Student debt triples in decade

By Katie Schwarz

One-third to one-half of all college students now owe school loans, according to a congress...
Program offers science experience to minorities

(Continued from page 1)

facult member of the research team," Turner said. They carry out re-
search processes, financial aid, and such as graduate school admis-
sions, they are able to use computer simulations to test their predic-
tions, be explained.

The method is controversial because critics claim that stu-
dents may not be able to develop a proper sense of intuition, be-

Lerman discusses the future of Project Athena

(Continued from page 1)
in his or her research. The stu-
dents "are treated just like a member of the research team," said Turner. They carry out re-
search projects and attend professional seminars, he said.

The students also attend work-
ly seminars with minority role
models — professors, engineers, and advanced graduate students — to speak about their particular
fields, Turner said. The seminars will inform students on issues such as graduate school admis-
sions processes, financial aid, and the value of advanced degrees, Turner said.

— MSSRP will provide students with $200 per week for their full-
time research work and housing in MIT dormitories along with transportation costs.

The Graduate School Dean's Office hopes to create a pool of prospective minority graduate
students, some possibly for MIT, through this program, Turner said.

MIT will further benefit from the different cultural and social-economic perspectives provided
by the students, and the program will "help ease the cultural gaps that may [exist] between MIT faculty and underrepresented mi-
nority groups," Turner said.

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World

Vietnam reports clash with China

Vietnam says its troops repulsed a Chinese attack at the border, killing or wounding nearly 300 Chinese soldiers. Vietnam's official news agency did not say whether there were any Vietnamese casualties. Chinese news media have not reported the border clash. The Vietnamese report has not been independently confirmed. (AP)

Breath test machine faulty

The state won't seek to re impose the license suspension of a Norwalk man who was arrested under the new drunk driving law. Scott Holman got his license back on Monday after a forensics expert said the breath test machine used to check Holman's blood alcohol level may have been faulty. Holman tested at 0.14 percent, well above the legal limit of 0.10 percent. (AP)

Proposal to eliminate scholarships

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At the Massachusetts Institute of Technology, we have decided to make the most intensive review of our undergraduate program in 25 years. We haven't forgotten that old truism, "if it ain't broke, don't fix it." We do think it's "broken," but we want to be sure it's in good shape for the tasks that lie ahead of us.

Many of us believe that a richer educational environment will be required for the undergraduates who will come into their prime early in the new millennium. The growing impact of science and technology on public affairs and human well-being will require that the people who shape or influence those fields appreciate the diversity and complexity of societies and human values and have the ability to understand and respect the economic, political, social, and environmental issues associated with technological developments and applications of science.

Some of us sense that our academic program - in regard both to its already strong liberal-arts requirements and to many of its specialty courses of technical study - will not be sufficient in character and breadth for students in the years ahead. For that reason we have undertaken a (Please turn to page 6)
SDI unfeasible, impractical

(Editors’ note: The Tech received a copy of this open letter to President Ronald Reagan."

Dear Mr. President:

Although I am of American birth, I was in France when The Maginot Line was being built. It was expensive. It wrecked the French economy and the countryside. But it gave the French such great confidence in their security that they were able to make a major effort to crush a nation that was 10 million men strong. They were foiled by the Maginot Line.

How similar to SDI!

In fact, it was the French, not the Germans, who were bottle up much of the French army so that the Germans were relatively free to take Paris behind it.

At a war-time lieutenant colonel in the US Army, a former scientist-secretary general of NATO for scientific affairs, and a professor emeritus of physics at MIT, I am not a stranger to military and scientific matters. During World War II, I served as liaison to the chief signal officer. My duties were to advise the military and scientific matters, Dur-
during World War II, I served as liaison to the chief signal officer. My duties were to advise the military and the scientists could do for them, and to advise the scientists what the practical warfare instru-
ments for the Army.

SDI fails on both counts — it is both unfeasible and impracti-
cal. It cannot be physically made, because of the limitations of power and battle control in space; and it cannot be effectively used because it will be saturated by the thousands of missiles which can be launched simultaneously against it.

A Maginot Line in the sky!

What a magnificent dream!

When the first platform is put into orbit, the Soviets will shut it down, which should be easy and they must do it. What's the response?

What a frightful nightmare!

I am writing this personal, but open letter to you to awaken you from the dream before the night-

mare, and I am encouraged to do so by the good wishes received, signed by both you and Mrs. Reagan, on my birthday, November 15. I am certain that you will have happier birthdays if you will discard SDI and accept some-
thing like Mr. Gorbachev's pro-
poxes.

William P. Allis '73
Professor of Physics, Emeritus

Red Cross is counting on you
— to help.

Today and Tomorrow
Student Center

This space donated by The Tech

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Then you REALLY need one!

If you give Stanley Kaplan just 3 hours a week for 6 weeks, we can save you 10 hours or more a week for the rest of your life. Kaplan's breakthrough Speed Reading program can have you reading two to five times faster — with greater comprehension and recall.

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It really works. Come see for yourself at a free demo ses-

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Student Faculty Employee

c. Buy first entree higher price: Get second free equal or lower price:

d. All of the above.

Shotokan Karate MIT Shotokan Karate of America Club invites beginners and all interested in martial arts to practice.

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See Demonstration Jan 8 and 16

Alex Jourjine 522-8782

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3. Tell us what kind of pizza you want and the delivery location

4. A freshly prepared pizza will be delivered to you!

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photographer and recorder needed for the MIT concert band tour
Jan. 26th - Feb. 1st  All Expenses Paid.
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Tuesday, January 20
Midnite Movies
The Bands
Come join us for pizza and good times through January, 11, 18, and 25
Thursday, January 8
The Tech: Educational balance

Do you need to talk to an attorney?
Do you need to talk to an attorney?

MIT: educational balance
is a problem that the understanding and control of Nature is a powerful
means by which human affairs can be given rational direc-
tion and material prospect. There is a large body of research
shows, however, that the development
of science and technology does not take place in a political or
social vacuum. . . . Their de-
velopment is both influenced and con-
strained by forces outside the
domain of scientific discourse.
"MIT students need to be aware of these shaping forces and
constraints. They need to under-
stand the social, political, histori-
cal, ethical, and cultural aspects in
which they work." To meet this need, the committee has
suggested a new required course, to be taught by a faculty
team drawn from our five schools, that would reflect on and
illuminate the human con-
texts that shape and are shaped
by work in science and technol-
y.

Another part of our task is to
expand students' creative and de-
sign capabilities. While little is
known about the creative process
of the determinants of imagina-
tion, there is evidence that the truly creative sci-
entists and engineers have strong
parallel interests in the arts and humanities.

There is also evidence, I'm sor-
ty to say, that some students en-
tering current science and engi-
nering programs may be more
open, creative, and enthusiastic
at freshmen than they are when they leave the institution four
years later. Thus we must develop
subject offerings and academic
experiences that will not only
introduce students to a wide range of approaches to
knowledge, but also encourage them to make connections and
analyses within a broad range of
social, humanistic, and scientific
topic areas.

(Editor's note: This column is
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The Chronicle of Higher Edu-
ation.)
Kopit play about nuclear war has a sane lunacy

THE END OF THE WORLD WITH SYMPOSIUM TO FOLLOW
By Arthur Kopit.
Directed by Richard Foreman.
Currently in repertory at the American Repertory Theatre

By JONATHAN RICHMOND

The tech front provides a clue to what Arthur Kopit's "End of the World with Symposium to Follow" is about. The print shows the perpetual motion of a stream of water, always seeming to fall, but endlessly recycling round the same loop. The play is about the apparent internal logic of lunacy in the nuclear arms race. But I am not sure that the Escher ART CHORUS was the most appropriate one. The theme of the play is more one of recursion, of a logic of madness endlessly winding itself down to itself. To maintain peace we have to build hardware to protect ourselves against their weapons. They have to build a bigger and better toy to deter us. And we have to go a step further, building more armaments to "prevent" war. Within our assumption lies their assumption about our assumption about their assumption about . . .

Then there is also the recursiveness of the main character, Trent. The play is as much an attempt to write a play about trying to write a play about the inner, the true, not being able to. In real life Kopit had been approached by Leonard David, a millionaire, with a four-page scenario for a play about a nuclear crisis. The main character of "End of the World," Michael Trent, is given a similar assignment. Kopit was faced with an "ability to comprehend the reality of it all," and so is Trent. Neither came up with an answer, but both take us down the path of the impossible logic that keeps no answer from being found.

There are points in the first act when clichés seem to leak in but as the play progresses they gradually sink in that the clichés are integral to the intelligence of insanity. The play increases in brilliance and in its conclusion convinces the audience by having drawn us inexorably into the system of logic from which it says we must be free.

The acting was of consistently high quality. Ken Howard introduces Michael Trent to us as a struggling playwright drawn into a scheme to create a conservoative music but later shows Trent becoming increasingly involved and serious, detailing the complex conflict of being a battle in the character's mind. His final monologue is calme but thrilling, mental tension just below the surface communicating urgency.

Jeremy Geidt plays the hysterical Philip Stone, sponsor of the play-with-the-play. Geidt's Stone is obsessed, cool on the outside but burning inside to produce a play about nuclear folly, a play he will pay to continue on stage ever if nobody attends. Geidt makes Stone's lines deliberate, well thought out — even Stone's most lunatic moments seem to have a purpose. And Geidt makes the role superently entertaining in a black sort of way. Ted Kaczynski makes us believe in the self-righteousness of General Wilmer, who is certain that it is "not rational to be rationally." The slipshod of John Bottome and Richard Grunin as Jim and Pete is as hilarious as it is troubling. The characters are jolly, playing games at arm's length from real. Isabell Monk plays Trent's agent, Audrey, portraying her stereotypically, the routines of being an agent professionally attended to but anything outside that role ignored. Audrey, like all the other characters but Trent, has her assumptions; those assumptions provide for the illusion of sanity but insure the maintenance of madness.

This is a deeply thoughtful production of a wonderful play and is highly recommended, especially to those receiving defense-related financial support.

MIT Symphony Orchestra well-measured

MIT SYMPHONY ORCHESTRA
Conducted by David Epstein.
Krege Auditorium,
December 13.

By JONATHAN RICHMOND

On December 13 David Epstein led his astonishing band in an adventurously program in Krege Auditorium. Top marks for revolutionizing the performance of Rumsy-Korsakov's rarely-heard Piano Concerto in C sharp minor, Op. 30, with soloist Abbott Ruskin. This is a demanding work for both orchestra and soloist, and especially difficult for the conductor who must keep them together. Epstein invented an organic relationship between soloist and orchestra, each of which built upon and expanded the strengths of the other.

Ruskin approached the work as an essay in romance; the well-measured reflective quality of his playing spoke eloquently and his cadenza was deeply tragic, a time-stopping episode of intense beauty. All sections of the orchestra performed well and the strings had a particular warmth. But it was the blending of the separate elements that was most impressive. It made for a variety of continual interest, but also for an integrated whole: It made for a variety of continual interest, but also for an integrated whole.

First two of "Three Dance Episodes" from de Falla's The Three-Cornered Hat were done nicely, with a tantalizing solo xylophone and exciting orchestral build-up in "The Miller's Dance." The First dance was a trifle on the heavy side, Epstein's otherwise solid coordination falling apart for a few measures.

The evening ended with a delicious exploration of the symmetries of Dvorak's Symphony No. 9. The introduction of the "pure" sonorities of flutes and dark-throated responses from lower registered winds and strings in the Adagio was delightful. The third movement was light and joyful and injected with an element of folksy melody, a long, slow balance due great pleasure here. The changing textures of the Allegro ma non troppo, also provided much enjoyment, bringing the work to an end with energy and precision and more than enough color to build a vivid third dimension, too.

The First Boston Corporation

The First Boston Corporation, a special branch investment banking firm headquartered in New York, will be recruiting at M.I.T. for its financial analyst program. Opportunities exist in New York and regional offices.

Highly motivated Seniors with diverse academic credentials and majors are encouraged to apply.

First Boston will be interviewing on campus on Monday, January 26th at the Office of Career Services.

For further information and inquiries, please feel free to contact:

Michael Ansour
(212) 909-4312

Roger Liberman
(212) 909-3884
1987 I.A.P. Program  
January 12-16, 1987  
January 12, 13, 14, 15 M.I.T. Room 66-110  
January 16 M.I.T. Room E51-329

MANAGEMENT OF THE HIGH TECHNOLOGY COMPANY

BARRY UNGER, COURSE DIRECTOR

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 Vice President and Director of Datacube, Inc. He is also co-founder and vice-chairman of the M.I.T. Enterprise Forum and has been a founder/officer of several technology-based companies.

Monday, January 12  
Room 66-110

STARTING AND RUNNING A COMPANY: THE INSIDER'S VIEW  
1:00pm - Dr. Robert J. Shillman '72, President and Founder, Cognex Corp., and former M.I.T. faculty member  

Tuesday, January 13  
Room 66-110

PLANNING AND FINANCING THE BUSINESS  
1:00pm - Venture Capital and Other Financing Alternatives for the Startup Company  
-Robert J. Crowley, Vice President, Massachusetts Technology Development Corporation, and former President, Neponset Valley Bank  
-Laura C. Morrissette, Consultant, Massachusetts Technology Development Corporation  
2:30pm - The Business Plan: Both a Blueprint and a Sales Document  

Wednesday, January 14  
Room 66-110

MARKETING AND SALES FOR TECHNOLOGY BASED PRODUCTS  
1:00pm - Ralph E. Grabowski '63, Marketing Consultant  
-James H. Geismann, President, Market Share Inc.  
3:00pm - JOINT VENTURES AND OTHER FORMS OF BUSINESS AND MARKETING RELATIONSHIPS BETWEEN SMALL AND LARGE COMPANIES  

Thursday, January 15  
Room 66-110

RESOURCES FOR THE ENTREPRENEUR: FINDING GOOD PEOPLE AND ADVICE  
1:00pm - Recruiting, Compensating, and Effectively Using A Board of Directors  
-Arthur C. Parthe Jr. '66, Director of Marketing, Aerodyne Products Corporation  
2:00pm - Formal and Informal Resources Within the M.I.T. Community  
-Paul E. Johnson, National Director, MIT Enterprise Forum  
3:00pm - Finding and Motivating Business Partners, Employees, and Consultants  
-Dr. Judith H. Obermayer, President, Obermayer Associates

Friday January 16  
Room E51-329

LAW AND THE TECHNOLOGY BASED SMALL BUSINESS  
1:00pm - General Considerations in Organizing and Financing the Company  
-Steven M. Wallman '70, Attorney, Covington and Burling  
2:30pm - Patents, Trade Secrets, Relationships with Previous Employers, and Other Issues Concerning Intellectual Property/Protection of Your Technology  
-Barry D. Rein '60, Partner, Finnis & Edmonds

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