

Martin Luther King Jr., January 15, 1929

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Tech photo by Henry Wu

Bishop Desmond M. Tutu, winner of the Nobel peace prize, speaks out against apartheid Friday at Harvard.

Tutu backs apartheid protests

By Katie Schwarz

American protests against apartheid give hope to apartheid's opponents in South Africa, said Bishop Desmond M. Tutu at Harvard University Friday night. "Some people may want to say to you that what you do ten thousand miles away doesn't affect South Africa, but what you do reverberates around the world," said the 1984 Nobel Peace Prize laureate, speaking at Harvard's Kennedy School of Government on the first day of a twelve-day North American tour. Anti-apartheid movements in foreign countries send a message to South African activists that their cause is just, Tutu contin-

ued, as well as causing foreign governments to put political and economic pressure on Pretoria. Tutu attributed the sanctions imposed by Congress on South Africa last summer to "people power."

A wide gap separates white and black South Africans' perceptions of their country, the Bishop said. "What you see depends on who you are . . . when we look at the same reality, we perceive a difference."

White South Africans believe that their country is becoming less segregated, Tutu said, but "the perception of blacks is opposite . . . it is as if we inhabit different planets." To black

South Africans, reforms such as the repeal of laws forbidding racially mixed marriages are cosmetic and the government "remains as oppressive, as ruthless as ever," he explained.

South African blacks are no longer satisfied with gradual, incremental improvements, Tutu warned. "You don't reform an oppressive state, you destroy it." A proposed new constitution giving greater political power to

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Caltech, MIT discuss core curriculum issues

By Katie Schwarz

Representatives of the California Institute of Technology visited MIT yesterday to compare notes on the two schools' efforts toward curriculum reform.

A Caltech faculty committee, fearing that the school's workload is too high and its graduation rate too low, has begun a review of the "core" of science subjects required for all students. Two committee members, chemistry professor Sunney Chan and mathematics professor David Wales, are traveling to schools such as MIT, Princeton and Stanford to study their science requirements.

Chan and Wales met with Dean for Undergraduate Education Margaret L. A. MacVicar '65 and the heads of the commit-

tees currently refashioning MIT's humanities requirements, science core and engineering education.

Caltech formed the core committee, whose members were appointed by the chairman of the faculty, at the last faculty meeting of the 1985-86 academic year. Professors were concerned that required courses were taught at too advanced a level, Chan told *The Tech*. Consequently, he added, students are overworked and don't have time to "digest and think."

Caltech, which uses a quarter system consisting of three terms of class and one of vacation per year, requires all students to complete two years of physics, two years of mathematics, and two terms (two-thirds of a year) of

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inside

Faculty, staff and students investigate the MIT education in three IAP forums. Page 2.

Delicate passages: The Boston Early Music Festival Orchestra ushers back the winds of summer. Page 6.

A flawed MIT Museum exhibition presents the works of Minor White, an influential, controversial photographer who taught at MIT. Page 7.

Bridge will remain open during repair

By Andy Fish

In a departure from its original plan, the Department of Public Works (DPW) will keep the Harvard Bridge open to all vehicles during its reconstruction. The full reconstruction of the bridge will begin in 1987, said Chesten Radlo of the DPW, but he did not know how long the reconstruction would take.

The DPW planned to close the bridge in order to complete the reconstruction as quickly as possible, Radlo said. Better work could have been done with the bridge closed, he said. Reconstruction will now extend over a longer period of time.

The new plan "probably fell into place over the last couple of months," said O. Robert Simha, MIT director of planning, in an interview with *The Tech*. Several factors caused the DPW to change plans:

- A preliminary environmental assessment described the adverse impact of detoured traffic on the surrounding roads, Simha said. Thirty thousand vehicles use the bridge daily. The traffic problems would be "heart-breaking," Radlo said.

- The Massachusetts Bay Transportation Authority (MBTA) also wished to use the bridge for its #1 Harvard-Dudley bus route, Simha said. The route had to be lengthened by over two miles because of the bridge closing, he added.

The DPW intends to temporarily repair the eastern, downstream side of the bridge this spring, Simha said. It will also repair damage caused by a December truck accident. "The damage done by the truck was significant," Radlo said.

The reconstruction will allow MBTA buses to use the downstream side of the bridge, Simha said. The full refurbishing of the bridge will be completed one half at a time, with the bridge remaining open to pedestrian, MBTA, and private automobile traffic at all times, he continued.

Temporary repair on the downstream side of the bridge will be completed by the end of this summer, Radlo said. At that time all traffic will use the downstream side of the bridge, rather than the center lanes, he continued. MBTA buses will be permitted to use the bridge at this time.

The bridge, however, will still be closed to trucks, according to a Dec. 17 memorandum from Simha to Senior Vice President William R. Dickson and Associate Dean for Student Affairs Robert A. Sherwood.

The DPW will accept bids for the permanent refurbishing of the bridge next year, according to the memorandum. Reconstruction will begin on the upstream side of the bridge and will involve the total replacement of the superstructure, the memorandum stated. The DPW will sponsor a public hearing on the new plan as soon as Feb. 11, Radlo said.

Police close fire investigation

By Alison C. Morgan

Investigators of a Dec. 13 fire set in the offices of the MIT Navy Reserve Offices Training Corps (NROTC) program concluded a joint inquiry last Thursday, but failed to find those responsible for the blaze, according to MIT Campus Police Chief James Olivieri.

The MIT Campus Police, the Cambridge Fire Department Arson Unit and the Naval Investigative Services pooled their efforts in the investigation of that Building 20 fire, Olivieri said in an interview with *The Tech*.

Robert C. DiIorio, assistant director of the MIT news office, said in the Dec. 14 issue of *The Harvard Crimson* that several graduate students were returning to their offices next to the NROTC offices at about 12:30 am when they spotted an open door to an NROTC room. Inside, they found desks in three separate offices ablaze. The students, who wished to remain anonymous, then called the fire department and put out the flames with assistance from the firemen.

The fire resulted in no injuries and the offices, which contained personal and administrative files, suffered only minimal property damage. "There were ashes on the desks, as if the blotters were burned, and that's about it," reported a Harvard ROTC participant who wished to remain anonymous. The following day, "business was going on as normal" in the offices, he continued. Commander Jim Ward, execu-

tive officer of Naval Science, told *The Tech* that repairwork would cost "less than \$5000." The fire damage was "superficial," Olivieri added.

The investigators suspect the fire to be the result of arson, largely due to the suspicious presence of an MIT phone directory soaked with an unidentified flammable liquid sitting atop a fourth

unburned desk, *The Crimson* reported.

The investigators interviewed the entire NROTC staff as well as all the available midshipmen enrolled in the NROTC program in connection with the arson incident, Ward said. He requested that anyone with information about the fire contact either Police Chief Olivieri or himself.



Tech photo by Frank Modica

A Hawthorne skater checks an MIT player Saturday. MIT lost the game in the final seconds 6-5.

IAP meetings focus on education reform

Forum considers engineering reform



Tech photo by Henry Wu

Faculty from STS (Science, Technology and Society) and representatives of Student Pugwash discuss "What makes a good engineering education" in an IAP forum Thursday.

Pressure causes "firehose"

By Ben Stanger

President Paul E. Gray '54 and other faculty and students unanimously agreed yesterday that "getting an education at MIT is like drinking from a firehose." There is a paradox to MIT's "boot-camp syndrome," in which sloth represents the "cardinal sin," Gray said. This paradox concerns both resentment and pride.

Much of MIT's fast pace is self-imposed and driven by "the mores of the community," Gray said. The pace can result in resentment of the Institute, he explained, citing "The Big Screw" and "IHFP." When graduates look back on their years at MIT, however, it is with a sense of pride for having "survived," he said. Alumni say they learned how to cope with pressure and perform at a high level when necessary. These two perspectives represent the paradox of MIT education, Gray concluded.

Professor Alvin W. Drake '57, chairman of the Committee on Student Affairs, stressed the need for students to make conscious decisions about their growth. "The overload . . . kills any kind of opportunity for learning about learning," he said.

Drake suggested an option which would allow students to remove their choice of 30 percent of the requirements for graduation from the Department of Electrical Engineering and Computer Science. This would prevent students from being forced into particular educational tracks by an overwhelming workload, Drake said. "Most people will still take more than we require," he added.

Many students who come to MIT are "introverted" and "intolerant of ambiguities," Drake

continued. "Surprisingly enough, MIT tends to reinforce those tendencies more than a little bit.

"We are a firehose; we want to be a firehose; we will always be a firehose," he said. That should not interfere with the students' choices, Drake added.

George E. Georges '86 echoed Drake's concerns. His years here represented a typical "firehose" experience, he claimed, with an average of five hours of sleep on a week-night and eight to ten "all-nighters" per semester.

Students need to gain the sense that one has control over what comes out of the firehose, Georges said. Changing the freshman requirements, in particular the physics requirement, would help in this respect, he suggested.

Other students at the forum felt similarly about the freshman physics requirement. Alan F. Szarawski '88 suggested replacing a few of the lectures for Physics I (8.01) and other freshman core courses into guest lectures by faculty from the program in Science, Technology and Society.

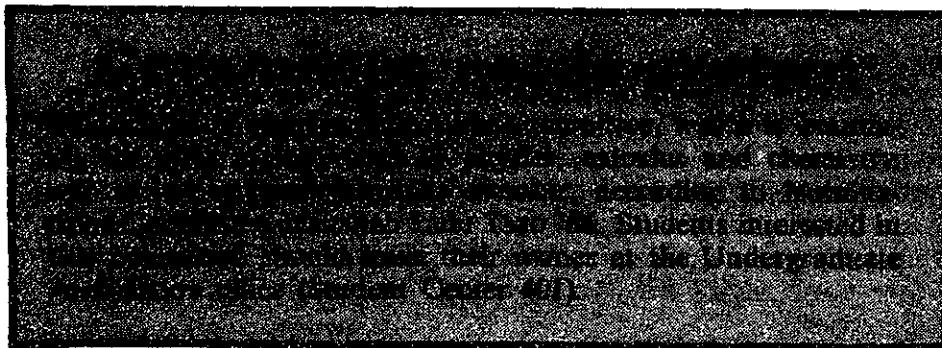
One concern shared by several people at the forum was that

freshmen become indoctrinated in MIT culture soon after arriving.

After ten days, students already know the "game rules," said Margaret L. A. MacVicar '65, dean for undergraduate education. "The culture is set by the upperclassmen," said Samuel Jay Keyser, professor of philosophy and associate provost.

Professor James R. Munkres blamed the faculty for most of the pressure at MIT. Ninety-five percent of the faculty "wouldn't be caught dead at a forum like this," he said. "Nobody's blamed the faculty yet. I'm prepared to."

"The faculty are part of the culture and the students are part of the culture, so everyone's implicated," Rich Cowan G concluded.



New degree combines fields

By Katie Schwarz

MIT should produce graduates "capable of going beyond the limitations of a mere technical education," said Professor Leo Marx at a forum Monday. In light of this, the Committee on Integrated Studies will recommend the creation of a four-year program that would lead to a Bachelor of Science and Arts degree, combining technical and humanistic concerns.

Many of today's problems — such as acid rain and arms con-

trol — involve both technical and social issues, he explained, and educating people who can deal with them is "something MIT ought to be doing."

Marx heads the Committee on Integrated Studies, which has been examining the possibility of a "college" combining technical and liberal arts education for a select group of MIT undergraduates. He outlined some preliminary conclusions of the committee's term-long study at the open forum, which was attended by most of the committee members, about eight students and Director of Admissions Michael C. Behnke.

Students would enter the new degree program at the beginning of the freshman year, and emerge with "dual competency" in both a technical field and a humanistic field.

There is a need for the proposed new program because the present joint degrees in Humanities and Engineering or Humanities and Science (Course XXI-E or XXI-S) do not provide enough fellowship among students, Marx said. Students majoring in the liberal arts have trouble finding "like-minded people," he said.

By contrast, Marx sees the integrated college as a "truly hospitable environment" which would make students feel "privileged, specially endowed, highly encouraged." The 100 to 150 students per class that Marx hopes to attract would share a core of requirements, including a freshman subject in Western culture and upper-level "bridge" semi-

and environmental issues surrounding technical developments," according to Kerrebrock.

The commission expects to produce a preliminary report with recommendations by May 1986. It is divided into three subgroups which are examining the Institute core, engineering curricula, and Institute environment.

"What we teach our students today is not very different from what I studied," said James A. Fay '47, professor of mechanical engineering. "What is different is the emphasis on humanities and social science."

Although there is a problem in how best to make use of time devoted to humanities and social sciences, Fay said, the math, science, and engineering curricula do not need substantial revision.

Leo Marx, chairman of the Committee on Integrated Studies, said the connection between engineering and humanities must be made in class. "[MIT] can't just have separate courses and expect that the connection will be made."

"It is important that engineers address issues of social responsibility in the context of engineering education," according to Kathryn Harrison G of MIT Student Pugwash. By incorporating environmental, ethical, social, and political issues into core courses and research programs, engineers could explore social issues outside of humanities and social science classes, she suggested.

Caroline A. Whitbeck '70, visiting associate professor in the School of Engineering, said "technology has produced new morality which caused a need for responsibility [among engineers]." Humanistic considerations, she said, should be brought into the engineering education itself to produce a responsible engineer.

nars dealing with topics such as innovation in science and arts.

MIT needs the new college to meet its "special responsibility today in a society increasingly dependent on the social consequences and applications of science-based technology," he said.

Marx stressed the potential rigor and challenge of the new college: "It should be more demanding than an ordinary degree." Graduates would fulfill the requirements for a normal MIT degree in both of their fields of study, he said; consequently, few free electives would be available.

The goals of the new degree program, according to Marx, include attracting high school students who qualify for MIT but do not attend because the Institute's reputation for engineering overshadows its other offerings. A freshman at the forum, who said he had been more interested in the broader education at Harvard and Stanford but was not admitted there, said that "a program like yours would have made the decision [to come to MIT] a lot easier."

Professor Philip Khoury, a member of the committee, agreed that competition for the top students with schools such as Harvard, Stanford and Princeton hurts the Institute. "People in the faculty more and more fear narrowness" in the student body, he added, and this narrowness is "jeopardizing the future."

To counteract this trend, Marx said the committee plans national

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President Paul E. Gray '54 discusses the merits and frustrations of an MIT education yesterday during an IAP seminar.

Tech photo by Sidhu Banerjee

news roundup

Nation

White House calls Iranian search of vessel justified — Iranian officials boarded a US freighter Sunday, in search of military cargo destined for Iraq. Iran has been searching neutral ships for five months; this was the first time they boarded a US vessel. The State Department said that the action may have been justified, citing American search of ships destined to Cuba during the 1962 Cuban missile crisis.

Local

Walter Sullivan becomes Cambridge mayor — The Cambridge City Council began a new two-year term of office with the inauguration of councillors Jan. 6. Walter J. Sullivan, who is beginning his fourteenth council term, was elected to chair the council as mayor.

Cereal

The Captain returns — Captain Horatio C. Crunch returned from a secret mission in the Milky Way last month. By firing bowls of Cap'n Crunch Cereal, he shielded the earth from the "milky ray" of Squish and the Soggies, groups having the power to sog everything on earth.

Sports

Bears roar in praise for the Patriots — Following the New England Patriots' 34-14 defeat over the Miami Dolphins Sunday, the Bears credited the Patriot defense for their conversion of four Dolpin fumbles to 24 points. The Bears maintain that the Patriots have changed since they lost to Chicago 20-7 in the second week of the season.

Weather

They say the teens are the roughest times — Clearing is expected. Predicted highs are in the teens.
Stephen S. Pao

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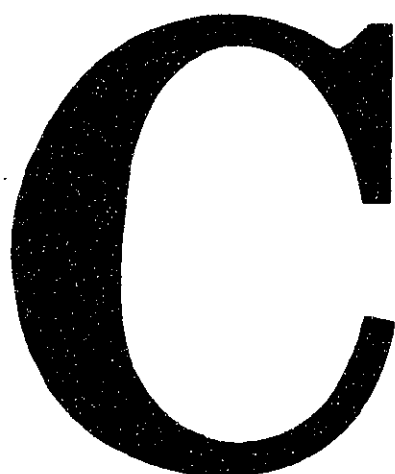
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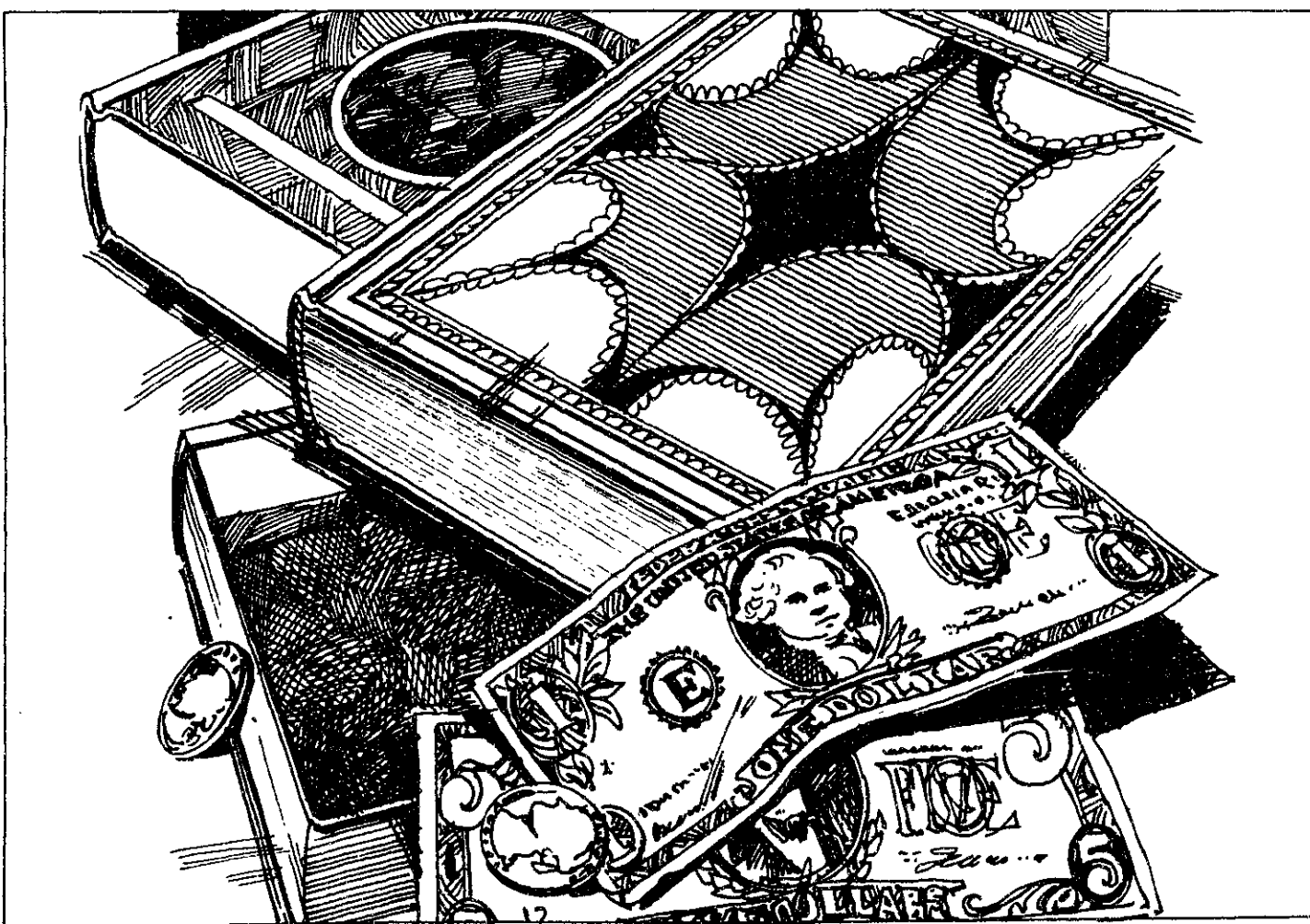
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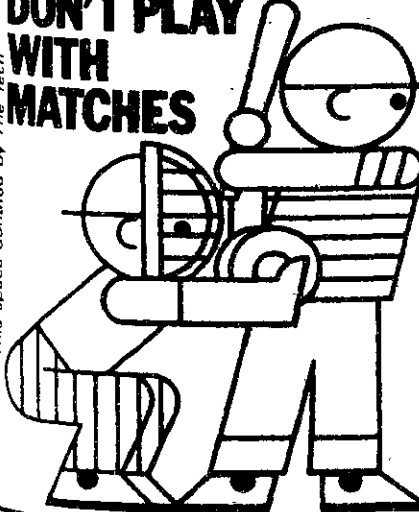
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Column/Dan Crean

Getting bald at Berkeley

To anybody who remembers me:

Rumors of my death have been greatly exaggerated. I'm really alive and semi-well, having a lifestyle in Northern California where the streets were lined with gold 130 years ago. The miners have since been replaced with a more typical bunch of people — the Bay Area people seem more heterogeneous, more "average-American" than people in Massachusetts.

But, of course, I don't really live in the "Bay Area" so much as on the fringe of the University of California campus. "Cal," as we call it, differs from MIT mainly in its abundance of undergraduates. There are a lot of graduate students, too, but they are far outnumbered by the undergrads. This made it all the harder for me to switch years — going from being younger than 50 percent of the students at MIT to being older than 75 percent of them at Berkeley.

Growing old in graduate school was something I was always afraid of at MIT, where seeing all those bald, aging graduate students around was really depressing. I have these vivid memories of the Bald Graduate Students Dance Club (BGSDC) in La Sala de Puerto Rico where all these bald graduate students would hold hands in a giant circle and dance either clockwise or counter-clockwise, depending on how the music went. I was afraid of degenerating into their condition. When my hairline receded a little in my senior year, I naturally got pretty scared of going to graduate school.

But a conspiracy on the part of job recruiters forced me to come here anyway. And now that I'm here, well, maybe it's me, but the graduate students don't seem so old. It's the undergrads who seem to be changing — getting younger.

Well, anyway, the city of San Francisco reminds me more of Washington, DC, than any other large city I've visited. Instead of foreign embassies around every corner, though, San Francisco has pornographic movie theaters, which seem to be all over the place and not confined to a few blocks as in the Combat Zone. Every time you turn around there is a sign for "Joe's Seafood Restaurant and Peep Show," or "Chang's Chinese Laundry and Massage Parlor" or "Guido's Car Wash with topless female attendants (vacuuming extra)." The whole city has sex on its collective mind much more than Massachusetts ever did, which isn't saying much.

You'll all be happy to know that MIT has a really good reputation around Berkeley. Whenever I wear my MIT sweatshirt around the dorm, it draws stares and

comments from foreign students who think MIT is up there with Heaven or Nirvana. The American grad students are a little less impressed: "Yeah, I could have gone there, but it's a real high-pressure atmosphere there, isn't it?" they say. "Well, I dunno —" I object. "And the cost of living is really high there," they say. "Well, not really compared to around —" I dissent. "And everybody's bald at MIT, aren't they?" they say. "Yeah, I guess so," I'm forced to concede.

But MIT does provide a great pick-up line with "Hey, babe, wanna go back to my room and look at my brass rat?" Takers usually respond with a comment about it being "tubular" (a California expression) and marvel at the beaver on it.

Speaking of newspapers, there are three main papers in the area, all of which are adequate, but none of which is on the level of the *Globe*. The *San Francisco Examiner* is trying to increase circulation with radio ads about how William Randolph Hearst would be shocked at his paper if he were alive today. It's also hiring a lot of columnists who try to be "witty" by making fun of every city in the United States except San Francisco and, of course, New York. Even poor old Boston gets its share of blows.

When it comes to campus demonstrations, though, UC Berkeley is better than any other place I know of. They haven't even had their best ones since I've been here, but the ones they have had are still better than anything in my last 3 years at MIT. Almost any weekday (radicals go to Tahoe on the weekends) you can go down to Sproul Plaza, the center of campus, at lunchtime, and if they're not having a mini-revolution there are numerous believers proselytizing everyone in earshot. This gives the University an added dimension which MIT never really had, because even though every MIT student thinks he or she knows everything, none of them have the courage to make fools of themselves in public.

Watch for my soon-to-be-published autobiography "Portrait of a Grad Student as a Bald Man." Maybe on the promotional tours I can swing by Boston and you can interview me for the arts section. Until then, hang in there.

(Editor's note: The Tech received this column from Daniel J. Crean '85, who was opinion editor of Volume 104. He is on his way to either an MS or a Ph D degree, depending on how fast his hairline recedes. He writes: "Actually, my hairline hasn't changed in the past 8 or so months, but you never know.")

feedback

Analyze MIT education

To the Editor:

Recently one of the most important topics of discussion at MIT has been the issue of curricular reform. Since the meetings held at Woodstock, VT, this past summer, fundamental change in the outlook of the MIT education has become a very real possibility.

During this past term the Committee on the Undergraduate Program (CUP) has been familiarizing itself with some of the important issues facing MIT, and it is currently looking at the fundamental objectives and characteristics of an MIT undergraduate education. On Monday and Tuesday, Jan. 27 and 28, the CUP will be holding intensive meetings to agree on its goals and set an agenda for the coming year. The three main points of discussion will be the nature and character of an MIT undergraduate education in broad terms, the relative priority of undergraduate education amongst other faculty commitments and undertakings, and the suitability and effectiveness of current learning styles and formats.

The goals agreed upon at these meetings will set the tone for the work done by the CUP during the coming term and very possibly for years to come. Therefore, now is the time when student input will have the maximum effect on the work done by the CUP.

As the undergraduate student representatives to the CUP, we are seeking student opinions so we can accurately present the undergraduate view to the committee. We will be holding an undergraduate forum in the Talbot Lounge of East Campus at 4 pm on Sunday, Jan. 19, 1986 to get student input. If you have concerns about any facet of the MIT undergraduate education, now is the perfect time to express them.

If, however, you are unable to attend the meeting, we would still appreciate your input. You may write to Jon Gruber at Baker House Room 331 by Monday, Jan. 20, 1986 to express your views.

We cannot overemphasize the importance of these intensive meetings to the work of the CUP. Dean for Undergraduate Education Margaret L. A. MacVicar '65 has requested student input on these issues, for if the CUP is unaware of student concerns, it may not be able to act in the students' best interests. We strongly urge you to express your opinions at this time.

Carl A. LaCombe '86
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A series of seminars featuring individuals experienced in starting and managing high-technology companies. These sessions will cover business planning and practical strategy, marketing and sales, finance, the management team and other aspects of the technology-based business. "War stories" will be used to illustrate points.

Dr. Unger '69 is co-founder and vice-chairman of the M.I.T. Enterprise Forum and a founder/officer of several technology-based companies.

Tuesday, 14 January

- 1:00pm *STARTING AND RUNNING A COMPANY: THE INSIDER'S VIEW*
 -Robert S. Dezmelyk '79, President LCS/Telegraphics, Inc.
 -Barry R. Bronfin '60, Founder and Ex-CEO, Scientific Leasing Inc.
 -William J. Hecht '61, Executive Vice President, MIT Alumni Association; Entrepreneur and Corporate director

Wednesday, 15 January

- 1:00pm *PLANNING AND FINANCING THE BUSINESS*
The Business Plan: Both a Blueprint and a Sales Document
 -Arthur C. Parthe, Jr., Director of Marketing, Aerodyne Products Inc.
- 1:45 *How the Investor Views the Entrepreneur*
 -E. Janice Leeming, Venture Capital Fund of New England
- 2:30 *Joint Ventures and Other Forms of Financial and Business Relationships with Larger Companies*
 -Richard C. Lufkin, Enterprise Development Fund, and former Mngr. of Business Development, Johnson and Johnson Co.
- 3:15 *The Fund Raising Game from the Company's Perspective*
 -Jerome J. Schaufeld, Consultant and Entrepreneur

Thursday, 16 January

- 1:00pm *MARKETING AND SALES — WHY AND HOW?*
Defining Your Product/Business Strategy
 -James H. Geismann, President, Market Share Inc.
- 1:40 *Selling Technology-Based Products*
 -Kenneth P. Morse, President, KPM Enterprises
- 2:20 *Using Advertising and Public Relations*
 -Edward P. Marecki, Vice-President — Sales, Computerworld
- 3:00 *JOINING UP — HOW TO GET INVOLVED IN AN EARLY STAGE COMPANY*
 -A Panel of the Above Speakers and Peter M. Santeusano, Managing Partner, Modular Robotics, Inc.

Friday, 17 January

- 1:00pm *PUTTING THE PIECES TOGETHER*
Legal Issues You Should Know About (With a Focus on Protection of Your Technology)
 -Barry D. Rein, Partner, Pennie & Edmonds
- 2:00 *Recruiting and Using a Board of Directors*
 -Vincent A. Fulmer, Secretary of The Institute, Emeritus, and Corporate director
- 3:00 *How Do You Capitalize on Your Opportunity and (Finally) Get Rich?*
 -King Cayce, Managing Director, Osiris Funds

For further information, contact the MIT
 Enterprise Forum.
 (Room 10-120, Alumni Center, 253-8240)

Learn what it takes to become a High-Technology Entrepreneur

Orchestra brings summer festival spirit to January

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Boston Early Music Festival Orchestra, conducted by Gustav Leonhardt, Jordan Hall, January 11.

The Boston Early Music Festival Orchestra rekindled memories of last summer's festival with performances which showed both polish and spirit.

Conductor Gustav Leonhardt led off with Zelenka's *Sinfonia a 8 concertanti*, quickly establishing the orchestra's vibrant, bright sound. The *Andante* showed excellent balance between John Gibbons' considered harpsichord playing, and Daniel Stepner's virtuoso violin work. Lyrical oboe playing blended particularly well into the brew, as well. The *Capriccio*, which followed, was quite elegant.

Georg Muffat's *Sonata Quinta in G* from *Armonico Tributo* was nicely done, too, but the highlight of the first half clearly came with Daniel Stepner's performance of Bach's *Concerto in E for Violin, Strings and Basso Continuo*, BWV 1042. The Orchestra's satin smooth approach to Bach is in marked contrast to the adrenal attack of Trevor Pinnock's English Concert (which will be heard in Boston on Jan. 25), but the intensities of the piece did not lack in power, and the cohesive playing of the orchestra together with its close relationship with Stepner gave the work a personal intensity of its own. Stepner's relaxed, inward-looking performance

of the *Adagio* was especially well matched by the orchestra's idyllically unified support.

"We must have recourse to the rules [of music] only when our genius and our ear seem to deny what we are seeking," wrote Rameau. His *Orchestral Suite* from *Zais* has more than adequate originality to excuse itself from sticking to "the rules," although some of the work's first audiences thought Rameau was taking too many liberties with his modern ideas. As one contemporary noted "I consider that the *Ouverture* paints so well the unravelling of chaos that it is unpleasant."

But there was only pleasure to be found in the lively and colorful performance of the Festival Orchestra. The variety to be found in the suite was well brought out, delicate solo wind passages done with grace, rhythmically propulsive dances injected with the excitement of a vigorously-played tambourine.

The Festival Orchestra has already established itself as a major force in Early Music. An orchestra which combines sublime legato with energetic drive and a deep understanding of the requirements of Early Music is certainly welcome to provide festival spirit in Boston as often as possible.

Jonathan Richmond

The Tech Performing Arts Series presents...

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Thomas Middleton's Jacobean Tragedy, *The Changeling*, tells of a beautiful virgin corrupted by her passions.

Loeb Drama Center, Harvard, January 26 at 8pm and February 1 at pm. **MIT price: \$6.**

The Juniper Tree

The American Repertory Theatre is giving the world premiere of *The Juniper Tree*, an opera by Philip Glass and Robert Moran that combines suspense with magic, puppets and haunting music. Loeb Drama Center, Harvard,

February 2 at 8pm. **MIT price: \$6.**

Tickets for the American Repertory Theatre will be sold by the Technology Community Association, W20-450 in the Student Center, currently open Tuesdays 9-11, Fridays 3-5 and Saturdays 1-4. At other times please leave your order and your phone number on the TCA answering machine at 253-4885. You will be called back as soon as possible.

The Tech Performing Arts Series, a service for the entire MIT community from The Tech, MIT's student newspaper.

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Dreams with a memory: Minor White remembered

Minor White, exhibition at the MIT Museum, 265 Massachusetts Avenue, through March 29. Weekdays 9-5, Saturdays 10-4.

Minor White was one of the most influential, inscrutable, and interesting photographers of all.

With Ansel Adams he developed the Zone System, an engineering methodology which (in the primitive days of guesswork photography) allowed a photographer precise control over the appearance of his image. At a time when photographers took

Minor White taught at MIT from 1965 until his death in 1976. At first, his relationship with the Institute was tenuous. It is reported that MIT was concerned that White might be too unorthodox. Soon, however, his role became clear: to expose students to creativity in a medium other than their own. This seemed to sit well with White, who offered his Creative Audience class, replete with his philosophy of heightened awareness as a precursor to seeing. Exercises included meditation and



Nude Foot, 1947.



Floating Kelp, 1950.

fuzzy, "painterly" photographs, Adams and his "f/64 Club" took tack-sharp pictures, to show natural beauty in full detail.

Unlike Adams, who mainly photographed landscapes, White turned his highly refined craft to the art of the abstract. The Zone System's manipulations were applied forcefully to drastically translate image tones into the unreal. We often see images of frost, moss, eroded rock, and driftwood employed as abstract elements of shape, line and color rather than subject matter. We often wonder just what we are seeing, and how the image was created. Pictures of barns, foliage and landscapes are often rendered with infrared-sensitive film, making leaves glow brilliantly, and skies dark with bright clouds.

White used these abstractions, filled with shapes, lines and rhythms — "gestures" if you will — as a tool of expression. White was a deeply religious man, and his pictures often seem mystical, even spiritual.

readings in Zen. This disturbed some students who came "to study photography, not crawl around on the floor," and White was criticized for creating "little imitation Minor Whites." Still, many came away dazzled by White, with a deeper understanding of their selves and of the creative process of seeing. That's what Minor White wanted to communicate in his photographs.

There are approximately 90 prints at the MIT Museum, including much of White's best work. I went to the museum expecting a lot: I have owned the book *Rites and Passages*, a retrospective of his work published shortly after his death, for several years and have always been stricken by its beauty and inscrutability.

What the viewer will see in *Rites and Passages*, and should have seen on the gallery walls, are photographs which have a visual harmony. Curves and shapes reappear in different pictures, suggesting



Ritual Branch, Frost on Window, December 8, 1958.

equivalences: mud and muscle, driftwood and hair, ropes and garden hoses and cracked glass and chalk lines on street pavement. In individual photographs, we see the objects photographed not as the subjects of the pictures, but as elements of shape: frost on a windowpane as "Empty Head;" a splotch of light as "Windowsill Daydream."

It is often difficult to recognize the object depicted, aiding an appreciation of its

abstract form: note "Metal Ornament," "Burned Mirror," and "Moencopi Strata." The viewer becomes aware of a feeling, a sensation, a mood, not an object, which is what White was after.

The museum is showing virtually the same collection of pictures as in the book. However, the pictures don't seem to be arranged in any particular order. Many of

(Please turn to page 8)

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"...goes far beyond any imaginative work of terror or science fiction foreboding..." —*The Times (London)*

"As someone who really hates violence, I'd say: put aside your doubts and go" —*City Limits (London)*

When: Tuesday, Jan 21 at 2:30PM and at 7:30PM
Where: Room 54-100 (An IAP activity— FREE)

Show flawed; worthwhile ARTS

(Continued from page 7)

his famous sequences are split all over the gallery. The photos are also of uniform size and layout, and don't seem to be up to the rigorous printing standards that White employed. Considering White's experience with gallery design and his belief in sequences of photographs as expressive wholes, it seems unlikely that White would approve of the MIT Museum's presentation.

Still, the collection presented by the MIT Museum is fairly definitive, if some-

what mis-presented. It is worth seeing for its historical and pictorial value.

MIT's Rotch Library has a complete collection of Minor White's books and exhibition catalogs. Minor White: Rites and Passages is available from Aperture, Inc., in Millertown, New York. I highly recommend this book as an essential part of a photography library, both for the strength of the collection and for the excellence of reproductions.

Bill Coderre

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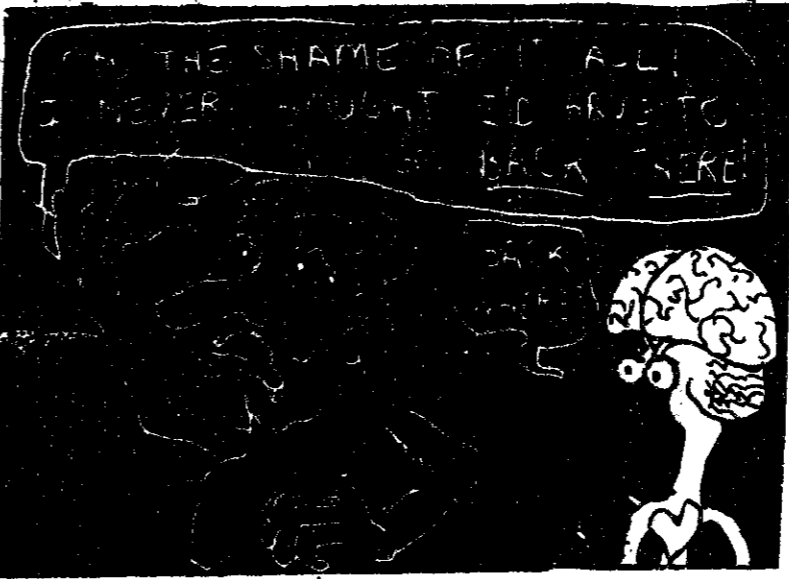
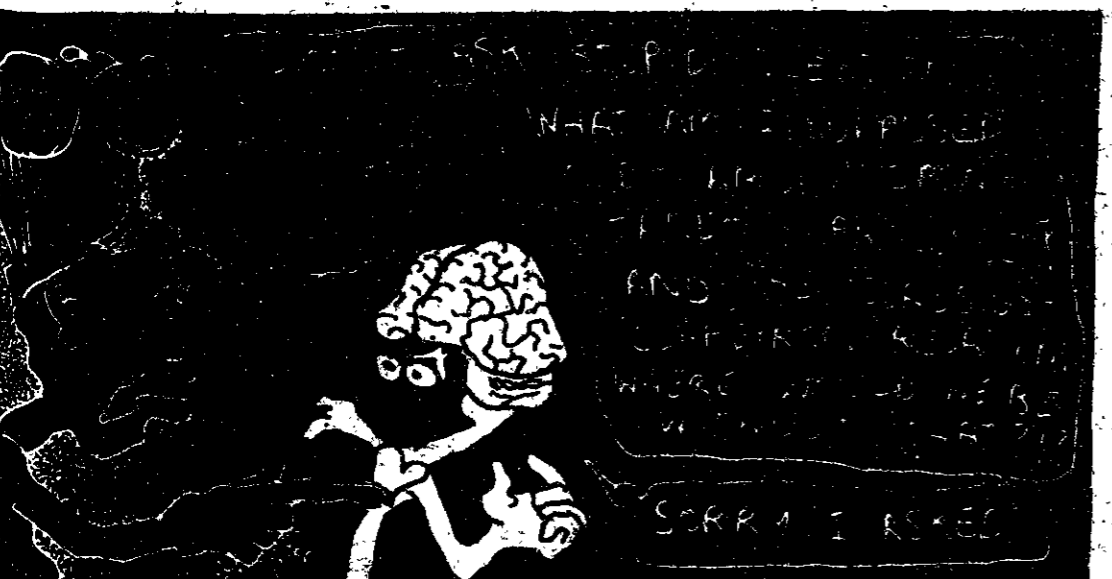
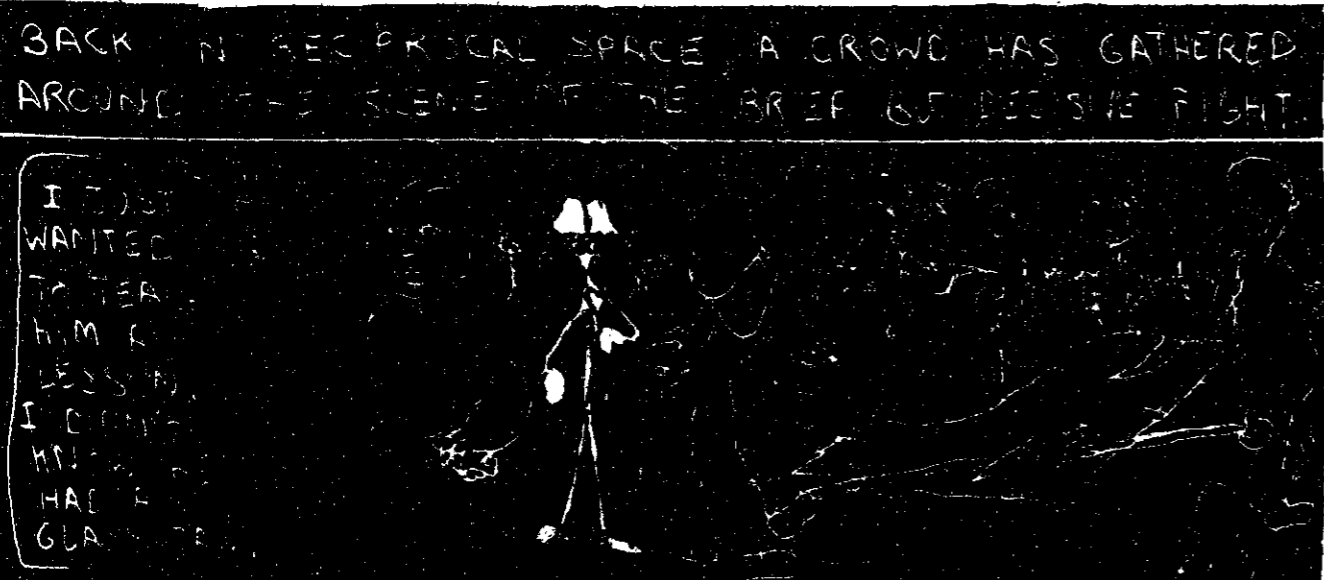
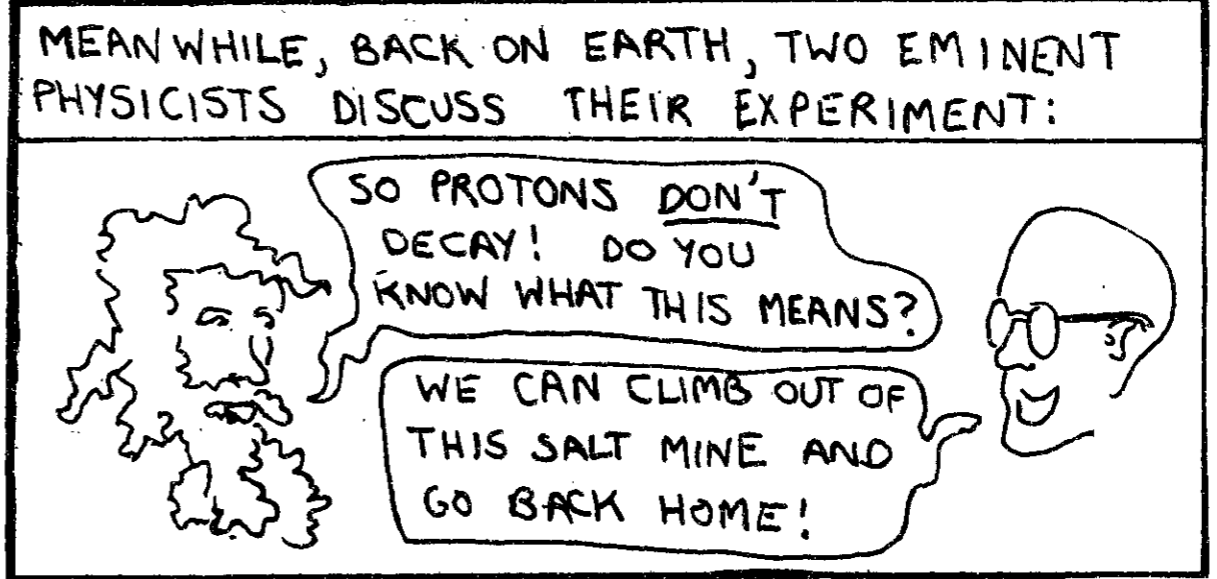
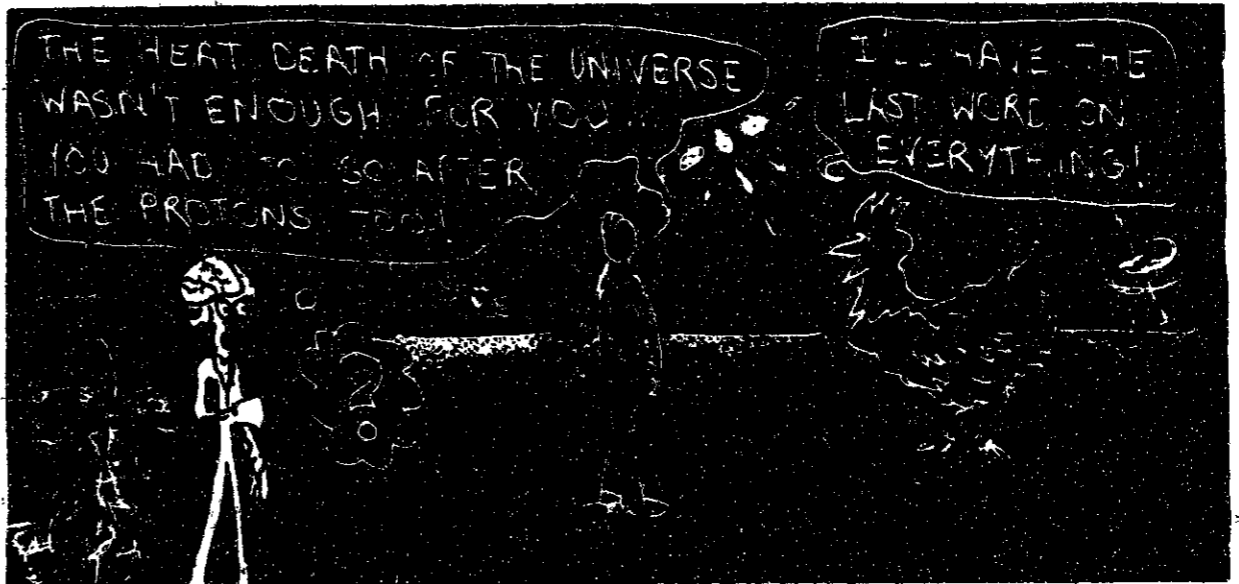
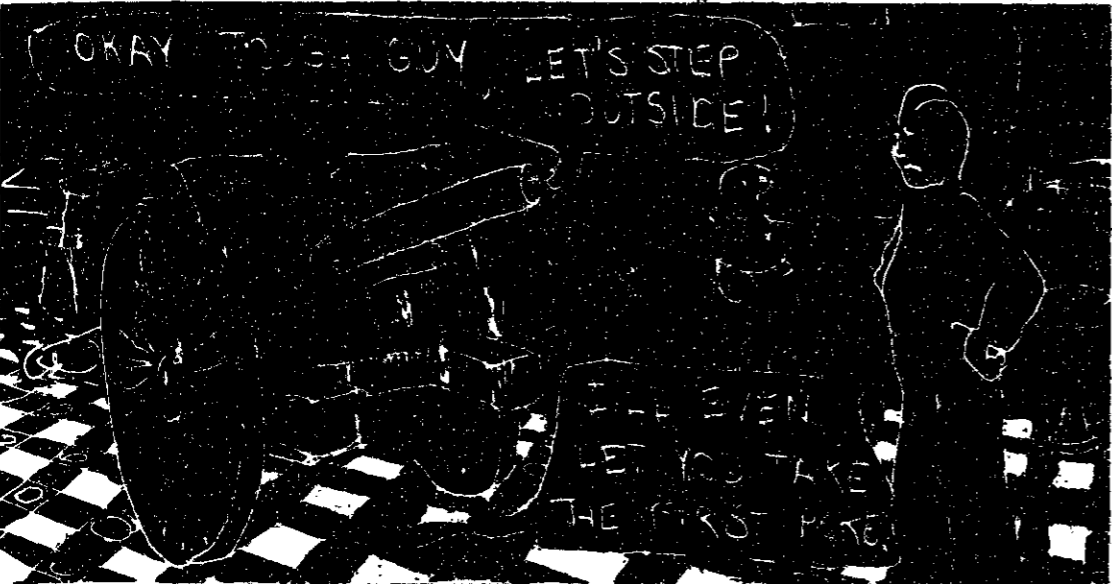
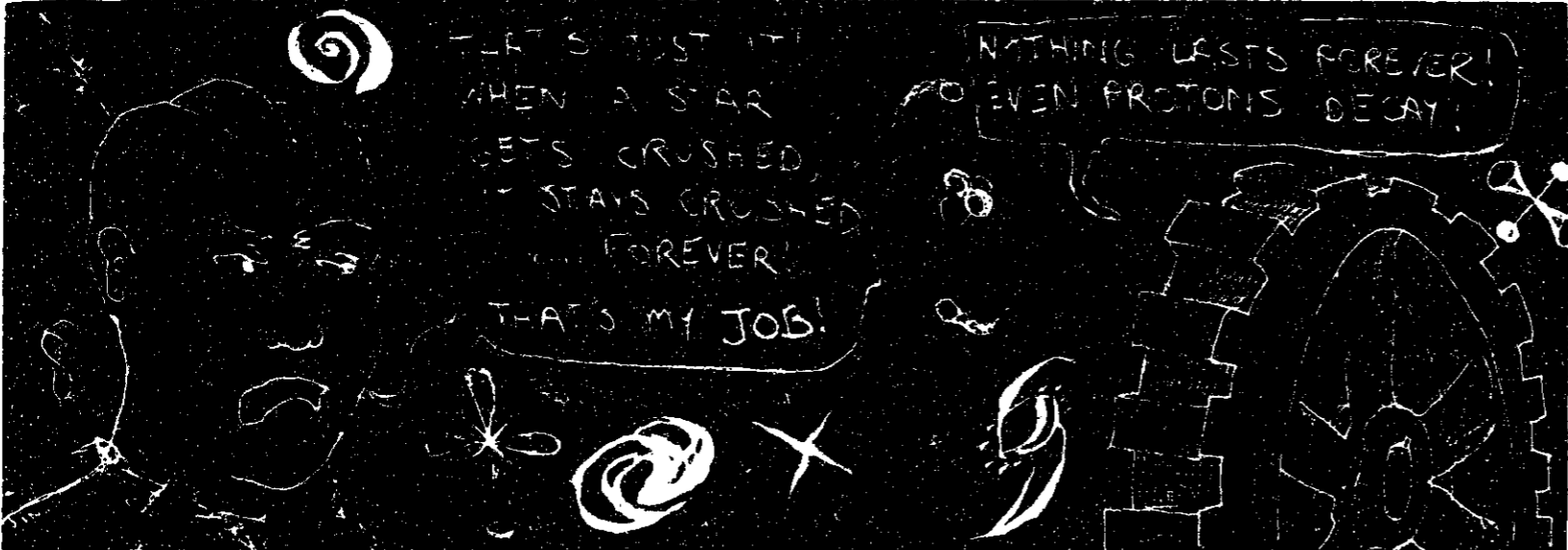
The right choice.

The Legend of Fred

By Jim Bredt

HOPE YOU'RE READY FOR THE LEGEND OF FRED

MIKE MEK MAN WATCHES IN CONFUSED AMASEMENT AS TWO FUNDAMENTAL POSTULATES GRAVITATION AND THE SECOND LAW OF THERMODYNAMICS GET MORE AND MORE HOSTILE. MIKE, A NEWCOMER TO RECIPROCAL SPACE DOES NOT KNOW HOW TO DEAL WITH PHYSICAL LAWS ON A PERSONAL BASIS.



Caltech students take part in education reform

(Continued from page 1)
chemistry, as well as laboratory and humanities requirements which Wales judged equivalent to MIT's.

Chan sees the number of students leaving Caltech without degrees — about 30 percent of each entering class — as another significant problem. Caltech is also not attracting as many of the top high school students as it would like because of its reputation as a narrow and pressurized school, stated a recent report by a faculty committee on admissions.

Both faculty and administration felt "it was time to look into [educational issues] again," Chan concluded. Several years have passed since the institution's last comprehensive self-scrutiny.

Students participate in reforms

In preparation for their report, scheduled for the end of February, the committee is seeking substantial student input. They will have held after-dinner discussions in all seven Caltech dormitories by next week, as well as talking privately with students and contacting both alumni and drop-outs. The two visitors noted their long-term involvement with student affairs: Wales is a former dean of students, Chan a former master of student houses.

Students play an important role in education reforms at Caltech, Chan and Wales agreed. The faculty and administration, in their turn, have been "pretty responsive" to student suggestions in Chan's judgment. For example, some required courses have undergone changes in the syllabus at students' request, he said.

Caltech's size — it has less than one-fourth as many undergraduates as MIT — helps faculty and students communicate, Chan felt. "We're a very small place. It's like a family," he said.

Faculty-Student Conference

Caltech will hold its fourth biannual Faculty-Student Conference on Feb. 22. The idea for this event came originally from students, Chan and Wales said. "They're the ones that really get it going." Between 100 and 200 of Caltech's 800 undergraduates have attended the last two conferences.

Students participate in panel discussions and draft "white papers" for consideration at these meetings and have been actively

planning the next conference, scheduled for Feb. 22, since October, Wales added.

Teaching quality and student morale are among the items on the student-generated agenda for the upcoming conference, according to *The California Tech*, the student newspaper. "High teaching quality is something which many of us do not expect. The standard excuse is that Caltech is a research institution, and hence the students should not expect good teaching as well," according to the Nov. 1 issue.

But Chan saw teaching quality as a problem chiefly among new teachers. He was also optimistic about morale: "Student morale at the present time is very good . . . the freshmen are unusually responsive."

Do you know...

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- How to work MIT's phone system?
- Any new verses to the Engineer's Drinking Song?
- Where to get the best tandoori chicken? Peking Ravioli? or corned beef sandwiches?

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HowtoGAMIT XVIII

For more information, call TCA at 3-4885 or Dave Greenberg at 3-3788, 5-9677

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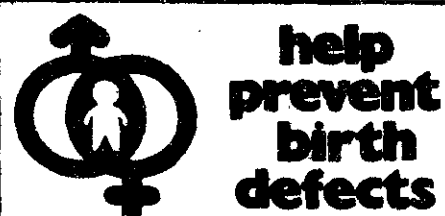
Friday, Jan. 17

Voyager 2 at the planet Uranus. Description of upcoming Uranus encounter and past encounters with Jupiter and Saturn. 1-3 pm, room 10-250.

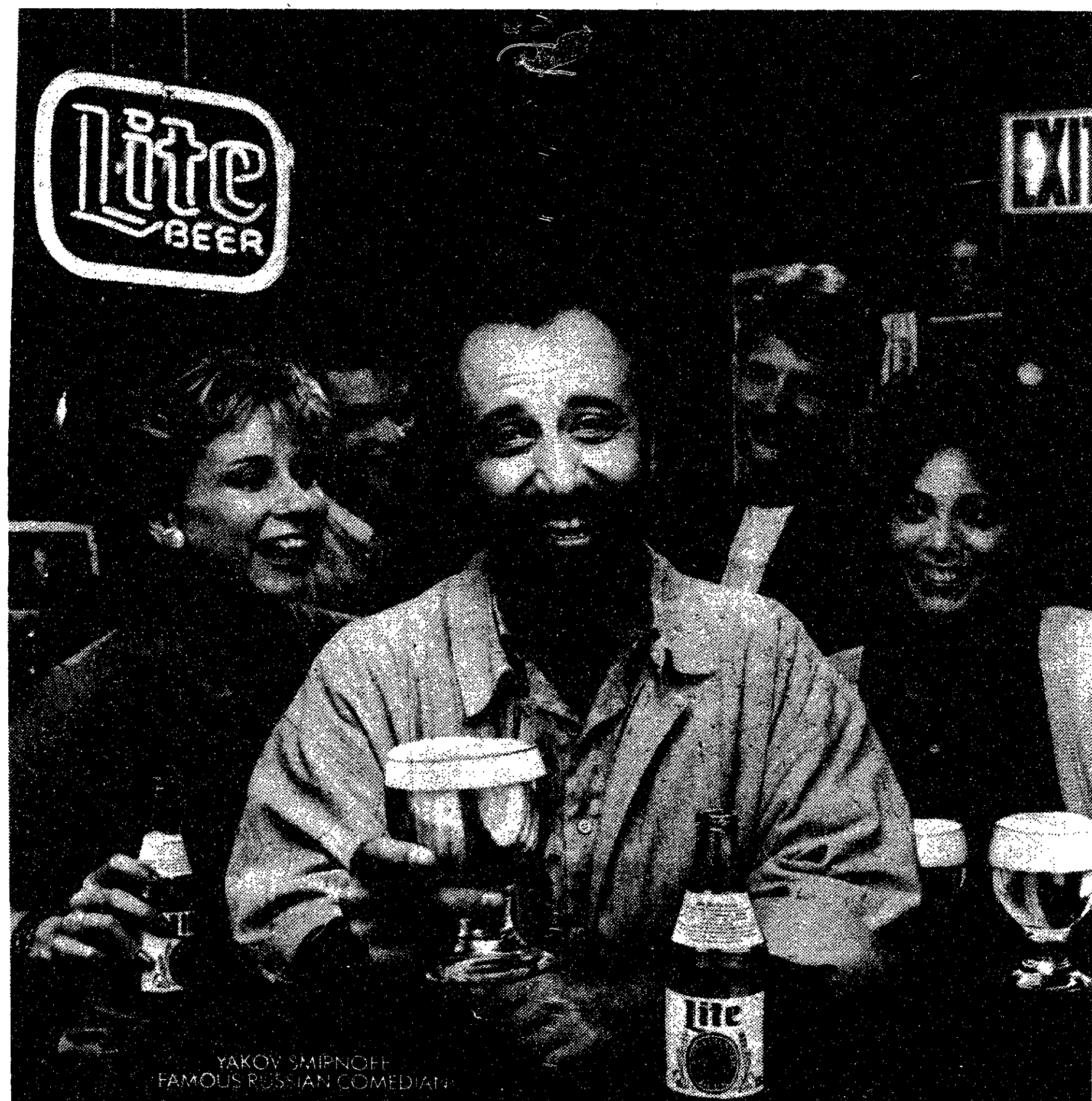
Sunday, Jan. 19

The 50th Anniversary Massachusetts Official Monopoly Tournament to benefit the National Kidney Foundation of Massachusetts will take place from noon to 5 pm in the Mezzanine Lounge of the Student Center. The Grand Prize Winner is eligible to compete as State Champion in the National and World Title Competition.

You may register at the door or by contacting the National Kidney Foundation at 344 Harvard St., Brookline, Mass. 02146, 566-0019.

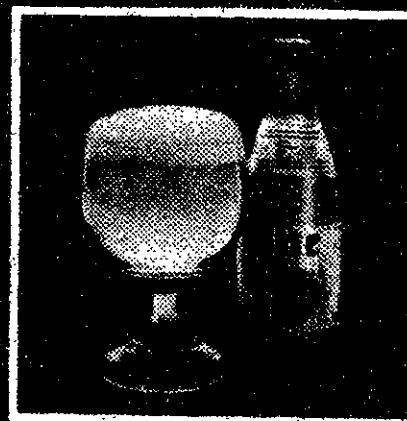


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Tech photo by Sherry K. Lee

Prof. Leo Marx, chairman of the Committee on Integrated Studies, discusses improvements to MIT's current humanities-engineering program in a forum Monday.

Changes in MIT image may alter applicant pool

(Continued from page 2)

visibility for its experiment, which appears to be unique in American higher education. A "slight but vital" alteration in MIT's image and its applicant pool would be enough to change the student culture significantly, he said.

Robin Wagner G is currently the committee's only student member. Marx is willing to include an undergraduate, but the Nominations Committee (NomComm) of the Undergraduate Association has yet to nominate one.

NomComm does not want to nominate a student yet because they feel the position has not been publicized enough, although they have received some applications, according to chairman Lulu Tsao '86. Tsao said NomComm planned to advertise and interview students soon.

Committee members will discuss their interim report, now being drafted by Marx, next week and then send the result to the Dean of Humanities and Social Science. After any adjustments needed to make its recommendations compatible with those of the Committee on the Humanities, Arts and Social Science Requirement, the report may be released in about six weeks, Marx estimated.

Listings

Monday, Jan. 20

Bruce McCabe of the *Boston Globe* will speak in the first part of a look at **Media Myths and Manipulations**, led by China Altman of the MIT News Office. The seminar will immerse students in the basic practices and customs of journalism so they will understand why and how news is slanted and distorted. Meets noon Jan. 20-24, Mon., Wed., Fri., room 37-212.

* * * * *

The Boston University School of Theology will conduct a celebration in honor of **Martin Luther King Jr.** from 1-3 pm at Marsh Chapel featuring several gospel choirs, soloists and recitations. A reception and art exhibit featuring African and black American works will follow. The Marsh Chapel is located at 735 Commonwealth Ave., Boston.

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Tutu pessimistic on peace prospects for South Africa

(Continued from page 1)

certain nonwhite races would actually be "a step away from democracy" because it would maintain white minority rule, he said. "We don't want our chains made more comfortable, we want our chains removed," he added, quoting Dr. Nthato Motlana.

Bishop Tutu appeared pessimistic about the prospects for a peaceful solution in South Africa, even though he gained fame for his emphasis on nonviolence. "No society has voluntarily given up power or been willing to share power," he said. He saw pressure from foreign governments as the only remaining hope for inducing peaceful change in apartheid.

Tutu will call for international punitive sanctions against South

Africa if there are no "appreciable developments in the dismantling of apartheid" by the end of March, he said in a press conference after the lecture. If international pressure is insufficient, "we will have Armageddon," he added. "You can't talk about peaceful change when a thousand have already been killed. . . . The principal violence in South Africa is the violence of apartheid."

About 800 people saw the bishop's 20-minute talk, and another 1000 watched him on closed-circuit TV, according to the event's organizers.

Jaron Bourke, the Harvard sophomore who invited Tutu, called for the university's divestment of stock in companies operating in South Africa in his introduction to the Bishop's talk. In his address, Tutu endorsed a slate of three pro-divestment candidates for Harvard's Board of Overseers.

The Adelphia Foundation, an American church group, is sponsoring Tutu's American tour. A Harvard student organization, the Southern Africa Solidarity Committee, and Harvard's Institute of Politics arranged his Kennedy School appearance.

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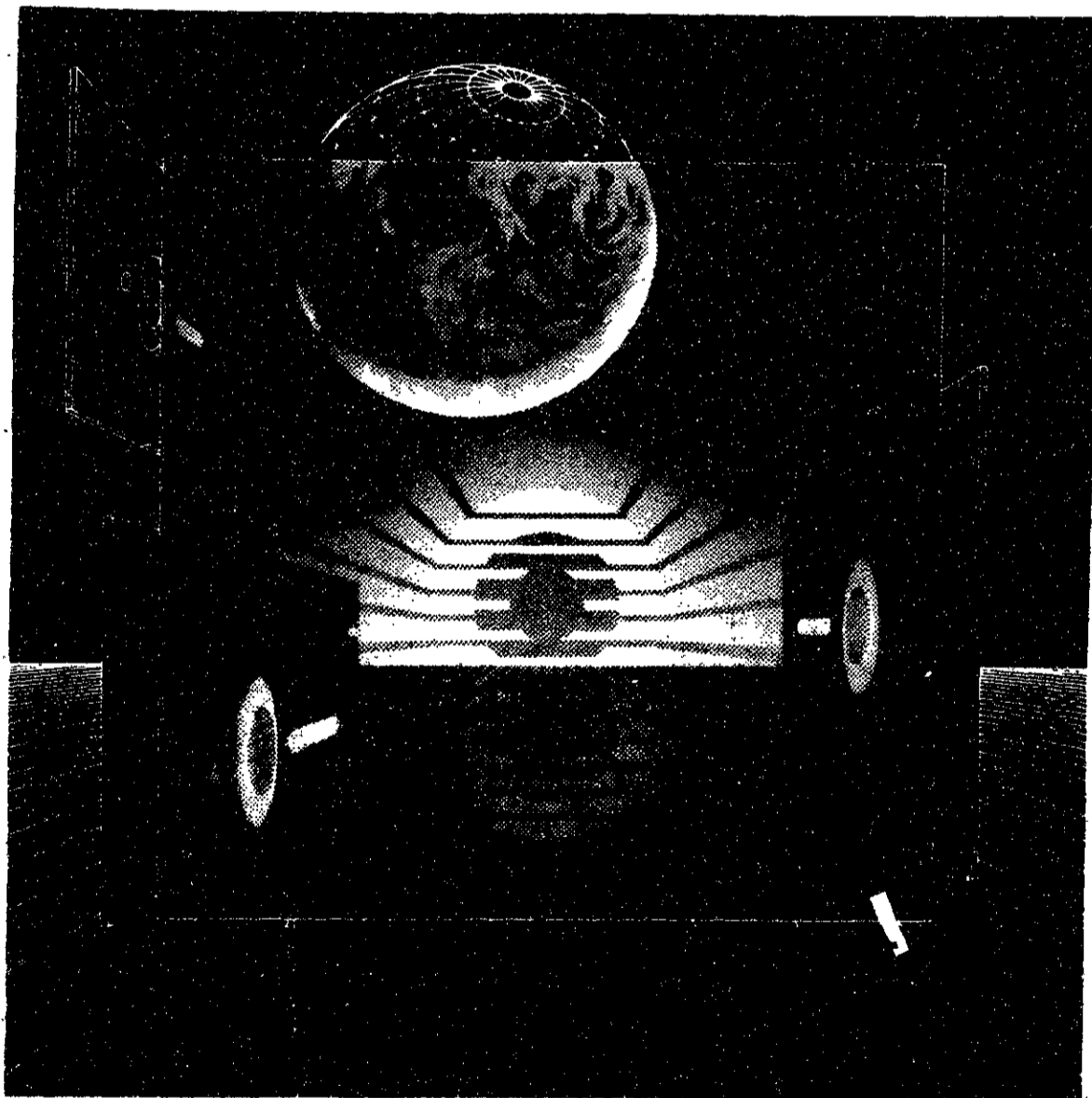
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sports

Coast Guard boxed out

By Allison C. Morgan

In a come-from-behind victory, the women's basketball team sunk visiting Coast Guard, 55-51, Monday night at Rockwell Cage. The Engineers erased a 14-point Coast Guard lead to win the game in the final minute.

After scoring only six points in the first nine minutes of the game, the Engineers continued to sleepwalk through the rest of the half, and Coast Guard led 32-18 at halftime.

An MIT steal coming off the opening tap of the second half was a prelude of things to come. In the following three minutes, MIT pulled to within nine at 35-24. Coast Guard then scored and converted a foul shot to open their lead to 14.

Undeterred by the scoreboard, Martha Beverage '87 swished a jumpshot. A Darlene Dewilde '88 steal, followed by consecutive rebounds by Biz Williamson '86, resulted in eight straight points

for the Engineers. Williamson led MIT in rebounds with 12 on the night.

After four minutes of silence, the Coast Guard offense spoke up and scored two points. Grace Saccardo '86 answered quickly with a turn-around jumpshot from the side, followed by a three-point play by Beverage, slicing Coast Guard's lead to two points, 40-38.

Coast Guard's scoring threat, Phyllis Blantley, momentarily broke free of suffocating defense by Irene Gregory '88 with two points, but turned the ball over on the next play. MIT converted the turnover and the score was 42-40, Coast Guard. Stacey Thompson '86 then scored two for Tech, tying the game at 42-42. Beverage gave the Engineers the lead for the first time in the game when she scored and drew a foul for a three-point play.

With 1:32 left in the game, MIT led 51-46. Coast Guard

made a last-minute run, narrowing MIT's lead to just two with less than a minute left in the game. At the 39 second mark, Beverage converted on a two-shot foul, extending MIT's lead to four. Coast Guard's Chris MacMillian drove the length of the court for a layup, cutting MIT's lead to two. With twelve seconds remaining, Saccardo made the final points of the game on the foul line, and MIT won 55-51.

Beverage finished with a game-high seventeen points; she and Dewilde had seven rebounds apiece. MIT's height advantage wasn't evident until 5'11" Dewilde came off the bench to tower over Coast Guard for ten inside "points in the paint."

An elated Coach Jean Heiney said afterwards that she was proud of the team for coming back after such a "demoralizing start" and that the game was "a good team win."

Column/Ronald E. Becker

Patriotism could be grizzly

The fish have been squished, and the New England Patriots will advance to the Superbowl to wrestle the Chicago Bears. The Boston media has pounced hungrily on this Cinderella team.

But the media has neglected a special problem: the conflict of interest faced by those of us poor Chicagoans displaced in this city of freedom trails and baked beans. Our loyalties are split. Our personalities are in danger of the same football-fan fate.

After last Sunday's game I was warned by my friends that (for my own safety) I should not wear my Chicago Bears "Refrigerator" shirt any more. My mother bought me that shirt, but now I can't wear it in public for fear of being skinned alive. New England, the cradle of liberty. HAH!

To be fair, I suppose that Patriot's shirts in Chicago would be equally unwelcome now. Chicago has a reputation for violence to maintain. Since neither side has had much to cheer about in the past couple of decades, Chicagoans and New Englanders are very keyed-up for the Superbowl.

The cold war has begun. All that is left is the final, decisive battle by the opposing armies. The Superbowl is like a symbol of a greater state-state conflict. The NFC and AFC pit brother against brother. Here there is no Lincoln, only the referee, and the fans are civilians in this great battle. Safe from personal danger, they flaunt their immunity by bragging about the superiority of their army.

I was never much of a football fan. Now I find that everywhere I turn, talk about football is in the air. I am constantly called upon to defend the place of my birth against sundry threats of ursine dismemberment. I have been drawn into the fray.

I suppose one of the most difficult things about being from Chicago at this point in time is that everyone expects you to pledge loyalty to Mike Ditka. There is nowhere to turn. The ghouls want you to renounce any affiliation you may have with Chicago, and the nice guys want you to be anti-Patriots (so they can beat you up).

I'd feel like a traitor if I dumped the Bears. Yet I am also no prisoner of war; I can't say I'm unhappy to see the Patriots in the Superbowl.

Now, of course, it isn't all that bad — being of dual loyalty has its benefits. I won't be disappointed by the outcome of the Superbowl this year. I will be cheering every play on Jan. 26. If the Patriots win, I'll rejoice with everyone else, and if the Bears win, a local Pat's fan owes me a sundae.

Bears fans can also find a large support network here at MIT. I am able to discuss the Bears' season with my friends from Chicago. Popular topics include The 'Fridge, and the "Superbowl Shuffle."

I am sitting on the proverbial fence. Stalled on an emotional 50-yard line, I am still able to put aside my loyalty to the Bears long enough to wish the Patriots the good luck in the Superbowl.

I know they are going to need it.



Tech photo by Steve Y. Kish.

The women's basketball team defeated Coast Guard Monday night 55-51.

Men's track hurdles over Bates; streak continues

By Robert Zak

The men's indoor track squad extended their string of consecutive wins against Division III opponents on Friday, defeating Bates 81-55. The team's record now stands at 3-1.

The two teams were closely matched, as coach Gordon Kelly noted before the meet, but an unusually strong showing by the visiting Engineers gave them the clear victory.

MIT's weightmen inaugurated an evening of superior performances. After a series of disappointingly short throws, Scott Deering '89 threw the 30-lb. weight 45'6½", bettering second place by over a foot, and Mike O'Leary '87 took third with a toss of 38'11". Deering and O'Leary placed first and third, respectively, in the shot put as well.

In the jumping events, Glen Hopkins '87 leapt to second place in the high jump by clearing 6'7". Middle distance runner turned high jumper Brian Callaghan '87 scored third for the Engineers with a jump of 5'10". In the triple jump, Ed Freeman '86 came back after placing third in the long jump to take second, and Sean Schubert '88 placed third.

Gordy Holterman '87 led an MIT sweep in the first running event of the meet, as his first place performance was followed by a second and third from Rod Hinman '88 and Turan Erdogan '87. Bates' challenger to Holterman, Mark Hatch, was disqualified from the race after a collision that sent him and Holterman swerving off the track in the last lap.

Sean Garrett '88 and Vanu Bose '87 glided over the high hurdles in the 55-meter hurdle race to take first and third with times of 8.01 and 8.56 seconds respectively.

In another first and third combination, co-captain Dan Lin '86 ran a personal best of 50.51 seconds in the 400-meter race, followed by teammate Teddy Bo-

sey '88 in 52.41 seconds. Marc Light '87 dominated the 500-meter race with a winning time of 1:08.06, while Charles Parrot '87 finished third in 1:10.15.

Garrett returned to the sprint straightaway after the hurdle race to place second in the 55-meter dash in 6.83 seconds, and Mike Donahue '87 scored a third for the Engineers in 6.93 seconds.

Kyle Robinson '89 led a come-from-behind sweep of the 800-meter race for MIT. After following runners from Bates for the first half of the race, Robinson, Anton Briefer '88 and Bob Joy '87 passed two Bates competitors to give the Engineers first through third place with times of 2:01.4, 2:02.5, and 2:03.0.

Hinman and Callaghan found themselves in their second events of the evening — pitted against a frustrated Mark Hatch in the 1000-meter race. Although Hatch won the event, Hinman took second in 2:40.32 and Callaghan third in 2:41.07.

In the last individual running event of the meet, Sean Kelly '89 ran to second place with a personal best time of 8:56.6 in the 3000-meter race.

MIT and Bates split the relay events. The 4 x 400 team of Garrett, Bose, Parrot and Lin led from the first leg and took first with a time of 3:30.54. The tables were turned in the 4 x 800 race, as Mark Hatch led a never-look-back effort by Bates against the MIT team of Joy, Callaghan, Briefer and Robinson.

The last event of the evening meet turned out to be the pole vault. Co-captain Ross Dreyer '86 took first pace in his specialty by clearing 13'6" with the fewest number of misses. Teammate Bobb White '87 cleared the same height to take second.

The Engineers' next two matches include a JV meet at Exeter today and a home meet against the Coast Guard Academy on Saturday.

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

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