

Panel discusses funding for electronics, energy research

By John J. Ying

"Chemical companies only push one approach. They are interested in doing one thing — selling compounds to kill pests . . . It's all marketing and sales and not biology and ecology," said Professor Donald Dahlsten yesterday at a panel discussing the influence of funding on academic freedom and integrity of the university.

Dahlsten, professor of entomology at the University of California at Berkeley, stressed the influence of the chemical companies on pesticide research. Chemical companies only fund research that studies the beneficial aspects of potential chemical pesticides, he said, and no one supports research on the environmental and secondary effects of these compounds. "There is no way to know the other side of the coin."

"There are both pluses and minuses to industrial funding [of research], but there are more pluses" disagreed Henry Jacoby, professor of management and associate director of MIT's Energy Laboratory. He said corporate sponsors are not "fundamentally" different from other funding sources such as the federal government.

There are several types of research, Jacoby noted, and the more facilities intensive projects have to consider where money is available. "We can't write the whole system off."

Students must work on whatever the professors receive money to study, Dahlsten commented, and though there are both pros and cons, he feels there are more cons. Students must study "the effect of compound A on crop B in eliminating pest C . . . [The chemical companies] don't care about the effect of the same chemical on beneficial insect D." Agricultural chemical use is an example of the bad effects of this method of funding, Dahlsten said. Herbicide and pesticide use has increased ten-fold, to over a

billion pounds per year, since 1944, Dahlsten noted, even though crop losses due to insects has risen from 7 percent to 13 percent in the same time period. "This is certainly not a success story."

"There are problems in the dependence on a single large sponsor [the federal government] . . . In the long run, it may be better to depend on [a consortium of industry companies]," said Richard Adler, associate head of department of electrical engineering and computer science.

The federal government is applying pressure to MIT concerning the transfer of high technology to foreign citizens, according to Adler. He feels, also disagreeing with Dahlsten, the government presently is a much larger problem than corporate sponsors.

MIT's new Microsystems Laboratory for Very Large Scale Integration was cited by Adler as an example of positive industry influence. Half of the lab's \$21 million capital costs for building renovation and equipment purchase and also half of the lab's annual \$3 million operating costs will be borne by companies.

"We must give industry something [in return for their contributions], but it won't be intellectual property. They will be buying a relationship," said Adler. Each company donating money to the lab will be able to participate in the Visiting Professionals Program, in which company employees will be able to work at MIT for a year under a professor.

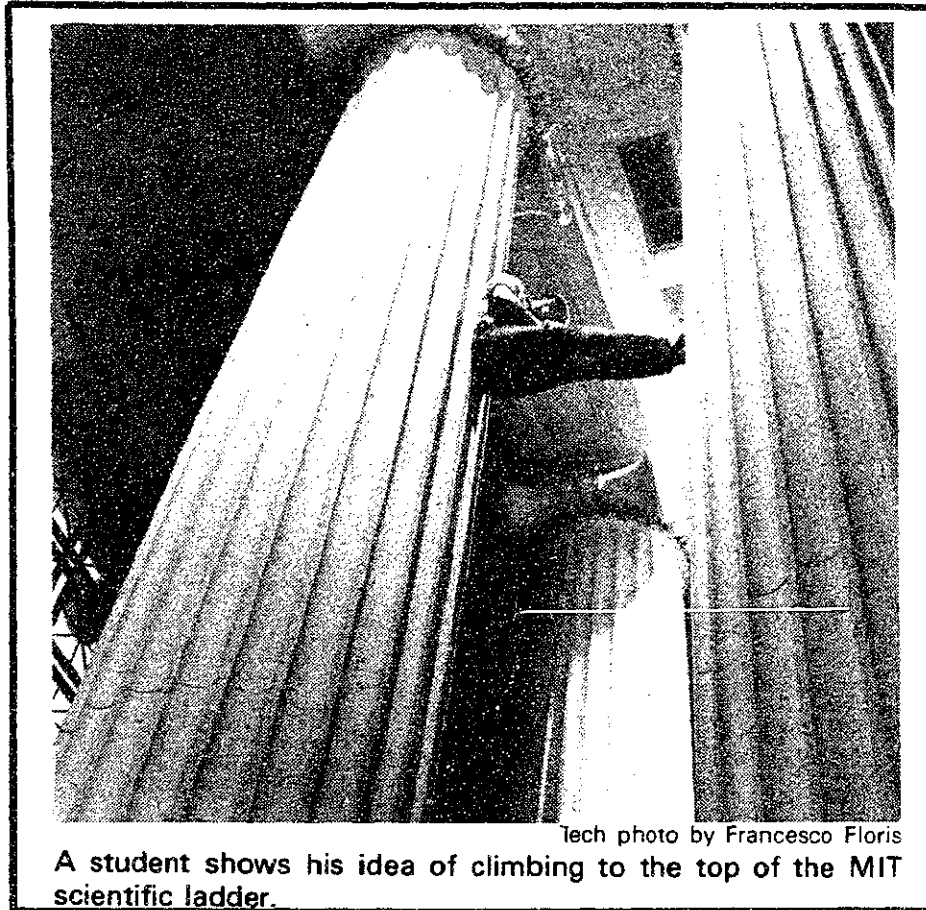
The Semiconductor Research Corporation (SRC), a newly formed group of high technology companies donating funds to university research, will donate an additional \$1 million per year to the Microsystems Laboratory, said Adler, giving another example of positive corporate influence.

"It astounds me that my colleagues seem to get money with

no strings attached," Dahlsten remarked about the SRC. "Perhaps, in their industries the strings are much more subtle than in the chemical industry."

"For the moment, shortage of manpower and concern about foreign competition" sparked the creation of the SRC, responded Adler. "I share the skepticism about how long industry's altruism will last."

"All [of our research] has a dual use," Adler noted. "I, for one, don't want to relegate people to coal mines because of nuclear clean up problems. Not producing robots to solve this problem because someone may misuse them is a close call. Almost everything can be used for bad or good."



Tech photo by Francesco Floris
A student shows his idea of climbing to the top of the MIT scientific ladder.

Federal draft aid rules change

By Sam Cable

The US Department of Education announced in March it will drop the requirement that men eligible for the draft provide copies of their registration documents to college officials.

The department will significantly revise measures for enforcing the Solomon Amendment which denies federal financial aid to draft non-registrants. The revisions will hold for at least two years, department officials said.

Students applying for financial aid will be required to sign a document indicating they have com-

plied with draft registration laws, but college officials will not be required to verify the students' claims.

The change in requirements has not affected the positions most major schools in the Boston area have taken on giving financial aid to nonregistrants. Most officials interviewed said the changes will make administration of the law easier.

The new regulations will ease the job of the university, said Charles Devlin, dean of financial aid at Northeastern University.

"As long as we don't have to be the policemen — so be it."

The changes will make the law "a lot easier to administrate," said Robert O'Rourke, director of financial assistance at Boston University. Boston University's basic policy to withhold funds from men who do not register for the draft will not change, he added.

MIT, Harvard University, Brandeis University, and the University of Massachusetts at Boston have not yet announced official policies on the federal aid restrictions.

Dean's Office limits drinkoff

By Thomas Huang

The annual MIT Spring Weekend junior-senior drinkoff will be restricted to MacGregor House to avoid problems encountered in past years, according to Robert A. Sherwood, associate dean for student affairs.

The Office of the Dean for Student Affairs became concerned after last year's competition — held at four locations — precipitated \$1500 in damage to 500 Memorial Drive, Sherwood said.

"Carpets and chairs were ruined," Sherwood continued. "Somebody also punched a hole through a new portable blackboard." Participants forced the drinkoff coordinator at 500 Memorial Drive away from the drinking site when she tried to stop the event, he said, and she

had to call campus police for help.

The Classes of 1982 and 1983 had to underwrite the cost of the damages, according to Kenneth R. Grant '84, president of MacGregor House.

"Both of the class presidents recommended that the drinking competition be discontinued," Sherwood said. "Most of the living groups said they did not want to be the last stop in the competition."

The Dean's Office sent letters to all living group social chairmen stating that alcohol should not be the central focus of any social event, said Glenn A. Eaton '83, MacGregor House social chairman.

"We were told all these horror stories about what happened in previous years," Grant comment-

ed. "There were drunks running up and down Amherst Alley causing havoc."

The drinkoff would have been canceled this year, Sherwood said, but Grant and Eaton met with members of the Dean's Office to discuss the possibility of a new format for the event.

MacGregor was selected as the site for a pub including the drinkoff, Grant said. "We're going to open a pub on April 21," he said. The drinkoff will be part of the activities, but it will also include nonalcoholic beverages, food, and live entertainment.

Each class, in previous years, had to finish a keg of beer before moving on to the next location, Grant explained. The first class to empty the kegs at all four locations won the drinkoff.

Asbestos hazard in dorms

By James F. List

Asbestos pipe insulation is exposed in five of MIT's older dormitories, according to John Rutledge, assistant operations manager of the MIT Housing Office.

The protective covering on asbestos-insulated pipes has worn out in several places, exposing the hazardous material in Baker House, Bexley Hall, East Campus, Random Hall, and Senior House, Rutledge said.

The MIT Housing Office will cover exposed asbestos with plastic sleeves, Rutledge said. The sleeves are designed to eliminate the hazard posed by direct exposure to asbestos, a material closely linked with several health disorders.

Rutledge expects the plastic sleeves to last for the lifetimes of the buildings. None of the asbestos insulation will be removed. Public and maintenance areas

are receiving immediate attention, according to Rutledge. "What's visible in the dormitories is taken care of right away," he said.

Pipes in students' rooms, however, are receiving attention only when residents complain, he said. Students' rooms in the five dormitories will be inspected and treated to cover exposed asbestos this summer.

Students who suspect asbestos is exposed in their rooms can have their pipes examined and

treated immediately by contacting their house managers, Rutledge said.

Exposed asbestos was first discovered in MIT dormitories last summer, Rutledge explained. The MIT Housing Office has used plastic sleeves since then to cover exposed asbestos where noticed.

Reports of exposed asbestos are "checked-out immediately," according to Rutledge, and the application of the plastic sleeve takes "between a half hour and an hour."



Tech photo by P. Paul Hsu

Laurie Blackwelder '86 (bottom) and her sister, Shelly, display their balancing abilities on a unicycle last Saturday.

inside

Zappa, The King of Comedy, "Ha," . . . Page 6.

Nobel laureate David Baltimore '61 discusses genetic research. Page 7.

THIS "FORTUNE" ISN'T FOR EVERYONE

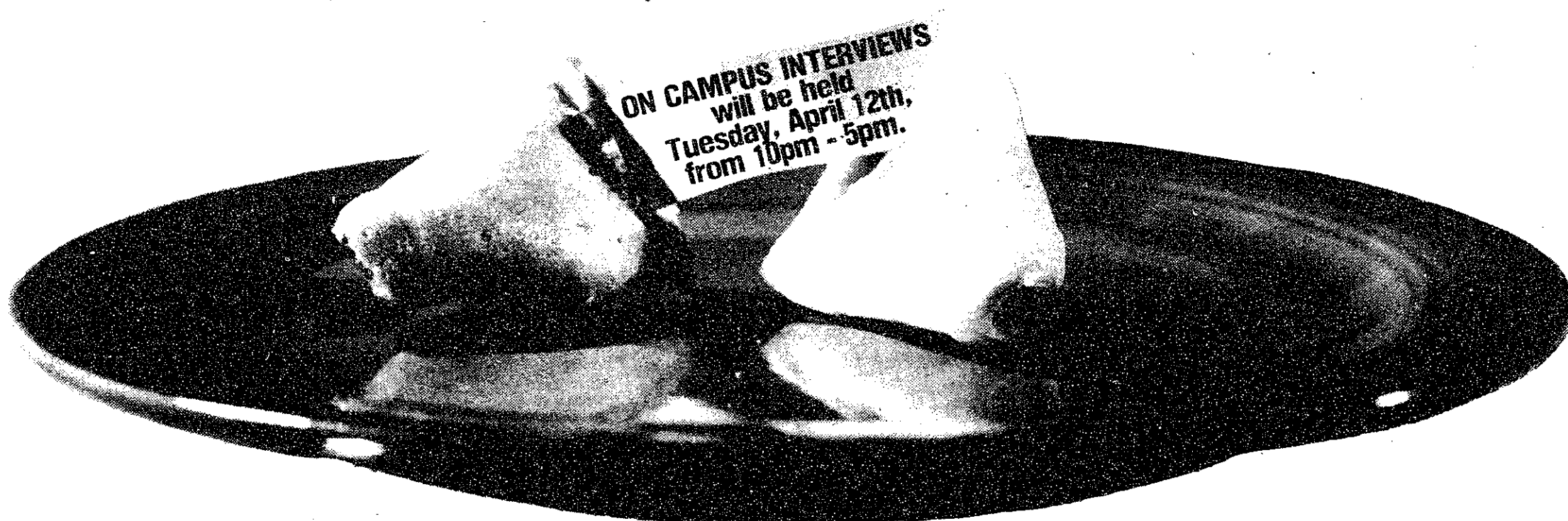
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Opinion

Editorial

Exorbitant tuition hikes unjustified

The MIT Corporation last month approved the 10.3 percent increase in tuition recommended by President Paul E. Gray '54 and the Academic Council. Undergraduate housing costs will increase by an average of 9.9 percent, and food service contracts will cost 8.7 percent more next year. The estimated total undergraduate student budget of \$14,800 for 1983-84, used largely for calculating financial aid, represents an increase of 9.6 percent over this year.

The US Consumer Price Index, which measures inflation in the cost of a selection of goods, rose but 4.6 percent in the 1982 calendar year. MIT tuition has, in fact, increased at a greater rate than the index every year since 1977.

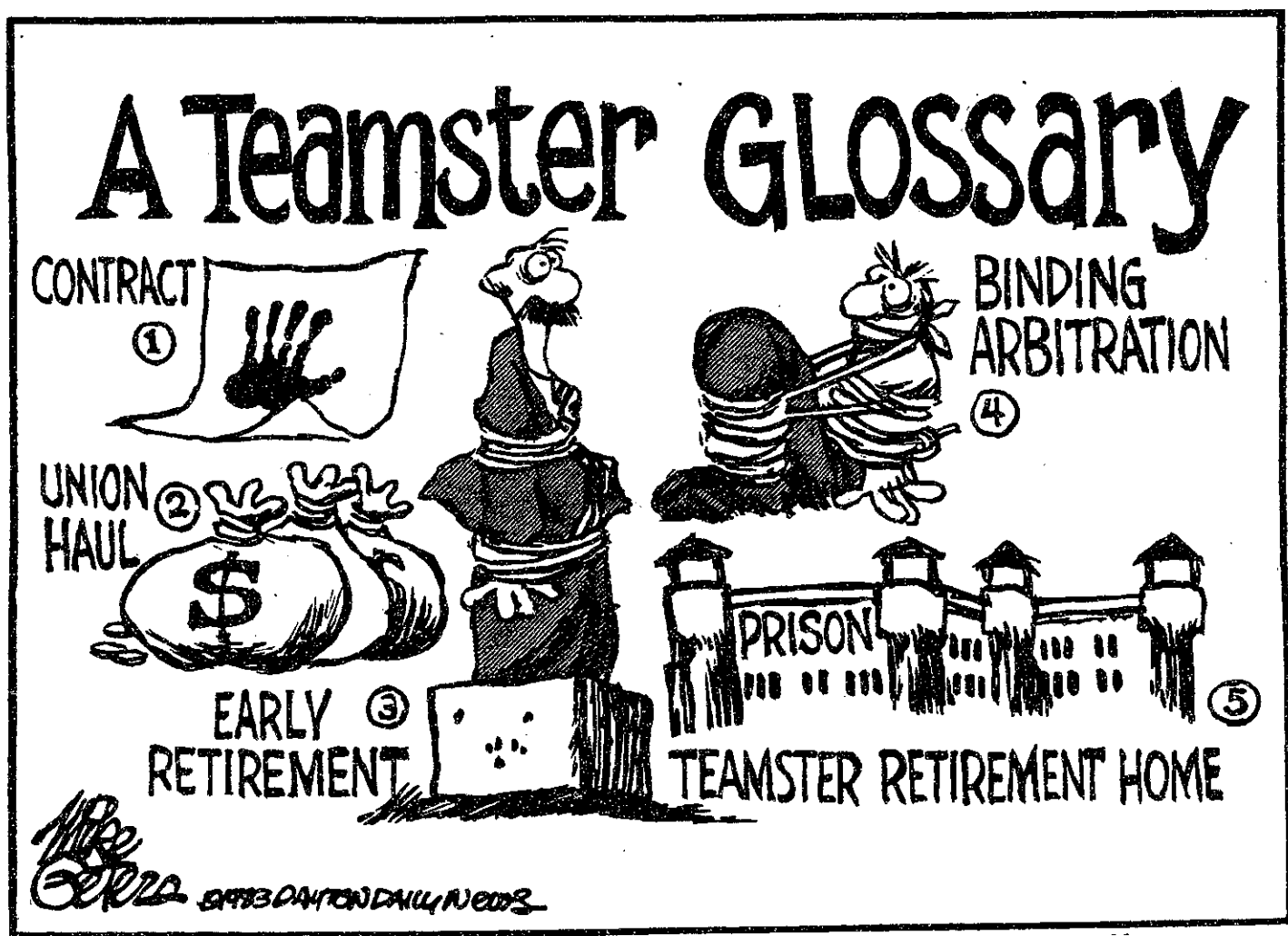
This year's increases in student budget seem mild only when compared with those of the last three years. The most devastating jump was that announced in 1981, a 19.4 percent increase in tuition and a 17.2 percent increase in student budget, compared to a 13.5 percent increase in the price index.

The exorbitant annual increase, although expected, is not justified. MIT should not need to increase student charges by more than the increase in the cost of providing education, food, and housing.

The MIT administration's excuses for fee hikes in excess of inflation have been varied and convincing: cutbacks in federal financial aid requiring MIT to draw support for needy students from its already overburdened general funds, reductions in outside funding for research forcing MIT to draw additional income from other sources, and competition for talented young faculty members prompting MIT to find money for higher salaries.

Such compelling arguments merely hide the Institute's complete disregard for the welfare of its students, who carry an unfair share of the budgetary burden for many years beyond their stay at MIT. The Academic Council, the president, and the Corporation show no consideration of those who must indenture themselves while students and then begin their working lives many thousands of dollars in debt.

The administration is certainly in a position to continue bleeding its students. Students are faced with a clear choice: pay or leave. As more are forced to choose the latter, the quality and diversity of the MIT community will likewise bleed away.



feedback

Dispute Caldicott's views

To the Editor:

We have stood silent for too long. Having read about the Nuclear Test Ban Treaty Debate in *The Tech* [March 29], we have decided to vocalize.

The arguments of the test-ban proponents were well intentioned,

but nevertheless naive. One remark by Dr. Caldicott so incensed us that we felt obliged to comment.

"Very few Americans use their democracy... Voting should be compulsory," said Dr. Helen Caldicott, national presi-

dent of Physicians for Social Responsibility. Since 'nothing moves a politician more than his own political career,' people have tremendous power to influence their leaders to pass the test ban treaty, she noted" in *The Tech* article.

Praises MIT radio station

To the Editor:

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Who?

What!

Apathy. Ignorance. I don't know what the problem is...

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Tune in. Turn it on. A radio station as good as WMBR is a terrible thing to waste.

Leonard Murray

How can Dr. Caldicott justify mandatory voting? Perhaps she would like mandatory voting for a mandatory candidate — the Soviet Union has a "democracy" much like that. Many citizens in our country choose not to vote. However those that do take the time to vote must be concerned about the issues. Since they are concerned about the issues, they must be informed about the issues. A concerned and informed vote is much more valuable than the vote of an apathetic and uninformed individual who was forced to cast his vote. Forcing uninformed individuals to vote would only be detrimental to the voting process.

The key here is that voting in a democracy is a right and a privilege. Of course it is also a responsibility, but if a citizen chooses not to exercise his right to vote, that is his prerogative. It is not the government's place to force him to do otherwise.

Greg Brandeau '84
Fred Johnsson '86
and two others

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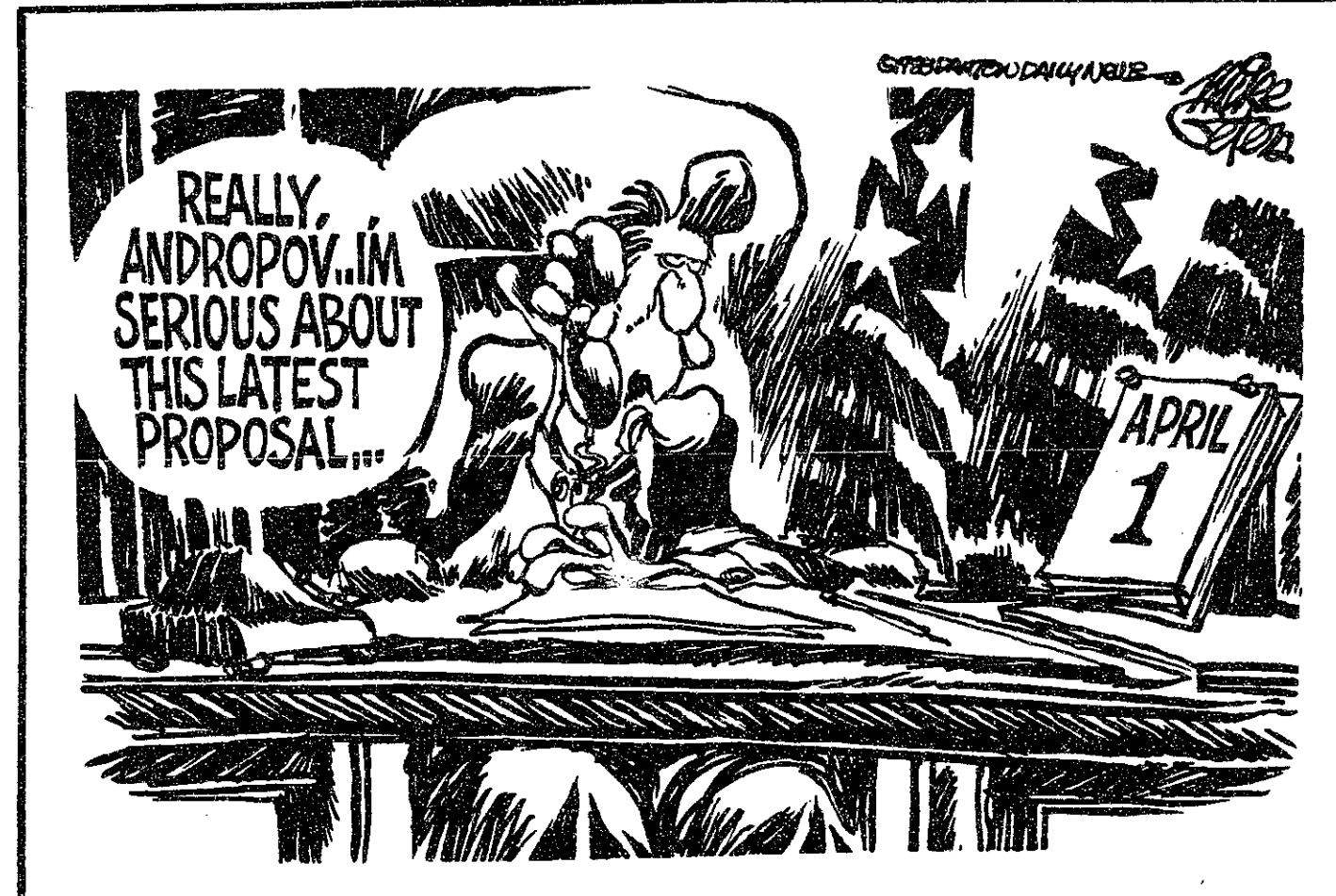
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feedback

Warns of Soviet film influence

To the Editor:

Steven Kroft describes communist infiltration of pornography, and (on less solid ground) of Heaven [Feedback, March 18]. I should like to contribute my own findings on the attempted Soviet takeover of the United States.

Soviet influence in X-rated movies is well documented, but lesser known is what is done on the opposite end of the spectrum: G-rated movies. I was appalled by the MIT Lecture Series Committee's showing of "Bambi," which has scenes which would make Mister Rogers recoil in horror. The brutal slaying of an innocent deer is a Soviet design to turn the viewer to anti-NRA and pro-environment politics. With

this film, the Russians have made the G-rating as pornographic as the G in G-spot. Indeed, this film may have had a substantial influence in the communist New York anti-nuclear demonstration.

My source (Deep Throat) in Washington tells me of Soviet attempts to make inroads into President Reagan's brain. The effort has created different effects than desired, actually damaging more of the President's brain cells than turning them into communist cells. Reagan's recent speech to evangelicals, where he tells them to preach an anti-nuclear freeze platform, illustrates this effect.

To combat the possible emer-

gence of "Dense Pack Churches" or "The First Church of the MX," Soviet neuron technology is improving and may reach the "break-even" point in the President's brain soon. Look for Reagan to give equally communist and anti-communist statements soon. In particular, statements such as "The whales are taking over New Bedford and raping women. Let's eradicate them," or "El Salvador out of Afghanistan!" are possibilities.

Once President Reagan reaches this point, the country will be finished. MIT, with its superior research capabilities, should look for a solution before it's too late.

Eric Scheidker G

The International Students' Association and other participating clubs would like to extend an invitation to the MIT community to come and take part in our 2nd annual **International Fair**, this Friday, the 8th, on and around the Kresge Oval.

What makes an International Fair an event not to be missed? Well, last year, participating groups, such as the ISA, CSC, Carribean Students Club, and Sangam provided music, dance, food, and conversation from their respective countries or cultures. This made the fair both colorful and interesting. The universal language of fun and laughter made it enjoyable.

For lots of fun, and as an interesting way to spend an afternoon, join with us, this Friday, in celebration of an International Community that boasts members from many different nations, including, don't forget, the United States!

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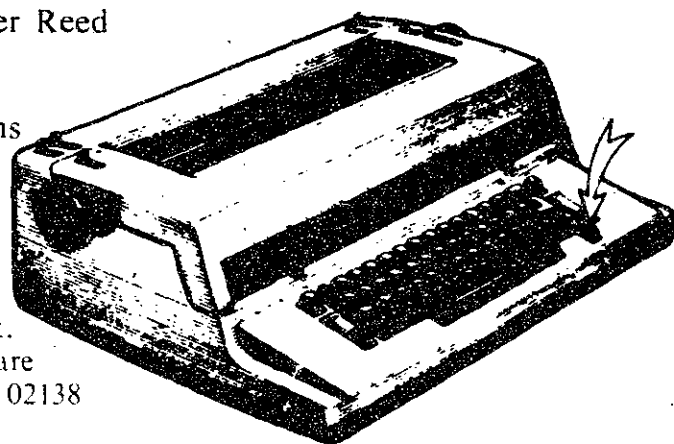
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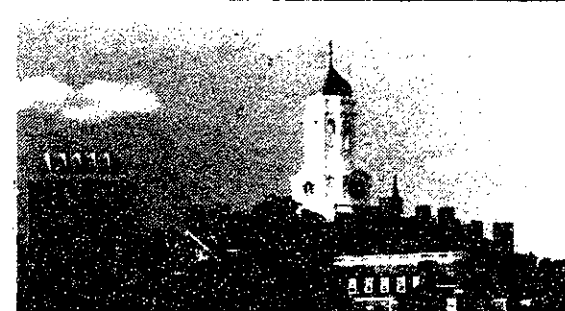
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Random record roundup



The Man From Utopia, Frank Zappa on Barking Pumpkin Records.

Frank Zappa's 35th — that's right, 35th — album finds him sinking deeper into the morass of scatology and bad taste he's been creating since the dissolution of the Mothers of Invention. His once scathing social commentary has been supplanted by his desire to rub our noses in our own cultural refuse, with less than satisfactory results.

When Zappa amuses it's because his targets are mere caricatures: The Disco Boy, the Dancin' Fool, and the Valley Girl were the subjects of jokes long before Zappa joined in the derision. When he tackles larger issues, however, Zappa falls flat on his face, as is evidenced by *The Man From Utopia*, a desultory collection of half-baked ideas and weak instrumentals.

As is the case with other Zappa albums, *Utopia* incorporates one new idea and works it to death; in this case the idea is the guitar-voice duet in both "The Dangerous Kitchen" and "The Jazz Discharge Party Hats." Both tracks are based on live performances in which Zappa sang lyrics to a simple accompaniment. Guitarist Steve Vai transcribed Zappa's singing and reproduced the melody note for note in

the studio, where the tracks were combined to produce the duet. The resulting sounds, at times suggestive of George Benson on acid, are the only truly humorous moments on the album, amusing despite the ridiculous lyrics.

Elsewhere in *Utopia* we find Zappa discoursing on cocaine abuse ("Cocaine Decisions"), bad science fiction movies ("The Radio is Broken"), labor unions ("Stick Together"), and sex ("Sex") with his usual misanthropic cynicism, taking swipes we've all heard before at easy targets. The three short instrumentals provide little relief, serving only to remind us of the paucity of Zappa's compositional ideas.

I feel obliged to mention, even at the risk of being accused of nitpicking, how little music — less than 37 minutes — there is on *The Man From Utopia* or any other Zappa release since 1977. I know he's out to make a buck, but he also decries record industry tactics. Heaven knows there's enough Zappa material in the vaults to make another 35 records, so why is he spreading it so thin? Why doesn't he just shut up and play his guitar? For the answers to these and more questions, wait for the next Zappa manifesto, *The Man Who Sold the World*.

"Ha" Killing Joke Live, on Editions EG Records.

Killing Joke's 1981 debut showed it to be a clever synthesis of punk sensibilities, heavy metal attack, and electronics laden gloom. It also showed the group to be somewhat derivative, although no direct influences could be cited. The release of this six-song live EP finally makes clear who is influencing whom: Killing Joke is little more than a Public Image Ltd. clone.

Stripped of all the production and Teutonic sheen imparted by producer Konrad Plank (also Kraftwerk's producer), Killing

Joke has to rely on its own rather spare sound in a live situation. In lieu of treated vocals, Jaz tries to impart a raspy gurgle to his singing, but he inevitably fails to maintain the sound and falls back on his Johnny Rotten-esque British accent.

The live mix renders the band's limited sonic palette to the point where the proceedings sound monochromatic, with guitars and synthesizers melding into a wall of indiscernible noise.

"Ha" is the work of a band that has never lived up to its initial potential. The joke was never funny; now it's time for a mercy killing.



Beat Surrender, the Jam on Polydor Records.

"Understand kiddiwinks, that there are times, undoubtedly, when it's a kick to be alive..." Thus spake Paul Weller, guiding light of the Jam, in the notes for his band's final single. After one listen you'll understand that the Jam had a real kick recording this EP, a double single. "Beat Surrender" is in the running for the best song the band ever made, and "Shopping" is their second best B side (after "Dreams of Children"). What makes this EP such a delight, however, is the second side's trio of rhythm and blues classics, a set of lovingly rendered homages to the Jam's influences. Curtis Mayfield's "Move On Up" and Barrett Strong's "War" take on a new life, fueled by the Jam's boundless energy and heartfelt playing.

It's always sad when a band dissolves at its creative peak, but the Jam have provided us with a fitting farewell, and a reminder: "... only when coffee and milk are mixed do they both become delicious



under the banner of the beat surrender brothers and sisters, it's then you make your mind up."

ARTS ARTS

ARTS ARTS

The King of Comedy, original soundtrack produced by Robbie Robertson, on Warner Brothers Records.

The King of Comedy soundtrack is a rarity in the record business: a cohesive film score that is also a collection of singles. What further distinguishes this compilation is the unavailability of these singles elsewhere. Producer Robbie Robertson, former writer/guitarist/vocalist for The Band, has compiled 10 songs from the outtake bins of various recording artists and ordered them into what could serve as a greatest hits collection.

The only two tunes written specifically for the film — Robertson's own "Between Trains" and Bob James' "King of Come-

dy" — are, unfortunately, the only two flops. In a way it's Robertson's own fault: How could he expect his song to stand up to the Pretenders' "Back on the Chain Gang" or Van Morrison's "Wonderful Remark"?

There's something for everybody on this soundtrack, be it the new wave contributions of the Talking Heads ("Swamp") and Ric Ocasek ("Steal the Night"), the blues of B. B. King and Ray Charles, or the cocktail jazz of David Sanborn. If you're a fan of any of these artists, you'll want this record. After all, you won't find these songs anywhere else.

It's nearly impossible to detect any of this music in the movie.



Beeswax: Some B-Sides 1977-1982 and Waxworks: Some Singles 1977-1982, XTC on Virgin Records (Import).

XTC have done it again: The initial pressing of *Beeswax* comes with a "free" copy of *Waxworks*, making this double record compilation the finest of the genre. *Waxworks* contains a representative sample of XTC's hit singles spanning their whole career. If you've bought the recent reissues of the band's first three albums, *Waxworks* becomes essential, being the only recording on which you'll find "Making Plans for Nigel" (released only as a single) and "Science Friction" (originally released on a four-song EP).

Beeswax proves XTC renders the distinctions "A-side" and "B-side" meaningless. Every one of these tunes could be a hit, especially "Smokeless Zone," "Punch and Judy," and "Heaven is Paved with Broken Glass." What these discs collectively prove is XTC's prowess as pop songwriters.

Taken together, *Waxworks* and *Beeswax* serve as a concise retrospective of XTC's career, displaying the band's prodigious maturity in five short years. Essential listening in every respect, this compilation charts XTC's progress as they draw ever closer to the great art-pop mean.

David Shaw

Baltimore on genetic research

Future possibilities and ethical questions remain

By Tony Zamparutti

David Baltimore '61 is American Cancer Society professor of microbiology and director of the Whitehead Institute for Biomedical Research. He received the 1975 Nobel Prize in medicine for his work in microbiology. Baltimore will give a lecture entitled "Will Success Spoil Molecular Biology?" tonight at 8:30pm in room 9-150.

Q: In 1974 you were one of the first people to call for guidelines for genetic research. Recently, in the National Institutes of Health (NIH) recombinant DNA advisory committee, you suggested the guidelines be made voluntary.

A: We actually initially meant for the guidelines to be voluntary, and were not suggesting in the letter of 1974 that a mandatory procedure of strict regulations be set up. We believed that the NIH should provide guidelines to the scientific community as to where there may be hazards and where there may not be hazards and what the appropriate kinds of responses should be. The difficulty was that as soon as that became part of the public and political world, it was forced into the role of a mandatory set of regulations and sanctions. So what I was trying to do there was to go back to what had been in fact our original conception.



Q: Should there be limitations on the scope of genetic research?

A: What do you mean by that?

Q: What areas should not be researched? One extreme example would be military applications.

A: That's why I asked you what you meant by it — because it's a loaded question. Why don't we deal with one thing at a time.

Military applications. There is a widespread feeling that the major limitations in the use of biological warfare weapons are not the organisms themselves, but delivery, routes of delivery, protection of friendly forces, things of that sort. So, I'm not extremely worried about the potential for recombinant DNA in the area of biological warfare. On the other hand, there are many people who are, simply because these are new ways of modifying organisms, and it is hard to be sure of their potential.

The United States has signed a treaty which says the government of the United States will not undertake any work in the development of new biological weapons, and we will not stockpile these weapons. Anybody who did such work would be contradicting the treaty obligations of the United States. There is a subtle question of whether an individual is bound by a government treaty. Clearly, the government is bound: the government can't give a grant and they can't have one of their own establishments carry out research of that sort.

If an individual did such work on his own, my understanding is that he would not be in violation of the law. So it would be appropriate for Congress to pass a law which says that individuals in the country are bound by the country's treaty obligation under the biological war convention.

The NIH regulations are the wrong place to deal with this question. They are not designed for that sort of thing, they are not making ethical or moral judgments, and they are not making judgments about international right and wrong. They are making judgments about safety in the laboratory. To use the NIH guidelines as a forum for solving other kinds of political problems is merely to muddy their whole role.

Q: What about genetic research on humans?

A: There are two aspects of genetic engineering of human beings. One is the use of tools, concepts, materials, and methods of genetic engineering to correct inborn errors of heredity in an individual. For instance, a supply of a source of good hemoglobin to somebody who has only sickle hemoglobin. There are many other examples of enzyme defects that need to be repaired. It seems to me providing such therapy to an individual — in a way that doesn't change the heredity of the individual as it has been passed down through generations, but merely helps the in-

dividual deal with a problem he inherited — is good medicine. I think it would be criminal not to go ahead with such research and try to develop such methods. Whether we can actually make procedures work is an open question.

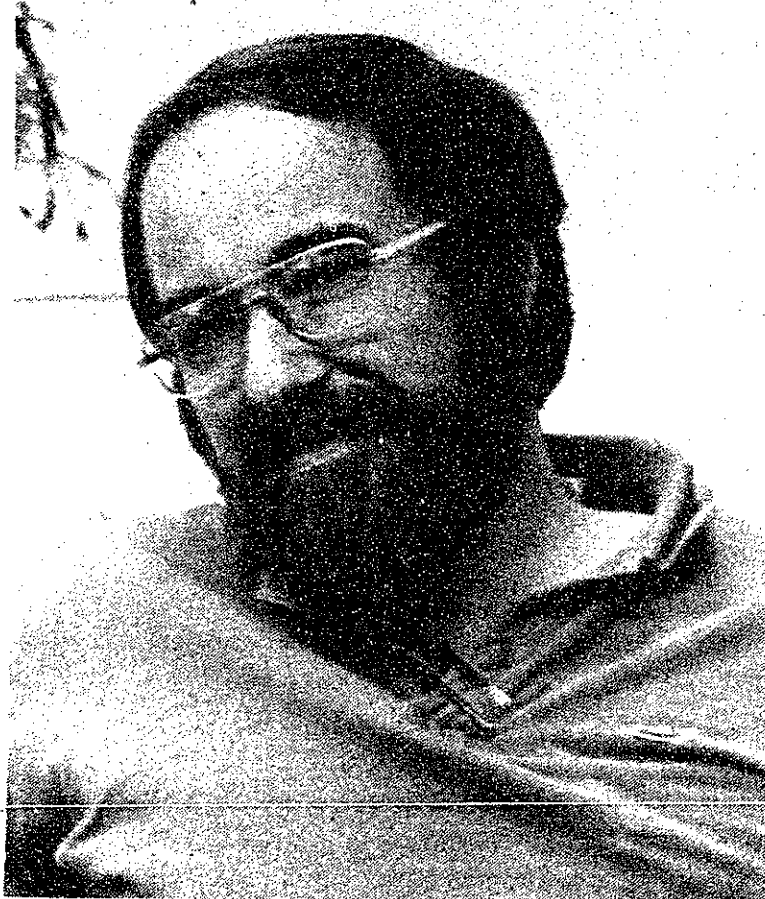
To actually change the heredity of an individual by manipulating the germ line is infinitely more complicated. It is something we can't do now — although we can do something like it in mice. It's done in a very nondirected, nonspecific way. No one's actually cured a defect in a mouse, but rather put in new genes in the mouse. It requires relatively complicated techniques and doesn't really solve anybody's problem.

But I can well imagine in the future that we will find ways of actually replacing genes with new genes. We don't know how to do it today, but let's say we knew how to do it. We will then face the question of which genes we want to replace, and to what extent we want to muck around with the heredity of our species. I don't know the answer to that. I do know that the notion we can have large scale effects on intelligence, on racial types, on all those things that we worry about; I think that's all absolute fantasy. That we can correct individual defects, again of the sort of specific genetic defects, I think is something one can think about. Again, we are miles from it.

And there I think we have to go reasonably slowly and develop a national consensus about whether this kind of thing is appropriate to the human race. Again, when we are talking about phenylketonuria, which is a classic inborn error of heredity, I don't think we would have a big argument. We would have an argument: there would be people who would say it is not natural, and we would have to deal with that question and I'm not one to say we must utilize such procedures. If we developed a national consensus that we didn't think it was right to do it even when there were defects that needed control then we wouldn't do it. We had reached similar problems for other reasons, for economic reasons, with procedures like heart transplants, which for a long time weren't done.

Q: In the mid-70's, when genetic engineering first became a buzzword, a lot of people talked about it, there were a lot of arguments whether this research should be undertaken, what guidelines were needed, and so forth. Now public attention seems to be centered on the performance of biotechnology companies in the stock market.

A: There are different sorts of discussions going on now, that's true. I think you make an enormous mistake if you look at the public debate as merely what the newspapers have been printing, because newspapers run out of steam on questions long before they let sensible answers develop. There has been, continues to be, a serious concern in the scientific community and in the philosophical community about the implications of modifying heredity. And there ought to be. You won't see that reflected in the day-to-day newspapers except at moments of excitement. That's just the way the press is. But this business of "where's the public debate?" is a misperception of how thinking goes on in this country, or in any country. It doesn't go on in newspapers. It goes on among a small group of people who are willing to take the time to look into all the complications and implications. And they begin to come to a consensus within the intellectual community and that then has to be brought to the public, generally at some moment when it comes to a head, not at anybody's choosing, but at the choosing of circumstance. And people are either prepared for it or unprepared for it.



Tech photos by Robert Winters

Q: Should solely biologists set the guidelines for DNA research?

A: The [NIH] committee has a large public representation. The committee was completely recomposed about four, five years ago. It includes 50 percent representation of public members of various sorts — lawyers, physicians, others. Actually, a relatively small number of people using recombinant DNA today are on the committee.

Q: As a former director of the Hastings Institute [The Institute of Society, Ethics, and the Life Sciences], do you



think some of the ties between university professors and corporations, especially in biotechnology, create conflicts of interest?

A: Well, again, that is an awfully broad question. To the extent that members of university faculties are consultants to corporations involved in biotechnology, they will reflect that in the variety of their involvements. I do not think it is inappropriate for the public or the university community, when they are trying to evaluate the pronouncements of individual faculty members, to take into account their background and their involvements — what their concerns are. If their involvements include industry, that should be taken into account. Whether it's a conflict *per se* or not is a different question. Intrinsically, it is not, because people are perfectly able to separate their various concerns.

[On the NIH regulatory committee,] industry is not an advocate of deregulation. For instance, one of the strongest reasons why the committee continued mandatory regulations rather than going to voluntary [ones] was that industry asked for it. And industry asked for it in order to cover themselves. So even trying to figure out where the conflict might lie is hard to tell; it [might have] the opposite sign of what you might have thought. I was arguing for voluntary regulations and was being accused at the time as speaking for industry, until I pointed out that industry — and I didn't have to point it out, there were letters that came in — felt the opposite way.

“... we will find ways of actually replacing genes with new genes.”

Q: When you said industry wanted to cover themselves — from what?

A: They wanted to be able to say “we have been following the guidelines, the national policy, therefore we cannot be held liable for anything that happens.” Also, they wanted to be protected against local jurisdiction.

Q: If a professor is a consultant to a corporation, or on the board of directors of a corporation, might he decide to research an area in which the corporation is interested while at the university, or to specifically undertake research he thinks may be profitable?

A: When you are working in a university, any work that you do belongs to the university, so if you did work in your own laboratory that led to a patent, that patent would not belong to the company. So it would be counterproductive to do that — I don't think that's a problem.

I think there is a problem when, for instance, a company has a problem. Take a chemical problem: they just can't get something synthesized. It is not a matter of patent of anything, they're just stuck and you as a consultant go in and say, “I think I know how to do it,” and you go back to one of your graduate students and say, “try this thing for me.” That I would consider inappropriate. I suspect it happens. I don't know.

Q: Are there instances where a professor is working on a similar problem both at his university and as a consultant, and if he reports the results as a consultant he would get patent licenses?

A: Again, I suspect that's a possibility. On the other hand, if [the research] were done at the university, it would be gross deceit to seek to take out a patent at a corporation. Secondly, at least around here, all of the work that we do involves graduate students and postdocs, ... so there is no way I could go and take out a patent on some experiment that they did through a company I was involved in. I think that's a virtual impossibility. They would have my head if I tried to do that. And, as I say, that is just plain illegal. You could, I suppose, posit totally illegal scenarios.

(Please turn to page 8)

Baltimore discusses genetic research: Commercial success is still elusive

(Continued from page 7)

Q: Do many professors consider leaving academia, as did Walter Gilbert, to join a company?

A: A fair number of professors have been thinking about that.

Q: Is it more problem at smaller schools more than ones like MIT?

A: Well, Harvard is not such a small school. And I know two people who did it at Harvard. No, I don't really think it is a problem of small schools or large schools.

I think we see a number of people going from academia into industry when their tenure decision comes up. A number of people from Harvard, for instance, have recently not gotten tenure and have gone into industry. There has been nobody in the biology department faculty at MIT who's left to go to industry.

Q: In some industry agreements to support university research — such as W.R. Grace's agreement with MIT — companies have asked for prior review of research, in other cases exclusive patents or license agreements. Do these provisions infringe on academic freedom?

A: I would say that any prior restraint is an inhibition of academic freedom, and even if it is a matter of 15 days, it certainly crimps your style. In setting up instruments we have been very careful to minimize any such interference.

Q: A lot of attention has been given to government requests for prior review for national security reasons of research in certain areas. These have been termed threats to academic

freedom, but similar requests by industry have not received the same notoriety, the same attention. Why is there this difference?

"... biotechnology has an enormous future because of its tremendous adaptability, the tremendous range of applications of biological systems to commercial problems."

A: I don't know. In my mind, any prior restraint is an infringement and should be looked at very, very carefully. Part of the reason why one has received more attention than the other is the implications are quite different. The reason for prior review, from a national security point of view, is the possibility of classifying [research] so it could not be published. The review for patentability is for an absolutely finite time, and they say, "give us *n* days and either we'll file or we won't file [for a patent], but we're not going to ask you to rewrite your manuscript or to hold anything secret."

Q: In recent months, there's been a lot of discussion about biotechnology companies — several have failed. Has promise of the field been overblown?

A: The profits are clearly many years off and the level of activity, I think, has been well beyond what the present-day potential of the field can bear. I think most of us in the biomedical community feel that biotechnology has an enormous future because of its tremendous adaptability, the tremendous range of applications of biological systems to commercial problems. But right now exactly [discovering] what's worth doing and what is going to be easy and what is going to be hard, and setting all the precedents and all that stuff — none of that has been done. And so for all these poor companies to develop, I think it very premature.

Q: A lot of these companies actually were begun by professors. Were a lot of their predictions on genetic engineering in the marketplace premature?

A: I guess so. I suspect there is a tremendous naiveté among professors. Take me for example. I had plenty of naiveté about industry. All of us grew up in a tradition of pure science and to think that we can then walk into the industrial world and be savvy in our appraisal of how to do things, of what's needed, of what styles of organization are appropriate, is naive. But naive enthusiasm carried molecular biology a very long distance and so it is our style. I think what we are seeing are the results of a fair amount of naiveté at this point.

Q: How is one company you are involved in, Collaborative Research, fairing?

A: Collaborative Research is doing quite well. It went public and the stock price is holding up.

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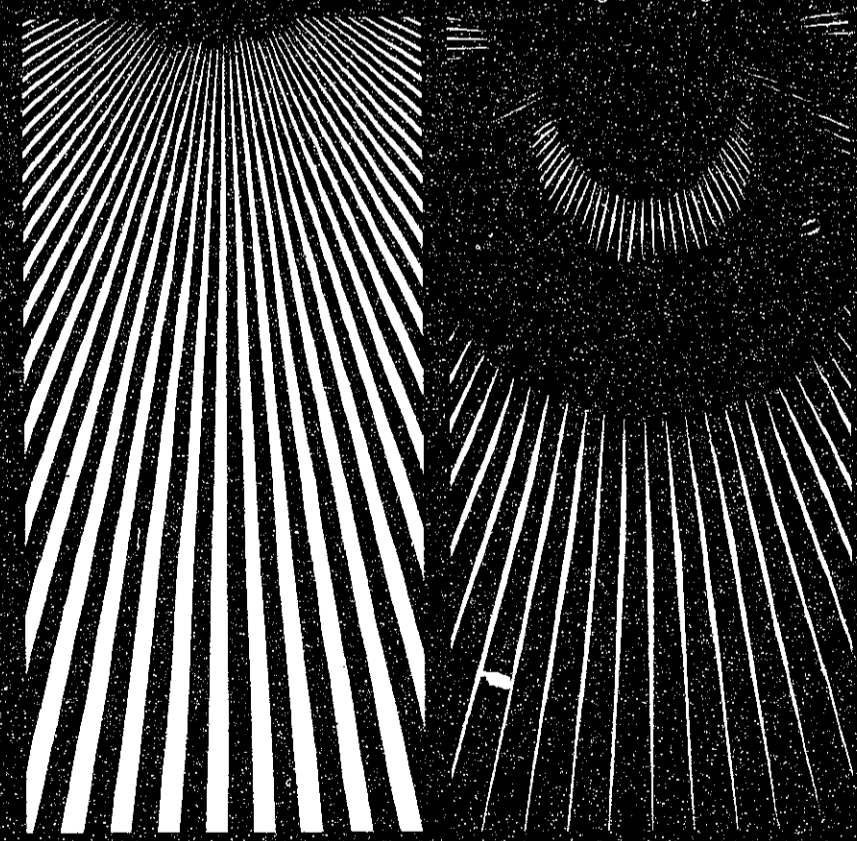
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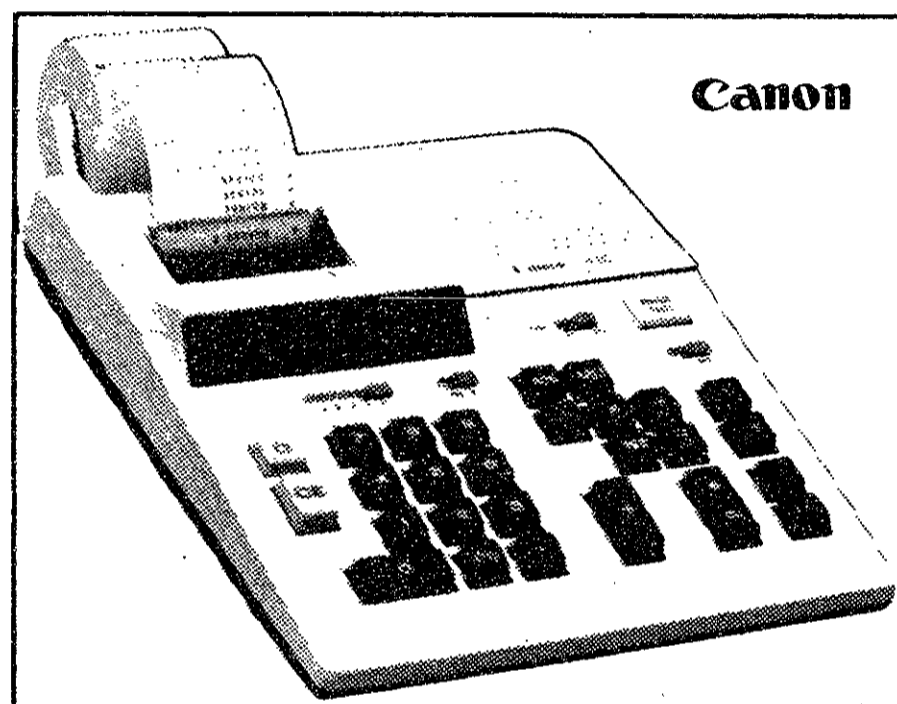


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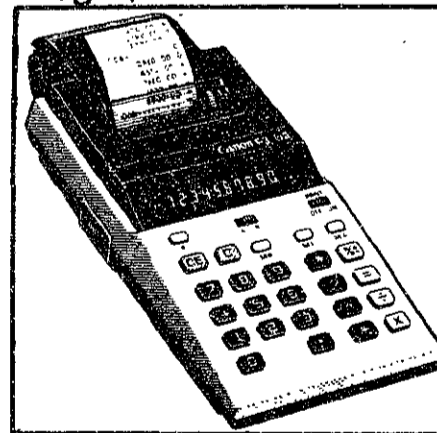


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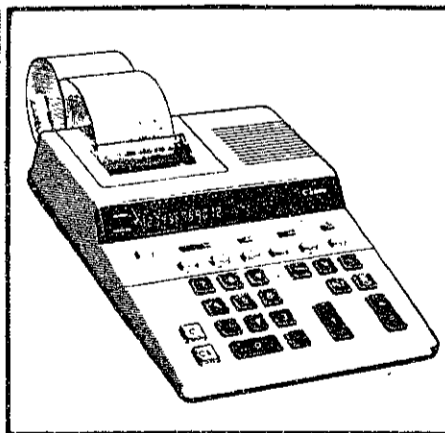
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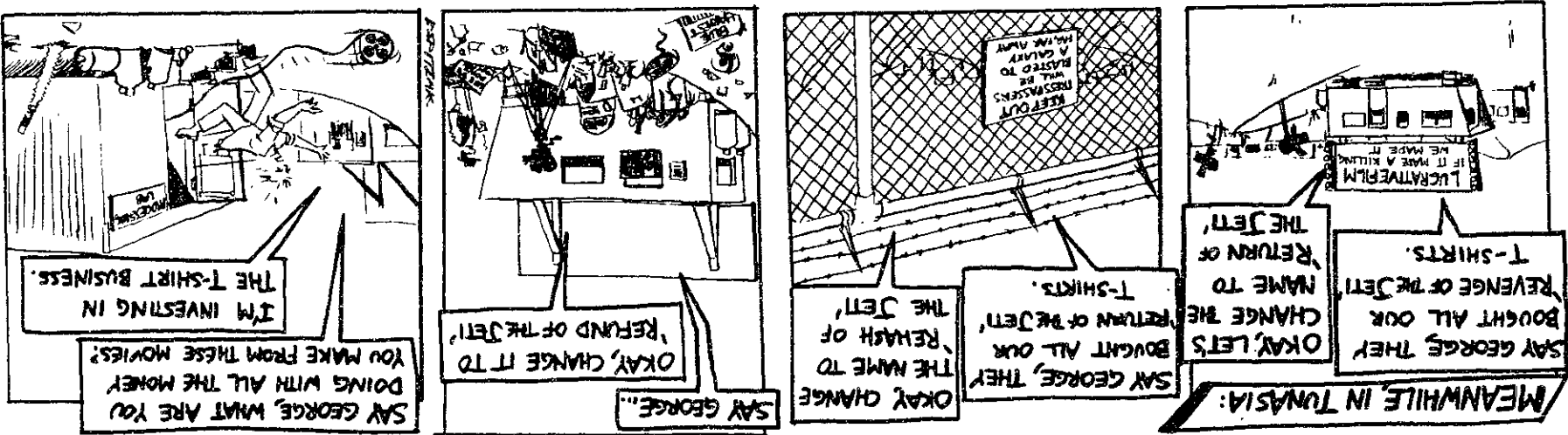
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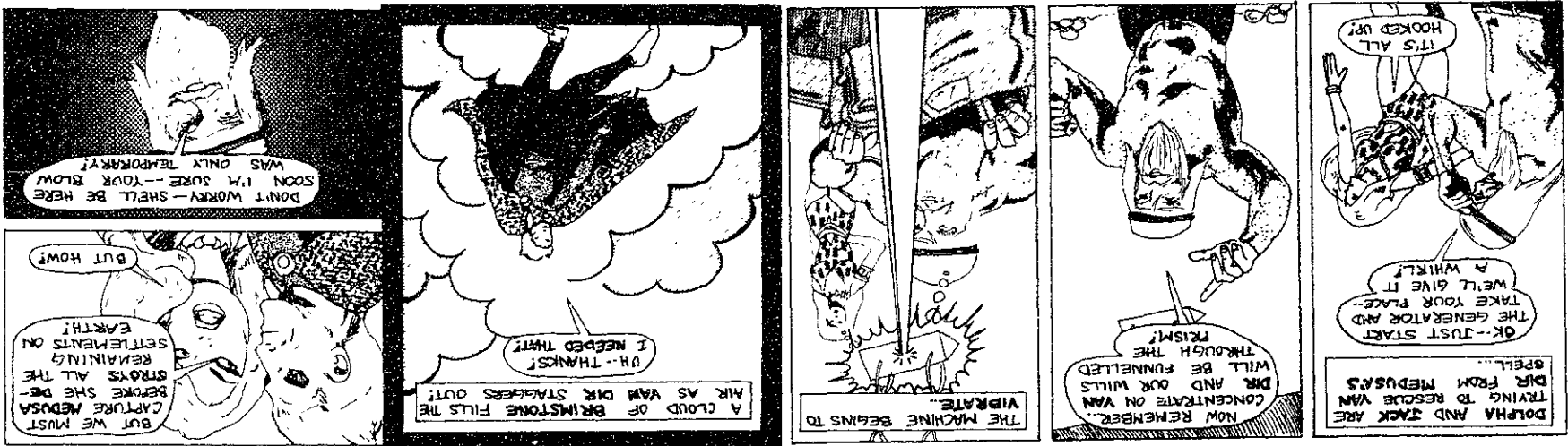
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UA News

Alice in Umland

Once upon a time, in a land not far away, lived a little girl named Alice. Alice, being an engineering undergrad, was a bit out of touch with reality and paid little attention to the real world. So one day, as Alice was crossing Mass. Ave. against a red light, a horrid thing happened — she was clipped by a yellow cab and sent flying head over heels down the infinite corridor. On her way, she met the APO Hare who was carrying a left-handed, 3-foot long Big Screw. Now this seemed strange to Alice, for she had never seen a rabbit in Building 7 before. "I'm late, I'm late!" cried the Hare. "Where are you going?" asked Alice. "To the Big Screw Party in Lobby 10," answered the Hare. "All next week, you can vote for the most deserving professor or administrator by donating in his/her name to charity." "Who's Charity?" asked Alice. "Never mind," said the APO Hare, "just come to the Big Screw Party in Lobby 10." But that sounded like one of those things Alice's mother had warned her about as being inappropriate for little girls, so she turned away.

Just then, she bumped into Snow Gray, daughter of a well-known MIT administrator, who was on her way to the UA office (4th floor, Student Center) for a 7pm, April 5th Class of 1984 Council Meeting, in search of her dwarves. "Where are you going?" asked Alice. "Can't you read?" snapped Snow Gray. Alice thought it extremely rude for someone who wasn't even in the right UA News to be so rude, but allowed her to continue anyway.

"You see," continued Snow Gray, "the Finance Board and the Nominations Committee are holding hearings for new members. Applications for Finance Board must be obtained from Reta Lee, the UA Accountant, in W20-401, and turned in by April 5th, since the hearings are at 7pm on April 5th and 7th. NomComm will also be holding hearings soon, and you can call David Libby (dl8739) for information. Any-way, since both these groups are short on people, I thought my dwarves would be there for sure." Alice groaned. That was the worst pun she had ever seen in the UA News before, and she decided to complain to the Mad Editor as soon as possible.

"Wait," cried Snow Gray, "don't leave yet. I haven't told you about the Class of '84 Meeting. They'll be discussing the Jr-Sr Pub/Drinkoff for Spring Weekend. And they'll make final arrangements for the Barbeque on Saturday, April 9th." "The BQ is from noon to 1:30pm next to the Athletic Center," added the Worchestershire Cat, "and it only costs a dollar. If you bring a fork or spatula, you don't have to stand in line." Alice failed to see the logic in that, but nodded her head politely. It was getting late when Alice suddenly remembered the Association for Women Students Elections that night (April 5th) in W20-447. She was considering running for President, VP, Treasurer or Secretary, and being somewhat schizoid, she thought she might run for several of them. "Elections will be held at 9pm... the notice had said, "...nominations will close at 9:15pm." "That certainly seems a backwards way to run elections to me," thought Alice, "but I'll have any questions." "People should be more careful when submitting stuff to the UA News," screamed the Mad Editor, who was quite fond of being rude. "Off with his head!" ordered the Queen of Hearts, "he's not funny enough! I want a new editor... Off with his head!"

"Oh my!" cried Alice as she stepped back, startled, almost stepping on the Dormouse. "Watch it, nerd!" complained the Dormouse, "and make sure to make it to the Dormitory Council Meeting on Wednesday, April 6 at 8pm at Next House. We're looking to establish new goals and priorities, and any new ideas would be appreciated." Alice politely excused herself since she still had one stop left to make. She had to stop by the UA Office (W20-401) to find out how to become a CA member at large, since there were only a few spots left. On her way, she met the newly elected UAP and UAVP, Tweedledee and Tweedledum. They told Alice to stop by the UA Office on Tuesdays from 11-1 and from 3:30 to 5:30, and on Thursdays from 12 to 4, when they would be holding open office hours and when anyone at all could come by and meet them, find out how to get involved or, best of all, complain.

"Hold the press!" cried the Mad Editor, "SCEP just called. They're having a meeting on Thursday, April 7th at 7:30 in Room W20-400. They will discuss end-of-term pace and announce the results of the freshman Course-6 survey. There will be nominations for SCEP officers at this meeting as well."

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sports

Softball takes home opener

(Continued from page 12)

The 2-0 lead held, compliments of Robinson's work on the mound and some big plays in the field by a flawless Engineer defense. In the fourth, Kelly speared a drive destined for right field for one out. The next batter then hit a soft liner to right which Raymond fielded on one hop and threw to Kelly, getting the runner by two steps. Robinson did her part by keeping the Bates hitters off-balance and behind in the count. Although she wasn't as overpowering as in Wednesday's game against Coast Guard, the Los Angeles native forced the Bobcats to hit easy grounders and lazy fly balls.

MIT cruised along until two were out in the top of the seventh inning. The visitors sent a pinch batter to the plate, and Robinson, in her only real mistake of the game, hit her on the first

pitch. The next batter hit a soft fly that Raymond could not get to. The ball skipped by the Tech rightfielder for a triple, scoring one run and putting the potential tying tally on third. Bates' next hitter rolled a grounder up the middle, but Chen, in a fine play, went to her right and made the throw to first for the final out.

Extra Innings: In two games, Jandura leads the team in hitting with a .714 average. Anderson is second at .571. . . Robinson had a 13-inning scoreless streak broken with Bates' run in the seventh. She has a sterling 0.50 ERA in

the first two games of '83. She has given up just seven hits, and has 11 strikeouts. Last year, Robinson was 10-4, with a 1.52 ERA, and was named to the New England Intercollegiate Softball Association Division III All-Star Team. . . Saturday's win over Bates was MIT's first ever. Last year, the Bobcats won 10-4. . . The *NCAA News* has predicted MIT to be one of the top Division III teams in the East. . . MIT takes on Clark in Worcester tomorrow and plays a doubleheader with Wheaton on Briggs Field Saturday.



Tech photo by Robert Winters

Grace Saccardo '86 connecting for a base hit against Coast Guard.

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sports

Inexperience hurts lacrosse

(Continued from page 12)

squad as a whole displayed a large amount of desire and hus-

sports update

Baseball — Three hits by shortstop Dale Rothman '84, including a home run and a triple, were not enough, as the baseball team dropped its home opener 6-4 to Bowdoin Saturday afternoon. The squad will be looking for its first win today when it hosts the Harvard Crimson at 3pm on Briggs Field.

Rifle — Cliff Eskey '85 placed 11th in the small bore competition at last weekend's national collegiate rifle championships.

Tennis — The men's tennis team upped its record to 5-1 with a 5-4 win at Wesleyan Saturday. Ramy Rizk '86, captain George Hoehn '83, and Chiwon Hahn '83 all took their singles matches, while Chen and Rob Craig '86 followed Hoehn and Will Sauer '85 in chalking up doubles victories. The team will have plenty of opportunities to raise its record, with afternoon home meets Wednesday (vs. Bowdoin), Thursday (vs. Amherst), Friday (vs. Colby), and Saturday (vs. Williams).

Track — The outdoor track team opened its season with a 87-67 loss at Division I University of New Hampshire Saturday. Pat Parris '85 (hammer), John Taylor '84 (440-yard dash and intermediate hurdles), Ed Arenberg '84 (220-yard dash), captain Martin Taylor '83 (triple jump), and Bob Walmsley '84 (three miles) all posted victories in the losing effort, and the team captured the one-mile relay. The Engineers will open at home Saturday against Bowdoin. The meet is scheduled to begin at 12:30pm.

Volleyball — The men's volleyball club experienced the thrill of victory Saturday, defeating Boston University 3-1.

tle, but it is young, and, as is the case with many inexperienced teams, inconsistency was its constant nemesis. Countless times an MIT defender would strip the ball from an Amherst player only to throw it away moments later. As a result, the Engineers were unable to sustain a serious offensive threat.

The one exception to this inconsistency resulted in the Engineers' lone score. Midfielder Mike Ambrogi '85, who spent most of the day giving new meaning to the word hustle, drew an Amherst penalty as he was scrambling for a loose ball. Thirteen seconds later, following a second penalty which gave MIT a two-

man advantage, Ambrogi took a pass from attackman Harry Lipschitz G and rifled it past the goalie for a well-deserved score. The goal came at the midpoint of the third quarter and made the score 6-1, but that was the extent of MIT's offense, as it managed only one more shot on goal the rest of the way.

The Engineers go after their first win today (they are now 0-2 after a season-opening defeat against Tufts) at Westfield State and play at home Thursday at 3pm against Holy Cross. These games will give the squad large doses of experience, which is an ingredient that has been sorely lacking.



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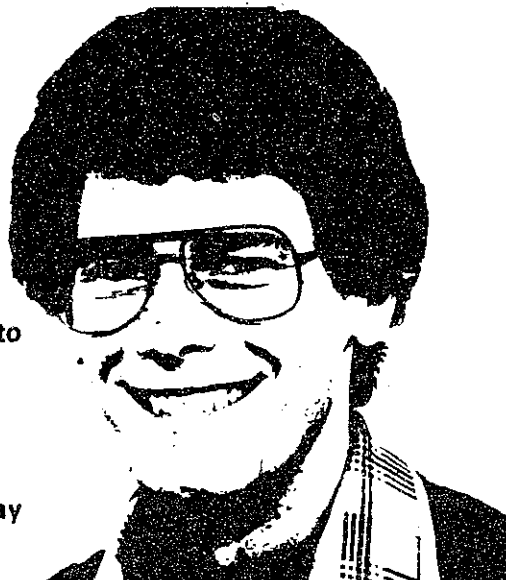
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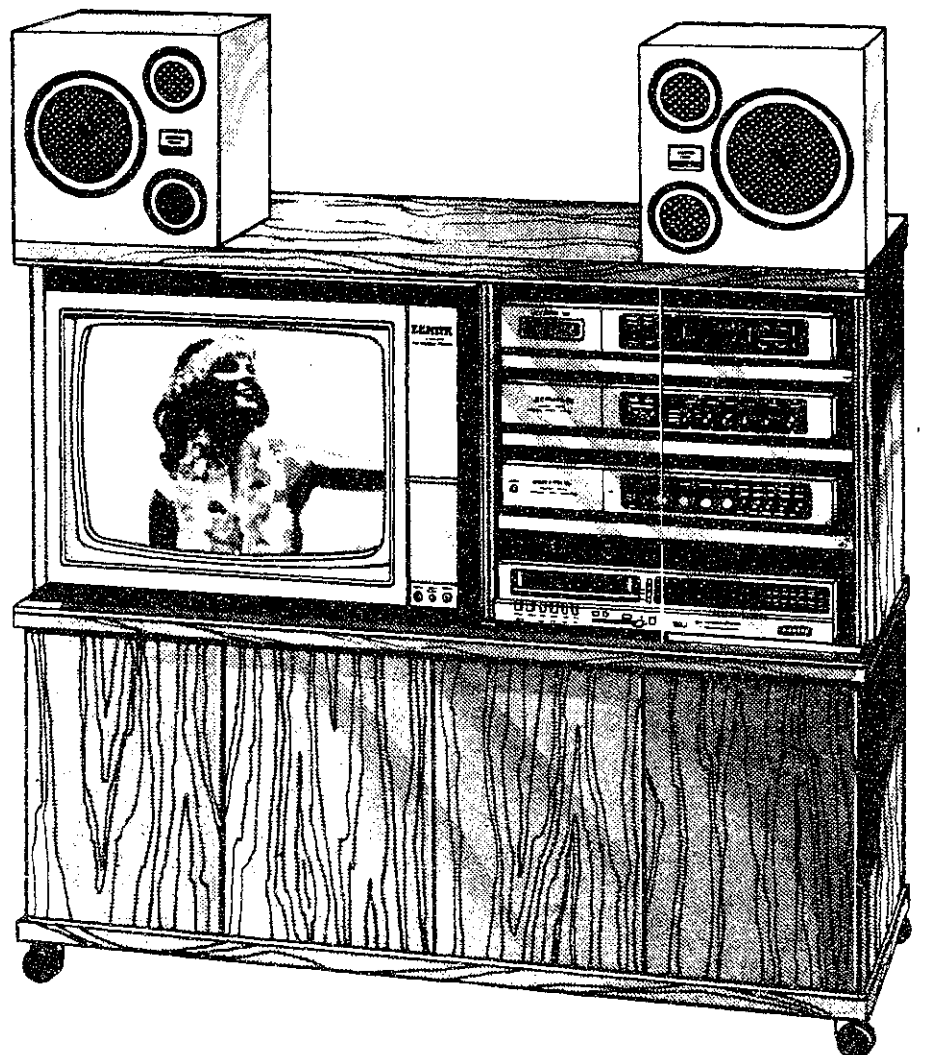
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Sports

Softball defeats Bates 2-1

By Eric R. Fleming

The softball team was out-hit 6-5, left six runners on base, and managed to score just two runs Saturday. However, thanks to another solid performance on the mound by Cindy Robinson '84 and to a number of clutch defensive plays, MIT edged Bates 2-1. Tech is now 2-0, off to a fine start in pursuit of its second straight

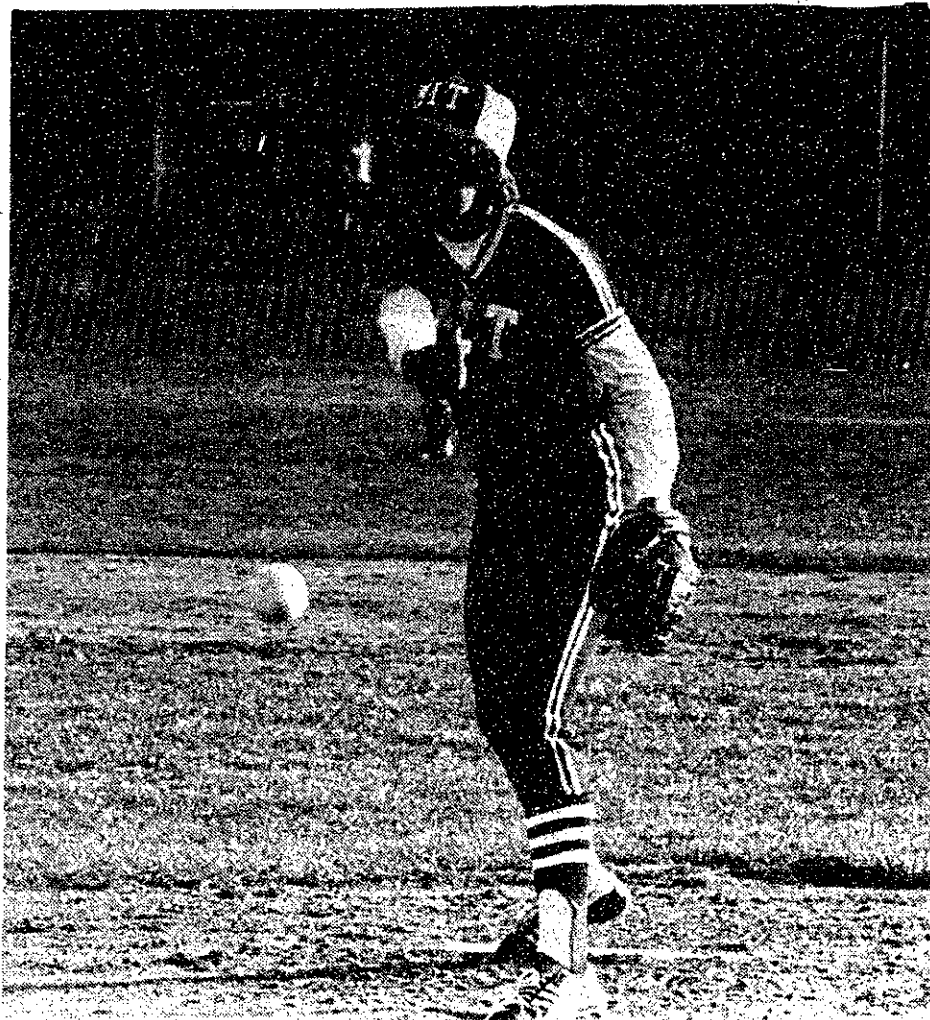
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Neither squad could score through the first two innings, though both had their chances. Bates put a runner on in each of the first three frames, but could not advance them past second. Meanwhile, Robinson led off the MIT second with a single to center. Catcher Terry Felts '84 was safe on a throwing error by the

pitcher, moving Robinson to third. Felts stole second, putting runners at second and third with no one out. Joyce Kelly '83 popped to first, with no advance by the runners. Jeannie Raymond '84 then hit a grounder to third, with Robinson heading for home on the play. Unfortunately, she was an easy out as the throw went home. Christy Bellinger '84 flied to right, ending the inning.

The Engineers finally broke the ice in their half of the third. Stacy Thompson '86 began with a perfectly-executed bunt single. Julie Chen '86 then got a bunt down for the sacrifice. Thompson, noticing that the Bates' first baseman was lackadaisical in getting off the bag, sped for third. The throw was wild, and Thompson got under the tag at the plate for MIT's first run. Liz Anderson '84 kept the rally going, smashing a single to left. She stole second, and came home on junior Lou Jandura's single which just got under the shortstop's glove.

(Please turn to page 10)



Tech photo by Robert Winters

Cindy Robinson '84 unleashing a pitch against Coast Guard last Wednesday afternoon.

Lacrosse loses 10-1

By Mark Harsch

Unfortunately, it's not a perfect world. If it were, MIT would not charge tuition, gasoline would not be over a dollar, and the lacrosse team would not have lost its home opener 10-1 to Amherst Saturday.

The team put forth a huge effort and was the sentimental favorite, even though it did not have enough talent to compete successfully with the Lord Jeffs. The Lord Jeffs came into the game ranked number five in New England and showed from the outset that this was a deserved honor.

The first quarter set the tone for the game, as Amherst set up camp in MIT's end, taking seventeen shots (in comparison, MIT took only twenty-two in the entire game). The Engineers simply could not get untracked, as evidenced by the fact that they successfully cleared the ball from their defensive to their offensive zone only once in eleven first-quarter attempts. It is obviously extremely difficult to score if the ball spends most of its time fifty or more yards from the opponent's goal.

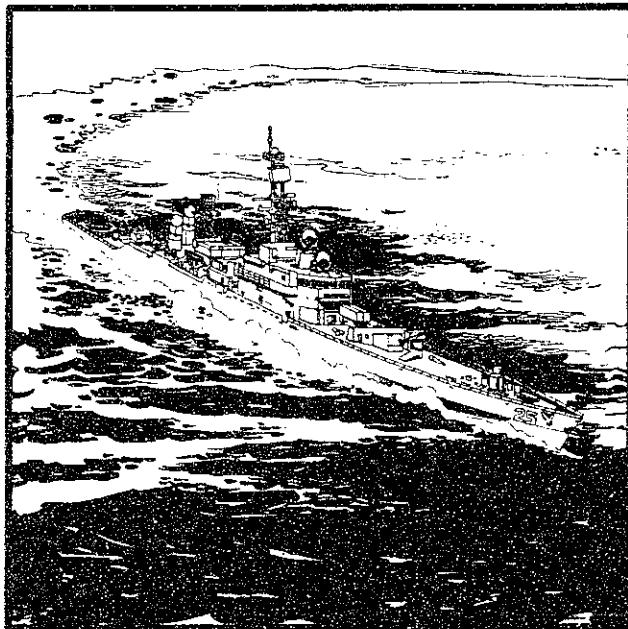
Amherst had a much easier time scoring, although its task was not as simple as one might

imagine from the number of shots taken. The Lord Jeffs only led 3-0 after one quarter and 5-0 at the half, thanks mainly to the heroics of goalie Bill Larkins '84, who made numerous superb saves. His performance prompted MIT coach Walter Alessi to comment, "Billy Larkins will be All-New England if he keeps it up." If he continues to face sixty shots a game, however, he will also be All-Black and Blue.

Aside from Larkins, there were few individual bright spots. The

(Please turn to page 11)

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