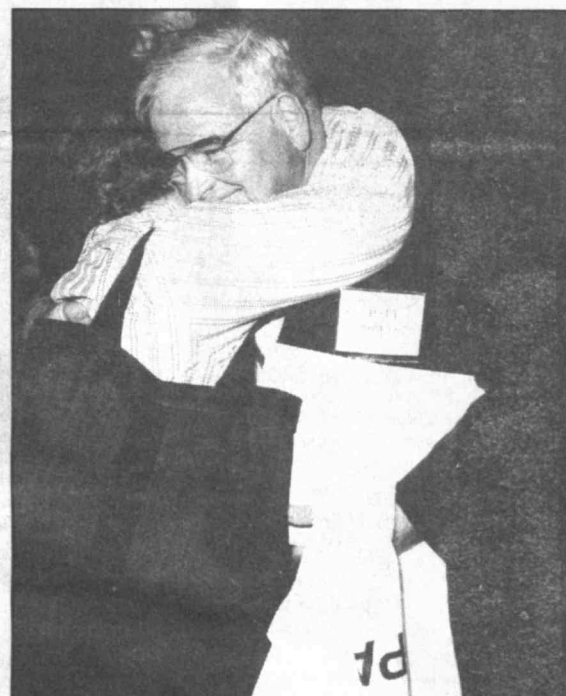
"Art will be a knowledgeable and valuable participant in that process," the provost said.

Dr. Gray, who will leave the presidency to become chairman of the MIT Corporation after a successor has been chosen, said that the appointment of Professor Smith "assures us that we are

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Paul and Priscilla Gray greet each other after Paul brought her up to the podium on Technology Day to publicly thank her for her help and support during his tenure as president of MIT.



The couple embrace afterwards.

Photos by Donna Coveney

TRULY SPLENDID

Gray Thanks Alumni for \$15.5 M

Reunion class gifts of \$15,541,497 were announced Friday, June 8, at MIT's annual Technology Day alumni luncheon.

The luncheon in the Howard Johnson Athletic Center was part of a day-long program for some 1,800 alumni, spouses and guests highlighted

by a morning debate on global warming.

The gift chairmen for the three major reunion classes—H. Tyler Marcy for the 50th reunion Class of 1940, Henry C. Sharp Jr. for the 40th reunion Class of 1950 and William R. Brody for the 25th reunion Class of 1965—presented

their class gifts to MIT President Paul E. Gray during the luncheon program.

The Class of 1940 announced a gift of \$5,916,564 and a bequest commitment of \$1,308,000; the Class of 1950 a gift of \$4,615,239; and the Class of 1965 a gift of \$2,244,213.

(continued on page 2)

IN BRIEF

SUMMER MUSIC

The MIT Summer Session plans a series of summer music and seeks talented performers in all types of music—jazz, rock, folk, classical, etc.—to play. Concerts will take place Tuesdays and Thursdays, 12:30-1:30pm at the Student Center. If you are interested in performing, call Mark Harvey, x3-8778, or send him a tape, Rm 14N-221A.

TT DATES

Tech Talk on June 27 will close out Volume 34. Volume 35 will open with the issue on July 18. Other summer issues are planned for August 8 and 29.

LINCOLN OPENINGS

The Lincoln Lab Children's Center has one immediate opening for an infant and one for a toddler. The Center is also accepting reservations for the expanded program beginning September 4. For more information, call The Center at 861-3850.

TECHNOLOGY DAY

Climate Experts Clash on Global Warming

Sharp differences as well as common ground were apparent when two experts on atmospheric dynamics and modeling engaged in their climatic debate on world climate change last Friday, Technology Day 1990.

Dr. Stephen Schneider of the Na-

tional Center for Atmospheric Research in Boulder, Colorado, who believes that a significantly warmer world climate is likely because of increasing greenhouse gases, challenged Sloan Professor of Meteorology Richard S. Lindzen of MIT's Department of Earth,

Atmospheric, and Planetary Sciences, a well-known skeptic about global warming.

The debate drew a full house of alumni, press and interested citizens to Kresge auditorium.

Moderating the good-natured

though serious sparring was Professor Ronald G. Prinn of EAPS. He began with a crisp summary of present knowledge about the basic ingredients of potential global warming: the rising concentrations of gases that can absorb (continued on page 5)

Student Notices

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

ANNOUNCEMENTS

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

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

Nightline**—a student-run campus hotline open every evening of the term, 7pm-7am. If you need information about anything or you just want to chat, give us a call. We're here to listen. x3-8800.

MIT Pistol & Rifle Club Basic Pistol Marksmanship Course**—Summer course, 4 consecutive nights Mon-Thurs, dates to be determined, 6pm, DuPont Pistol range. Course covers safe handling, storage and use of firearms as well as developing marksmanship skills to meet local police department requirements for pistol permits. Fee covers everything. Info/registration: Frank Gauntt, x8-1476 Draper.

RELIGIOUS ACTIVITIES

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

MIT Hillel*—Info: x3-2982.

MIT Christian Community**—June 15: Come and join newly forming group which will meet for a monthly lunch discussion. Bring your spouse, friends, and own lunch, 11:30am-1:30pm, Dining Rm 3, Student Ctr. Info: Park x3-2875.

Tech Catholic Community**—Summer services: Sun June 10: 10am; Sun June 17 & 24, July 1, 8, 15, 22, 20: 10am only. Info x3-2981.

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

United Christian Fellowship**—Large group meetings. Join us for worshipful singing, prayer, sharing and Bible teaching, and small group Bible studies during the week in various dorms, Fri, 7pm, Rm 6-321. Info: Tracy, x5-9688 dorm.

Graduate Christian Fellowship**—Come join other grad students, faculty and staff in learning about and growing in the Christian faith. Activities open to both Christians and those interested in learning more about Christianity. Info: John Keen x3-7706, Dave Otis x3-7193.

MIT Islamic Society*—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. Muslim Study Group: open to men & women meets Fridays 8pm-9:30pm, Rm 1-135. Additional presentations available on request. Info: x8-9755.

Christian Science Organization at MIT*—Weekly Testimony meetings, Tues, 8pm, MIT Chapel.

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

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

Noon Bible Study*—Every Wed, Rm 1-150, bring lunch. Ralph Burgess, x3-8121. (Since 1965.)

MIT Bible Study Group*—The Economy of God, a look at God's eternal purpose to dispense Himself into man based on the revelation of the Bible, Fri, 8pm, Student Ctr Rm 407. Singing, prayer, Bible reading, fellowship.

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

MIT Vedanta Society*—Meditation and discourse on the Bhagavad Gita, Swami Sarvagatananda, religious counselor, classes held Fridays 5:15pm, MIT chapel.

INTERNATIONAL

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. Students are trained in Japanese language and culture at the Program's expense before being placed in Japan. Placement is tailored to the student's background and experience. Travel to/from Japan and living expenses will be covered. For further information, call Patricia Gercik, x3-3142, Ctr for International Studies, MIT-Japan Program, 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.

Help with billing and database and file management for the summer. Should be familiar with databases on the Macintosh. Must be organized and efficient. One full-time position and one part-time position are available. Salary: \$6.25/hr. Contact: Irene Abrams, Technology Licensing Office, E32-300. Phone: x3-6966, Mon-Wed.

Student needed to do part-time data-entry on IBM for accounting. Must be an accurate and quick typist. Position will last past the summer. Hours: 10-20 hrs/wk. Salary: \$8-10/hr. Contact: Liz Smith or Charles Hagener, Business Graphics, 71 Rogers St., Cambridge. Phone: 547-8400.

Computer consultant needed to assist office with word processing. Computers are primarily IBM and IBM clones. Hours: 5-10 hrs/wk. Salary is negotiable. Contact: Carla Herwitz, E53-470. Phone: x8-5880.

Summer: Manage the office, help plan the business, etc. Extreme friendliness with personal computer (especially MAC) is crucial. We have both a MAC and a PC, and use the following software: Microsoft Word, Excel, MacDraw II, Superpaint, and Micrographix Designer. Knowledge of Paradox in specific or database software in general is a big plus. Some word processing is part of the job, but writing well is more important. Hours will be discussed. Contact: Persephone Miel, Athena Design Systems, Inc., 66 Long Wharf, Boston, MA 02110. Phone: x3-0104.

Summer: Energy consulting firm needs an assistant consultant. Preferred majors are economics, math, or electrical engineering. Skills necessary are proficiencies in spread sheets and word processing. Graduate students are encouraged to apply. Full-time in summer, part-time in fall. Also possibility of working full-time in fall, if available. Hours and salary will be discussed. Contact: Richard Levitan, Levitan and Associates, 99 Summer St. Suite 1720, Boston, MA 02110. Phone: 737-0262.

Exit Computers is looking for someone for hardware/software engineering summer position. Must be familiar with contact scanning devices and have experience in optical character recognition. Should probably be a senior or a graduate student. Part-time and full-time positions available. Please call instead of writing, needed as soon as possible. Hours are very flexible, may also work some at home. Salary depends on experience. Contact: Frances Olschafskie, Exit Computers, 46 Atherton St., Boston. Phone: 524-3787.

UROP

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

UROP T-Shirts are now on sale for \$6.00 in the UEO. Come by and pick one up.

Center for Global Change Science. A student is needed to run a Fortran based atmospheric chemistry and climate model. Some computer experience is preferred. Various scenarios are to be run, altering input data and creating graphs which can be compared to a base case. Some altering of code may be necessary, but graphing codes are already set up. Faculty supervisor: Dr Ronald Prinn, 54-1312, x3-2452.

Gray Thanks Alumni for \$15.5 M

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The gifts of these reunion classes comprise all gifts made to MIT by members of the classes during the five-year period preceding the reunion and all pledges to be paid in the five years following the reunion.

Other reunion gifts announced at the luncheon included: \$1,770,846 from the Class of 1925; \$831,593 from the Class of 1930; \$87,221 from the Class of 1975; \$50,675 from the Class of 1980; and \$25,146 from the Class of 1985.

In addition, this year's graduating class contributed \$8,000, with additional pledges of \$7,000, for a clock tower to be placed in a prominent location on the campus.

It also was announced that the Alumni Fund is expected to reach some \$16 million in cash gifts from more than 29,000 alumni by the end of the fiscal year on June 30.

President Gray, acknowledging the "truly splendid" gifts, thanked the alumni and alumnae for "your leadership, your abiding interest and your generosity."

In his remarks, he noted that excellence has been "the hallmark" of MIT. "But excellence is a fragile quality," he continued, "and maintaining excellence is no easy task—particularly at a time of dwindling resources for research, diminished federal aid to needy students and growing public concern and skepticism about the costs, benefits and values of private higher education."

Some of the issues and considerations presenting the greatest challenges in the years ahead, he said, will be:

Attracting and keeping the best faculty, attracting the very best students, attracting and managing financial resources necessary to ensure the continued vitality of MIT, coming to grips with MIT as an international institution, making a pluralistic community work well, and both keeping a focus on and devising the best possible undergraduate educational program.

Dr. Gray, who is preparing to leave the presidency after 10 years to become chairman of the MIT Corporation, said he had been rewarded by "being able to serve this university in the best way I can—and to give back, in small measure, some of what I have received in the nearly four decades I have been privileged to be part of MIT."

In a personal moment, he added, "In all of this, I have had a primary, unflinching partner—someone who has been an ambassador of the Institute throughout the world, a community builder here at home, and a model of what caring, committed service is all about. I refer, of course, to Priscilla Gray."

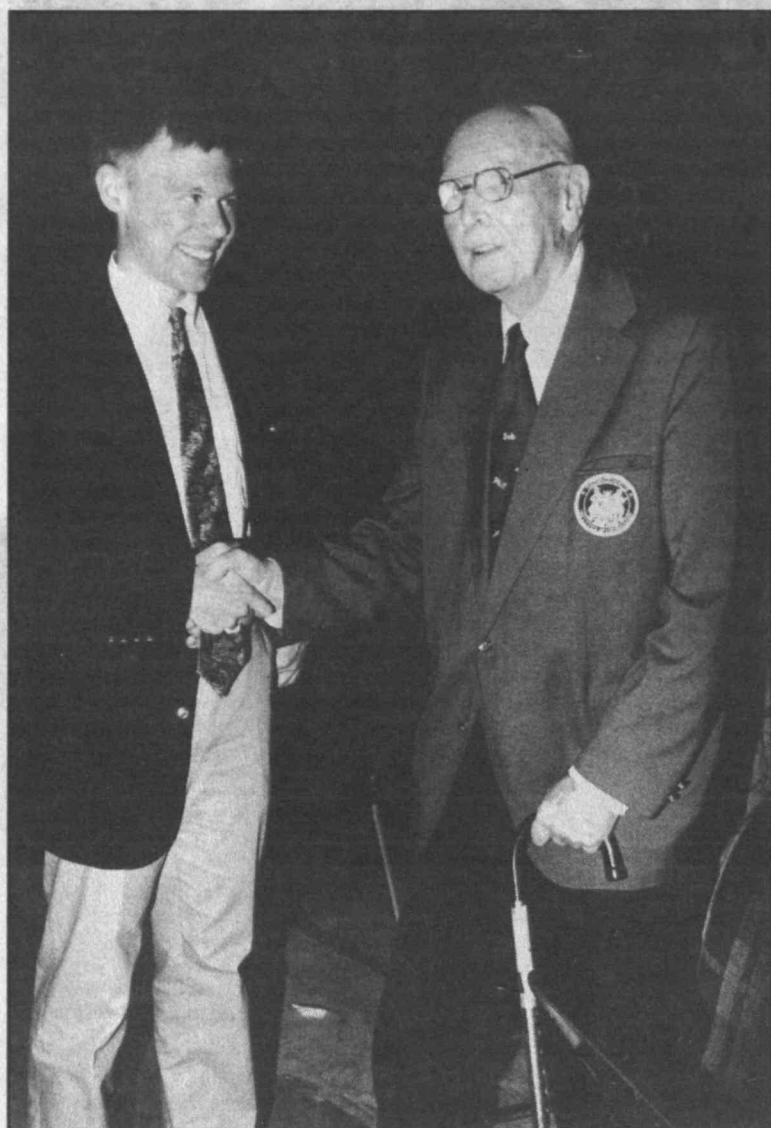
He then called his wife to the podium, where they received, hand in hand, the standing applause of the alumni.

The luncheon program was conducted by Atty. Harris Weinstein, Class of 1956, concluding his term as president of the nearly 90,000-member MIT Alumni Association.

He announced that alumni representing 73 classes were attending the reunion programs and that the most senior among them at the luncheon was Robert A. Warren of Weston, a member of the Class of 1915 observing the 75th anniversary of his graduation. He also gave special recognition to four members of the Class of 1920 observing their 70th reunion—Harold Bugbee, Malcom S. Burroughs, Charles D. Carleton and Frank Maconi. He noted that Mr. Bugbee is the Alumni Association's most senior past president, having served in that post 43 years ago.

Both President Gray and Mr. Weinstein paid special tribute to the late Barton L. Weller of the 50th reunion class. He was to have played a prominent role in reunion activities but died last month. His wife attended the luncheon.

In keeping with the custom of recognizing people who, though not alumni, have exhibited "great dedication, commitment and loyalty to MIT and its alumni," Mr. Weinstein announced that the Alumni Association was bestowing honorary membership



Joseph E. Babiec, Jr., who received his SB degree last week, was one of the youngest attending the Technology Day luncheon where he was honored to meet Robert A. Warren, '15, the oldest alumnus in attendance. Photo by Donna Coveney

on four persons: Dr. George Thom, Mrs. Margaret McDermott, MIT economics Professor and Nobel laureate Robert M. Solow and Alumni Association staff member Robert W. Blake.

He praised Dr. Thom as a Corporation member, Executive Committee member, Visiting Committee member and "most extraordinary fundraiser for the Institute."

Mrs. McDermott, he said, had been an "elegant example of loyalty to MIT" who "has had close ties to MIT for over 30 years. Her generosity to the Institute through support of her 'McDermott Scholars' has enabled hundreds of young students to attend MIT."

Professor Solow, "a busy and deeply committed faculty member with extraordinary demands on his time," nonetheless has "consistently been available to speak to alumni throughout the United States," Mr. Weinstein said, adding: "Many, many alumni have benefited from his participation in Alumni Association events."

Mr. Blake, senior regional director for the Alumni Association, "has won the trust and support of volunteers from across the United States," Mr. Weinstein said. "Careful and meticulous, Bob has quietly managed to 'make things work' for Alumni Association activities from coast to coast and in between."

At the conclusion of the program, Mr. Weinstein turned over the symbolic gavel of office as alumni president to the incoming 1990-91 president, Christian J. Matthew. Mr. Matthew, who received the SB in chemical engineering from MIT in 1943, was with Arthur D. Little, Inc., for 20 years both as a consultant and as manager of its Western division. He later was president of Research Specialties Company and also Lester Gorsline Associates, then a subsidiary of ADL. He was with St. Mary's Hospital and Medical Center of San Francisco as associate administrator and director of planning and later as assistant administrator. He was a founder of St. Mary's Foundation and served as executive vice president from 1984 until his retirement in 1986.

At MIT, he is completing a five-year term as a Corporation member and will remain on the Corporation as an ex-officio member while Alumni Association president. He is a member of the Corporation Development Committee and is or has been a member of several visiting committees. He also

has been a member of the board of directors of both the Alumni Association and the Alumni Fund, vice president of the Alumni Association, and chairman of the Alumni Fund. He has been a member of the MIT Club of Northern California since 1954 and served as its president in 1958-60. He received the MIT Bronze Beaver Award in 1977.

The Technology Day committee included: William C. Maini, chairman; Thomas H. Jordan and Ronald G. Prinn, ex-officio members; David R. Wadleigh, George Beesley, Robert C. Seamans, Jr., George F. Clifford, Arthur C. Parthe, Jr., Eugene F. Mallove, Vincent W. James, Stephen C. Messner and Bernard Loyd.

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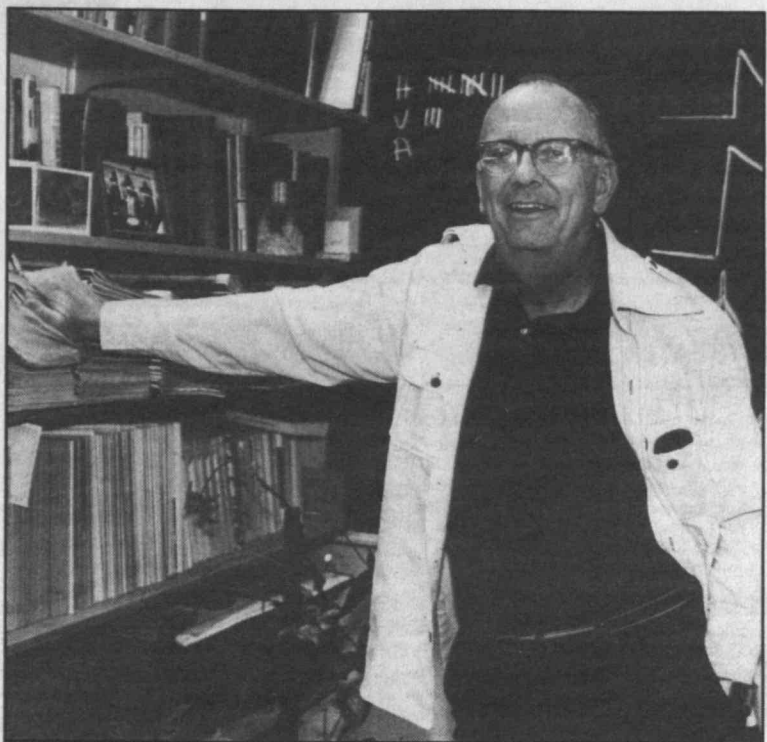
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Professor Arthur Smith

Smith Is Acting Dean for Student Affairs

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leaving the dean's office in capable, caring hands."

Enthusiasm for the appointment was echoed by Professor Samuel J. Keyser, associate provost for educational programs and policy. "I am delighted that Art is becoming acting dean. He is someone who has remained in contact with the central issues of the Office of the Dean for Student Affairs, and his career has been consistent with someone whose concern for the well-being of students is palpable."

Dean McBey said Professor Smith "brings a wealth of experience and interest" to the post. "When I arrived he was chairing the Committee on Student Affairs and we have worked closely ever since on a wide range of matters. It is an excellent appointment."

Professor Smith said he had been "convinced for a long time of the importance of the role played by the Office of the Dean for Student Affairs in the lives of our students."

He continued: "I want to continue and strengthen the relationships between ODSA and students, undergraduate and graduate, and to explore ways in which the office can be more effective in making students' experiences at MIT all that they should be. I have known many of the staff for a long time and I am looking forward to working with a group of people for whom I have a lot of respect. I am excited by the prospect of the coming year and hope that I can play a useful role during a time of transition."

Professor Smith received a bachelor of science degree in physics from the University of Kansas in 1951, an MA in physics from Harvard Univer-

sity in 1954 and a PhD in applied physics from Harvard in 1958. He has been a visiting professor at Queen Mary College, University of London, at Birla Institute of Technology and Science, Rajasthan, India, and at Waikato University, New Zealand.

He came to MIT as an assistant professor of electrical engineering in 1959, became associate professor in 1963 and was promoted to professor in 1968. His work has included studies in thermoelectric energy conversion and semiconductor research. He is the co-author of two textbooks on electronic conduction in solids and the author of a chapter on transport in the "Handbook on Semiconductors."

He has served as chairman of the Committee on Academic Performance (1972-74), the Committee on Privacy (1975-77), the Committee on Student Affairs (1979-81) and the Committee on Educational Policy (1983-85). He also was a member of the Minority Student Issues group of faculty and administrators that has reported on the racial climate on the campus since 1985.

Professor Smith was chairman of the faculty in 1983-85 and received the Gordon Y. Billard Award for distinguished service to the Institute in 1987. In 1984 two of his daughters received degrees from MIT, Amy the SB in mechanical engineering, and Abigail the SM in earth, atmospheric and planetary sciences.

His professional societies include the American Physical Society, American Association of Physics Teachers, American Association of University Professors, Sigma Pi Sigma, Eta Kappa Nu, Phi Beta Kappa and Sigma Xi.

NOTED HISTORIAN

Maier Named Kenan Professor

Dr. Pauline R. Maier, an historian widely known for her work on the American Revolution, has been selected as the next holder of the William Kenan Jr. Professorship at MIT, the provost, Professor John M. Deutch, has announced.

The chair, established in 1973 by the William R. Kenan Jr. Charitable Trust, is designated for distinguished scholarship and teaching in the humanities. Mr. Kenan, who died in 1965 and created the trust in his will, worked primarily in the fields of chemical and mechanical engineering and had a life-long interest in education.

Professor Maier's major field of scholarship is eighteenth and nineteenth century American political history and Revolutionary politics, particularly the life and politics of Samuel Adams. Her current work focuses on the tradition of 1776 and how it shaped the organization of American society between the Revolution and the Civil War.

Professor Maier received her AB degree in American history and literature in 1960 from Radcliffe College, where she was elected to Phi Beta Kappa, and a PhD in American history from Harvard University in 1968. In 1960-61 she was a Fulbright Scholar at the London School of Economics.

She taught at the University of Massachusetts, Boston, and at the

University of Wisconsin, where she was the Robinson-Edwards Professor of History, before becoming professor of history at MIT in the Department of Humanities in 1978. She was acting associate head of the department in 1979-80 and was head of the department's History Section from 1979 to 1988. In the spring of 1983 she was Visiting Cardozo Professor of History at Yale University.

Her awards and honors have included the Kidger Award of the New England History Teachers Association for "outstanding contributions" to the profession, an honorary Doctor of Laws from Regis College, a National Endowment for the Humanities Fellowship for College Teachers and Independent Scholars and a John Simon Guggenheim Memorial Foundation Fellowship.

She is a member of the Society of American Historians, American Antiquarian Society, Colonial Society of Massachusetts and the Massachusetts Historical Society.

Professor Maier's 1972 book, *From Resistance to Revolution: Colonial Radicals and the Development of American Opposition to Britain 1765-1776*, has become a standard reference in the literature on the American Revolution. She also is the author of *The Old*



Professor Maier

Revolutionaries: Political Lives in the Age of Samuel Adams. She has published widely in professional journals and other publications and has reviewed a number of books for the New York Times Book Review, New Republic and scholarly journals.

She and her husband, Charles, have three children and make their home in Cambridge, Mass.

HASS APPOINTMENT

Khoury Named Acting Dean

The provost, Professor John M. Deutch, has announced the appointment of Professor Philip S. Khoury as acting dean of the School of Humanities and Social Science, effective July 1.

Professor Ann F. Friedlaender, who has been dean since 1984, announced in February that she was stepping down on June 30 to return to teaching and research in the Department of Economics.

Professor Deutch said, "No one can replace Nan Friedlaender in my provostial world. But I greatly look forward to working with Philip Khoury, who is an excellent scholar, a splendid person and a good friend."

Dr. Khoury, professor of history, has been associate dean of the School of Humanities and Social Science since 1987. He has concentrated on the school's participation in the ongoing reassessment of the undergraduate curriculum.

Dr. Khoury is a political and social

historian of the Middle East, with a strong background in comparative urban history and politics and in comparative nationalist movements. He joined the MIT faculty in 1981 and from 1984 to 1986 he held the Class of 1922 Career Development Chair, which recognizes excellence in teaching.

He received the BA from Trinity College in 1971 and the PhD from Harvard University in 1980. He spent 1974-75 and 1976-77 at St. Antony's College, Oxford University, where he was an associate fellow and tutor.

He also has received postdoctoral fellowships from Harvard's Center for Middle Eastern Studies, the Mellon Foundation, Aspen Institute for Humanistic Studies and the Social Science Research Council.

He is the author of *Urban Notables and Arab Nationalism: The Politics of Damascus 1860-1920* and *Syria and the French Mandate: The Politics of Arab Nationalism, 1920-45*, which



Professor Khoury

received the George Louis Beer Prize of the American Historical Association.

Executive Committee Recommends UM Provost as President

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cal engineering and an authority on holographic interferometry, which is the application of optical holography to visualize or measure precisely thermal and mechanical phenomena. He and his students pioneered the application of computer tomography (the basis of medical CAT scanning) coupled with optical techniques to study fluid flow in three dimensions. He is the author of *Holographic Interferometry* (John Wiley & Sons, 1979), a standard work that has been translated into Russian and Chinese, plus many technical articles.

He has been on the faculty at Michigan since 1968, with the exception of the 1974-75 academic year, which he spent as a visiting associate professor at Stanford University. He serves as a member of the Stanford University Engineering Advisory Council and the Cornell University Engineering Council. He is a fellow of the Optical Society of America, and a member of the American Society of Mechanical Engineers, Sigma Xi, Tau Beta Pi and Pi Tau Sigma.

Born in Morgantown, W. Va. on

Sept. 9, 1941, he received the BS degree in mechanical engineering from West Virginia University in 1963, his MS from the University of Michigan in 1964, and his PhD in mechanical engineering from Michigan in 1967.

He became an assistant professor of mechanical engineering at Michigan in 1968 and headed the Interferometric

Holography Group, Radar and Optics Division, Willow Run Laboratories, from 1970 to 1973. He became associate professor in 1972 and professor in 1977.

He and his wife, Rebecca Ann McCue Vest, have a daughter, Kemper, and a son John, and live in Ann Arbor, Mich.

Wiesner also a Michigan alumnus

Dr. Charles M. Vest, if elected by the MIT trustees, would become the second alumnus of the University of Michigan to head MIT. Jerome B. Wiesner, MIT president from 1971-80, is the other alumnus of the University of Michigan.

Of MIT's 14 presidents, only three have had MIT degrees—Paul E. Gray (1980-present), Julius A. Stratton (1959-66) and James R. Killian (1949-59). Six had no previous experience at MIT as a student or professor—Karl Taylor Compton, (1930-49); Samuel W. Stratton,

(1923-30); Ernest F. Nichols, (1921-22); Richard Cockburn Maclaurin, (1909-20); Henry S. Pritchett, (1900-07); and Francis Amasa Walker, (1881-97). Four other MIT presidents had prior teaching or administrative experience at MIT—Wiesner, Howard W. Johnson (1966-71), James M. Crafts (1897-99), and John D. Runkle (1870-78). One president, William Barton Rogers, was the founder and served two terms as president (1862-70 and 1879-81).

The age of the 14 MIT presidents upon election ranges from 39 to 61, and the average age is 48.

Incineration Conference Held

Public involvement in monitoring waste incinerators and the latest in devices for tracking emissions were some of the issues discussed at a recent conference here sponsored by the Hazardous Substances Management Program.

The siting and safe operation of incinerators have become significant public issues as incineration becomes an alternative for the disposal of hazardous wastes. "Incinerator Monitoring: Techniques for Assuring Performance and Building Public Trust" focused on these issues.

For example, panelists at the conference agreed that public involvement in incinerator siting and monitoring needs to be more inclusive. Steps toward that end include public tours and inviting a representative of the public

to evaluate incinerator performance at any time.

Panelists also discussed the usefulness of continuous emission monitors, or CEMs, which provide emissions data that can be evaluated at any time. Though these devices help meet the need for better information, they said, efforts must still be made to ensure that these data are reliable and that there is a consensus regarding the parameters to be measured and the frequency and location of measurements.

Panelists at the conference included representatives from the New York State Department of Environmental Conservation, the Environmental Defense Fund, Arthur D. Little, Inc., and Dow Chemical Co.

Conference proceedings are available from the Hazardous Substances Management Program, Rm E40-245.

Institute Calendar

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

June 13 - July 1

■ SPECIAL INTEREST

Swapfest—June 17:** Buy, sell, swap bargain electronics, computers, radio parts, etc., rain or shine, buyers \$1.50 (50¢ off w/ MIT ID), sellers \$8/space, includes 1 admission, sponsored by WIMX, the MIT Electronics Research Society and WIMR, 9am-2pm, Albany & Main Sts. Swapfest takes place 3rd Sunday of each month all summer.

Golf Tournament: MIT Open—June 30:** Separate low net & low gross prizes for MIT employees and guests, 11am, Wayland Country Club, Wayland, MA. Fee: \$25, due on or before 6/15/90, payable to Bill Prescott, 18 Vassar Street, Bldg 20C-207. Info: Bill Prescott x8-5645 or Paul Dozois 617-489-0852 eves.

■ SEMINARS & LECTURES

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

THURSDAY, JUNE 14

An Inverse Scattering Approach to Designing Optical Waveguides and Components—Prof Lakshman S Tamil, U of Texas/Dallas.** Sponsored by the Center for Electromagnetic Theory and Applications/Research Laboratory of Electronics, 4pm, Rm 34-301.

MONDAY, JUNE 18

Genes and Viruses Fifty Years Ago—Dr. Salvador Luria.** Nobel Laureates Dinner Meeting and Lecture, sponsored by the MIT Club of Boston. Cocktails, 5:30pm; dinner, 6:15pm; lecture, 7:30pm, Walker Memorial. MIT Club of Boston members and their guests, \$20/pp; all others, \$25/pp. Make checks payable to and send to MIT Club of Boston, PO Box 668, Kendall Sq., Cambridge, MA 02142. Info: Jill Burger, x3-8245.

WEDNESDAY, JUNE 20

NMR Studies of Growth Hormone Releasing Factor: Synthetic Helix Stabilization—Dr David Fry, Hoffmann-La Roche Inc.** Whitehead Institute Seminar, 4pm, Whitehead Auditorium.

FRIDAY, JUNE 22

Mechanism and Enzymatic Catalysis of Slow Steps in Protein Folding—Dr Franz Schmid, Universitat Bayreuth.** Whitehead Institute Seminar, 12pm, Whitehead Auditorium.

MONDAY, JUNE 25

General Analysis of the Multi-Layer Stripline: Real and Complex Modal Solution and Slow Wave Propagation Using Superconducting Material—Dr Jeff Williams and Mr David T Nghiem, U of Houston.** Sponsored by the Center for Electromagnetic Theory and Applications/Research Laboratory of Electronics, 4pm, Rm 34-301.

TUESDAY, JUNE 26

Simulations with a Global Eddy Resolving Ocean Model*—Robert Chervin, National Center for Atmospheric Research. Center for Meteorology and Physical Oceanography Quasi-Biweekly Seminar Series, 4pm, Rm 54-915.

■ COMMUNITY INTEREST

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

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

Co-Dependents Anonymous (CoDA)*—Meetings every Thurs, 6:30-8pm, Rm 66-144. Info: Sarah, x3-4911.

German Lunch Table—Come to lunch and speak German, every Tues 1:15-2pm, Walker dining hall. Look for the German flag, all levels welcome. Sponsored by the Foreign Languages & Literatures Section.**

Graduate Student and Postdoc Parents Support Group*—Co-leaders: Dawn Metcalf, MIT Social Worker, and Rae Goodell, MIT Coordinator of Parent Programs. Meets Fridays, 12-1:30pm. Info: Dawn Metcalf, x3-4911, Rm E23-344, or Rae Goodell, x3-1592, Rm 4-144.

Informal Embroidery Group—MIT Women's League Group meets next on June 6, 10:30am-1:30pm, Rm 10-340. Summer schedule: June 20, July 18, Aug 1, Aug 15 in Killian Court. In case of rain we will meet in the 3rd floor Women's Lounge, Bldg 10. Info: x3-3656.**

Boston Mutagenesis Group*—Meetings are held the first Wednesday of the month in the 6th floor conference room, E17, 7pm. Speakers from MIT, Harvard and other local schools discuss their research; related topics include mutagenesis, carcinogenesis, cellular repair systems and DNA damage in prokaryotic and eukaryotic cells. Info: Kara Best x3-6729.

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

Overeaters Anonymous (OA)*—Meets Thurs, 1-2pm, Rm E23-364. Only requirement for membership is the desire to stop eating compulsively. Info: Sarah, x3-4911.

Office Workers Issues Group—Women's Forum informal support staff meetings, Wed, 12:10-1pm, Rm 8-219. Bring your lunch; network or talk about office worker's issues.**

Summer Physical Education Courses—Aerobics, Exercise Fitness, Golf (Beg), Scuba, Sailing, Sculling, and Tennis (Beg & Int) are being offered by the Physical Education Office, W32-125. Info, x3-4291.**

Summer Recreational Rowing—Sculling program (single-person boats) open to all members of the MIT community, beginners welcome. Phys Ed courses (see above): Open Instruction/Coaching 6/11-8/16, M/W 7am-10am, T/Th 4-7pm. Pierce Boathouse open for rowing M-F 6am -2pm (T/Th until 7pm). All rowers must have a valid MIT Sculling Card (\$30/student; \$100/faculty, staff, alumni; \$50/add'l family member) and pass small boats swimming test. Info, Stu Schmill, x3-6246.**

Wives' Group—All women in MIT community welcome. Info: x3-1614.**

■ HEALTH EDUCATION

Nursing Mothers' Support Group—Pregnant and breastfeeding women at MIT meet to gain confidence and share info and practical tips. First Tues of each month, 10-11am and third Weds of each month, 4-5pm, Rm E23-297. Babies welcome. Info: Connie Bean, x3-1316.**

Working Mothers Support Group—An ongoing support group that meets to discuss parenting-related issues in a casual atmosphere. Meets every other Wednesday, 12-1:30pm (drop in anytime), Rm E23-364. Next meetings: June 13, June 27. Info: Janette Hyde x3-4290.**

■ MITAC

New summer ticket locations and hours: Tickets may be purchased at the MITAC Office, Rm 20A-023 (x3-7990), 10am-3pm Monday-Friday. Tickets are also sold in Lobby E18 on Fridays, 12-1:15pm. Lincoln Lab sales in Rm A263, 1-2pm Thursday & 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 (\$3.75/ea) and Showcase (\$4.25/ea). Tickets are good 7 days a week, any performance.

Museum of Fine Arts—The Council for the Arts has 10 passes employees may borrow for free admission. Call the MIT libraries, x3-5651, for availability. At Lincoln Lab, MFA passes are available in A-150.

Ferry Discounts are here! Woods Hole to Martha's Vineyard, r/t, adults \$6.40 (reg \$8), children \$3.20 (reg \$4). Hyannis to Nantucket, r/t, adults \$14.40 (reg \$18), children \$7.20 (reg \$9). Discount coupons avail in MITAC office on campus & Rm A263 Linc.

Tired of automotive woes? Discount coupons now avail for Merchants Tire & Car Care, 10% off all reg automotive svcs, 5% off all regular priced tires. Avail in MITAC office.

Riverside Amusement Park (Agawam) Discount Coupons—Save \$4/adult passport; \$3/junior passport, valid through 9/30.

New Cambridge Discount Books are here! Free, limit 1/pp, reg \$6/ea. Savings on dining, harbor cruises, comedy clubs, etc. Available in the MITAC office.

North Shore Music Theatre Corporate Discounts! Enjoy top-notch theatrical productions at \$3 off all Broadway shows. Call 922-8500 for tkt reservations.

ARTS/Mail Program Discounts on the best of Boston's performing arts. \$1 off with your first ticket order (ARTS/Mail July calendar of events and discount coupons are avail in MITAC office).

Coming Soon—Discounts on Provincetown cruises and Entertainment Cinemas!

Whitewater Rafting in Calumet, Quebec—Jun 22-24: Incl round-trip transportation, 2 breakfasts/lunches/dinners, & campsite. Only \$145/pp. Bus leaves West Garage Fri, Jun 22, 12 noon; & returns approx. 12 midnight Jun 24. Space is limited!

Summer Weekend Escapes at Talbot House in Vermont—Jul 6-8, Jul 13,15, Aug 3-5, Aug 10-12: South Pomfret, VT. Dorm style accommodations in a cooperative living environ-

Flute Recital*—June 17: Cindy Woolley, assisted by Sheila Waxman, Bernadette Horgan, & Marcus Famy, will present works by Mozart, Persichetti, Tomasi, Muczynski, Doppler, & Berkeley. Sponsored by Foreign Languages & Literatures, 8pm, Killian Hall.

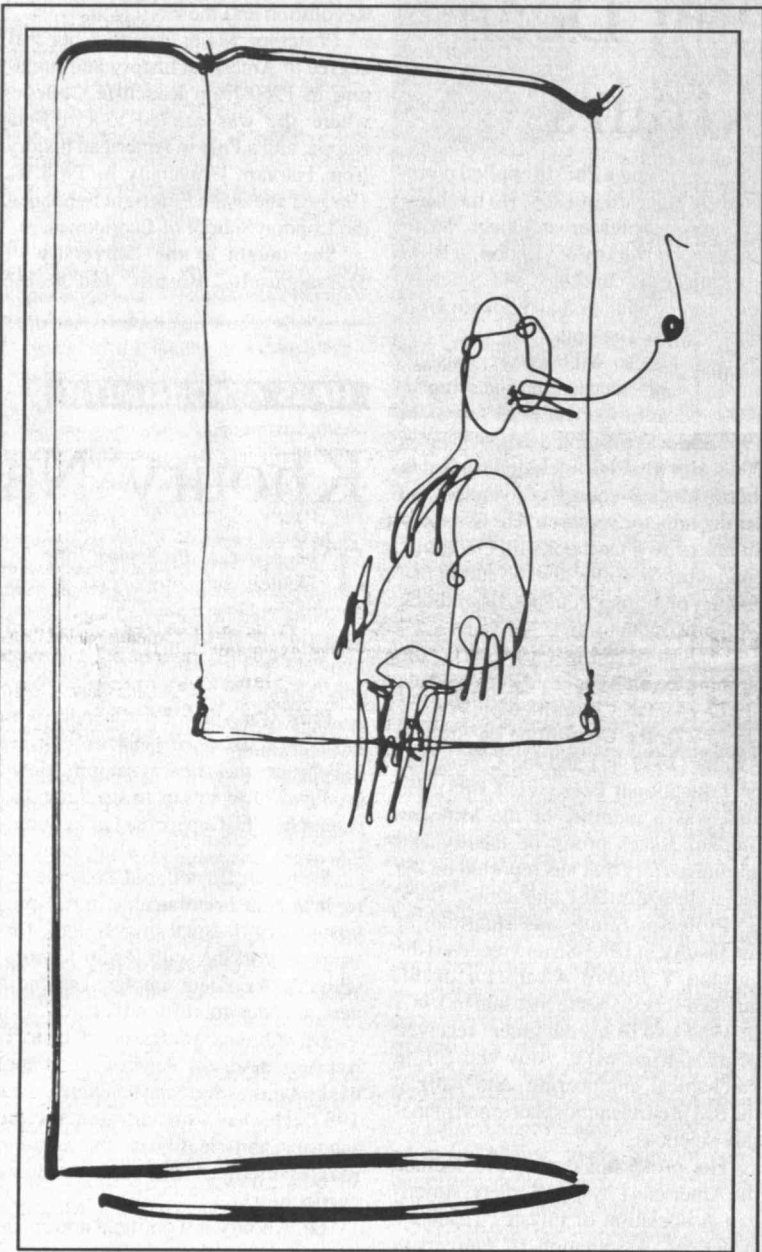
Summer Concert Band Activities*—The MIT Concert band, John Corley, director, will be sponsoring a summer band program open to all interested musicians in the Boston area. Rehearsals Tues evenings 7-9pm beginning 6/19. Kresge Auditorium. Musicians of all levels welcome. Call x3-2826 bef 6/15.

■ THEATER

Leonardo: Anatomy of a Soul*—June 13, 20, 27, July 11, 18, 25: A multi-media performance event created this past January by MIT artists in residence from the Pilgrim Theatre Research & Performance Collaborative, 8pm, Killian Hall. Admission: \$10. For info on obtaining tickets call x3-2101.

■ DANCE

Technique & Repertory Class*—Summer class taught by Beth Soll. Each class will begin with a 45 minute warm-up, followed by collaborative work with Beth Soll and musician Frank Molina resulting in a dance to be performed in



A work in wire by Boston architect Richard Bertman '60 whose sculptures and architectural drawings are now on exhibit at the MIT Museum, 265 Mass Ave. Among other projects, Mr. Bertman is the principal designer for the Prudential Center renovation in Boston's Back Bay and for Phase II of the World Trade Center. Information: x3-4444.

ment. Room sizes for 4, 5, or 6 people/room, & reservations must be made by the room. \$58.50/pp/wknd, meals included. You provide your own transportation. One room per customer. Reserve by Jun 29. Space is limited!

Summer in Montreal: Labor Day Weekend—Aug 31-Sep 3: Bus leaves West Garage Aug 31, 7am; & returns Sept. 3, approx 7pm. Cost: \$165/pp/dbl. occ (incl. transp. 4 days in Montreal, & 3 nights' lodging at Journey's End Hotel). Reserve by Jul 31.

■ MUSIC

For recorded information on upcoming concerts and lectures call the MIT Music and Theater Arts cert Line, x3-9800. Updated weekly.

MIT Day*—June 17: The New Jersey Chamber Music Society and other artist will present works by Vivaldi, Albrechtsberger, Schubert, Pezel, and Hummel, Rockport Art Association, 5pm. Tickets regularly \$12.50, available in the Office of the Dean for Student Affairs (5-106) for \$10.

August. Classes meet 7/5 - 7/31, Tuesdays & Thursdays, 5:30-7:30pm, Walker 201. Free to all affiliates of MIT, \$80 others. Info: x3-3210.

MIT Ballroom Dance Club Summer '90 Workshops*—Workshops take place from 7-8:30pm in Sala de Puerto Rico, Student Center, unless otherwise noted. **June 14:** Waltz. **June 21:** Swing 1. **June 28:** Rumba, Lobby 13. **July 5:** Swing 2. **July 12:** Quickstep. **July 19:** Swing 3. **July 26:** Cha-Cha, Moss Hall, Walker Memorial. **Aug 2:** Foxtrot. **Aug 9:** Tango. **Aug 16:** Merengue, Lobby 13. **Aug 23:** Hustle. Admission: 50¢/member, \$1/non-member. General Dance: 8:30-9:30pm, free admission, no partner necessary. Further info: x8-6554.

MIT Folk Dance Club*—weekly dancing: Sun, Beginning International Dancing, 7pm, Student Ctr Sala de Puerto Rico; Tues, Advanced Balkan and Western European Dancing, 8pm, Student Ctr Rm 407; Wed, Israeli Folk Dancing, 7pm, Lobby 13 (subject to change). Info: x3-3655.

Aerobics Classes*—Sponsored by the MIT Dance Club. Every Mon, Wed, Fri, 6-7pm, Bldg W31 Dance Studio, \$3/per class. Info: Julia, 492-1369.

Rhythmic Gymnastics Classes for Women—**MIT Women's League classes, Thurs, 12-1pm, Rm 10-340. Info: Helena, 596-2396 eves.

Yoga*—Ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 5:10pm, Rm 10-340; Intermediate/Advanced: Mon, 6:30pm, Rm 10-340. For information call Ei Turchinetz, 862-2613.

MIT Dance Workshop Classes*—An activity of the Theatre Arts program taught by members of the Beth Soll & Co, MIT's resident dance company. Beginning Modern Technique, M,W, 3:30-5pm, T-Club Lounge, Dupont Ctr; Intermediate Modern Technique, Tu,Th, 5:30-7pm, Walker-201; Discussion, Tu, 4-5pm, Rm 4-148; Composition/Improvisation, Tu 11-12:30, Walker-201; Technique/Repertory/Improvisation, Tu 11-12:30, Walker-201. Info: x3-2877.

■ EXHIBITS

LIST VISUAL ARTS CTR

Matt Mullican. A quasi-architectural space inhabited by found and fabricated objects comprising Mullican's cosmological model. **Nancy Burson: "The Age Machine" and Composite Portraits.** Participatory video photo-booth allows visitors to look into the mirror of the future and see what they might look like in 20 years. **Bill Traylor: Drawings.** 80 whimsical and colorful works created by this self-taught artist, a freed slave who began work in 1936 at age 84. Through July 1.

THE MIT MUSEUM

MIT Museum Bldg (N52)—Richard Bertman: Architect and Sculptor. Drawings, sculpture, and architectural plans by the eminent Boston architect. Through July 29. **Math in 3D: Geometric Sculptures by Morton C. Bradley, Jr.** Revolving sculptures based on mathematical formulae. Form and color relations lend these works a unique visual appeal, ongoing. **Holography: Types and Applications.** Changing exhibit demonstrating the uses of this three-dimensional imaging medium. Works include scientific, medical, technical, and artistic imaging drawn from the work of the Spatial Imaging Group at MIT's Media Laboratory, ongoing. **Light Sculptures by Bill Parker, MIT '74.** Changeable, touchable plasma sculptures by the artist who developed this medium, ongoing. **Marcia Oakes Woodbury.** Oils, watercolors and drawings by celebrated turn-of-the-century artist, ongoing. Hours: Tues-Fri 9am-5pm. MIT Museum closed to the public on Mondays; Open 12-4pm Sat-Sun.

HART NAUTICAL GALLERY

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

CORRIDOR EXHIBITS

Corridor Exhibits: Bldg 1 & 5, 2nd floor: John Ripley Freeman. Lobby, Bldg 4: **Norbert Wiener, Karl Taylor Compton.** Community Service Fund, **Ellen Swallow Richards.** **Women at MIT.** An overview of the admission of women at MIT. Five photographic panels with text documenting the circumstances that increased the number of women in the classroom since Ellen Swallow Richards. Bldg 6: **Laboratory for Physical Chemistry.** Bldg 4: **Edgerton's Strobe Alley:** Exhibits of high-speed photography. (Corridor Exhibit).

COMPTON GALLERY

Microscopes. Color photographs by AT&T photographer Charles Lewis. Microprocessor chips, glass fibers, crystals, magnetic bubbles shot at speeds up to 1/720,000th of a second and magnified as much as a billion times. Ongoing, 77 Massachusetts Ave. Hours: Mon-Fri 9-5, Sat 12-4.

OTHER EXHIBITS

Institute Archives and Special Collections—Jerome C. Hunsaker, Father of Aeronautics at MIT: Chronicles his founding of aeronautics at the Institute; his design and construction of Navy airships and NC-4, the first airplane to cross the Atlantic, and his role in leading the Dept of Aeronautical Engineering from 1939-51. **The Tech Show:** "Engineering is interfering with fun...Wish my four year stretch were over and done." That's from 1947 but it could be sung today. Portrays an MIT institution with a 92 year history.

Send notices for Wednesday, June 27, through Sunday, July 22, 1990 to Calendar Editor Rm 5-111, before 12 noon Friday, June 22.

Alumni Hear Climate Experts Debate on Global Warming

(continued from page 1) and re-emit infrared radiation that comes from the solar-heated surface of the Earth.

For some of these gases, said Professor Prinn, sources are reasonably well understood, but the sources and sinks of others, including methane and even carbon dioxide, are less clear. Professor Prinn reminded the audience of an often overlooked fact: omnipresent water vapor itself is one of the most important and potent of the greenhouse gases.

Concentrations of chlorofluorocarbons (CFC's) greenhouse gases, he said, are rising rapidly from five-11 percent per year, and these molecules have typical lifetimes in the atmosphere ranging from 75-180 years. By contrast, the greenhouse gas nitrous oxide rises at only 0.2 to 0.3 percent per year, but has a 150 to 180 year lifetime in the atmosphere. Its main source is in the tropics, not from fossil fuel combustion.

Fossil fuel, however, is responsible for most of the carbon dioxide increase we see today, said Prinn, though some of that increase may be due to deforestation whose effects are still a matter of controversy.

Regarding the very long atmospheric lifetimes of many greenhouse gases, Professor Prinn spoke of a risk factor. "We cannot just simply stop what it is we're doing and have these gases decay out of the atmosphere on very short time scales," he said. The gases are long-lived. Just bringing the rate of increase of some of these gases to zero would require cutting their emission by factors of three to six,

great progress [over the last 15 to 20 years], but we haven't. The estimate has been, if carbon dioxide were to be doubled and held fixed—what we call equilibrium—then we'd warm up the climate something between 1.5 and 4.5 degrees Celsius. . . . The question is, is that range reliable and what are the elements of it that are subject to question."

After explaining the basic principles of computer modeling of global climate, Schneider termed as much as a 10°C temperature rise by the end of the next century "a low probability but still possible case."

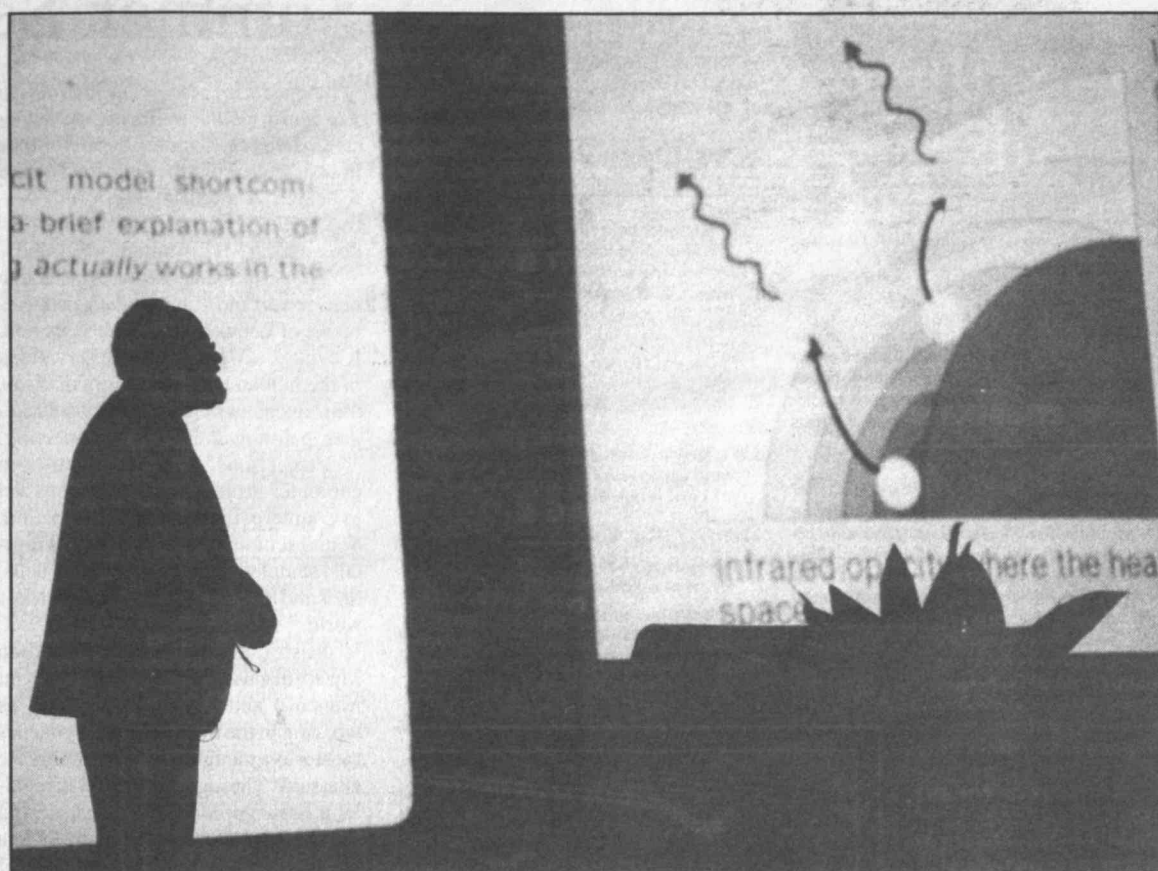
The most uncertain components of the models, he said, are the complex effects of clouds, including both cooling and warming effects. He also showed how difficult it is to forecast the specific geographic patterns of climate change, including temperature and moisture distributions.

Schneider worried about the rapidity of change, saying that nature took about 10,000 years to warm 5°C (from 15,000 to 5,000 years ago) as compared to a possible impending rate of change five to 100 times that natural rate.

"What is the probability of the catastrophic curve or the mild curve? The answer here is that there is no objective way to assign it," Schneider said.

"Simply looking backwards in the last century is not very instructive to give us reliability in the future, because too many things that we weren't measuring were occurring. We've only been measuring what's important for about the last ten years.

"The bottom line is what's the proba-



Professor Richard Lindzen gives his views on global warming.

Photo by Donna Coveney

that the warming, indeed, is much smaller than suggested by current large models, if indeed there is warming at all."

Professor Lindzen believes that there will be a warming "under half a degree," though he does not even rule out the possibility of a cooling.

Since he believes that the models are making erroneous predictions, he argued, "I think it is a pressing obligation of meteorologists and oceanographers to find out why the models are wrong."

Professor Lindzen complained that atmospheric modeling "has used to be considered a tool of theory." Now, he suggested, the community of modelers and theoreticians has grown apart. "What I find increasingly worrisome is the notion that models are assessed by comparison with other models," he said.

Professor Lindzen took exception to Dr. Schneider's range of warming prospects, saying, "whereas the small end of the diagram he last showed was quite likely [below 1°C rise] the high end would violate many, many things."

Lindzen believes, for example, that the temperature record of the past is not compatible with the models that predict significant warming in the next century. He believes that there are "documented errors in models that are crucial to warming predictions." He said, "Much less certain, though potentially extremely important, the models

have a behavior in the tropics that is crucial to present predictions and seems inconsistent with present and past tropical behavior."

Lindzen said that models that currently predict a 4°C temperature rise some time next century for a doubling of carbon dioxide, suggest that a 2°C rise should already have occurred for the carbon dioxide already put into the atmosphere by human activity—something that has not happened.

Perhaps Professor Lindzen's sharpest criticism dealt with what he called the "circumvention" of Earth's "greenhouse" by vertical currents that bring water vapor upward and cause heat to be radiated back into space.

He said, "The surface of the Earth cools bodily by motion that carries the heat around the bulk of the greenhouse gas and the radiation is emitted from upper levels which have much less infrared opacity. Thereby they circumvent about three-quarters of the greenhouse substance. . . . Speaking of trapping of heat by greenhouse gases in the bulk of the atmosphere is no more impressive than the trapping of Germans by the Maginot line—there are plenty of good ways of getting around it."

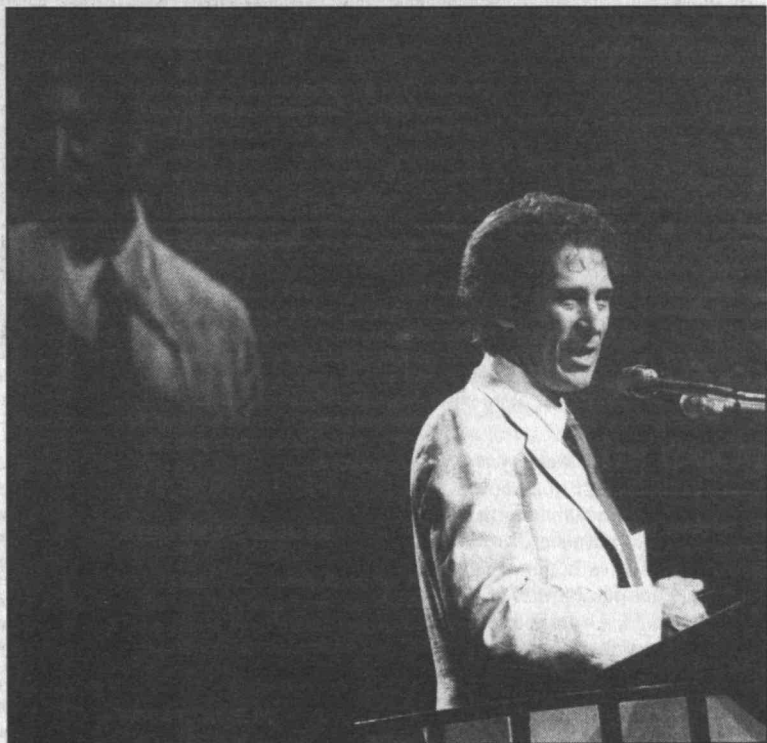
"I think that the current evidence suggests that the overall feedback ought to be negative [restraining warming]. And, indeed, if we were not caught up

in the politics of this problem, the normal response to the data and the models would be to intensify our search."

What to Do

Two MIT professors followed with brief remarks on what should be done, given our present incomplete knowledge. Professor of Management Henry D. Jacoby of the Sloan School said, "I don't think that we are near a circumstance with a strong enough consensus to justify imposition of panic. We are not anywhere near, I think, the political consensus that would allow us to pull real cost out of people to solve this problem. . . . I think we have to prepare ourselves for decades of work, and I think we have to pour more resources into that. The third thing we have to do is to buy options—primarily in the area of technology and institutional development. We're not going to severely restrict by regulation or pricing the use of carbon dioxide."

Dr. Nazli Choucri, Professor of Political Science and Associate Director of the Technology and Development Program at MIT, emphasized the importance of deciding first what criteria we should use to decide what to do. Her advice was to "increase options," particularly by stabilizing global population, promoting institutional resiliency and international cooperation, and establishing appropriate priorities for research.



Steven Schneider gives his side of the debate with his video image on a screen behind him.

Photo by Donna Coveney

according to Professor Prinn.

Prinn sharpened the debate: "Greenhouse gases are increasing today at very substantial rates. Projected into the future, these rates, when included in most current climate models, lead to predictions of a significant global warming over the next century, but are these predictions reliable?"

He showed the controversial variation of carbon dioxide concentration and air temperature plotted for the past 160,000 years, a graph that was determined from air bubbles in glacial ice. Superficially, the two curves look like they track one another remarkably well. But Prinn asked, "Is this a chicken and egg problem? Is carbon rising merely because temperature is rising and the biosphere responds, or, is the temperature rise itself due to changes in carbon dioxide? We don't have an answer to that yet."

Warming: Better than Even Odds

Arguing in the affirmative on warming, Dr. Stephen Schneider spoke on the reliability of climate models: "The real question isn't whether they are reliable, yes or no," he said. The main issue is what decision-making purposes the models will be used for—"reliability for what," as he put it.

"I'd love to tell you we've made

bility of these curves and the answer is it depends on the intuition of experts. . . . It's probably a better than even bet, according to most people who I've asked, that the truth will be somewhere in this part of the range [2°C increase]. My own view is that it's not likely to be up at the catastrophic end or at the low end—when I say not likely I mean maybe a 10 percent chance."

"Are the models reliable? . . . In detail, 'no.' I'll join [Dr. Lindzen] in that. On the other hand, are they reliable to say that we have a better than even chance that there could be unprecedentedly large climate change [larger than 2°C]—when I say unprecedented, I mean in the 10,000 years of human civilization, then I think the answer is 'yes.'"

"Facing 50 percent or so odds of that kind of change is a reliable enough prediction in my value system to take quite seriously that we need to examine what we're doing that's causing these global changes that Ron Prinn showed, rather than waiting the 10 or 20 years to resolve the details."

Minimal or No Warming Likely

Speaking of the great difficulties inherent in computer modeling of climate, Professor Lindzen said, "I think the situation as we look at it today is

WRITING PROGRAM

Williams Takes '22 CD Chair

Dr. Rosalind H. Williams, associate professor in the Writing Program, has been selected as the next holder of the Class of 1922 Career Development Professorship. She will hold the chair until June 30, 1992.

A writer and researcher on the history of technology, she is the author of *Notes on the Underground: An Essay on Technology, Society and the Imagination* (MIT Press, January 1990) and *Dream Worlds: Mass Consumption in Late Nineteenth-Century France* (University of California Press, 1982).

Dr. Williams holds the PhD from the University of Massachusetts, Amherst (1978), the MA from the University of California, Berkeley (1967), and the BA from Radcliffe College (1966).

She joined MIT in 1983 as a lecturer in the Writing Program and was appointed to assistant professor in 1985 and to associate professor earlier this year. From 1980-82 she was a fellow in the MIT Program in Science, Technol-



Dr. Williams

ogy and Society.

In 1989 Professor Williams was elected to the Editorial Committee for

Technology and Culture and will be chairwoman of the committee starting this year. She has served on the Academic Advisory Committee for the Hagley Museum and Library (Wilmington, Del.) and is also a member of the Advisory Committee for the environmental initiative of the Massachusetts Foundation for the Humanities. She is a member of the Dexter Prize Committee of the Society for the History of Technology and chaired the group in 1988.

Voice Mail Tip

Q: Is there a way I can bypass all the introductory talk when I enter my voice mailbox to retrieve messages?

A: Yes. After you dial VMAIL (8-6245) and enter your password, press # and 1. This puts you directly into message review.

Classified Ads

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

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

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

Deadline is noon Friday before publication.

■ FOR SALE

Mint brocade French provincial chair, v gd cond, \$100 or bst. Diane x3-4909.

Electronic treadmill (Pacemaster), state of the art quality, dig read-out (miles/calories), inclines up to 10°, only a few mos old & nvr used due to back injury, orig \$1600, now \$1250. Call x3-4698 lv mssg.

Electric dryer, 6 yrs old, white, Westinghse, gd cond, \$95. Call 648-6389.

Camp Trails internal frame pack, 4000 cu in, \$100; EMS sleeping bag rated to -5°F, \$50; both used only 3x. Frank x3-5692 or 864-0965.

GE 10,000 BTU window air conditioner, \$150; 2 drwr metal file cabinet, \$15. Lim 494-6673.

Loveseat, \$175; sofa, 7', \$185; both exc cond; bookcase 24" x 6'h, \$35; bunk beds, solid oak, new matt, ladder, \$250; misc chairs & tables; oriental rugs, \$75-\$850. Call x3-3175 or 332-8251.

Sheerwood CD player, brand new, never used, \$150 or bst. Lisa x3-2828.

Japanese red maple trees, 3-5' tall. Paul x3-7487.

Evenflo infant car seat w/canopy, \$25; Emerson quiet cool air conditioner, 10,000 BTU, \$250 firm. Jan x3-2843 or 354-0121 aftr 6pm.

Futon, \$65; 3 rugs: pink 12x12', \$70; pink 9x6', \$30; blue 12x9', \$50; crib, \$70; high chair, \$18; 10-sp bicycle, \$35; desk, \$10; plants, mirror, blender. Arie x3-5971 or 621-2975.

Mac Plus w/ext disk dr, \$1050 or bst; ImageWriter II printer, \$300; 45 megabyte, ext, SCSI hrd dr, \$425 or bst; 20 megabyte, ext, SCSI hrd dr, \$300; ext kybd for Mac Plus, \$100; software, make offer or trade. Richard x5-8132 dorm.

Holmes 3-sp reversible window fan, used 1 summer, \$20; coffee table w/glass inlay top, \$55; sm rattan couch w/2 matching armchrs from Pier 1, \$125. Call x3-5983 or 484-3903.

Piano, upright F-sz, \$150; desk, solid wd, \$80; ski boots, W's sz 7, \$25. Call Richard x8-7083 or 876-1760 lv mssg.

Moving sale: chest of drawers, \$50; coffee tbl, \$45; standing lamp, \$30; reclining Lazy-Boy chair, \$60; all gd cond and negot. Nelson x3-8140 or 227-6268.

DEC Rainbow, model 100+B, 10 meg hard dr, DEC printer, assorted sftwr, CPM & MS/DOS, all for just \$900. Dave x5-9816 dorm.

IBM PC-AT w/2 high-capacity disk drives, Epson FX-80 printer, Apple IIc, 2 disk drives. Hedy Johannessen x3-6077.

Moving sale: matching 3- and 2-cushion LR sofas, Q-sz bed, twin sofa bed, DR tbl w/chrs, sm GE microwave oven, vac cleaner, sm elec ktchn appliances, humidifier, misc. Call x3-6675 or 232-4431.

NEC 42MB hd drive w/16-bit MFM controller, fits in 3.5" or 5.25" drive bay, mounting kit incl, will install for you. Mike x3-6015 or 876-7429.

Multitech 1200 baud external modem, \$60; PC Tools Deluxe utility sftwr version 6, \$60. Call 497-1479 aftr 5pm.

Roundtrip airline ticket, Boston-Miami, lv 6/13 afternoon; return 6/18 morning, \$200. Kathryn, x3-1704.

Moving sale: Q-sz futon, like new, \$60; dir chair, \$15; bkcase, 5 lvl, \$35; bkcase, 3 lvl, \$40; desk w/2 file drawers, price negot. Rhonda x3-5642.

Time-Life book series "Wild Wild World of Animals (20 books), \$80 or bst; "Great Ages of Man" (14 books), \$80 or bst; all bound hard cover. Michelle x3-4437.

■ VEHICLES

1973 Mercedes Benz 280, 6-cyl DOC, auto, a/c, 98K, body in gd shape w/distinctive lines, runs but eng nds work, lost space for restoration project, \$800 or bst reasonable. Mark 181-5575 (Haystack) or 508-453-1176.

1978 Datsun 210, auto, 2-dr, AM/FM radio, only 70K, nds carbtorator overhaul, bst offer. Call 926-2317.

1981 Toyota Tercel htchbk, 5-spd, a/c, 143K, must sell by 6/20/90, reg maint, nw clutch/brks/fuel pump. Cheryl 491-4971.

1981 Datsun 210, 2-dr, AM/FM radio, nw tires, head gasket, clutch, brakes, reliable, runs grt. Melanie x3-5951 or 646-9244.

1983 Buick Skyhawk, 80K, ps, pb, AM/FM/cass stereo, new struts/shocks, tilt whl, must sell, \$1250 or bst. Call 494-9364.

1983 Chrysler, 4-dr, gd cond, 32K, \$2800 or bst. Ronaldo Klein 617-277-3148.

1984 Toyota Corolla SR5, 5-sp, ps, pb, a/c, high mileage, nw trs, exc cond, \$2495. Call 899-9785 aftr 6pm.

1987 Jeep Comanche pick-up truck, 6-sp, bed liner, v low mileage, 6.6K, \$5800. Call 628-0902 aftr 5pm.

1987 Chevy Celebrity, exc cond, auto, ps, pb, a/c, digital stereo/cass, 79K, \$3950. Jacob x3-0995 or 576-1595.

1987 Hyundai GL, grt car, exc cond, 1 ownr, AM/FM, 5-spd, 30K, moving, must sell, \$3000. Call x3-0227 or 876-3596.

1988 Mazda B2200 pick-up truck, 5E-5 stretch cab, like new, 30K, ps, bed liner, Kenwd stereo, well maint, manual & records, 100K mi warr, book \$6550, must sell, make offer. Mike x2422 Linc or 508-448-2636.

■ HOUSING

Arlington: 5 rms, 2BR, quiet, 2 blocks to buses, shopping nrby, prkg, avail 8/1, \$860. Mrs Lee 646-8972.

Belmont: 4BR, C.E. Colonial, dead-end st, lrg fenced bkdy, in front of town park, ideal for kids, price reduced to \$229,000. Call x3-4191, x3-4315 or 484-5557.

Brookline: beaut Georgian home, 4BR, 4b, 2 frplc, furn/unfurn, all appl, laundry, hwdw flrs, fenced yd, quiet st, prkg, avail 7/1 - fall '91, \$2500/mo. Audrey Serra 734-2121.

Cambridge: summer sublet 7/1 - 10/1, betw Hvd & Porter Sqs, 1BR apt, comp furn, top flr, nice vw, \$650/mo. Call 354-2469.

Cambridge: Central Sq sublet now - 8/31, ktchn/bath, nr T, close to Purity Supreme, 15 min walk to MIT, \$280/mo. Chock x3-0928 lv mssg.

Cambridge: Fresh Pond, 2BR apt, modern, w/d, convenient to transportation, avail immed. Kathy x3-5746 or Doris 864-5554 7-9pm.

Cambridge: house avail 7/30-9/8, 3BR, LR, DR, 2.5b, ktchn, music studio w/piano, study, garden, deck, nr Porter & Hvd Sqs, \$325/wk. Earle or Ruth x3-4877 or 876-7821.

Cambridge: summer sublet w/2 grad students in 3BR modern spacious hse, w/d, d/w, 2b, prkg, yd, 7 min walk to MIT, \$450/mo. Mark x3-0375.

Cambridge: Inman Sq: July occupancy, 3BR apt to shr w/2MIT grad students, spacious ktchn in quiet nrhd, monthly lease, \$266.67/mo + util. Dan 876-4358 or email djconnel@MIT.

Cambridgeport: 2BR apt for rent, LR, ktchn, bath, 3rd flr of old Vict hse, close to MIT, shopping, T, on bus route, \$635 incl ht. Melinda x3-0909.

Cape Cod: S Yarmouth, 3BR home, well-furn, private area nr beaches, all amenities, July, Aug, Sept, \$600/wk. Nancy x3-1096 or 617-933-6741 eves.

Concord, MA: lrg country home, 5BR, 2b, w/d, d/w, 2-car gar, frplc, 2 acres adjoining conservation land, walk to yr-rd swim, tennis, \$1800/mo. Call 617-868-6856.

Maine: island cottage for 3, fishing village, ocean vw, fully equipped, mod bath, band concerts, quarry swimming, biking, walk to shops, grt restaurants, nature preserve, \$375/wk. Call x3-3490 or 547-1311.

New Hampshire: Goshen, cottage, black top rd, grt vw Mt Sunapee, some comforts, exc hiking, swimming, fishing, etc, \$200/wk. Call 508-369-4484 eves.

WEDNESDAYS

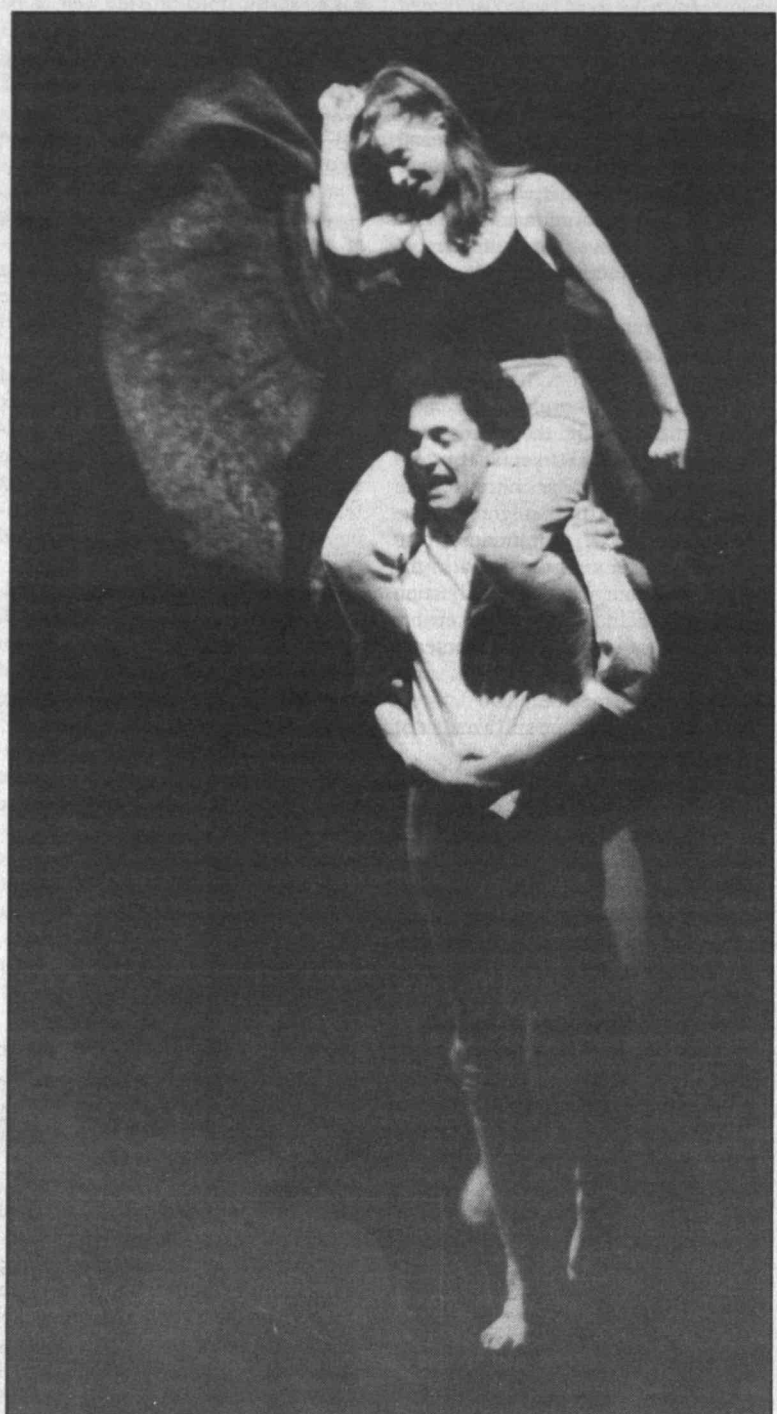
Summer Session Offers 'Leonardo'

Leonardo: Anatomy of a Soul, a multi-media performance event created this past January by MIT artists in residence from the Pilgrim Theatre Research & Performance Collaborative, will be presented on six Wednesdays during MIT's Summer Session.

The performance explores the bridge between art and science, using the notebooks of Leonardo da Vinci as its text. It evokes his passionate observations of the human body, the flight of birds, the movement of water, military strategies, painting, music, and engineering.

Projections from Athenian-born computer artist Yanna Logothetis act as counterpoint to the text and action. Sound sculptor David Atherton's digitally sampled score transforms the bells, lutes and liturgical chants of Leonardo's world.

Boston Review critic Jonathan Lipsky discussed Pilgrim directors Kim Mancuso and Kermit Dunkelberg as working in the manner that approaches theater as a method of investigation. He also said "Throughout the play, a parallel is drawn between the scientific and artistic explosion of Leonardo's era and our own. And out of the collage of



Kristen Kunhardt on the shoulders of Alex Cormanski, both from the Pilgrim Theatre's production of *Leonardo: Anatomy of A Soul*.

sound, movement, imagery, and words, an attempt is made to grapple with the tension between human aspiration and technological advances."

Performances begin tonight (June 13) and continue June 20 and 27, July 11, 18, and 25. All are at 8pm in Killian Hall. Priority seating will be given to Summer Session students. All available seats will be offered to the general public at 7:45pm, at a price of \$10. Information: x3-2101 or Pilgrim Theatre: 723-2170.

The work was premiered at the

Experimental Media Facility (The Cube) last January. The cast includes students and staff from MIT as well as Kim Mancuso and Kermit Dunkelberg, directors of Pilgrim Theatre and veterans of the international theatre company of the Second Studio, Wrocław, Poland. In August, *Leonardo: Anatomy of a Soul* will travel to the Edinburgh Festival in Scotland under the sponsorship of the MIT Summer Session and the Office of the Arts. It is also touring Cape Cod and Martha's Vineyard this summer.

New Hampshire: Loon Mt/Lincoln, vacation, avail July, Aug, Sept, 2BR, 2b, riverfront condo, slps 6, tennis, pool, clubhse on premises, reasonable rates wklys/wknds. Art x3-8395 or 472-8551.

Newtonville: 8 rm, 4BR, 2nd flr apt in quiet nrhd, 5 mins from train, mod ktchn, 1.5 baths, yd, 2 prkg spaces, avail 7/1, \$1400/mo. Call 527-5316.

Somerville: sm 1BR condo, w/d, d/d, balcony, frplc, gar, low condo fees, quiet bldg, on T, 3 mi from MIT, \$129,000. Call x3-7116 or 628-9024.

Vermont: Jay, secluded mountainside contemp chalet, 3BR, 2b, fully furn, frplc; hiking, fishing, relaxing; swimming, pool, tennis nrby, April-Sept, \$300/wk, \$750/mo. Sherry x3-7758.

Vermont: nr Woodstock, lux 3-lvl townhse, 2100 sq ft, 3BR + loft, on golf course, lake tennis, pool, all conveniences, sauna and jacuzzi in unit, summer & fall rentals. Call x3-1661.

Vermont, N: lakefront cottage avail June, maybe later, secluded wooded area, ideal for swimming, canoeing, fishing, hiking, relaxing, 1BR, LR, DR, deck, mod ktchn, bath. Call 617-354-4551.

Watertown: non-smkg F to shr 10rm, 3BR apt in hse, 2b, w/d, frplc, yd, porches, wooded st w/vw, nr Hvd Sq, Pike, on bus line, \$467/mo. Judy 926-6261 eves.

7 room apt for rent, nw ktchn/stove, \$1000/mo. Louie 868-3574 aftr 4pm.

1BR apt for rent, fully furn, newly renov, walk to MIT, poss rental prkg, avail June-Aug or for 1 yr. Kathy or Bill 497-5525.

■ WANTED

House-sitting position: 3 quiet, responsible, non-smkg grad students sk home in Camb/Somerville area from approx 9/1/90 - 8/1/91. Call 981-5500 x812-3379 Linc.

Wanted for 10/1/90 - 5/30/91: furnished apt or house for visiting scientist, prefer Cambridge. Dick x3-5745.

Wanted: driver(s) for Honda from Los Angeles to Connecticut leaving July 31. Prof Newman x3-6809 or 508-358-4698.

Wanted: 2 strong students to lift air conditioner for older woman who lives alone, \$10/ea for 10 minutes work. Call x3-7607 or 391-8045 eves.

Experienced housekeeper sks light cleaning, and experienced gardener sks high yeard maintenance: planting, weeding, edging, grass. Reasonable rates. Polly x3-7190.

■ ROOMMATES

Cambridge: 170 Webster Ave, lrg sunny BR in 3BR apt, avail 7/1, 10 min walk from MIT, shr w/2M rmmts in the fall or sublet till Sept, \$310/mo. Ira x3-1865 or 661-8517.

Waltham: 1 person to shr 2BR townhse w/professional M, a/c, prkg, free shuttle to Alewife, nr Rts 2 & 128, commuter rail, \$490/mo incl ht. Paul x3995 Linc or 893-2841.

HARDWARE/SOFTWARE

I/S Issues Computer Listing

Computers are a big investment, both in money and the time it takes to research products before you buy.

A new 250-page publication from Information Systems, the Catalog of Computer Hardware and Software at Selected Sites at MIT, can help you make informed buying decisions by tapping into other computing resources on campus. The Catalog identifies the specific hardware and software used by selected departments, groups, and offices at MIT. It also includes names of contact people who have agreed to provide vendor and product information, and, in many cases, hands-on testing.

What's in the Catalog? For the first edition, the Catalog database was built from 31 sites. The Catalog doesn't contain an exhaustive list of all computers or computer sites at MIT. The aim was to represent a rich mix of the hardware and software installed on campus. A general product index and

three indexed listings of computer systems, hardware, and software will help you find out what's being used at the sites. The data in the catalog is current. Over time, of course, sites will phase out some products and install new ones, but the setup of most sites shouldn't change significantly.

In the next edition of the Catalog, IS plans to include more sites, especially from research groups, and to have the data accessible via MITnet. Once the Catalog is on line, site managers will be encouraged to keep their individual site data current.

The Catalog costs \$5 (cash or MIT requisition). You can buy copies at the Microcomputer Center, Rm W20-021, or at IS User Accounts, Rm 11-205.

Copies are available for browsing in the Microcomputer Center, Rm W20-021, the I/S Training Center, Rm 11-206, and the User Accounts Office, Rm 11-205.

Will US Repeat History or Learn from It?

■ By John Wilson
Resource Development Office

Recently there has been a seemingly endless barrage of articles, books and a bill arguing for a new immigration policy in America. "We need more and better immigrants," they argue, citing the record-low population growth rate, the shrinking numbers of young adults and the swelling numbers of elderly Americans. These arguments usually suggest that we import scientists, engineers and entrepreneurs to address the impending shortage of American talent.

Such concerns are valid because they get at the human-capital issue, which is so vital to the quality of our country's future. The advocates for refining and relaxing immigration sanctions seem to be appropriately concerned about our productive viability as a nation in a new and highly competitive global economy. But there is a time bomb inside of this argument, and

it is set to explode the notion of a smooth immigration-aided trek to a bright future.

Indeed, it may be wise to seek help from abroad. However, an aging population is not the only American demographic pattern about which to be concerned. More compelling is the representation of minorities within American society. By the year 2000, more than one-third of the nation's school-age children will be members of minority groups. This fact alone signals a need to bridge the disturbingly widening gap between the current status of many minorities (characterized by alarming levels of underrepresentation both throughout the work force and the educational pipeline) and the opportunities that they must, out of demographic necessity, be in a position to capably fill.

The important question is whether the upsurge in selective immigration will be *supplemental* to the necessary efforts to provide a quality education for minorities, or will it be *substitutional* for those efforts?

Is it alarmist to be concerned about such matters? Not at all. The legitimacy of the concern is best illuminated by its historical precedent.

At the turn of the century, when the Industrial Revolution was gaining strength, the leaders of America's budding corporate/industrial sector had a choice similar to the one that today's corporations have and will continue to have. When faced with the prospect of recruiting and employing a Southern-based African-American population eager to migrate north, they chose to urge a change in US immigration policies making European immigrants the preferred workers. The record shows that between 1840 and 1880 roughly eight million Europeans entered the country; however, between 1890 and 1930 the process of Northern industrialization required and drew over twenty-three million Europeans.

As a consequence, strides in public education were made for the newcomers, while the overwhelming majority of African-Americans (85 percent) would remain confined to oppressive

conditions in the South. Restrictions on their mobility were eased only after the heightened mechanization of agriculture, well after World War I. By the time large numbers of African-Americans came north (1940-1960) they were relegated to the margins of urban communities, where so many continue to languish.

Thus, at the turn of the century, given a choice between developing "our own" for the employment opportunities or recruiting abroad to fill those jobs, the fledgling American industries opted for the latter. Query: will the same choice be made by corporate America as we approach a new century? Will history repeat itself?

History will not repeat itself if we make the bold decision to fully develop all of our own American citizens. Clearly, the improvements needed in American education are system-wide. The system is failing all children, not just minorities. But as the Carnegie Quality Education for Minorities Project points out, by first focusing on the

traditionally undereducated in America, "we can create a new kind of learning system that recognizes the value and potential of all children."

In short, once again our nation is unquestionably at one of those peculiar but distinctly critical junctures where we can either shamefully repeat history or wisely learn from it. If we replay the same mistake we made at the turn of the last century, it is uncertain what kind of society Americans will be able to look back on as we near the end of the next century. But if we have learned anything from history and if racial harmony is still an American ideal, we will have to recognize that this juncture provides no better opportunity for making significant strides.

(This essay by John S. Wilson Jr. originally appeared on the op-ed page of *The Boston Globe* Monday, May 21 and is reprinted here with the author's permission. Mr. Wilson is assistant director of corporate development at MIT. He also teaches in the Afro-American Studies Department at Harvard University.)

COURSE III

Pal Takes Chipman Chair

Dr. Uday Pal has been named to the faculty in the Department of Materials Science and Engineering as the John Chipman Assistant Professor.



Professor Pal

The announcement was made by the department head, Dr. Merton C. Flemings, Toyota Professor of Materials Processing.

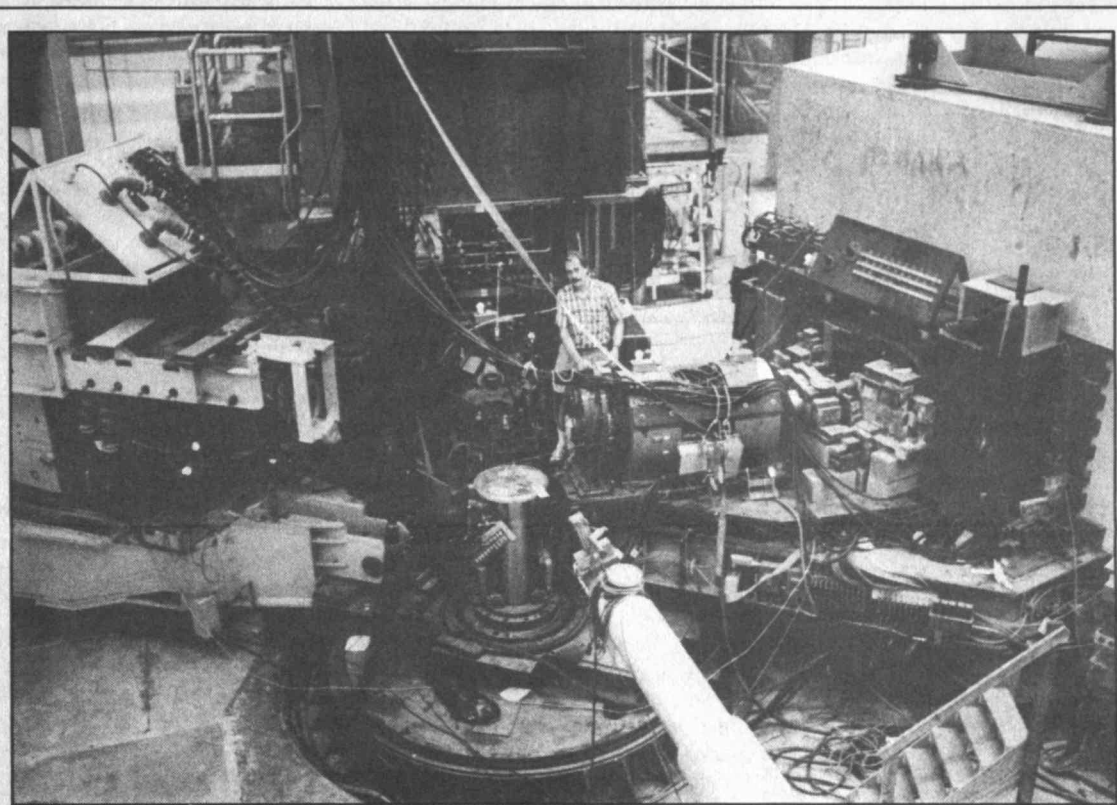
Professor Pal will focus his research in the area of chemical processing of materials.

Professor Pal holds a bachelor's degree in metallurgy from the Indian Institute of Technology (1980) and the PhD in materials science and engineering (minor in computer science) from Pennsylvania State University (1984).

He received the Xerox Research Award (1982) and the Arco Award for Academic Excellence (1981). He is a member of Tau Beta Pi, the National Engineering Honor Society; Alpha Sigma Mu, the National Materials Science and Engineering Honor Society; the American Society for Metals, the American Ceramic Society and the Electrochemical Society.

Since November 1986 he has been a senior scientist at the Westinghouse Research and Development Center in Pittsburgh. From 1984 to 1986 he was a senior metallurgist at Allegheny Ludlum Corp.'s research center in Brackenridge, Pa.

Professor Pal has six patents to his credit, the first issued in 1987 and the most recent ones in February and May of 1989.



Research activities in MIT's Laboratory for Nuclear Science will be highlighted at the Twelfth International Conference on Particles and Fields (PANIC XII), June 25-29 at MIT. Above, at LNS's linear accelerator in Middleton, Mass., Dan Preger attends the south hall spectrometer particle detector.

Photo by Donna Coveney

COURSE III

Professorship Honors Alumnus

MIT and Allegheny Ludlum Corporation have announced a professorship at MIT in honor of Richard P. Simmons, chairman of the Board of Directors of Allegheny Ludlum, an MIT graduate and a member of the MIT Corporation.

The Richard P. Simmons Chair in Metallurgy was made possible through a gift of \$1.5 million from original shareholders who joined in taking Allegheny Ludlum private in 1980 and the Allegheny Ludlum Foundation. The establishment of the Chair, which will be located in the MIT Department of Materials Science and Engineering, was announced to Mr. Simmons on May 18 as he stepped down as Chief Executive Officer of Allegheny Ludlum.

President Paul E. Gray of MIT said the new professorship signifies Allegheny Ludlum's "commitment to the advancement of knowledge and to the education of tomorrow's leaders in materials science and engineering." In addition, he said, "It vitally responds to the Institute's growing need to help strengthen our nation by attracting and retaining first-rate faculty for our students."

The Materials Science and Engineering Department at MIT "is one of the largest and strongest in the country, providing leadership in both research

and education in metallurgy and metallurgical engineering," Dr. Gray said.

The department has a strong metallurgy program, he noted, with about one-third of its seniors concentrating their studies in physical metallurgy, chemical metallurgy and metals processing. At the graduate level, the department offers some two dozen subjects dealing with metallurgy and metallurgical engineering. The department graduates some 40 undergraduates and 50 graduate students each year.

President Gray said the gift honoring Mr. Simmons was particularly appropriate in view both of his leadership and innovation in the steel industry and his loyalty to MIT. "His singular contributions in building strength and dynamic growth at Allegheny Ludlum are marvelous advancements which stand as models for American industry," Dr. Gray said.

Mr. Simmons began his career with Allegheny Ludlum in 1953, the year he received a SB degree in metallurgy from MIT. In the following decade he held management positions with Republic Steel Corporation and Latrobe Steel, returning to Allegheny Ludlum in 1968. He was named president of the company in 1972. After operating as a private company beginning in 1980, Allegheny Ludlum became a public

company traded on the New York Stock Exchange in 1987. Allegheny Ludlum is a major producer of specialty materials based in Pittsburgh, Pennsylvania.

Mr. Simmons is a director of several companies, including Allegheny Ludlum, PNC Financial Corp., Pittsburgh National Bank and USAir Group, Inc.

He is a trustee of Sewickley Valley Hospital, Penn's Southwest Association, University of Pittsburgh and The Carnegie Foundation. His civic and charitable directorships include the Pittsburgh High Technology Council, United Way, Pittsburgh Symphony Orchestra, Boy Scouts of America and Allegheny Conference on Community Development.

He was elected to a five-year term on the MIT Corporation, which serves as the Institute's board of trustees, in 1989. He has been a member of the Corporation Development Committee since 1975 and he served on the Visiting Committee for Materials Science and Engineering from 1976 to 1985. He was a reunion gifts chairman for the 20th reunion of his class in 1973 and a director of the MIT Club of Western Pennsylvania in 1977-80. He is a Life Member of the MIT Sustaining Fellows and he received an MIT Corporate Leadership Award in 1976.

BATES GRADUATE

Eusden Named in Community Relations

Sarah J. Eusden of Brighton, who worked seven years for the city of Boston in agencies dealing with housing and neighborhood development, has begun work at MIT as assistant for government and community relations in the office of Ronald P. Suduiko.

Ms. Eusden will help plan and implement a diverse program for government and community relations, according to Mr. Suduiko, assistant to the president in those areas. She will concentrate on relationships with the local government, public and private agencies, and community groups, he said.

Ms. Eusden received a bachelor of arts degree in political science from Bates College in 1983 and a master of business administration degree from Boston University in 1989.

Since 1988 she has been assistant director of housing rehabilitation services for Boston's Public Facilities Department. Earlier, she was assistant director of contract administration and operational systems manager in that



Ms. Eusden

department. She also has been an internal auditor and public service monitor for the city's former Neighborhood Development and Employment Agency.

Vice President Discusses MIT's Research Mission

(Kenneth A. Smith is associate provost and vice president for research at MIT. Following is an interview Naomi F. Chase, Assistant Director of the News Office, conducted with Dr. Smith concerning the overall thrust of research at MIT.)

NFC: How much of MIT's budget is sponsored research?

KAS: MIT's on-campus sponsored research this year will total about \$300 million. That's 50 percent out of a total on-campus budget of approximately \$600 million.

NFC: What are the most important considerations for MIT about sponsored research?

KAS: Whether or not it's appropriate research, and, in particular, whether or not it is appropriate to MIT. A lot of valuable research will not contribute toward the education of young people. If that's the case, we should not engage in it. For example, it could be inappropriate for education because it's too short range, too large scale, or because of what it would take to implement it.

NFC: Have we turned down research for those reasons?

KAS: We have certainly decided not to seek certain kinds of research for those reasons. For instance we decided that the software institute that DOD (Department of Defense) wanted to place at a university several years ago, and did eventually place at another university, was inappropriate here. We've also decided that we shouldn't run a fusion machine on this campus much larger than the ones we have now.



NFC: Recently MIT turned down a very big research project involving transportation that eventually went to another university. Why did we turn that down?

KAS: It was an interesting project but it was too commercial. There's a lot of dollars, obviously, and there's some interesting software development involved. But I thought that too large a fraction of the effort would be engaged in just developing it, as opposed to learning something from it. I was also concerned that we would be too constrained in the ability to disseminate results.

NFC: Because it's commercial?

KAS: No, because the defense aspects could limit dissemination.

NFC: Where does money for sponsored research come from?

KAS: The largest single sponsor of on-campus research is the Department of Energy (DOE), which provides about 19 percent; then the Department of Health and Human Services (DHHS), about 18 1/2 percent. The lion's share of that is the National Institutes of Health (NIH) I think HHS is destined in a few years to be the largest sponsor of on-campus research. Third is DOD, about 17 percent; then industry, 15 percent; National Science Foundation (NSF), about 14 percent; and NASA with about

five percent. The rest, mostly combinations of non-profits, is in the ballpark of eight percent. It's remarkable that we have as many important sponsors as we do without depending on any single one. I think that is a strength.

NFC: Was that calculated?

KAS: No. I wish we could take credit for it.

NFC: Would you take pains to maintain that distribution if it were threatened?

KAS: I'd love to see it maintained, but I think our ability to influence it, if there were to be major impacts, would be extremely limited. For instance, we have two major DOE contracts: one at the Plasma Fusion Center and one at the Lab for Nuclear Science (LNS). If, for some reason, the DOE should decide to get out of the fusion business, our ability to influence that decision would be zero.

NFC: If that happened, would MIT pick up the tab?

KAS: No. We would have to get out of that business. We'd try to phase it out. There I think we might have some control.

NFC: In other words, we are very dependent for the kind of research we do on who pays for it.

KAS: Yes, there is no totally benign patron.

NFC: They are all like the Borgias.

KAS: Exactly.

NFC: Which are some of the more interesting or significant research projects, and how do they originate? For example, we know that crystals are important in research and that there are not enough Americans growing them. Suppose MIT decides we'd like to grow them, but we need outside money to do it. How would we go looking for it? Could we go looking for it?

KAS: That is a difficult one, and therefore, in some ways, a good example, because it shows the different tensions that exist. The ability to grow crystals has been quite important for the conduct of good physics in semiconductors and other solid state materials. It's hard work, and doing it does not garner a lot of glory for the researchers. It's not the sort of thing for which you would hire a faculty member and make a 30 year commitment to a tenure position.

NFC: Because it's not glamorous?

KAS: Right, and because the need may not be constant for 30 years. Yet to do good physics, it's critical to have good crystals. MIT has done better than most US universities there. We've maintained a good crystal growing effort within the Center for Materials Science and Engineering with very strong non-faculty research staff. That put us in a very strong position when the high temperature superconductivity came along.

The people here hadn't been working with those materials previously, but they could switch over to them and grow the best material in the US faster than anybody else, by far. That led some of our theoreticians to suggest experiments which provided very early insights concerning the fundamental physics. We were there before the fact, partly by luck, and partly by foresight. But we were there.

NFC: What are some of the most interesting sponsored research projects at MIT?

KAS: One of the most exciting programs we've had in the last ten years is in brain and cognitive sciences. For the first time we have a chance to understand how the mind works at the molecular, algorithmic levels. We are exploring how the mind processes and integrates individual bits of information, and then derives a concept from those bits. Why is it that I am not aware of seeing every hair on your head, but I



instead integrate over them and perceive a head in its entirety?

NFC: How does that happen?

KAS: There are a number of individual molecular events which start with a photon hitting the retina. We are looking at the kind of chemical change that results and how that propagates through other chemical and electrical changes to a variety of neurons in the brain. The optic nerve alone has a million neurons coming out of the back of each eye. How does all that information get processed? What rules are used to process it? And finally, how does that result in an integrated concept? In the last ten years, we have made enormous progress in each of those areas.

NFC: Are we a key place for doing research in these areas?

KAS: Yes. We are perhaps premier in research on vision.

NFC: Do we have a real chance of solving some crucial problems in that area? If so, could you predict when that might be and tell us what's involved?

KAS: It's important to separate issues of disease from issues of understanding events. Along with the process of understanding there is always the hope that we will be able to do something about Parkinson's, Huntington's or Alzheimer's, multiple sclerosis, and other neuro-degenerative diseases.

NFC: Are we working on all of those?

KAS: With the exception, perhaps, of MS, which is an auto-immune disease, we're working on all of them. For instance, Sue Corkin is working on problems related to Alzheimer's. Some of Ann Graybiel's work is related to Huntington's. Thus, there has been work on certain disease etiologies, but the main thrust has been on understanding events rather than on disease. Eventually they'll shed light on disease much as molecular biology has. I think Alzheimer's and Huntington's are more likely than schizophrenia or manic depression to yield first.

NFC: Were those projects initiated by the NIH, or did somebody at MIT say, "This is really fascinating. Where do I get the money to explore it?"

KAS: It's a complicated feedback. For example, NIH sees some important advance here or at other key research labs and that convinces them to provide a little more research funding in that area. That leads to another advance, and so forth. That's been the pattern over the last decade. It's no mistake that the Howard Hughes Medical Institute has chosen brain research as one of its key areas.

NFC: Is this an example of an area where universities like MIT have been accused of giving away government sponsored research?

KAS: Not yet.

doesn't make a big impact on certain specific projects. This example also shows that what happens here at MIT is a real reflection of what's going on in society. And what's considered important.

NFC: Is that true at other kinds of universities? And is it true in areas other than research?

KAS: It's surely true in areas other than research. You see it in education, you see it in what the students want, you see it in what the faculty want to do. We influence society and we are influenced by it.

NFC: I guess that's like saying it's hard to keep on teaching Latin if nobody wants to learn it?

KAS: Right. So, yes, our interaction with society is important in lots of areas, not just research. In the context of research, I think it's more important for engineering than it is for science. Science tends to look at fundamentals, and is therefore somewhat insulated from swings in what society believes its needs might be. Engineering, by definition, is intended to help society address its needs.

NFC: What should we be most concerned about in the area of sponsored research?

KAS: I'm most worried that we may become a victim of our success. And by "us" I don't mean just MIT, but the whole US university research enterprise. That enterprise has been enormously successful. We complain a lot about the short rations that are given us, but in some ways we've been treated better than a lot of other segments of this society, and we shouldn't forget that.

It's also true that our research successes have by all measures been very important to the US economy. Every important industrial country, whether it's West Germany or the UK or Japan, wishes it had a university research enterprise that is as vigorous as ours. I don't think there's a lot of debate about that, in the Congress or anywhere else. It's partly because we're so successful that we find ourselves hit around the head and shoulders on all these other issues: how much of our research is leaking abroad; is the public getting its fair share; are we conducting our animal research ethically; is our use of human subjects appropriate? And then there are all those issues of fiscal accountability.

The demands for accountability of all kinds will increase. As they do, I'm concerned that we may all forget what made the system work, i.e. the conduct of education and research as a single effort. If we get pulled away from that, distracted by short term research and issues of accountability, then we'll lose it all. And yet the whole reason that people are focusing on us and asking us to be accountable is that they agree we've been successful.

It's a paradox, but my greatest worry is that we'll be distracted by all the brush fires and lose sight of what's really important.

NFC: Are questions of guidelines or conflict of interest as they relate to sponsored research applicable here?

KAS: Sure, because this research will have an impact on disease, and therefore there's a commercial impact.

NFC: The question of how much of our sponsored research money comes from industry became an issue in the media this year. Do we have any ceiling on that?

KAS: We have no specific guidelines on that but we've stayed under 15 percent and I don't think we're going to grow much beyond it. However, I think it's important to discuss the significance of industrial support for students, particularly in the School of Engineering. Those are students who by and large go to work for industry.

It's useful for them to have an exposure to what industry believes to be important values before they leave MIT. Industrial support tends to influence values and attitudes of both the faculty and the students precisely because no patron is benign. The same thing holds for government supported research.

NFC: Could you give me a specific example in government or industry of how the patron's attitudes and values are important either in being accepted or questioned?

KAS: In the sixties, support was predominantly federal. The federal agencies that supported research in the School of Science and in the School of Engineering were interested largely in science—and that interest was an important factor in the evolution of the notion of engineering science. Conversely, lack of government support made activities such as engineering design more difficult to conduct on a campus, any campus. There was a certain unhealthiness to that situation, because engineering has a role in its own right, which is somehow to make science more useful. By and large government hasn't played that role very well.

So in that context I think industrial support is very useful precisely because it influences attitudes, even if it

