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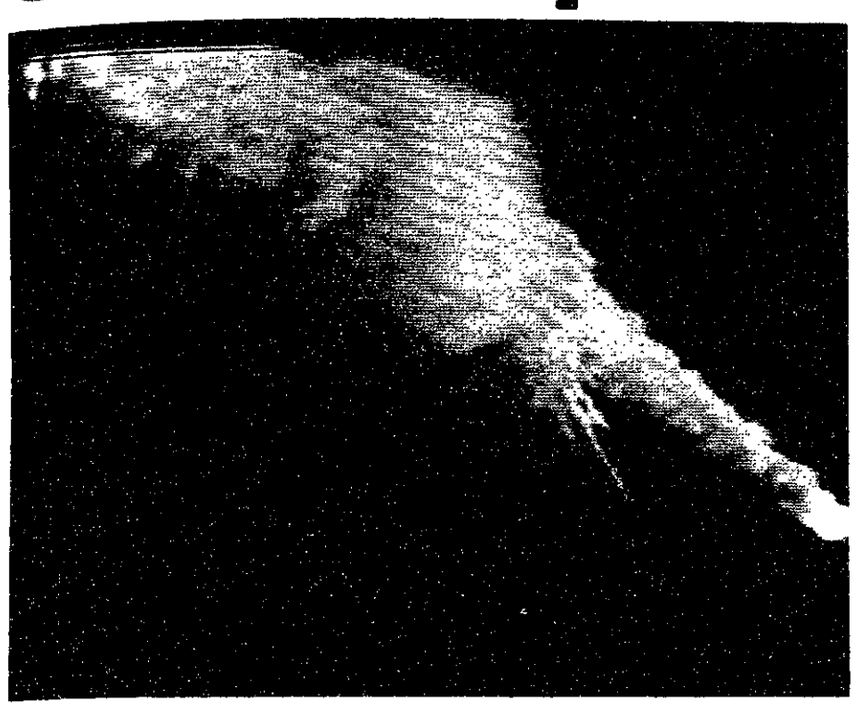
The Tech

MIT
Cambridge
Massachusetts

Wednesday, January 29, 1986

Shuttle explodes moments after launch



Used with permission of WCVB TV
The space shuttle Challenger seconds after the explosion.

MIT grad McNair among seven presumed dead

By the *Tech* staff

Ronald E. McNair PhD '76 was among seven astronauts who died when the space shuttle Challenger exploded minutes after its launch from Florida's Kennedy Space Center yesterday morning.

The crew included Air Force Maj. Francis R. Scobee, the shuttle commander; Navy Cmdr. Michael J. Smith, pilot; Dr. Judith A. Resnick, mission specialist; McNair, mission specialist; Gregory B. Jarvis, payload specialist; Air Force Col. Ellison S. Onizuka, mission specialist; and Christa McAuliffe, payload specialist.

Text of President Ronald Reagan's eulogy of Challenger's crew, **Page 9.**

McNair, the second black American astronaut in space, did his graduate work in physics at MIT's Spectroscopy Lab.

McAuliffe had been selected by the National Aeronautics and Space Administration (NASA) Teacher in Space Program from over 11,000 applicants to become the first private citizen in space.

The shuttle lifted off flawlessly at 11:38 am, apparently unaffected by the equipment problems that had earlier plagued Challenger and caused a launch delay.

One minute and 12 seconds into the flight, Scobee notified Mission Control: "Roger, go to throttle up," signifying the application of full throttle, and maximum stress, to the Challenger.

This transmission was the last heard from the shuttle.

The unused, highly-explosive

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Ronald E. McNair PhD '76. Photo courtesy NASA

Ronald E. McNair

Ronald E. McNair PhD '76 is one of seven astronauts believed killed in yesterday's crash of the space shuttle Challenger. McNair, who came to MIT as a Ford Foundation fellow, specialized in chemical and high-pressure carbon dioxide lasers. He performed some of the earliest experiments in laser spectroscopy; Michael S. Feld '63, his thesis advisor, now directs the Spectroscopy Lab where McNair completed his graduate work in physics.

An interview with McNair about the personal growth involved in meeting challenges appears on page 19.

Originally from Lake City, SC, McNair earned a bachelor's degree in physics from North Carolina A&T State University in 1971, where he was a Presidential Scholar. He spent his junior year with the MIT physics department through a special MIT exchange program.

McNair joined the physics staff of the Hughes Research Laboratories after leaving MIT. The National Aeronautics and Space Administration selected McNair as an astronaut candidate in 1978, and he completed his training in 1979.

He made his debut in space on Feb. 3, 1984, as a mission specialist on board Challenger Flight 41B. The crew tested the jet backpacks used to repair the Solar Max satellite last year, and McNair controlled the shuttle's mechanical arm which aided in the testing. He was the second black American in space.

McNair held a fourth degree black belt in karate and played saxophone for a jazz band.

He is survived by his wife, Cheryl Moore, and his son Reginald, who will be four next month. He was 35 years old.

MIT reacts to shuttle crash

By the *Tech* staff

Yesterday's crash of the space shuttle Challenger will set back the National Aeronautics and Space Administration's (NASA) shuttle program by "anywhere from six to twelve months," said Joseph H. Binsack PhD '66, associate director of MIT's Center for Space Research (CSR).

Several other researchers at MIT responded similarly. CSR Director Gordon H. Pettengill '48 predicted that NASA will not launch any more space shuttles until it determines the cause of the accident.

NASA will probe for a good explanation of what caused Challenger to explode, Binsack said. Once NASA has identified the source of the explosion, it will search for a way to ensure that such an incident does not happen again, he continued.

"No one in their right mind would go ahead with the space program without analyzing the data and coming up with some very good hypothesis of what happened," Binsack said.

NASA had planned 15 shuttle missions for this year. It will probably cancel all of the missions in the next couple of months, Binsack said.

Binsack and Pettengill would not speculate on what might have caused the apparent explosion of the Challenger's main fuel tank. "We don't get involved with the propulsion systems," Pettengill said.

"We've been watching the films just like everyone else," Binsack added. "There's just a lack of information so far."

George L. Sarver III G, a student at the MIT Space Systems Laboratory, said he and his col-

(Please turn to page 8)

Cambridge evaluates MIT's nuclear reactor

By Earl C. Yen

An *ad hoc* committee appointed by the Cambridge City Council has begun a safety investigation of MIT's nuclear reactor, according to David B. O'Connor, director of the city's Department of Emergency Management and member of the committee.

"There's been an increase in international terrorism, and in light of world events, the study is an excellent idea at this time," O'Connor said.

Located at 138 Albany Street, MIT's five-megawatt research facility uses weapon-grade, highly-enriched uranium (HEU) fuel. It is the second largest university research reactor in the United States. The largest one is at the University of Missouri at Columbia.

City councillor David E. Sullivan '74, who requested the investigation at the Nov. 18 meeting of the City Council, was concerned that the reactor might be vulnerable to an accident or a terrorist attack.

"You've got a nuclear reactor with bomb-grade fuel sitting in one of the largest metropolitan areas in the United States," Sullivan explained in an interview with *The Tech*. "Naturally, you want to know what the safeguards are. The reactor could be a significant public health and safety hazard. The city has the authority and responsibility to address these issues."

Lincoln Clark, Jr., associate director of the 28-year-old reactor, said MIT will cooperate with the city's investigation. The reactor presently follows the security

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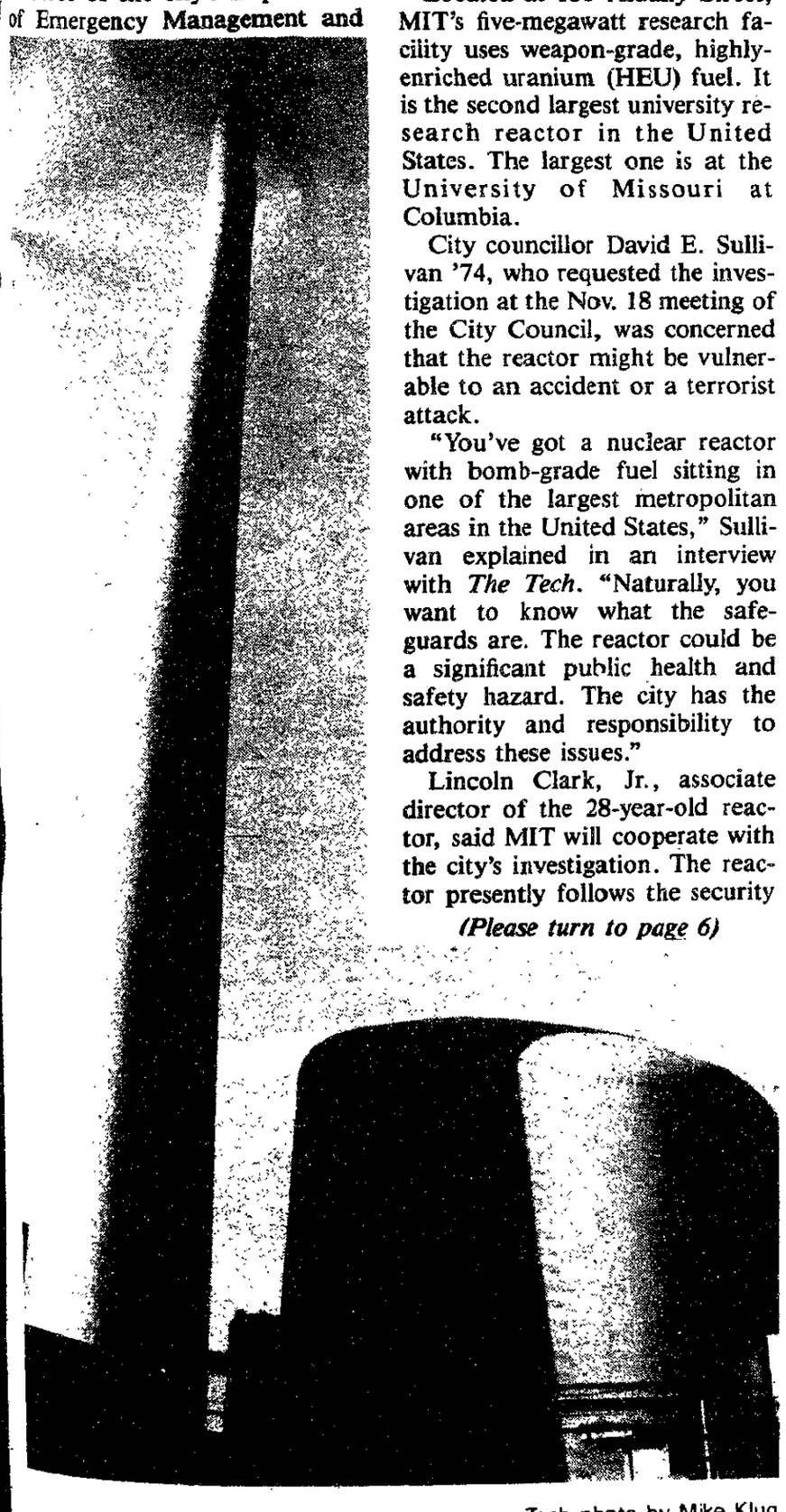

Tech photo by Mike Klug
MIT's research nuclear reactor on Albany Street.

Group revises pornography policy

By Andy Fish

First of two parts.

An advisory committee has proposed a revision of MIT's policy on sexually explicit films which would exempt educational presentations from the policy's restrictions and change the composition of the pornography screening committee.

The draft is only an intermediate step in the revision process, according to Janine M. Nell G, president of the Graduate Student Council and member of the advisory committee. The GSC and the Undergraduate Association (UA) are sponsoring a Feb. 5 forum to discuss the proposed policy.

UA President Bryan R. Moser '87, another member of the advisory committee, emphasized that the proposal "could completely change" following the forum. The UA and GSC would revise the policy based on student input, he said. "The new policy is coming from the students."

The group which proposed the revisions included Nell; Moser; Finley R. Shapiro G and Associate Professor of French Isabelle de Courtivron, members of the Committee on Student Affairs; Campus Activities Advisor Barbara M. Fienman; and Dean for Student Affairs Shirley M. McBay.

The present policy, created by the Office of the Dean for Student Affairs in August, 1984, provided for a committee to screen all x-rated or unrated sexually explicit films prior to public showing on campus.

Proposed changes

The advisory committee recommended several revisions.

● Composition: The statement alters the screening committee's composition by (1) removing explicit membership of student groups such as the Lecture Series Committee and (2) mandating equal representation of men and women. The screening committee has consisted of three LSC members, three other students, three faculty members, and three staff members.

There would no longer be any positions reserved for LSC mem-

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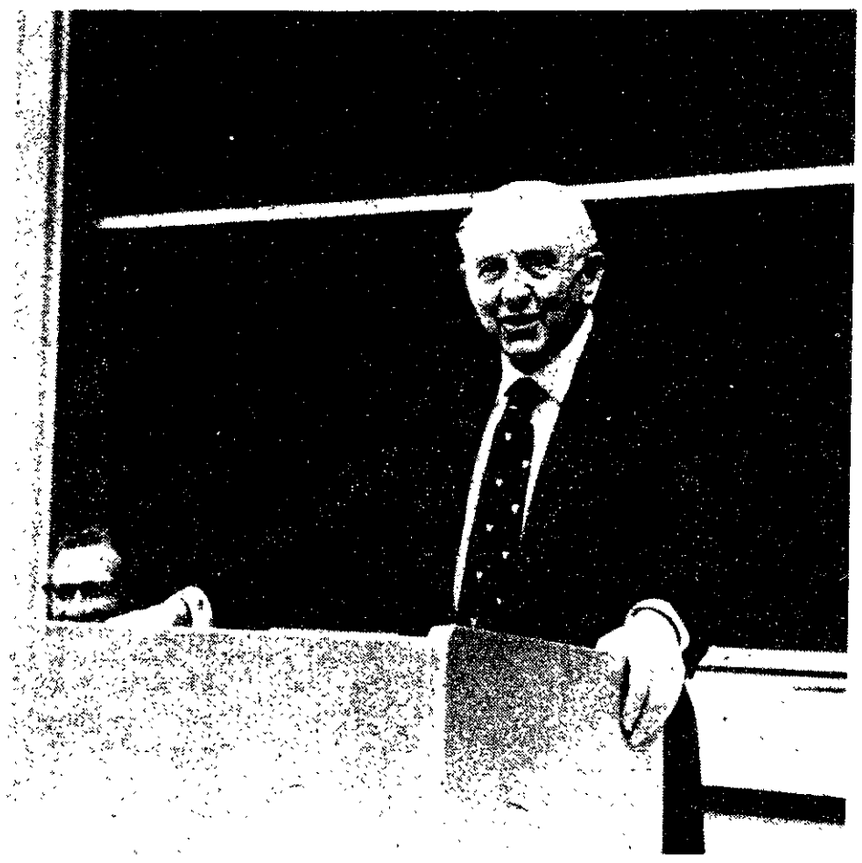
inside



Tech photo by Stephen P. Berczuk

Nobel laureate Franco Modigliani.

Students call MIT unreceptive

By Jeffrey C. Gealow

"Students aren't taken very seriously by administration and faculty" in policy considerations, according to Undergraduate Association President Bryan R. Moser '87.

Moser's remark arose in a seminar on student participation in setting university policy which was sponsored by MIT Student Pugwash and the Program in Science, Technology, and Society.

Students lobbied the heads of the four *ad hoc* committees on educational reform [Humanities and Social Sciences; Engineering; Integrated Studies; and Science] for six months before they agreed to accept student members, Moser said.

Janine Nell G, president of the Graduate Student Council (GSC), said that when she requested graduate student representation on the educational reform committees, she typically met the response: "Why should a graduate student be interested in this? Don't they have better things to do with their time?"

Some MIT administrators believe that students are unable and unwilling to contribute to the work of policy committees, said Robin Wagner G, a member of the MIT Student Pugwash.

"Students are on these committees only because students have insisited that they have a role and a place in setting university policy," she said.

Students often believe their views have little influence on Institute policy, Wagner said. The administration then interprets the resulting silence as an indication of apathy, she continued.

Students can influence MIT policy despite these obstacles, Wagner stressed. All four *ad hoc* committees, including the Commission on Engineering Undergraduate Education, will have student seats because of student input, she said.

Nell offered several channels available to students for input including: GSC committees, membership on Institute and faculty committees, talking to the MIT deans, writing letters to the editor of *The Tech*, and talking to students with speaking privileges at faculty meetings, such as the UA and GSC presidents.

Wagner added that students can ask professors to write about student views in the mailing sent prior to each faculty meeting.

Carolyn Lee G agreed that students should write letters to *The Tech* concerning university policy. "If you have something to say that is provocative, there will be replies. Instead of having one lone voice, you've created an issue," she explained.

A seminar will be offered this spring for students interested in academic reform at MIT, Moser said. The seminar, STS S08 Student Perspectives on Educational Policy and Reform, will critique the work of the current educational policy committees, he said.

Modigliani addresses deficit

By Donald Varona

Institute Professor Franco Modigliani, winner of the 1985 Nobel Prize in economics and a self-described "reasonable" economist, suggested last Wednesday that an immediate federal budget cut would be a preferable solution to the US federal budget deficit.

A budget cut would be preferable to an increase in taxes, Modigliani claimed, and an immediate budget reduction would be better than future cuts as proposed by the Gramm-Rudman legislation. Reducing government outlays means that the United States would not be spending more than it earns.

Modigliani opened with a short review of recent economic history of the United States and his views on its economic policies, followed by commentary on the budget and the trade deficits, on inflation and the strength of the dollar on the foreign currency markets.

The enthusiastic 69-year-old professor explained to an almost full house the necessity of unemployment in slowing down inflation. "There are basically two ways to break the inflation spiral: reduce wages and produce a slow but more costly recovery, or a brute force increase in unemployment which is more painful but has a quicker and more energetic comeback."

This "brute force increase in unemployment" occurred during the first years of the Reagan administration to stop the inflationary effects that lingered from the oil crisis, he said. This was more effective and much less damaging than the price-fixing which occurred during the Nixon years, he explained.

The existence of the debt is normal, he said; after every war, the United States has incurred a

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news roundup

Solar System

Uranus moon puzzles scientists — Miranda, the closest to Uranus of its five major moons, appears to combine the strangest geological features of planetoids in the solar system, according to pictures taken by the Voyager 2 spacecraft. Its surface consists of glacial flows, craters, deep fractures and long ridges, as seen in the Voyager flyby photographs. Scientists could not conclude whether its features were the result of internal or external forces. Other findings included evidence of an aurora in the Uranian atmosphere, and a strong magnetic field sharply tilted from the axis of rotation of the planet. Data taken from the dark side of the planet revealed that there are few small particles in Uranus' rings, which are rather composed of boulder-sized chunks of ice.

World

Jordan meets with PLO — Jordan's King Hussein met with Palestinian Liberation Organization leader Yasser Arafat to discuss possible routes to peace in the Middle East. Their talks centered on two United Nations resolutions that call for Israeli withdrawal from Arab territories occupied since 1967 and Arab recognition of Israel's right to exist. The United States has said it will not talk to the PLO unless it recognizes the resolutions, a condition that Arafat has rejected.

Ugandan rebels expand control — Rebel leaders reportedly consolidated control of Uganda, seizing the capital, Kampala, and the second largest city, Jinja. Jinja is the point at which road and rail links between Kampala and Kenya cross the Nile. Yoweri Museveni, leader of the National Resistance Army, told Western diplomats that he will try to form a broadly-based government soon.

South Yemen fighting continues — Arab diplomats said that fighting between rival Marxist factions in South Yemen apparently hasn't ended despite a rebel announcement that President Hassani has been ousted by Prime Minister Haydar Abu Bakr al-Attas. The whereabouts of Hassani are not known. No Arab country has yet recognized the new head of state.

Conservative leads Portuguese voting — Diogo Freitas do Amaral, a conservative founder of the Christian Democratic Party, took 46.6 of the vote in the first round of Portugal's presidential election. Former Prime Minister Mario Soares, a Socialist, beat out two left-wing rivals with 25.5 percent of the votes. The two will contest a runoff election Feb. 16.

Nation

Reagan riding high, but "realignment" unclear — President Reagan drew a 65 percent approval rating in the latest New York Times/CBS News poll, slightly more than Dwight Eisenhower and Franklin Roosevelt had five years into their presidencies. A range of political questions, however, failed to demonstrate the definite shift to the right in public opinion that conservative leaders have predicted.

One-sixth of women grads report sex with professors — One in six women graduate students in psychology say they were sexually intimate with a professor during their graduate training, and an additional 30 percent report unwanted sexual advances by a professor, according to a survey of 464 women in the current issue of *American Psychologist*. The most common sexual partner was the woman's primary advisor or supervisor. The survey is believed to reflect the frequency of sexual contact between women graduates and faculty in other disciplines as well.

Scientology founder dies — L. Ron Hubbard, the science fiction writer who founded the Church of Scientology in 1954, has died, the church announced Monday. Hubbard, who was 74, died of a stroke at his ranch near San Luis Obispo, CA.

Local

Harvard honors Sally Field — The Hasty Pudding Theatricals group at Harvard University has named actress Sally Field woman of the year. Field, who won Academy awards for the films "Norma Rae" and "Places in the Heart," will receive the honor Feb. 11. Sylvester Stallone will be given the man of the year award Feb. 18.

Sports

Patriots turn traitors — The Chicago Bears won Super Bowl XX, embarrassing the New England Patriots 46-10 at the Louisiana Superdome in New Orleans Sunday afternoon. The margin of victory was the largest in Super Bowl history.

Drug problem revealed — The Patriots yesterday became the first National Football League team to accept a voluntary drug-testing program. Coach Raymond Berry admitted that at least five players have a "serious problem" with cocaine and five to seven more may be involved.

Weather

Much cold, some snow — Morning sunshine turning to clouds and snow in the afternoon and evening with accumulations of one to two inches. High today 22-26, low tonight 18. Cold continues tomorrow with a chance of snow, a chance of sun and a high around 26.

Mark Kantrowitz
Robert E. Malchman
Julian West

Disaster shocks the country

(Continued from page 1)

rocket fuel in the craft's half-million gallon external tank ignited. The craft, traveling at a speed of over 2200 mph, exploded over the Atlantic Ocean.

The remnants of the shuttle fell into the ocean. Rescue crews had to stay out of the impact area for roughly 45 minutes, while debris fell from the sky.

Two helicopters, one solid rocket booster recovery ship, three Coast Guard cutters and one Coast Guard hydrofoil searched for wreckage amid 15- to 18-foot waves.

Observers of the flight spotted a parachute in the vicinity of the explosion, and newscasters speculated over the possibility of crew members escaping from the shuttle. Later reports said the parachute was from an emergency paramedic helicopter near the launch.

President Ronald Reagan said in an afternoon address that the accident would not halt the United States' quest in space. To the men and women of NASA he said, "Your dedication and professionalism have moved and impressed us for decades and we know of your anguish. We share it."

"We hoped we could push this day back forever," said Sen. John Glenn, D-Ohio, the first American astronaut in orbit. "We knew intuitively it would come someday."

Early morning delays

Challenger was delayed six times before its ill-fated launch. The previous mission, flown by the space shuttle Columbia, experienced a record number of delays, causing the Challenger's first three delays. The launch was postponed on Jan. 25 because of poor conditions at emergency landing sites in Africa, and again the next day because of bad weather forecasts in Florida.

Monday's launch was delayed because of difficulty in removing a door handle from the shuttle. When the handle was removed, winds had become too strong for a launch.

Yesterday's flight was the 11th for Challenger. Its airframe was originally built as a test vehicle and later modified into a flight vehicle. NASA's shuttle record had been unblemished, covering 24 successful launches over five years.

This shuttle launch was the first attempted in sub-freezing weather. The Apollo program had successful launches in extremely cold weather.

Challenger was using a launch pad not used since 1975, which had to be reconfigured for the flight. Challenger also did not undergo an engine test, as it had on previous flights.

The payload for the mission included two satellites: a $5 million scientific craft designed to study Halley's comet, and a $100 million satellite intended to relay spacecraft communications around the earth.

Stephen Bussolari, from the MIT Center for Space Research, doubted that the on-board flight recorders survived. The informa-

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opinion

The Tech

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Guest Column/Peter H. Diamandis

Pioneers gave lives for space

Yesterday seven pioneers gave their lives, dying, as have many frontiersmen of the past, in pursuit of personal ideals and goals. Their dream, shared by many in the MIT community, was to bring the day closer when space is accessible to everyone, the day when the full benefits of space can be realized for all mankind and human culture is finally transplanted from the cradle of Earth out to the stars.

At this time, more then ever before, our efforts in space must continue boldly. We can pay these astronauts no better tribute than to carry out the dreams for which they died. All seven astronauts understood the sobering danger they faced, yet each freely volunteered and would do so again.

In the wake of this tragedy, I fear that some will rally around the disaster like vultures, pointing to the space program's cost and inherent dangers, demanding that we slow down or cease our space activities. It is true that the vehicles do cost over a billion dollars apiece, and do ride on the most advanced computer-controlled explosion to date; but it is also true that we accept the costs and risks because of the vast benefits which we believe outweigh them. The space program is still in its infancy, barely 25 years old. As with every epic adventure, our journey into space is bound to encounter hardships.

As Americans, we owe the very existence of our country to the thousands of brave pioneers who died in the 16th and 17th centuries, struggling to colonize a new land. Like those early settlers, we must persevere. This tragedy must not become the downfall of our space program, but the event which focuses our commitment to make the exploration and development of space a reality.

(Editor's note: Peter Diamandis G is the founding chairman of Students for the Exploration and Development of Space, an international organization.)

Column/Alan Szarawarski

Reform will be difficult but possible

Before every semester I look back on the past term and vow to break my bad habits. Well-rested and optimistic, I resolve that in the coming term I will stop procrastinating, finish every assignment, and stay alert in class. My actual performance, though, never quite equals my expectations.

If we are not careful, undergraduate curriculum reform at MIT will follow a similar pattern by generating visionary goals that are not achieved. Political scientists have identified a number of factors that hinder the design and implementation of new policies. Three of these are particularly relevant to MIT's struggle to reform undergraduate education.

One factor complicating policy-making is the conflict between different goals. Students at MIT receive superior technical educations, qualifying them for top graduate schools and exciting employment. Maintaining this technical excellence is universally cited as a goal of curriculum reform.

But technical excellence is not enough. Technical professionals need more than the quantitative problem-solving skills that form the bulk of an MIT education. Broadening the educations of MIT students is the second goal of curriculum reform.

Given MIT's legendary work load, devoting more time to non-technical fields conflicts with the practice of packing as much technical training as possible into four years. Broadening the curriculum while maintaining technical superiority is possible, but it will require making trade-offs.

Faced with trade-offs, policy makers tend to maintain the status quo. Without strong commitment to reform, beneficial changes will not be made.

The second factor that complicates curriculum reform is decentralization. Four committees and many more administrators are currently studying MIT education. The Institute will have to accommodate students in over twenty different majors. Integrating everyone's views into a coherent policy will be a long and difficult process.

Decentralization will also complicate the implementation of policies once they have been molded. The Institute may adopt new policies, but change will not happen unless everyone supports the new ideas and puts them into practice. The effects of any new policies will be determined by the hundreds of professors who teach undergraduates. Because the success of curriculum reform depends on its having widespread support, the input of the entire community must be sought in the coming months.

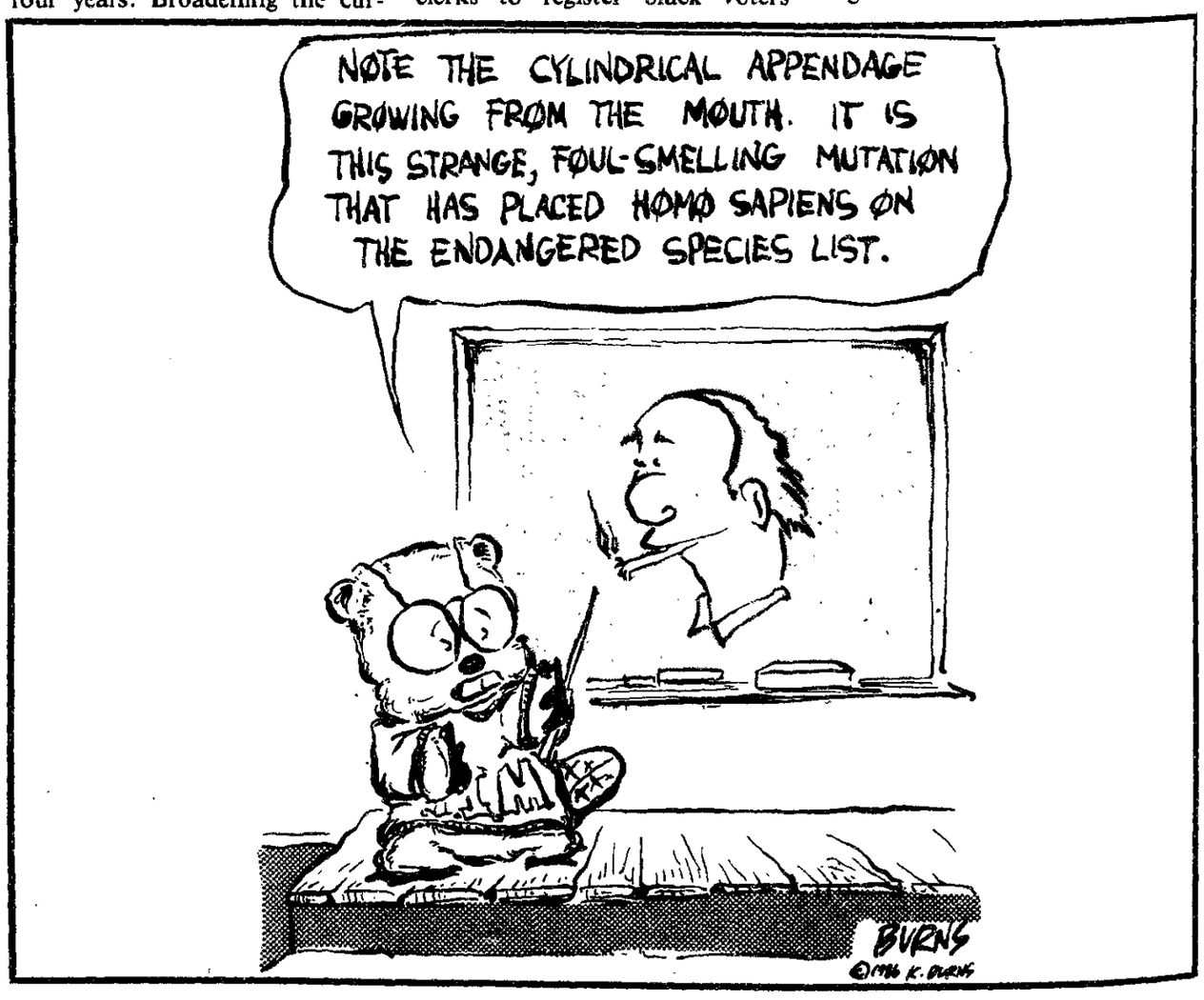
The third factor complicating curriculum reform is the difficulty of changing attitudes. Policies aimed at causing specific actions have an easier job than those that seek to change attitudes. The federal government was much more successful in forcing municipal clerks to register black voters than it has been in eliminating prejudice.

The effect of Institute culture on the experience of undergraduates cannot be overestimated. Although incoming students share an interest in science and technology, individual students have varied interests. Many freshmen change their majors almost weekly.

Freshmen are immersed in an environment where humanities courses are treated lightly. They begin to view humanities as "breaks from real classes," and they learn from the upperclassmen how most easily to satisfy their humanities requirements. Faced with three problem sets a week, many students never discover the avenues for different modes of thought and fresh insights that come from studying the liberal arts.

Changing courses and degree requirements will eventually change Institute culture. But campus attitudes will dampen the immediate impact of curriculum reform.

The lesson of political science is not that changing undergraduate education at MIT is impossible, only that it will be difficult. MIT has the potential to develop a new generation of technical professionals whose capabilites transcend engineering innovation and scientific discovery. But it will require time, the cooperation of the entire community and willingness to take risks.



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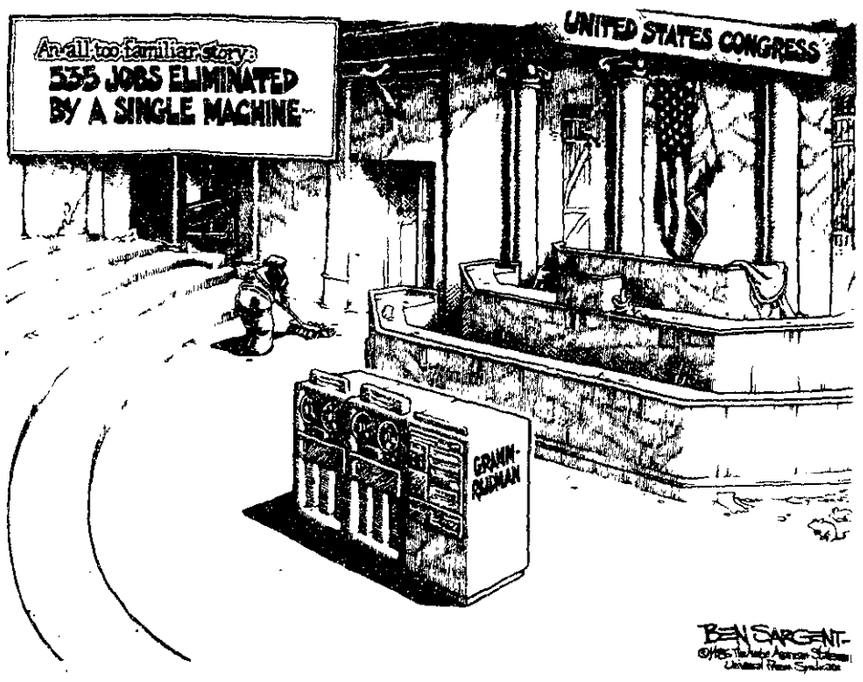


feedback

Graduate housing demands attention

To the Editor:

We, as graduate students, are very pleased to have *The Tech* taking an interest in graduate student housing problems and in graduate student concerns in general. In this letter, however, we would like to clarify some statements attributed to us in your article ["Brown addresses lack of MIT graduate housing," Jan. 22].

Our main concern in being involved with the committee on graduate housing, a point we feel was missed in the article, involves not only making the system better for graduate students overall but addressing the specific problem of housing for incoming graduate students. This fall the university accepted over 1200 new graduate students but only provided housing for less than 20 percent of them! The remainder were forced to either spend much money in making a special trip to MIT to try and find housing in a vastly over-priced and overcrowded Boston market, or, especially in the case of international students, were forced to just show up and try to find accommodations the week or two before school started while staying at hotels and such at exorbitant prices.

Conversely, as was so interestingly pointed out in another article in the same *Tech* issue, ALL undergraduates are GUARANTEED at least eight terms of housing by the university. This doesn't seem very fair considering the university derives much of its prestige from the research these graduate students perform.

We are not favoring a specific solution to this problem, such as a two-year tenure as erroneously reported in *The Tech*, but ANY solution which would alleviate this abysmal situation. These solutions could involve some sort of tenure readjustment, a cap on the number of incoming graduate students, a revision of the lottery system, or, in the most advantageous situation, NEW graduate housing. We think that the university should have a responsibility to its graduate students, especially new graduate students, and we are working hard to make them realize this obligation.

James J. Hickman G
Alison Burgess G

Council fears uranium theft

(Continued from page 1)

arrangements required by the Nuclear Regulatory Commission (NRC), he added. The Council has the right to ensure that MIT takes sufficient safety precautions, he said.

"Cambridge has always been interested in the safety of the reactor," Clark explained. "People have been brought up to be concerned about nuclear reactors, but we are convinced that the reactor will not cause a safety problem to the general public."

An accident-caused leak of radioactive material would be extremely unlikely to spread beyond the reactor building, he indicated.

O'Connor explained, however, that the committee is more concerned with the possibility of theft or sabotage to the reactor rather than the safe operation of the reactor. "The real issue is the physical security [of the reactor]," he said.

Sullivan questioned whether the reactor has adequate security to stop a determined terrorist. "If a terrorist wanted to strike somewhere in this area, the nuclear reactor at MIT would be a good place to start," Sullivan proposed in the November 1985 *Boston Magazine*. "Right now, if somebody wanted to drive a truck loaded with a bomb up to the reactor, what's to stop them?"

The building containing the reactor is protected by a two-foot wall of steel-reinforced concrete, according to Clark. In addition, the core of the reactor, the unit in which nuclear reactions take place, is further surrounded by a five-foot concrete enclosure, Clark said.

"If someone ran into the building with a bomb, that would damage the wall, but that's about it," Clark said. "Radioactive material wouldn't escape."

Critics concerned with HEU theft

Daniel Hirsch, director of the Adlai Stevenson Program on Nuclear Policy at the University of California, claimed that HEU stored at university research reactors is particularly vulnerable to theft. Campus police are trained for routine patrol situations, not for "preventing theft of material that can be used to make nuclear weapons," he told *Boston Magazine*.

The MIT Campus Police maintains 24-hour surveillance of the facility with armed patrols conducting periodic checks on the reactor, Clark said. Access to the facility is limited to people participating in an experiment and those involved with the reactor's maintenance and operation, he added. All other visitors must be escorted, he continued.

MIT police officers responsible for patrolling the reactor receive additional training, according to MIT police officer Ted Lewis. The special training, which is jointly designed by reactor officials and the MIT police chief, mainly focuses on the safe handling of radioactive material, he added.

Could terrorists build bomb?

Building a nuclear weapon requires somewhere between 10-20 kilograms of HEU, depending on the level of uranium enrichment, according to Bernard T. Feld, professor of physics.

The MIT reactor is permitted to store up to 29 kilograms of HEU, according to Clark. But most of the HEU fuel is radioactive and therefore difficult to steal.

"All but 1.5 kilos [of uranium] are radioactive," Clark explained. "So the fuel's mostly self-protecting."

Feld agreed that handling radioactive fuel directly out of the reactor would most likely be fatal. Terrorists could steal radioactive fuel only if they have a "relatively sophisticated remote control system" or if they are willing to commit suicide, he explained.

But Hirsch contends that even small amounts of bomb-grade material are dangerous in the wrong hands. "The easiest precaution is to replace the fuel with lower grade uranium that can't be used for a weapon," Hirsch said.

Clark: HEU needed for research

The MIT reactor is used for a wide range of research experiments in fields such as medicine, geology, nuclear physics, and radiochemistry, Clark described.

The facility also produces large quantities of isotopes, mainly for medical applications. For example, the Harvard Medical School is using an MIT-produced radioactive isotope to developing an arthritis treatment, he said. The reactor also puts radiation in gold seeds which are used for treating brain cancer patients in Boston-area hospitals, he added.

The reactor would be shut down if it were restricted to using low or medium-enriched uranium, Clark said. The lower the enrichment of the uranium, the bigger the reactor must be in order to accomodate a nuclear reaction.

"MIT's [reactor] was built for high-enriched uranium," Clark indicated. "If we had to go to low-enriched uranium, it would mean that we have to rebuild the reactor."

Physics laboratories in the United States are currently exploring the possibility of using low-enriched uranium for producing a fission reactions for use in research reactors similar to MIT's, Clark explained.

"When such a fuel is available, we would be glad to use it," Clark said. "It would be an expensive proposition, but we would do it if required."

NRC security slows investigation

The *ad hoc* committee is presently studying NRC regulations governing the storage of HEU for university research reactors, O'Connor said. The committee only recently received permission from the NRC to examine these regulations, O'Connor said.

The committee plans to inspect the reactor upon completion of its study of the regulations, he added. An NRC representative will be required to accompany the committee when it visits the reactor, he remarked.

"The federal regulations, quite wisely, restrict the dissemination of NRC information," O'Connor explained. "I think that that [the security] is quite appropriate."

The fact that the city is studying the reactor does not necessarily mean that MIT has been negligent in its reactor protection. "It's an opportunity for MIT to ensure better communication and cooperation with the city. We're here to help. We're here to work with them," he said.

O'Connor estimated that the study will take two or three months. "We want to look at things carefully and come back with a complete report," he said. "We don't want to include self-defeating information that would publicize MIT's security precautions," he added.

The other members of the committee are: Thomas Scott, Cambridge Fire Chief; Henry Gallagher, Cambridge Acting Police Chief; Melvin H. Chalfen, Cambridge Health Commissioner and MIT physician.

Faculty not restricted under proposed policy

(Continued from page 1)

bers. Instead, three undergraduate and three graduate students would serve on the committee. The committee would be divided into six women and six men.

The committee has not reviewed a sexually explicit film since last spring.

● Educational presentations: The revised policy would specifically allow the showing of sexually explicit films by faculty members as part of a class or an educational Independent Activities Period event. The current policy does not address these circumstances.

● Guidelines: The statement lists the "Repeta guidelines" for use in reviewing films, which were used by last year's committee. These guidelines call for reality and a positive view of sexuality in films. The guidelines also state that the films should not objectify sexuality and should equally reflect the viewpoints of men and women.

The screening committee had been using these guidelines, so the new statement is not a change, said Professor John Hildebidle, former screening committee chairman.

● Admission fee: The statement explicitly states that an admission fee may be charged for unapproved films. Some of the members of the screening committee felt that an admissions fee should not be allowed for unapproved films.

● References to LSC: Unlike the current policy, the new policy would avoid specific references to LSC as a group planning to show a sexually explicit film.

Present restrictions

Currently, films that are not approved by the committee are subject to these conditions:

● The film cannot be shown during Residence/Orientation Week or on Registration Day of either term.

● The film cannot be shown in Kresge Auditorium.

● Notice of the showing must be given to the Dean's Office at least six weeks in advance.

● The group showing the film must make arrangements to ensure "suitable conduct" during the showing of the film.

● The group showing the film must show "good taste" in the advertising of the film.

Nell noted that the revisions have gone through many stages. "There have been about 12 layers," she said. Nell also said that McBay was "being very careful about this . . . she wants student input."

(Next week: debate over gender and special membership on the screening committee.)

Tragedy affects NASA plans

(Continued from page 1)

leagues crowded around a small television set when the explosion occurred and watched the story unfold. Later, most went back to work but continued to listen to the television. "I don't think a lot of work was getting done," Sarver said.

"If you're an engineer, you know there's always a chance that an accident can happen. You know deep down that it's possible. There is a deep sadness because there's not much you can do about it. You know everything possible was done." He said he believes NASA has done a good job in preventing accidents.

The Challenger accident could mar what at first appeared to be a promising year in space exploration, Sarver said. NASA planned to launch a space telescope this year, which might enable scientists to see the edge of the universe. NASA also planned to use some space shuttle missions to observe Halley's Comet.

In what he called "pure speculation," Sarver said the accident might adversely affect NASA's manned space station project. NASA might also limit the number of civilians on the shuttle crew.

The public's perception of the space program as infallible would probably be moderated to a more realistic view, Sarver said.

MIT experiment was on board

MIT professors were involved with one of the experiments on Challenger. Assistant Professor Robert V. Kenyon of the Department of Aeronautics and Astronautics said its goal was to look at tissue development in chicken embryos at microgravity. The project was to be a joint effort by scientists at MIT, the Tufts Medical Center and Purdue University.

The MIT scientists were to examine the effects of weightlessness upon the vestibular system in animals, according to Peter Diamandis G, founder of the Students for the Exploration and Development of Space.

Kentucky Fried Chicken, which is interested in poultry products raised in space, is partially subsidizing the experiment, providing $50,000 of its $2 million budget.

Sherwood Modestino, a member of the CSR technical research staff, said Challenger had been scheduled to launch a communications satellite during the mission. The satellite would have completed a space communications network, allowing spacecraft to maintain "an almost constant contact" with Earth, she said.

Memorial service

Rabbi Daniel Shevitz said that chaplains would hold prayer, meditation, counselling and a brief memorial service today at noon in the MIT Chapel.

(Editor's note: Thomas T. Huang, Earl C. Yen, Ben Stanger and Harold A. Stern contributed to the research and writing of this article.)

Modigliani says federal debt will decrease

(Continued from page 2)

huge debt, which was paid after the war was over. The debt we currently face started with the Vietnam War.

That national debt would probably not be paid off in the near future, Modigliani said, but the "situation would probably improve." Interest rates will go down, the budget will be balanced, and the debt would begin to decline, he explained.

The dollar is overvalued slightly in the foreign currency markets, Modigliani said. The country should not be concerned, although this was due to a trade deficit. Most countries have a trade deficit, he explained. The combined surpluses of the nations that export more than they import is less than the total deficit of importing countries, he claimed.

Reagan mourns loss of the crew

(Editor's note: The following is the text of President Reagan's speech, delivered in the aftermath of the Challenger accident.)

Ladies and gentlemen, I planned to speak to you tonight to report on the state of the Union. But the events of earlier today have led me to change those plans.

Today is a day for mourning and remembering. Nancy and I are pained to the core for the tragedy of the shuttle Challenger. We know we share this pain with all of the people of our country. This is truly a national loss.

Nineteen years ago, almost to the day, we lost three astronauts in a terrible accident on the ground. But we have never lost an astronaut in flight; we have never had a tragedy like this. And perhaps we have forgotten the courage it took for the crew of the shuttle; that they, the Challenger seven, were aware of the dangers. They overcame them, [and] did their jobs bravely.

We mourn seven heroes: Michael Smith, Dick Scobee, Judith Resnick, Ronald McNair, Ellison Onizuka, Gregory Jarvis, and Christa McAuliffe.

We mourn their loss as a nation together. The families of the seven: we cannot bear as you do the full impact of the tragedy, but we feel the loss and are thinking about you so very much.

Your loved ones were daring and brave and they had that special grace, that special spirit that says, "Give me a challenge and I'll meet it with joy." They had a hunger to explore the universe and discover its truths. They wished to serve and they did. They served all of us.

We have grown used to wonders in this century. It is hard to dazzle us. But for 25 years the United States space program has been doing just that. We have grown used to the idea of space, and perhaps we forget that we have only just begun. We are still pioneers. They, the members of the Challenger crew, were pioneers.

And I want to say something to the schoolchildren of America who were watching the live coverage of the shuttle's takeoff. I know it is hard to understand, but sometimes painful things like this happen. It is all part of a process of exploration and discovery. It is all part of taking a chance to expand man's horizons.

The future doesn't belong to the faint-hearted. It belongs to the brave. The Challenger crew was putting us into the future, and we will continue to follow it.

I have always had great faith in and respect for our space program, and what happened today does nothing to diminish it. We do not hide our space program. We do not keep secrets and cover things up. We do it all up front and in public. That's the way freedom is, and we wouldn't change it for a minute.

We will continue our quest in space. There will be more shuttle flights, and more shuttle crews, and yes, more volunteers, more civilians, more teachers in space. Nothing ends here. Our hopes and our journeys continue. I want to add that I wish I could talk to every man and woman who works for NASA and who worked on this mission and tell them, "Your dedication and professionalism have moved and impressed us for decades and we know of your anguish. We share it."

There is a coincidence today. On this day 390 years ago the great explorer Sir Francis Drake died aboard ship off the coast of Panama. In his lifetime, the great frontiers were the oceans, and a historian later said, "He lived by the sea, died on it, and was buried in it." And today we can say of the Challenger crew, their dedication was like Drake's — complete.

The crew of the space shuttle Challenger honored us by the manner in which they lived their lives. We will never forget them, nor the last time we saw them, this morning as they prepared for their journey and waved goodbye and slipped the surly bonds of earth to touch the face of God.

Thank you.

artsartsartsartsarts

Conservatory opera provides riotous evening of entertainment

(Continued from page 12)

whether Reese's utterance was touchingly human or rapturously divine.

The chorus was effectively-directed, adding a touch of questioning softness as Turandot enters. Ping, Pang and Pong were vividly sung by James Rensink, Steven Schnurman and Noel Velasco.

Ming Cho Lee's scenery was magnificent, as were the costumes, wigs and ceremonial props supplied by the Central Opera Theatre of Beijing. Caldwell's staging was compelling, but the drama came, above all, through the music. Under Caldwell's command, the orchestra bared powerful psychological weaponry, yet none was more virulent than the soft fragrance drawn continuously from the score.

Here was a production where on a superficial level darkness mingled ambiguously with light, but where on a deeper level sweetness prevailed. There was not a phrase which lacked in eloquence, a turn that did not display renewed beauty.

Sarah Caldwell has taken musical art to its highest form.

* * * *

John Moriarty's Opera *Theater* lives up to its name: its performers can act as well as they can sing. And they do both very well.

This combination proved to be a winning recipe for a riotous evening of entertainment from Rossini's *Signor Bruschino* and Donizetti's *Viva La Mamma!*

The plot of *Signor Bruschino* is almost too absurd to explain, but basically it turns on mistaken identity: Florville, son of Gaudenzio's worst enemy, pretends to be the son of Signor Bruschino to gain the hand of Gaudenzio's ward, Sofia (who is promised to the real Bruschino Jr.). Hilarious confusion results when Signor Bruschino turns up and the imposter still insists that he is Bruschino's son . . .

Edward Bryant — in the role of Florville — showed himself to be a lyric tenor with considerable promise. Leslie Shull sang Sofia nicely, too, investing the role with some of the pert cunning of Rossini's Rosina (*The Barber of Seville*). Richard Weidlich was wonderfully funny as Filiberto, the innkeeper, while David Murray's senile pose as Gaudenzio was corruptingly funny. The staging was precise, timed to get the most laughs out of every minute, the set by Michael Downs was exquisite. Orchestral playing under Moriarty was lively. A blast.

But after intermission the Conservatory entertainment left orbit altogether. Donizetti's *Viva La Mamma* is a piece of absurd froth involving the rivalry between the *prima donna* and *seconda donna*, the former's doting father and the latter's highly-strung mother (sung in drag) staging warfare in parallel. While everyone performed to a high standard, CeCiliA Chaisson as Corilla, the gorilla of a prima donna, and Robert Maher as Mamma Agata stole the most laughs. Chaisson's achievement was in poking fun at the wicked stereotype of the first lady she so brilliantly developed, while maintaining a high standard of singing that provided a central attraction in itself. She touched on all the most embarrassing of vocal mannerisms, outrageous coloratura, overacted staid gestures, but did so from a deep-rooted base of professionalism, a fine display of vocal dexterity and control, and a perceptive sense of the drama of the moment.

Robert Maher's tongue-in-cheek humor was numbingly funny. The determined and demanding drag-queen Mamma dominated the stage, strutting regally, straining the upper registers of the imagination with his/her singing. Like Chaisson, Maher's skill lay in the discipline which enabled him to make his performance seem so effortless.

Mamma takes center-stage in a scene fron the Opera Theater of the Boston and New England Conservatories' production of Donizetti's *Viva La Mamma*!

The clarity of diction by everyone in the cast was a notable characteristic of both operas. With diction still a painful problem in so many professional productions, it was good to see singers in training with such fresh and crisp delivery. It made the evening more pleasurable for everybody.

* * * *

After Trevor Pinnock took Boston by storm last year with his virtuoso English Concert, Saturday night's Jordan Hall performance was disappointing.

The first three works — a Corelli concerto grosso, Vivaldi oboe concerto and Bach harpsichord concerto — were done amiably enough, but lacked the fire we had previously witnessed.

After the intermission we heard Vivaldi's *Four Seasons*, and there *were* several special moments. The *Allegro* of the first concerto, "Spring," brought a profound violin legato from soloist Simon Standage, supported by an eerily disembodied mystic quality to the ensemble. The *Adagio* of the second concerto contained equally impeccable solo violin work and led to an exciting *Presto*. The opening of the final concerto, "Winter," was intensified by the matching of an amazingly-deft devil-may-care Standish with a carefully balanced tutti. The *Largo* of this concerto had some wonderful pizzicato, and the final movement did not lack in vivacity.

As a whole, though, the performance was mixed. Some of Standage's phrasing was eccentric to say the least, especially in "Autumn." And there were periods when the ensemble lacked the close cohesion for which they have become so well known. Moments of genius did shine through, but there was too much of the *ordinaire* to this vintage to make it worthwhile getting drunk on it.

Jonathan Richmond

artsartsartartsartsarts

Collage — modern music gives earache

Collage, *with guest conductor Gunther Schuller, Longy School of Music, January 27.*

Monday night I went to a concert to celebrate the 60th birthday of Gunther Schuller, consisting entirely of music composed since 1981.

This morning I have earache.

I have really tried to give this music the benefit of every doubt, but I have to admit I could not appreciate it as most of the audience seemed to. Either something is wrong with me or something is wrong with "new music," probably both.

Maybe the problem is simply that there has not been enough time for the good new stuff to outlive the chaff. But Collage co-director John Harbison calls these new works "the durable old music of the future," and I suspect that the rest of the new music sounds the same. Is it second-rate music that will soon fall by the wayside? No. It's worse. After all, no one can remember Salieri's music, but at least it's pleasant enough when you listen to it.

The first piece, Elen Zwilich's *Concerto for Trumpet and Five Players (1985)*, was very conventional for modern music. There were three movements (fast-slow-fast as usual in concertos). The music was scored for piano, flute, bass clarinet, bass viol and xylophones as well as trumpet, although the players occasionally picked up other instruments.

It was dissonant and harsh, but recognizably musical. The themes were interestingly developed. I would have liked it better if there hadn't been so many piercing, sustained high notes. Trumpeter Charles Daval seemed to handle his very difficult-sounding part well.

Next came *Summer Images and Reflections (1985)*, a song cycle by Will Ogden. This was very difficult to listen to. Soprano Lucy Shelton could undoubtedly shat-

(Please turn to page 15)

Hayden Gallery exhibition provocative

Body as vulnerable, transitory vessel of precarious existence.

Nude, Naked, Stripped, *at the Hayden Gallery, Wiesner Building (E15), through February 2.*

The title of the Hayden Gallery's current exhibition is undeniably provocative.

The sense of taboo surrounding the subject may be to blame. But perhaps the presentation of something increasingly perceived as down-to-earth in the often ethereal environment of art is equally responsible. In bridging the latter gap, this show is quite succesful.

A body without clothes is a basic commodity, with an inexhaustible potential for artistic treatment. Contemporary art exploits this in a endless variety of ways. In the process, it widely surpasses the traditional imagery of the nude as truth and beauty incarnate. No nymphs or demigods here; instead, most works on display tend toward the very opposite, to the intuition, rooted in contemporary history and philosophy alike, of the body as a vulnerable, transitory vessel of precarious existence.

Self portrait (1980). Alice Neel. Lent by the National Protrait Gallery, Washington, D.C.

Very explicit in this respect are the photos of Peter Hujar. Reviving a medieval artistic formula, they show living nudes in reflective moods next to decaying corpses. From here it is but a small step to the dissecting picture-story of Greer Lankton, and hence to the foetal self-portraits of Mary Ahrendt. The clinical registration of body features in the quasi-photographic paintings of Dennis Kardon marks the *ne plus ultra*.

Two portraits by Alice Neel stand out in this company, both for their formal quali-

(Please turn to page 14)

Chinese music and dance uplifting, educational

25.001 Introduction to Chinese Music, Song, and Dance, *presented by the MIT Republic of China Student Association, Kresge Auditorium, January 25.*

A jovial, informal feeling pervaded Kresge on Saturday as the MIT community was treated to an evening of traditional Chinese dance and music. The presentation was educational yet enjoyable, featuring bilingual emcees, beautifully-attired dancers, and talented musicians from the Boston area.

The Chinese Chamber Orchestra, composed of eight traditional instrumentalists, opened the evening with two selections, *Joy for atmosphere* and *Spring on the moonlight river. Joy* provided an uplifting beginning by capturing the festivity of a celebration; *Spring* was a slower, more pensive melody.

Ming Chou's performance of the *Long Ribbon Dance* introduced the audience to the first of several folk dances characterized by simple, graceful movement. *The Fan Dance* by Sherri Yu represented a more contemporary dance style sprinkled with the sound of Yu's snapping fan.

The highlight of the show was Linda Tai's superb rendition of three soprano solos: *Yang-Tze River, Country Singers,* and *Skylark*. Tsai combined an exquisite voice with a radiant expression that made her performance sparkle among the evening's delights.

Violinist Ming-Chi Tsai fused Western instrumental tone with Chinese melody in his admirable performance of *The Dragon Lantern Dance, Pastoral,* and *Ali-Shan Variations*. Tsai's technique was excellent, and his selections represented a fitting mix of frivolity and melancholy.

The orchestra returned for a second round with another pastoral selection, *Raising the whip to hasten the horse*. The piece came off well in spite of problems with intonation and tempo.

Li-Hung Cheng G finished the program with a stirring guitar ballad, *I love my country*, about an immigrant from Taiwan living in the United States. Cheng's lyrical voice and skilled musicianship accompanied a story of how a native Chinese becomes accustomed to American culture and yet "still has a Chinese heart."

Earl C. Yen

Caldwell — Eloquence, Sweetness

Turandot, *Opera Company of Boston conducted by* **Sarah Caldwell**, *The Opera House, January 23; Rossini's* **Signor Bruschino** *and Donizetti's* **Viva La Mamma!**, *The Opera Theater of the Boston and New England Conservatories, conducted by* **John Moriarty**, *Boston Conservatory Auditorium, January 24;* **The English Concert** *conducted by* **Trevor Pinnock**, *Jordan Hall, January 25.*

The proscenium separating audience from action dissolves when Sarah Caldwell is in the pit. Her *Turandot* transports the opera-goer to new levels of absorption and understanding. Experiencing the production's shining originality and being caught up in its deep humanity is a refreshing and elating encounter not only with Puccini's stage of characters but also with ourselves.

Turandot, set in imperial China, tells the tale of the ice-Princess who kills those who love her, and of the Prince — Calaf — who finally melts her heart. Turandot poses three riddles for her would-be suitors, and the executioner decapitates all those who fail her test. Calaf answers correctly, winning her hand and — after a night of tension — her love.

The singing was exceptional Eva Marton's Turandot was complex, crystalline-sharp singing only thinly veiling the more vulnerable individual that appears after the riddles are answered.

János Nagy brought a voice of lyricism and passion to the part of Calaf. In his clear, directed singing we saw a determination to try the test and, in his first meeting with Turandot, a will to win that rose to meet her cold reproval in a thrilling top C.

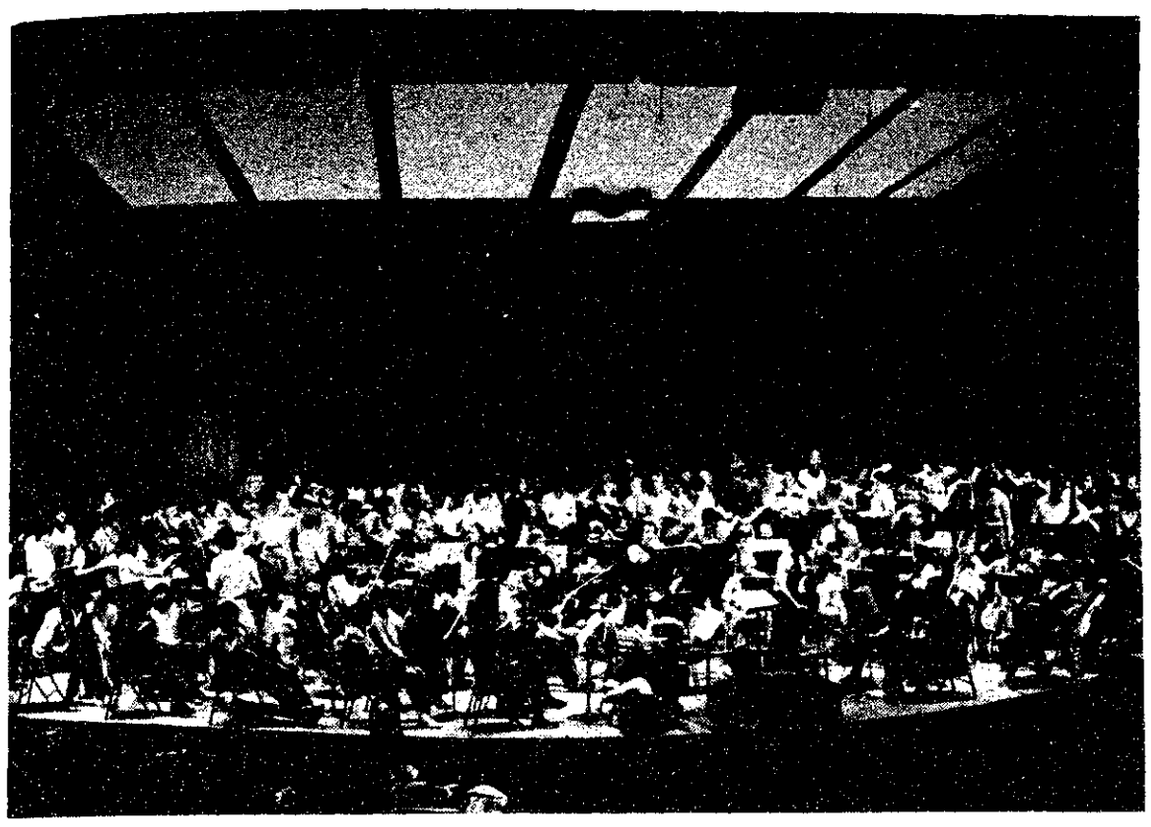
In *Nessun Dorma* we felt Calaf's transcendant hope, Nagy's transfixing singing providing a focus that drew our attention to and illuminated the empty loneliness of the night.

If in Puccini's opera Prince Calaf at last presents a chemistry capable of Turandot's sublimation, it is Liù who catalyzes the reaction. Liù is a slave girl who sacrifices herself for Calaf, and in so doing at last makes Turandot aware of love.

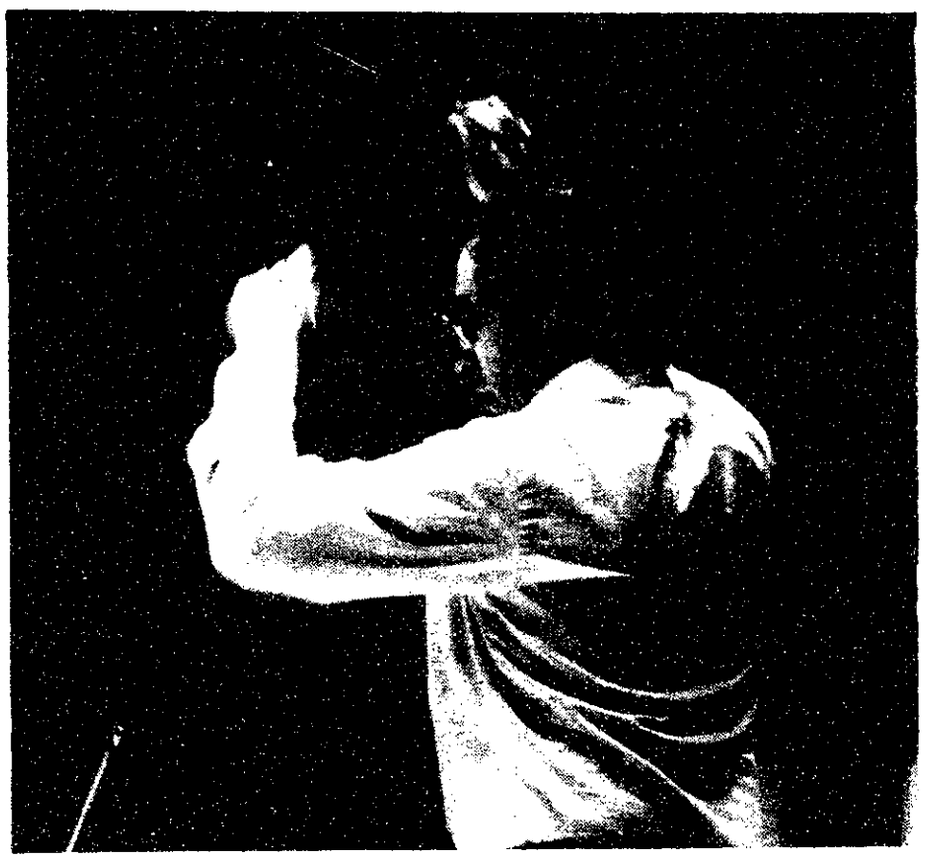
Sarah Reese's performance of her role can only be described as extraordinary. Her singing was intensely beautiful, but subtly colored. In Act I Liù's devotion is portrayed by tones that are sweet and heartfelt; in Act II the sweetness is sharpened as, in *Tanto amore segreto*, she climactically informs Turandot that she resists the torture being inflicted on her through love. This truth was offered with a penetrating simplicity: it is hard to say

Eva Marton as Turnadot, Noel Velasco as the Emperor and Janos Nagy as Calaf in the final scene of the Opera Company of Boston's production of Puccini's Turnadot.

Roll over Beethoven!



"Alle Menschen werden Brüder,
Wo dein sanfter Flügel weilt."



"I thought you only reviewed music" said cellist Sam Osofsky '88 after Sunday's assault on Beethoven's *Symphony No. 9* by the IAP Orchestra and Chorus, which provided an opportunity for members of the MIT community to read through music they might not otherwise have the chance to perform.

Members of the MIT community — seasoned musicians and those of less experience, virtuosi and those who would like to be — got together to celebrate music, IAP style. Was the afternoon an *Ode to Joy*? It was a joyous occasion for the 150-odd people who came out of the woodwork to read through this taxing work. And for members of the audience who endured the pain of the inevitable slip-ups that come from lack of rehearsal and experience, there were many passages to be savored, passages of enthusiastic music-making that carried Beethoven's message.

The first three movements were utterly unrehearsed. While the *Allegro ma non troppo, un poco maestoso* was ragged, a Beethovenian rage developed, building into a whirlpool that provided a climactic finale to the movement. There was reason to cringe at the opening to the *Molto vivace*, and self-aware laughter as conductor

Roland Vasquez briefly brought things to a halt for inpromptu in-performance rehearsal. "Good luck," urged violinist Elana Doering G as the Beethoven machine was cranked up for action again.

The beginning of the third movement was smoothly done and filled with pathos: It was solemn and moving. There were some further stops and starts and passages that would have Ludwig van turn in his grave. But the touching depth that came from the orchestra's involved concentration was telling: it made it all worthwhile.

The orchestra had briefly run over the fourth movement with Roland Vasquez when they had reported for duty at 1pm. The chorus had previously met for preparation by Betsy Burleigh. The results were impressive. The chorus really came together, and had the cohesion to endow many passages with considerable power. The orchestra built on tensions and maintained a concerted drive. Infelicities could be forgotten in the joyful experience.

It *was* an *Ode to Joy* after all. For everyone.

The IAP Orchestra and Chorus performed **Beethoven's *Symphony No. 9*** in Kresge Auditorium on January 26 under the baton of **Roland Vasquez**; chorus preparation was by **Betsy Burleigh**. Text by **Jonathan Richmond**, photos by **Kyle G. Peltonen**

arts

Nude show document on changing culture, should not be missed

(Continued from page 11)

ties and for the spirit which animates them. *Margaret Evans Pregnant* shows the awkwardly seated sitter sporting a gaze of bewilderment above her bulging belly and swollen nipples; by contrast, the courageous *Self-Portrait* suggests a vigorous, independent spirit in the decrepit body of the eighty-year old painter. As reflections on the dialectic of body and soul, these works have no rivals in this show.

The self-portraits of John Coplans on the same wall are more than a negation of the traditional aesthetics of the naked body; they strive to be its very inversion. Coplans photographs his aged, hairy body in statuesque poses, keenly exploiting its age-enhanced geometrical qualities. Repulsive by any established standard of beauty, these pictures exhibit a sense of defiance impossible to ignore.

★★★★★★★★★

But if flawless immortals no longer hold sway in the realm of the nude, the fascination which engendered them lingers on. They have simply stepped down from the lofty abode of Mount Olympus to the less detached platforms of advertisement, beauty pageants, movies and adult magazines. The simultaneous breakdown of certain inhibitions has exposed others. Though many of these developments involve imagery hardly classifiable as art, the exhibition includes material to document them.

Chuck Close's huge photograph of a reclining *Bertrand*, which greets the visitor upon arrival, sets a standard for comparison, being a centerfold in every respect except its dimensions — and, of course, its context. Robert Mapplethorpe's portraits of male and female bodybuilders are variations on the same theme. The exhibitionism which often transpires in these images and their connotations of aggressive sexuality are made explicit in the photo series *If you want to see a really good picture. . .* and *This is all you really wanted to see* by Cheri Eisenberg, as well as in the astonishing photographic impressions of a nudist beauty contest by François Robert.

With the traditional politics of the nude put in jeopardy, it is not surprising to find artists who attack its social and cultural roots. Robert Colescott, for instance, challenges the western, white ideal of beauty by transposing its classical images. In *Mother Earth (African Venus)*, he replaces the white goddess by a black one. Suzanne Shepherd's *Leathergirls Just Wanna Have Fun* photos proclaim the validity of out-of-the-mainstream attitudes toward the body and sexuality.

The overall coherence of the present show leaves a bit to be desired. Some things don't fit very well — most obviously the prominent installation by the artists' collective TODT, rather intriguing in its own right but difficult to relate to either nudity, nakedness or stripping. Quality varies, and there are several items which I would call merely, well, cute. But as a document on a changing culture this show should not be missed, and whoever has not seen it yet should use the few days left to view it.

Michiel Bos

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arts

Fleeting contemporary tones more elusive than abstract modern art

(Continued from page 11)

ter a lot of glass if she wanted to. There were far more piercing and painful high notes here than in the previous piece, and I found both the words and the music unintelligible.

Gunther Schuller's 1984 *Piano Trio* was refreshingly mild by comparison. It was scored for piano, violin and cello, and was therefore easier on the ear, although the pianist more than once got up and scratched the strings. It must be hard to play such non-melodic music, and I can't imagine *remembering* such a piece in the way one can remember, say, a Mozart symphony (or even one by Salieri!).

After an intermission came the longest piece of the night, William Doppmann's *Spring Songs for Soprano, Clarinet, Percussion and Piano* (1981). The texts for this cycle came from Chaucer, Lennon, Robert Burns, Psalm XXII, Willa Doppmann, Shakespeare and Donald Justice.

I looked forward to this because the texts included some nice poems, and because I had the words in front of me. Unfortunately, it was just as wearing as the earlier song-cycle. It was also very annoying, because several innovations were clearly no more than unorthodoxy for unorthodoxy's sake (e.g. singing into the piano, foot-stamping at odd moments, random shouts from the instumentalists). Occasionally a melody resurfaced, and the whispered excerpt from Psalm XXII was spooky and moving. But the piece was generally nasty. One of the worst parts was the overdramatic and incredibly unwhimsical rendering of John Lennon's nonsense poem "I sat belonely".

During the intermission, Schuller received an award and a testimonial from Governor Dukakis was read, lauding Schuller for his numerous contributions as a composer, conductor, educator, etc. It felt strange, seeing all these people appreciate this guy, of whose talent I had no understanding.

I tried, I really did. But I think that a lot of modern music (by which I refer to the direct successor of classical and romantic music, played by musicians from symphony orchestras, as distinguished from rock, folk, jazz, pop, and various fusions) is too much like modern abstract art.

Don't get me wrong, I like abstract art. But whereas you can stare at, say, a Picasso until it begins to make sense to you, you don't have that option in listening to music, which is basically a linear experience. If I could somehow comprehend the whole piece at once, as the composer and (to the extent they practice) the performers do, I might appreciate it more. But I just can't get it from a concert, and if it is actually unpleasant to the ear I'm not going to listen to a record of it several times in order to understand it.

Maybe some people can "get it" just by listening. Maybe you need the right kind of training, or maybe you just have to have the right kind of brain. But I predict that this music will never be as popular as the music composed 100 and 200 years ago.

I don't actually believe that the emperor has no clothes, I'm just saying I don't see them, and I suspect he's not actually wearing very much. (My wife Lisa insists that at most he's wearing a string around his knee and a sequin in his bellybutton, but I don't think that so many people could be victims of such a huge humbug. I'll accept that there's something there, but I'm baffled that I can't appreciate it.)

All right, Arts Editor, I've paid my dues. May I please have some Schubert next time? I'll settle for Stravinsky. Just give me time to get over this earache.

Ouch.

Athena break-in not solved

By Irene Skricki

An unidentified perpetrator compromised the security of Project Athena late last semester, destroying the files of some student users before the intrusion was detected, according to Steven R. Lerman '72, director of Athena.

"Someone typed in a series of commands," Lerman said, "which essentially had the effect of creating a computer program which began systematically deleting files of users alphabetically by user name."

Athena administrators received messages on a hotline on Sunday, Oct. 20, from students reporting that their files on the Teela machine in the Student Center cluster were disappearing, he said. The student who took the calls notified an Athena staff member, who discovered the program in the process of deleting user files.

The staff member stopped the process and recorded a variety of log files; these logs kept a record of the state of the system, and changes made to it.

Lerman immediately started an investigation after learning of the incident. Athena staff questioned student consultants who had been in the Student Center cluster in an attempt to discover who was using the system at the time, but the consultants "couldn't reconstruct a list," Lerman said.

"We found out users who were logged in on nearby terminals," Lerman continued. "That's not information that's usually used for anything." The investigators contacted these users as well, to see if they could remember who was in the area. In addition, Lerman notified the Campus Police of the incident. The investigation has been unsuccessful so far.

Most of the lost student files were recovered. Project Athena keeps backup tapes that are generally stored every 24 hours, he said. Only information that was changed after the last backup tape was lost.

Only a small number of people have access to the root password, which is necessary to gain access to secure areas of the Athena system, according to Lerman. "Unfortunately there are a fair number of people who need to know the password to fix things." Students are occasionally given access to the password, he said. "It's very difficult to make major contributions to certain areas without having special privileges," Lerman stated.

"Unix [Athena's operating system] has the unfortunate property that it's an all-or-nothing proposition. Either you have root privileges or you don't," Lerman explained. Other operating systems have more than one level of access.

In response to the incident, Project Athena has begun to change the root passwords more frequently. "There isn't much one can do and still be compatible with how we want to operate the system," Lerman said. There has been no recurrence of the incident.

Athena staff encourage students to make backups of their files on floppy disks; personal computers are provided in the Student Center for that purpose. Athena plans to expand the number of available personal computers. "People have to take more responsibility for their own data," Lerman said.

If the person responsible is found, MIT will prosecute because tampering with electronic data is a serious crime in Massachusetts, he claimed. "I think that within the MIT community it is viewed as very serious because it was just malicious. It wasn't a hack in the sense that it was funny. A Fiat in Lobby 10 — that's funny. This was not funny.

"As more and more information accumulates electronically as opposed to other forms, the destruction of it becomes an increasingly important issue," Lerman said.

Rescue search reveals no trace of crew

(Continued from page 3)

tion will still be available to NASA engineers, however. "The data that would ordinarily be stored on an airliner's black-box is radioed to the ground in real-time," and stored at Mission Control, he explained.

The accident will likely have a serious impact on NASA's shuttle program, Bussolari said. No more launches of the space shuttle will take place until NASA can determine the cause of the accident and take the necessary steps to ensure it never happens again, he predicted. He said he could not estimate how long the investigation will take.

World shocked

"They carried our hopes and dreams," Glenn said.

The news of the downed space shuttle filtered through Washington, DC. The chaplain of the House of Representatives led a prayer, and then Congress adjourned.

Outside the United States, the French space agency called the shuttle explosion a "disaster for space exploration, not just for NASA." The Soviet embassy in Washington expressed its deepest sympathy to the American people in connection with the tragedy.

Students at the Concord, NH, high school where McAuliffe taught silently watched the screen in their auditorium. At the same time, 3000 miles away, workers at the Jet Propulsion Laboratory in Pasadena, CA, stood watched their monitors.

House Minority Leader Robert Michel, R-IL, warned that the public tends to take the shuttle missions as a routine procedure. It has forgotten that the missions are highly technological in nature.

The accident "reminds us of what mortal beings we are," he said.

Sen. Jake Garn, R-Utah, a former Navy pilot who flew in a shuttle mission a year ago, said he still believes in the shuttle program. The program is reliable, he said, adding that he would "go up again tomorrow," if NASA would let him. A few days ago, reporters criticized NASA for being "overly cautious," Garn said.

Retired Air Force Brig. Gen. Chuck Yeager, a former test pilot, said the space program "will learn and recover from today's disastrous launch." He compared the accident to the Jan. 27, 1967 Apollo I fire, when three American astronauts were killed after their capsule burst into flames on the launch pad.

State of Union address delayed

Reagan, "in consultation with the leaders of Congress," cancelled his State of the Union address, scheduled for last night, said White House spokesman Larry Speakes.

The president also instructed Vice President George Bush and acting NASA administrator William Graham to fly to Cape Canaveral, Speakes said.

The crew was "dedicated to the exploration of space. We could do no more to honor these courageous people than to go forward with the space program," Speakes continued.

A reporter questioned whether NASA had been too ambitious, rushing the shuttle flights. Speakes responded that NASA had taken precautions and that there have been many launch postponements because of NASA's extensive safety program.

NASA: Safety first

Preliminary searches revealed no evidence that Challenger's crew is alive, said Jesse Moore, director of the Johnson Space Center, in a 4:40 pm news conference.

Moore denied that NASA launched Challenger prematurely. "There was absolutely no pressure to get this particular launch off," he said. "We have always maintained that flight safety is our number one priority. . . . All of the people involved in this program to my knowledge felt that Challenger was quite ready to go."

Several weather balloons were sent up before launch and no unusual weather conditions were observed, Moore said.

The shuttle launch appeared normal until about a minute into the flight, he continued. "All I can say is that it appeared from those [NASA] photos that there was an explosion."

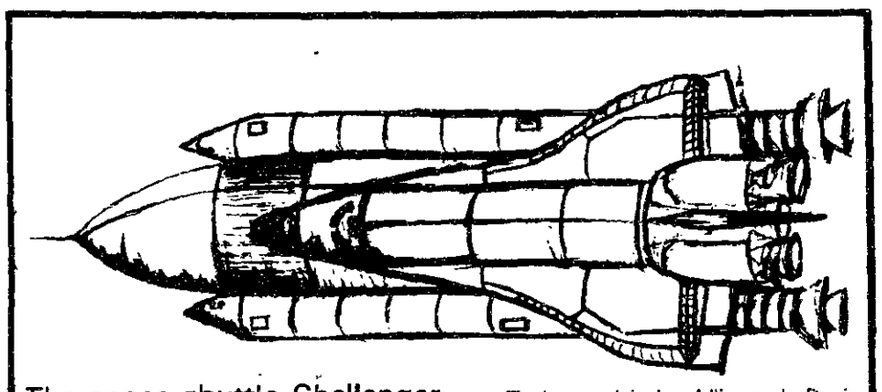
The television stations' footage aroused many questions about the cause of the accident, Moore said. "We will not speculate as to the specific cause of the explosion based on that footage. It will take all the data, careful review of that data before we can draw any conclusions on this national tragedy."

An interim investigating board has been formed to collect information about the explosion, Moore said, adding that the agency's acting director will organize a formal review board in the next day or so.

"We do not have any detailed debris reports," Moore said. He said he did not know the amount of fuel on the shuttle or its explosive power; the formal investigating board would examine those kinds of questions, he continued. He would not speculate on the reliability of the shuttle, given its complexity.

"We're obviously not going to pick up any flight activity until we fully understand what circumstances were relevant to this morning's launch," Moore said. He would not estimate how long the shuttle program would be delayed by the investigation.

Moore denied a report that a derrick arm had damaged a fuel tank on Saturday. The arm hit another section of the assembly, and the minor damage had been repaired, he added.



The space shuttle Challenger. Tech graphic by Allison J. Druin

Another shuttle may be built to replace Challenger, Moore said.

Reagan eulogizes crew

Reagan delivered a televised eulogy of the Challenger's crew at 5 pm. "We have never lost an astronaut in flight; we have never had a tragedy like this. And perhaps we have forgotten the courage it took for the crew of the shuttle; that they, the Challenger seven, were aware of the dangers. They overcame them, [and] did their jobs bravely.

". . . They had that special grace, that special spirit that says, 'Give me a challenge and I'll meet it with joy.' "

Reagan said the public has grown used to the idea of space, "and perhaps we forget that we have only just begun. We are still pioneers. They, the members of the Challenger crew, were pioneers."

He told the schoolchildren who had witnessed the disaster on television: "I know it is hard to understand, but sometimes painful things like this happen. It is all part of a process of exploration and discovery.

"The future doesn't belong to the faint-hearted. It belongs to the brave. The Challenger crew was putting us into the future, and we will continue to follow it."

(Editor's note: Andy Fish, Thomas T. Huang, Ben Stanger, Harold A. Stern and Earl C. Yen contributed to the research and writing of this report and Robert E. Malchman contributed to its writing.)

McNair stresses importance of knowing oneself

(Editor's note: This interview with Ronald E. McNair PhD '76 is reprinted by permission of the Office of Career Services.)

Many of us possess talents or abilities but do not excel because we don't take the chances or act on the challenges that come our way. We need to walk over to the edge of our abilities and then move beyond that edge. We have to step past our place of comfort.

I have found that complacency does not foster self-advancement. You have to take the extra step; run the extra mile. From the outside, this can look difficult — even awesome. However, once you aquire the skills to perform the task, it almost seems easy. Like most things in life, it's easy if you know how.

My own success was contingent on an unyielding determination to press on. I had battles along the way — some of which I enjoyed fighting — and others that I would never choose to ride by again. One of the keys for me was to stay balanced both physically and mentally. To do this, I tried to maintain solid, lasting friendships with people who would see me through — and to maintain my body.

I first came to MIT as a junior for a year of study in physics. I found it to be very different from my home state of South Carolina and from North Carolina A&T where I was studying. It was much easier, though, when I came back later to complete my graduate work. At MIT there was tremendous exposure and opportunity for real research and science. I was able to get into the laboratory and build my own equipment. I was working on lasers at that time. Not only was I challenged to grow academically, but I was also challenged to grow personally. I had good relationships with the faculty and students in my research group. We formed a close-knit unit at that time, and many of us are still in touch. It was closeness that helped me through the transition of settling into a new environment.

As jobs were more plentiful than later in the seventies, it was a good time to be studying physics. But whether the job prospects seem a little better or a little worse, I strongly encourage participation in science and engineering — if that's what you want. The job market can change, and if you're doing what you like to do, you'll be more likely to find employment. If science or engineering is right for you, it can provide a truly fulfilling career. For me, knowing that I could peer into the microscopic world where normally I cannot see and actually affect change was exhilarating.

As an undergraduate I had learned and taught karate, and during my time at MIT my karate activities took a great deal of my time. It was thoroughly worth the effort. For me, karate not only helped me to stay physically attuned, but greatly alleviated the mental stress of graduate school. It also afforded me an outlet for my teaching interests. Karate combined teaching and physical exertion in a flowing art form. I loved it, and it helped me keep both feet on the ground — except when I taught kicks, of course.

Both in terms of karate as well as physics I was very fortunate to have found what I enjoy doing early in life. Finding what you like to do is an important first step towards success. Once you have found your interests you can act on the motivation within you. It is this motivation that can steer you onto a course that is right for you. Along the way, get out and take advantage of the opportunities around you. Find summer employment and meet and talk with people who can assist you on your way.

When I was a graduate student, I often felt that students — and particularly minority students — got into an isolated mode. I think it's tough when you try to bear all your burdens alone. We can achieve a real camaraderie among people if we allow it to happen. With such friendships everyone can grow.

Photo courtesy MIT News Office/Calvin Campbell

Dr. Ronald McNair discussed his February '84 flight aboard Challenger with MIT faculty and students last April.

If you are interested in becoming an astronaut, I would encourage you to pursue your science and engineering interests to the full. Truly there is no more beautiful sight than to see the earth from space beyond. This planet is an exquisite oasis. Warmth emanates from the earth when you look at her from space. I could no more look at the earth and see anything bad than I could look at a smiling little girl or boy and see a bank robber. It's impossible to see anything but goodness. My wish is that we would allow this planet to be the beautiful oasis that she is, and allow ourselves to live more in the peace that she generates.

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The Legend of Fred

By Jim Bredt

sports

Men's track runs by Williams, Tufts

By Robert Zak

The men's varsity track team settled an old score Friday at Williamstown by defeating Williams College and Tufts. The Engineers' last loss to a Division III opponent was at the hands of the Tufts Jumbos in the final event of a meet three years ago. This time, in a meet which seemed much closer than the final score (MIT 87, Tufts 50, Williams 33), MIT brought their season record to 6-1.

Scott Deering '89 managed only second place in the weight throw, despite coming within two feet of the MIT freshman record and setting a new personal best. He regained his composure in the following event to take first place in the shot put. Mike O'Leary '89 applied friendly pressure on his teammate by placing fourth in the weight throw and third in shot put.

The comparatively low ceiling over the pole vault pit gave Scott Baird '87 a sensation comparable to "jumping through the roof." Baird placed third in the event, also setting a new personal best height. Co-captain Ross Dreyer '86 won the event, and teammate Bobb White '87 placed second.

Sean Schubert '88 took a few minutes before running in the 500-meter race to gain an unexpected win in the triple jump. Young Don Oh '89 also had a good day in the pit, landing in the sand 37'11" from the mark to take fourth place.

Hurley from Tufts took an early and substantial lead at the start of the 1500 meter race. Gordy Holterman '87 spent the last half of the race battling a sore hamstring, gradually reeling Hurley back in. With a lap and a half to go, Holterman caught Hurley; the two sped around the backstretch of the final lap vying for position around the final curve.

In the end, Hurley held onto first — Holterman was caught trying to pass around slower competitors the two leaders had lapped. Rod Hinman '88 was also forced to break stride in the last lap by a Williams competitor overeager for the inside lane around a curve. Hinman refused to acquiesce, and earned third place when repassing his opponent in the final straightaway.

A hurdle knocked loose by a competitor gave Sean Garrett '88 a cut on his kneecap, but did not keep him from winning the 55-meter hurdle race. Vanu Bose '87 placed second, half a second behind.

Co-captain Dan Lin '86 found some unusually stiff competition in the 400-meter race. In the two-and-a-quarter-lap run, Lin found himself behind Lopez from Williams when they broke for the pole after the first lap. Lin ran stride for stride with Lopez for the rest of the race, finishing one length behind with a new personal best time.

The large number of competitors and small number of lanes at the indoor track meant that many of the shorter races had to be run in sections. In the 500-meter race, it was not clear until the final times were compared that MIT had taken first and third in this event. Marc Light '88 led from the start of his heat, winning it without opposition. Charles Parrott '87 took the early lead in his heat, but was eventually passed by Nadelman from Williams. Even so, Coach Halston Taylor described Parrot's personal best time of 1:09.07 as one of the meet's best performances.

In an unexpectedly volatile race, the MIT distance squad swept first through third in the 3000-meter run. Bill Mallet '86 took the early lead in the 16¾-lap event, but was eventually passed by teammate Robert Zak G, who led until the end of the first mile. Sean Kelley '89 then went into the lead and won the event. Turan Erdogan '87 traded places with runners from Williams for the first part of the race, and then overcame the competition with two laps to go to finish second. Zak maintained his position behind Erdogan to finish third.

The Engineers will get a dose of heavier competition at the Greater Boston Championships (GBCs) at Harvard this weekend. Although the MIT team is overshadowed by Division I powerhouses Harvard and Northeastern, team members look forward to the experience gained by competing against outstanding Boston area athletes. After the GBCs, MIT has two home meets scheduled before gearing up for the postseason in late February and March.

(Editor's note: Robert Zak G is a member of the men's varsity track team.)

Williams vs. MIT - Tufts

55 meter dash — 1, Bennett, Tufts, 6.62; 2, Joe Peters '88, MIT, 6.74; 3, Sean Garrett '88, MIT, 6.83.
400 meters — 1, Lopez, Williams, 50.21; 2, Dan Lin '86, MIT, 50.85; 3, Payne, Tufts, 52.81.
500 meters — 1, Marc Light '88, MIT, 1:07.96; 2, Nadelman, Williams, 1:08.90; 3, Charles Parrott '87, MIT, 1:09.04.
800 meters — 1, Servin, Williams, 2:03.34; 2, Anan Dighe '89, MIT, 2:04.62; 3, Kyle Robinson '89, MIT, 2:05.72.
1000 meters — 1, Herutty, Tufts, 2:35.23; 2, Gordy Holterman '87, MIT, 2:37.99; 3, Rod Hinman '88, MIT, 2:39.65.
1500 meters — 1, Hurley, Tufts, 4:06.22; 2, Holterman, MIT, 4:07.14; 3, Hinman, MIT, 4:09.50.
3000 meters — 1, Sean Kelley '89, MIT, 9:07.4; 2, Turan Erdogan '87, MIT, 9:13.1; 3, Robert Zak G, MIT, 9:15.0.
1 mile relay — 1, Williams, 3:33.0; 2, MIT (Ted Bosey '88, Peters, Lin, Parrot), 3:36.32; 3, Tufts, 3:38.53.
2 mile relay — 1, Williams, 8:29.4; 2, Tufts, 8:49.4; 3, MIT, (Brian Callaghan '87, Bob Joy '87, Dighe, Robinson), 8:57.5.
35-pound weight — 1, Rockett, Tufts, 51'4"; 2, Scott Deering '89, MIT, 48'10"; 3, Husser, Tufts, 41'9"; 4, Mike O'Leary '89, MIT, 41'1-¼".
Shot put — 1, Deering, MIT, 43'8"; 2, Root, Williams, 40'9-¼"; 3, O'Leary, MIT, 38'10-¼".
Pole Vault — 1, Ross Dreyer '86, MIT, 13'6"; 2, Bob White '87, MIT, 13'0"; 3, Scott Baird '87, MIT, 13'0".
Long Jump — 1, Morton, Tufts, 20'6"; 2, Bennett, Tufts, 19'11"; 3, Ken Patrick '89, MIT, 19'8"; 4, Peters, MIT, 19'7".
High Jump — 1, Glenn Hopkins '87, MIT, 6'0"; 2, Garrett, Tufts, 5'10"; 3, Barrow, Tufts, 5'10"; 4, Callaghan, MIT, 5'8".
Triple Jump — 1, Sean Schubert '88, MIT, 40'6-½"; 2, Morton, Tufts, 39'9"; 3, Carroll, Tufts, 38'11"; 4, Young Don Oh '89, MIT, 37'7-½".

sports

Women gymnasts beat Coast Guard, Vermont

By Madeleine Biber

The women's gymnastics team beat the Coast Guard Academy and a team of two gymnasts from the University of Vermont on Saturday, scoring 116.9 to Coast Guard's 79.40 and Vermont's 49.35.

Catherine Rocchio '89 captured first place on the balance beam and second place in the all-around, while Evie Vance '86 took third place on the uneven parallel bars and in the all-around. Debbie Shirek '89 repeated her score of 8.156 on the vault from last week, to capture second place in the event. Linda Lee '86 also had a fine vault, for a 7.8 and third place.

Team members Hillary Thompson '87, Grace Tan '86 and Rocchio all challenged themselves with new, more difficult routines.

One of the most impressive performances of the evening was Thompson's routine to *Eine Kleine Nachtmusik* in the floor exercises. She unveiled several new tumbling passes, including a layout and a tucked back flip.

MIT will host Rhode Island College Saturday at 2 pm, upstairs in Dupont Gymnasium.

(Editor's note: Madeleine Biber '86 is co-captain of the women's gymnastics team.)

CORRECTION

Philosophy

Distribution Subjects

24.04 Moral and Legal Responsibility
3-0-6

Introduces that area of philosophy which deals with what is involved in holding people responsible for what they do and what they cause. Questions: May anyone ever properly be held responsible or at fault for anything? Is freedom of the will necessary for responsibility or blame? What, if anything, is the justification for punishment? Under what conditions should a legal system hold a person liable for the damage he or she causes? Readings include classical and contemporary writings and some selected judicial opinions.

MWF 2-3 36-155

THOMSON: Every society needs to determine for itself, and express in its legal code, its ways in which it will fasten responsibility on those of its members who cause harm to others of its members. Considerations of morality and efficiency enter into the decisions the society makes. The class will look at the ways in which moral conceptions of fault are expressed in a society's legal rules, and at the sources of change in a society's legal system -- in particular, at those places at which a society may decide to relax its concern for fault in the name of efficiency.
reading per week: 25-50 pages
writing per term: 25-30 pages
3 8-10-page papers
no quizzes
no mid-term exam
3-hour final exam

ADDITION

MIT STUDENT'S GUIDE TO THE HUMANITIES, ARTS AND SOCIAL SCIENCES

Political Science

Elective Subjects

17.247 National Security and Democratic Values

Prereq.: 17.241, 17.243 or 17.245 or Permission of Instructor
3-0-9

The growth of national security concerns poses important challenges and problems for individual freedom and democratic processes. This course examines this phenomenon and congressional and presidential initiatives to deal with these perceived problems. Intelligence agencies, loyalty-security clearances, secrecy and classifications, espionage, freedom of press, of travel, of scientific exchanges, and defense spending will be examined.

Menand T 3-5 10-280

History

21.481 The Middle East in the 20th Century

3-0-6 *HUM-D*

Khoury MW 9-10:30 5-233

21.484 Modern Egypt and Iran: Islam and Politics in Historical Perspective

3-0-6

Khoury MW 1-2:30 4-145

UA NEWS

Forum

on

Pornography Policy

February 5th, 4:00 pm

Mezzanine Lounge

Student Center

★★★★★

The UA Council and Graduate Student Council will be voting this month on an updated version of the policy concerning sexually explicit films on campus. Students should attend and give input to this vote.

Tuition Increase?

Bryan Moser will be presenting information to the administration concerning the affect of high tuition on student life. Send letters to Bryan at the UA Office describing how tuition levels have affected your life:

- How has high tuition affected student life?
- How does high tuition affect MIT's applicant pool?
- How does high tuition affect study and career choice?

Send them to W20-401 by February 14th.

Education Reform:

Student Response to the Institute

Take a seminar for credit to help draft a student critique to current efforts on education reform. Discussions centered around student perspectives on educational policy and serious participation of students will take place. History of policy at MIT, trends at other universities, and student initiated research projects will be assisted by Professors Kaysen+Snyder. Contact the UA Office for more details.

STS208 Student Perspectives on Education Policy and Reform — Tuesdays 7:00pm

Professors Carl Kaysen and Benson Snyder

sports

MIT holds off Nichols, 64-60

By Earl C. Yen

Has the men's basketball team rebounded from a mid-season slump? Two consecutive strong performances seem to say so. The Engineers (5-10) held off a strong comeback effort by the visiting Bison of Nichols College (2-13) to win 64-60 Saturday in Rockwell Cage. MIT also beat Curry College last week.

Saturday

AT MIT

Engineers (64)

	FG M-A	FT M-A	Rb	A	PF	TO	Pts
Poole	7-17	3-4	5	1	1	2	17
McElroy	6-16	3-4	17	2	3	1	15
Mihura	5-6	2-5	6	1	4	2	12
Egan	1-2	2-2	0	4	2	4	4
Nelson	5-13	1-2	4	4	4	5	11
Csgrnde	0-2	1-4	2	0	0	2	1
Pratt	1-2	0-0	1	0	1	2	2
Loyd	1-1	0-0	0	0	0	0	2
Evans	0-0	0-0	0	1	0	3	0
Cornwall	0-2	0-0	0	1	1	0	0
Totals	26-61	12-21	42	14	16	21	64

First Half: Field Goals 15-33; Free Throws 2-4. Team Rebounds: 7. Blocked shots: 3 (Mihura 2, Nelson). Steals: 3 (McElroy, Nelson, Casagrande). Technical Fouls: None.

Nichols (60)

	FG M-A	FT M-A	Rb	A	PF	TO	Pts
Beebe	4-7	1-3	11	0	1	2	9
Blswtz	4-11	2-3	7	3	4	2	10
Gbrieln	10-15	2-4	7	0	4	5	22
Namin	6-16	1-1	7	4	4	11	13
Dick	0-1	0-0	1	0	0	0	0
Crimmin	2-5	0-0	1	0	0	2	4
Amrnte	1-3	0-2	0	1	4	1	2
Chainey	0-0	0-0	1	1	0	1	0
Stilwrth	0-0	0-0	1	0	0	1	0
Totals	27-58	6-13	40	11	17	25	60

First Half: Field Goals 11-24; Free Throws 1-4. Team Rebounds: 4. Blocked shots: 6 (Beebe 2, Blasewitz 2, Gabrielian, Namin). Steals: 9 (Namin 5, Gabrielian 2, Beebe, Amarante). Technical Fouls: None.

Nichols Bison	23	37	— 60
MIT Engineers	32	32	— 64

A-150. Officials — Paul Thornton (R); Don Pittsley (U).

Against the Bison, MIT enjoyed a 46-31 lead going into the final 13 minutes of the game, when the visitors' defense toughened. The visitors' full-court press enabled them to storm back over the next nine minutes and outscore the Engineers, 20-8, closing the lead to 54-51.

The Engineers quickly regained their composure, as 6'6" center Bruce Mihura '88 sank the first of two free throws to give MIT a 55-51 edge at the 3:17 mark. Craig Poole '86, who led MIT scorers with 17 points, scored on the Engineers' next possession, and a tip-in by Mihura moments later extended the margin to eight points.

Poole sealed the Bison's fate when he converted both ends of a one-and-one free throw opportunity, giving MIT a 61-51 lead with 1:59 remaining.

"It was a great win for us," said Coach Fran O'Brien. "We were very pleased with the win because Nichols played an excellent second half. We played very well at times in the first half, but we let them get back in the game."

The Bisons seemed unable to stop the Engineers' fast-break offense in the first half, as MIT ran to a 10-0 lead in the opening minutes of the game. Mihura and forward Mike McElroy '87 scored on a series of outlet passes from 5'7" point guard Jim Egan '86. McElroy, whose 15 points pushed his MIT career total past the 1000 mark, dominated the boards, grabbing 17 rebounds. Mihura spent much of the game in foul trouble but still tallied 12 points and six rebounds.

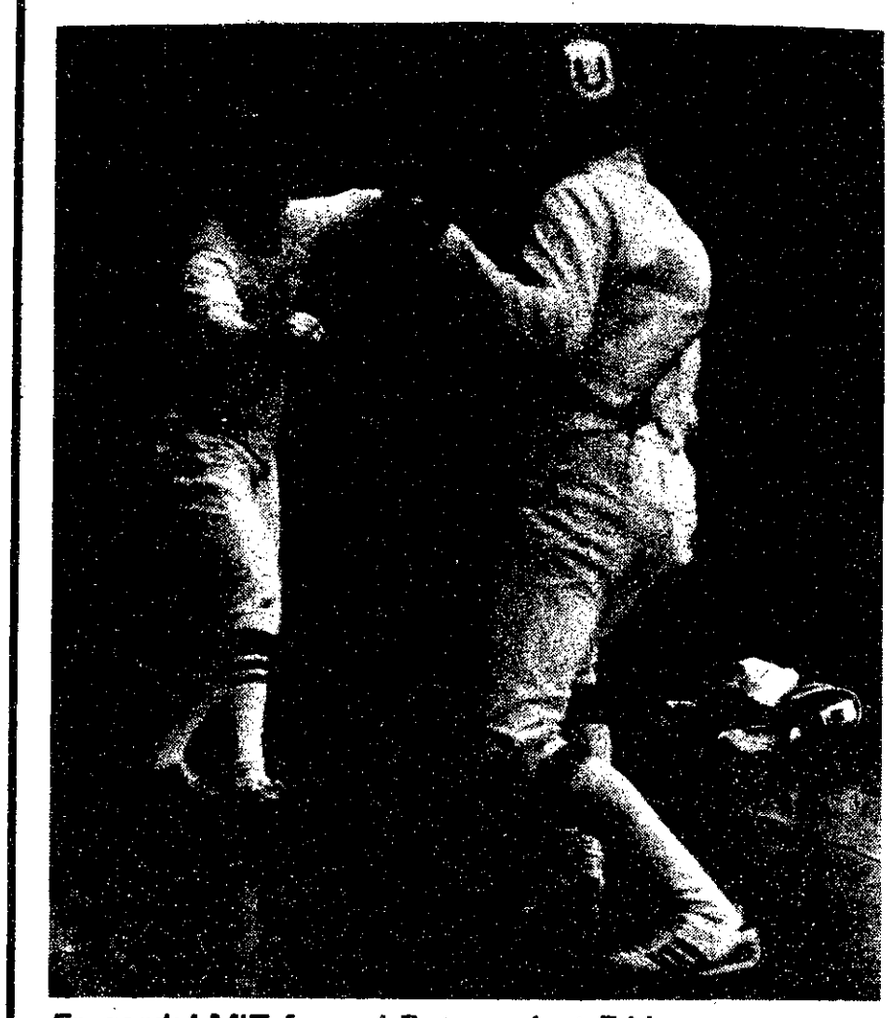
Nichols scored for the first time with 14:38 remaining in the first half. Kevin Gabrielian and Paul Blasewitz, the Bisons' pair of 6'4" front-liners, maneuvered their way inside the Engineers' zone defense for 17 first-half points. Meanwhile, Nichols applied a full-court press that slowed MIT's offense.

A Nichols surge late in the half brought the Bisons within five points of MIT with two minutes remaining, but they could come no closer. The Engineers led at the half, 32-23.

McElroy opened the second-half scoring on a lay-up after a rebound. But the Bison defense shut down McElroy for the remainder of the contest, limiting him to only two more points. McElroy, averaging 21.2 points-per-game, only managed to score 15 points.

Poole paced the Engineers' second-half attack, while Randy Nelson '86, who turned in an 11-point performance, provided MIT with some much-needed perimeter shooting.

The Engineers broke a seven-game losing streak on Jan. 23 with a 69-60 victory over Curry College. They begin a four-game road trip next week, traveling to Connecticut College, Wesleyan, Amherst, and Gordon. MIT returns home to play Emerson on Feb. 8 as the team completes its season with five home games.



En garde! MIT fenced Rutgers last Friday.

MIT women swimmers drown Babson, 61-42

By Alison C. Morgan

The women's swim team fed Babson College to the sharks with a 61 to 42 score last Thursday evening at the Alumni Pool. The Engineers often led by body lengths and whole laps.

Things looked bleak for the visitors with the opening event as Tech's 400-yard medley relay team outdistanced Babson's by almost a minute. MIT's swimmers were sailing halfway through the meet, 48 to 14. "Every time they swim they get faster," gushed coach John Benedick.

Tech surfaced in the 100- and 200-yard breaststroke with winning times of 1:16 and 2:45 by Julianne Marquet '87. Rebecca Perry '86 dominated in backstroke, winning the 200 by more than 10 seconds. However, Tech didn't monopolize all four competitive strokes as Babson's Cheri Cohen and Ann Johnson captured photo finish first places in butterfly and freestyle.

MIT's superior endurance was especially noticeable in the longer races, such as the 1000- and 500-yard freestyle. Michelle Quinton '89 won both marathon events.

The Engineers swam "very well" considering "there was no real competition," according to Benedick. MIT virtually owned the scoreboard for the first eleven races and decided to enter unofficially in 5 out of 6 of the remaining events.

The team will take its 3-2 record to the New England Championships and competition at Wellesley Feb. 4.