

MIT 150 | Radio Hosts Raymond and Thomas Magliozzi—1999 MIT Commencement Address

[MUSIC PLAYING]

SEAMANS: Good morning everyone. We're here to tell you a little bit about where you are today, and what will be happening as we go along. I can't remember weather as gorgeous as this. This is just spectacular, isn't it?

KEYSER: This area that we are in is known as Killian Court. It was named after James Ryan Killian, class of '26, who was the 10th president of this institution.

ANNOUNCER: Ladies and gentlemen, the academic processor, led by the Chief Marshal, will now enter Killian Court.

SEAMANS: On the faculty I think we have 11 Nobel Prize winners and four Kyoto Prize winners.

KEYSER: It's also remarkable to see the diversity in the MIT community. I believe 30% of MIT's faculty are, in fact, born outside of the United States. We think they're the best people world, of course.

SEAMANS: This again, is a view of the class of 1949. An amazing percentage of them have come back for the 50th reunion.

ANNOUNCER: Ladies and gentleman, the guests of honor, the class of 1999.

SEAMANS: They're being led by Ros Williams, she is the Dean of Student Affairs at MIT. She has a baton in her hand.

KEYSER: Both Tom and Ray Magliozzi are MIT alumni. Tom is a graduate in 1958. He is an economics graduate. And Ray is class of '72, and he is Course 21B, that was Science and Technology, one of the early Humanities graduate here at the Institute. A lot of people think they are MIT's most famous alumni.

SEAMANS: If you'll look to the dome, you'll be seeing one of MIT's favorite places for hacks. And if you see, they're two policemen up there now. I want to assure you that those policeman are not hacks. In fact, there up there to prevent hacks. Because one of MIT's favorite activities was to do a hack during commencement.

KEYSER: I think we're about to begin.

D'ARBELOFF: Corporation and the faculty of Massachusetts Institute of Technology will now declare convened, together with this assembly, on the occasion of the commencement exercises of this institution for the conferring of its degrees. The stage, assembly, and audience, will please rise and join professor Ellen T. Harris in the singing of one verse of the Star Spangled Banner, and please remain standing for the invocation by Rabbi Joshua E. Plaut.

[MUSIC PLAYING - FRANCIS SCOTT KEY, "STAR SPANGLED BANNER"]

HARRIS: [SINGING] Oh, say can you see by the dawn's early light, what so proudly we hailed at the twilight's last gleaming? Who's broad stripes and bright stars, through the perilous fight, o'er the ramparts we watched were so gallantly streaming? And the rockets red glare, the bombs bursting in air, gave proof through the night that our flag was still there. Oh, say does that Star Spangled Banner yet wave o'er the land of the free and the home of the brave?

PLAUT: Sing praise on this new morning, for dreams fulfill. Proclaim gratitude to the creator for implanting in us a divine spirit to grow in wisdom and grasp our potential at this haven of higher learning. A new day dawns. Challenges brighten the paths ahead. Knowledge inspired and acquired here shapes us into messengers entrusted with the supplication to act creatively and responsibly.

At this happy juncture, doors swing shut while others open. We strive to succeed in life, not always sure of our path. Take to heart then, words uttered 2000 years ago, as a guy down the high road of life. Who is wise? One who learns from every person. Who is strong? The person able to master one's temptations. Who is rich? The person who enjoys one's own portion. Who is honor? One who honors others.

Proceed now with humility. Cherish morality. Have faith in yourself and believe in humanity. Pursue justice and promote peace. Be courageous. Remember, the world needs us to make a difference.

As we sing praise for this new morning, blessed be the work of our hands day by day. Joyously we welcome this occasion with a Hebrew prayer of Thanksgiving.

[SPEAKING HEBREW]

Blessed is the divine spirit of the universe for giving us life, sustaining us, and bringing us to this joyous and happy day. Amen. Please be seated.

D'ARBELOFF: I am pleased to welcome to the platform, the honorable Francis H. Duehay, Mayor of the City of Cambridge. It is also my pleasure to welcome Raymond F. Magliozzi, Class of 1972, and Thomas L. Magliozzi, class of '58, hosts on the National Public Radio series *Car Talk*. The Magliozzi brothers will now give the commencement address. You're on.

R. MAGLIOZZI: Don't crowd me.

T. MAGLIOZZI: Glad you could all come. Shut up! What's this?

R. MAGLIOZZI: Wait a minute. I have to put my glasses on and everything.

T. MAGLIOZZI: When this was announced in the newspaper--

R. MAGLIOZZI: This happens all the time.

T. MAGLIOZZI: This was announced in the newspaper, and my daughter, my lovely daughter, Lydia, who's sitting over there, called me and said, "Is this true?" And I said, "Yeah."

She said, "When is commencement?" I said, "It's June the 4th." She said, "Promise me just one thing." I said, "What?" She said, "Promise me that you'll think about it before June third." Which reminded me of that great old country music song, "How Come You Know Me So Good When I'm A Stranger To Myself." Yeah, what do you want to say?

R. MAGLIOZZI: Well, not much, actually. I just wanted to say we are thrilled to be here with you today, and we especially want to thank Dr. Vest and anyone else that he might be able to implicate for having the courage to invite us here. Now, I'm sure that--

T. MAGLIOZZI: We figure this is a guy who has an iron-clad contract. I mean, you've got to really have 'em. Where is he?

R. MAGLIOZZI: Well, I'm sure those of you that know him, know that he is a take charge, buck-stops-here kind of guy. I mean I know that because every time his wife Becky has taken her automobile to our shop for repairs, he calls personally to complain about the bill.

And you know, we were flattered to find out, I think just this morning, that only once before in the long history of MIT, has the demand for commencement tickets been greater. And coincidentally, it was when Abraham Lincoln spoke to my brother's graduating class.

You know, if anything ever cried out for an explanation it's, why are Tom and Ray speaking to us today? And I will attempt, with the help of my brother, to give you some kind of an explanation. I think you deserve it. You're going to be good?

T. MAGLIOZZI: I'm going to be good.

R. MAGLIOZZI: This all started a little over two years ago, we were doing our weekly radio show, and I happened to mention, casually, that Kofi Annan had been selected to give the address to the class of '97. Tommy says, "Kofi Annan, who the hell is he? What ever happened to [INAUDIBLE]?"

And then he begins to rant, "Why did they choose Kofi Annan? OK, he is the Secretary General of the UN, I guess. But no one's ever heard of them. Everyone's heard of us. They've got to fly him in, fly him out, put him up in a fancy hotel, wine him and dine him and do all that. They'd have to do none of these things for us, and-- and-- and--"

T. MAGLIOZZI: And what?

R. MAGLIOZZI: And he's not even an alumnus. Now, I will admit that I could participate, to some extent, in his rant and rave. I've learned, I guess most of the experts agree, that when you're dealing with these irrational types, that you shouldn't be too confrontational. In fact, you should try to be a little supportive, and then hope that the medication kicks it.

Well, hardly a fortnight passes and we receive in the mail, from someone named Charles M. Vest, what I would call a terse rebuke.

T. MAGLIOZZI: It wasn't so terse. Well, I happen to have it here.

R. MAGLIOZZI: Read it to us, please.

T. MAGLIOZZI: Which one is it?

R. MAGLIOZZI: It's the first one.

T. MAGLIOZZI: Here it is.

"Dear click '58 and clack '72--"

R. MAGLIOZZI: Ah-hah, now you know who we are.

T. MAGLIOZZI: "--I was sorry to learn of your disappointment in not being asked--" You don't mind if we read these?

R. MAGLIOZZI: We did clear this with your office?

T. MAGLIOZZI: What can you do? "I'm sorry to learn of your disappointment at not being asked to deliver the main address at this year's commencement exercise. It had been my understanding that you don't usually care for exercise, especially in the open air, and that you therefore wouldn't be interested in ours. On the other hand, as alum-knee--" yes, I'm going with the Greco-Latin pronunciation here--

R. MAGLIOZZI: I think Latin would be sufficient.

T. MAGLIOZZI: --"on the other hand, as alumni, you will appreciate the fact we have some fairly eccentric students and faculty here at the Institute. So the idea of having two gentlemen as graduation speakers is invariably floated each spring. This year, as always, there was a strong, but murky undercurrent support for you as commencement speakers. Still, even your most ardent backers had to admit that there was one crucial area in which your qualifications could not match those of your fellow alumnus--" he is an alumnus--

R. MAGLIOZZI: Geez, what does that say?

T. MAGLIOZZI: "--of your fellow alumnus, UN Secretary General, [INAUDIBLE] Kofi Annan, '72--" He was a classmate of yours.

R. MAGLIOZZI: Well, I was-- no, no, let's get this straight right now. I was class of '70, '71, '72. So I couldn't possibly have know everyone.

T. MAGLIOZZI: No. OK.

"As you know, the United Nations has a really spiffy flag. Because Secretary General Annan was featured as this year's speaker, we have a legitimate excuse to fly the UN flag on the dais, and also to hang it anywhere else we wanted to. You could imagine how useful such a flag can be when you want to cheer up a drab corner of the campus or decorate a really big space like an auditorium or an athletic cage."

I mean these are the kind of criteria that this guy Vest is using? What the hell is he thinking?

"If *Car Talk*, or even Dewy, Cheatem, & Howe had possessed a similarly attractive flag, we might have been able to use you. But as it was, we felt that we really have to go with the Secretary General for aesthetic reasons."

Right.

"You'll be pleased to know, however, that Secretary General Anna was a great success. The graduating seniors were especially moved when he describe his challenge at the UN as 'a little like trying to climb Mount Washington in a '63 Dodge Dart. He was also warmly applauded when he urged the US Senate to give him their share of the gas money for UN operations worldwide. Thus, despite your absence, MIT's '97 commencement was a smashing success. Please rest assured, we'll keep you in mind for future ceremonies--" blah, blah, blah-- "if you ever do get a flag, let us know."

R. MAGLIOZZI: Yeah, sure.

T. MAGLIOZZI: "As you may recall, from your own graduations, the participants want the speakers to be brief and to the point. I know that brevity is not regarded as your most notable quality.

"Finally, I would like to urge you to--" here it comes. All that for this last one-line ending paragraph-- "finally, I would like to urge you to start sending us some really large donations. Technically yours, Charles M. Vest.
President blah, blah, blah, blah, blah.

R. MAGLIOZZI: Well, a whole year passes without incident. Well, I shouldn't say without incident. During that year, I think, just about every automaker on the planet threatened to sue us, but at least without incident with regard to this issue. And then, last year Tommy hears that some elected official-- these are his words, remember-- from Arkansas, who's been in a--

T. MAGLIOZZI: I don't think I referred to him as an elected official.

R. MAGLIOZZI: --a little trouble with the law, is going to give the address of the class of '98. As you can imagine, another rant ensues. Well, it doesn't take long before Charles M. Vest puts laser printer to paper, and we receive another rebuke.

T. MAGLIOZZI: Starting to sound like a Bible story, which I also happen to have here. Chuck won't mind--

R. MAGLIOZZI: Do you?

T. MAGLIOZZI: --if we read this. "Dear click '58 and clack '72, I understand that you have, once again, expressed on-air disappointment over not being asked to speak at MIT's graduation. Last summer I advise you that the chances of being invited as commencement because would be enhanced if *Car Talk* had a suitable flag that could be used to help us decorate the campus. I hear that you now have come up with a flag, and that you thought this would assure your inclusion in the 1998 commencement program."

We went out of our way, if the truth be known, we got the flag yesterday. But we told him we had a flag. We figured he would be gullible enough--

R. MAGLIOZZI: He went for it.

T. MAGLIOZZI: "Certainly it is possible that a truly elegant flag, along with your accountable, yet undeniable, popularity among your fellow alums, might have gone a long way toward assuring a place for you in this year's celebration, except for two rather obvious problems. One--" problem number one, he says-- "you failed to show your new flag to anyone at MIT."

R. MAGLIOZZI: Minor detail.

T. MAGLIOZZI: "Now I don't doubt that the flag exists-- well that's not entirely accurate. I do doubt the flag exists. But its existence does you no good if you keep it secret. There is, after all, a reason why people use expressions like, 'let's run this up the flagpole-- " blah, blah, blah-- and the reason is, very simply, that people cannot appreciate your flag unless they can see it. Now some of my colleagues have suggested that the *Car Talk* flag may be based on some sort of advanced stealth technology, in which case I applaud your technical prowess. On the whole, however, a stealth flag seems, to me, a self-defeating innovation."

And he's right about that.

"Problem number two. One of this year's commencement speaker is the Honorable William Jefferson Clinton, President of these here United States."

I paraphrase there.

"As the duly-elected leader of the world's only superpower, Mr. Clinton not only comes with his own flag-- and a darn good one, too-- but he's even got a seal. Talk about upping the ante. Heck. This guy brings his own podium, audience, press corps, helicopter, you name it. There's just no way for the two of you to compete this year. You think you're disappointed? Not even I get to make a speech this year, and I'm supposed to run the place.

Nonetheless--" he says-- "I urge you not to give up hope. Send us pictures of this alleged flag, along with appropriate contributions to the alumni fund."

Geez, will the guy never give up?

R. MAGLIOZZI: He's like a broken record, isn't he?

T. MAGLIOZZI: "Good luck. I remain, technically yours, Charles M. Vest."

R. MAGLIOZZI: Well--

T. MAGLIOZZI: We got another letter, by the way.

R. MAGLIOZZI: I'm getting to that.

T. MAGLIOZZI: Oh, you are.

R. MAGLIOZZI: Don't interrupt. After these two letters, of course, Tommy continues to rant, albeit sporadically. He says, "because we haven't been chosen and been overlooked by MIT, he's lost face and credibility." You'd want to lose a face like this, wouldn't you? Friends and neighbors have turned a cold shoulder to him. His wife and kids of lost respect for him, and barely to talk to him. Even the dog won't play with him unless he has a pork chop tied around his neck.

Then in the spring of this year, inexplicably we received a beautifully written, I would say almost conciliatory letter, from Dr. Vest asking us to speak to you today. Of course, we've lost that letter. We don't know where it is. But I don't know that Dr. Vest figured that we would have the dignity, the good sense, and the respect for MIT to refuse and to realize that the invitation was a joke. Negative on all counts.

And of course, we accept, but we become immediately suspicious. We start to think, how many others were asked before they got to us? I mean after all we knew-- and let's-- we're not kidding anyone-- we're at the bottom of the heap. Exactly right. We're at the bottom of the heap, so they must've asked thousands of other people. So we engaged our crack detective Paul Murky, of Murky Investigations, to find out who was asked and the reason he or she refused. I have the list. Just stand back.

T. MAGLIOZZI: What? These are the requests that he made?

R. MAGLIOZZI: Yes. Now do to certain treaty restrictions and other strip protocols, we can't-- and time-- we can't read all the names, but we do have a few that we're allowed to read. And I will give you the name of the person who was asked, and the reason-- my brother will give you the reason he or she--

T. MAGLIOZZI: I've memorized the whole pile here.

R. MAGLIOZZI: OK.

T. MAGLIOZZI: Just this one.

R. MAGLIOZZI: OK. Kofi Annan.

T. MAGLIOZZI: Yeah, he said, been there, done that.

R. MAGLIOZZI: Here's one. Oh, a duo. Pons and Fleischmann.

T. MAGLIOZZI: Yeah, they said, very low energy level. We can't.

R. MAGLIOZZI: Oh, one of my personal favorites, Leonid Brezhnev. I love saying his name. Can I say it again?

T. MAGLIOZZI: Yeah, is it like, Arup Gupta?

R. MAGLIOZZI: Yeah. Leonid Brezhnev.

T. MAGLIOZZI: Yeah, he said he couldn't do it because he was dead.

R. MAGLIOZZI: Let's see. Oh yes. Dolly the cloned sheep.

T. MAGLIOZZI: She couldn't come because she didn't have FDA approval.

R. MAGLIOZZI: And last, but not least. Leonid Brezhnev.

T. MAGLIOZZI: Still dead. So then he got to us I guess?

R. MAGLIOZZI: I guess so. And in spite of this news, we're still excited and thrilled, of course, and honored to be here. And after the euphoria subsided-- I mean after the euphoria subsided, it began to sink in that we actually had to give a speech today.

And I will admit that I was concerned, and maybe even a bit worried. After all, commencement speeches are usually reserved for, heads of state, respected members of the academic community, Secretaries General of the United Nations-- but us. Why us?

But my fears began to ebb as I weighed the consequences of a poor performance today. What if we do terribly? What if we're incoherent, inspiring, uninteresting? Be just like our radio show. I mean, what could possibly happen? I mean, what could they do? Ask for our diplomas back? They couldn't do that, could they?

T. MAGLIOZZI: I don't think so.

R. MAGLIOZZI: I don't want to get my diploma back. I can't.

T. MAGLIOZZI: No, it's holding up the end of that table in your dining room.

R. MAGLIOZZI: Well after this epiphany, I began to feel a lightness of being. And Tom and I rolled up our sleeves, put on a pot of coffee, and began the creative process. Now he'll divulge the intricacies of that process soon enough, but first, the warnings. I have to move this. What an interesting perspective. I

T. MAGLIOZZI: That's good.

R. MAGLIOZZI: You know, my brother frequently makes, what I would call, offensive and insulting statements. So my main function here today, other than introducing him, is to number one, deflect any hurled fruit. Number two, to try to prevent him from insulting any religious, ethnic, or paramilitary groups, to quell any civil unrest that may result from anything he says or does, and to interrupt, and clarify, and say things like, well, he didn't mean to say that about every member of the faculty. So without further ado, I would like to introduce my esteemed brother Professor Thomas Magliozzi.

T. MAGLIOZZI: That would be me. Well, I mean, we had to use technology, actually--

R. MAGLIOZZI: Can I-- may I sit?

T. MAGLIOZZI: Ah, geez. We figured-- I mean this is the world's foremost Institute of Technology on Massachusetts Avenue, and so we ought to use technology. So what my brother did, actually, was he requested from Paul Parravano, who's, I guess, the second president-- the vice president of MIT. Where is Paul? We don't know.

R. MAGLIOZZI: They threw him out.

T. MAGLIOZZI: He requested copies of the last 20 years' commencement addresses. We gave this to our crack researcher Paul Murky of Murky Research-- brother of the Paul Murky of Murky Investigations-- and we asked him to analyze all of these speeches to find out if there were some commonalities. And indeed, there were. He used factor analysis-- which, of course, 15 guys will understand-- and he came up with three factors. Well, get this, every one of these features have in common, a beginning, a middle, and an end.

R. MAGLIOZZI: Wow. Powerful.

T. MAGLIOZZI: Well, this is good because we were so thrilled about this, that we had made such progress, that we put it aside for about a month, didn't have to think about it anymore, then we looked at it one day and said, this is a little skimpy. So--

R. MAGLIOZZI: I hate to interrupt, but the good news is, our wives are not hanging their heads in shame yet.

T. MAGLIOZZI: They will.

R. MAGLIOZZI: Okay, go ahead.

T. MAGLIOZZI: We figure the beginning, that was pretty straightforward. We could read a couple of letters from Chuck Vest. So we did that already, and so that's done.

The middle, that was the tough part. We couldn't quite figure what the middle ought to be. But the end we knew had to be some kind of inspirational thing.

R. MAGLIOZZI: Yeah.

T. MAGLIOZZI: Right? That's what they all are. So we said to ourselves, what do we know about inspirational things? It's so happens, however-- man-- it so happens that we have, in addition to Murky Investigations, Murky-- Paul Murky, whom I just told you did the factor analysis-- had been working on some other research for us. And he and his lovely assistant, Marge Innovera-- Marge Innovera--

R. MAGLIOZZI: Yeah, they got it I think. It just wasn't that funny.

T. MAGLIOZZI: I'll tell you the genesis. It's interesting how research happens. One day, I can't remember which one of us it was, had come across, interestingly-- isn't it interesting, I mean, coincidence. We just had our little Hebrew prayer. And one of us had thought of a quotation from another great Hebrew philosopher Isaac Newton. And if you recall, which you probably don't because you're a bunch of nerds who only think in numbers--

R. MAGLIOZZI: Stop it! Behave!

T. MAGLIOZZI: He said, "If I have accomplished anything in my life, it is because I have stood on the shoulders of giants."

R. MAGLIOZZI: Wow.

T. MAGLIOZZI: That's what we said, wow.

R. MAGLIOZZI: Wow.

T. MAGLIOZZI: But after a few moments, we thought about a bit and said, you know, it's one of those things, you know, like George Collin, he says, it sounds good, but-- And we wondered, is in fact true, in all areas of endeavor, that people accomplish great things because they stand on the shoulders of giants. So we tell Paul Murky, do some research on this. And he comes back to us with a couple of hypotheses. He's a great researcher, this man.

The null hypothesis is, well, of course, it applies to all areas, all endeavors, because we as humans have been on the planet for hundreds of thousands of years, and we each benefit from whatever has been done by our predecessors. That's the Shoulders-of-Giants hypothesis. The alternative hypothesis is, oh yeah! The alternative hypothesis is it's not true.

In some areas, yes we do in fact benefit from what our predecessors have done. But in other areas, mostly like the human involvement kinds of areas, we may, in fact, all be destined to make the same mistakes over and over and over again-- generation after generation, child after child-- and so there is never any giant on whose shoulders you could stand, and therefore there is no progress. Now there is an interesting set of hypotheses. This one is called the "oh yeah" alternative hypothesis.

So Murky goes out and starts to work. And, as he will do, Murky doesn't stick strictly to what we ask him to do. And one day we catch him, I think it's called mucking around in the data, and sure enough, he comes to us and says, guys I have been mucking around in the data. And I have I finding here that is going to knock your socks off. And I have to apologize for our visual aids here. I did prepare a complete PowerPoint presentation, and I asked for an overhead projector and they couldn't find one here.

R. MAGLIOZZI: No, I think they told him to drop dead.

T. MAGLIOZZI: Could I have slide number two, please.

R. MAGLIOZZI: OK.

T. MAGLIOZZI: Chuck, come on Chuck. We're on your buck here. We're in your money. Number two.

R. MAGLIOZZI: What's the matter with number one?

T. MAGLIOZZI: I already used that one. Well--

R. MAGLIOZZI: Should we turn it around so people behind us can see?

T. MAGLIOZZI: Yeah, just turn it round for a minute.

R. MAGLIOZZI: We'll be right back.

T. MAGLIOZZI: Don't fall off the stage, Chuck. Now what-- those in the back with the cheap seats, you can't see this, but it's very straightforward. I may have to move over to this mic. Does this mic work? Yes it does.

Murky says to us, I've plotted something interesting here. We're talking about basically left-brain versus right-brain function. He says, and while mucking around, I find this interesting relationship. This is left brain on this end. This is a right brain on the right.

R. MAGLIOZZI: And what's the y-axis?

T. MAGLIOZZI: Well, I'll tell you that. This is a plot-- he did a regression analysis on this with an R square of 0.99 and a significance of 0.0001-- and this axis is happiness.

R. MAGLIOZZI: Whoa.

T. MAGLIOZZI: Doesn't that knock your socks off. He says, left brain, right brain. And if you think about it, this is sort of what we think of-- some people do, at least-- intelligence. So it's almost a plot of intelligence versus happiness. And the news ain't good for you. Because what Murky finds out is that right-brain people are about 10 times as happy as left-brain people. So the stupider you get by left-brain people's measures of stupidity-- of course, because right-brain people are too happy to waste their time developing IQ tests but they're 10 times happier.

We say, whoo, Paul this is something. But that's not the end of it. Because we do what any good researcher would do, we want to extrapolate. And do we want to extrapolate in this direction? Hell know. We want to extrapolate in that direction.

So we say to Paul, if this really is intelligence going in that direction, what we need is dumber people. Let's see if it goes on and on. So, where do you go? He goes to Harvard.

He comes back to us about a month later, and he says it just isn't working. He said, they're not dumb enough. And I say, what do you mean they're not dumb enough? They don't give me dumber than Harvard students. And he says, people don't get any dumber than Harvard students, but why do we have to limit research to people?

R. MAGLIOZZI: Can we put this down now?

T. MAGLIOZZI: Oh, sure. Are you still there? Oh I'm sorry. So-- I'm just trying to drive the guy with the microphones crazy. So-- now don't go away we're going to number three. We're going to be number three.

He says I can extend the research to include other life forms. And through a methodology which he will not reveal to us, he was able to determine the happiness level all other life forms. Slide three please.

R. MAGLIOZZI: Slide three.

T. MAGLIOZZI: Three. Slide three. Here it is. Here's humans. And the best of humans, of course, is the right-brain humans. And here is what he found. Happiness goes up-- it begins to look like it's exponential over there-- the next happier life form is a golden retriever, then a cow, then worms. And he stopped his research at grass. You can turn that to show the faculty because they may not understand what I'm talking about. Now--

R. MAGLIOZZI: Okay, we'll just keep going.

T. MAGLIOZZI: Here's the story. I mean, what is the importance of this? We have always thought that we were the highest life form on the planet. Turns out we are the lowest life form on the planet. And I am going to give to you now a theorem which will knock your socks off.

Some theories, you know, are just complete bullshit. For example, the Big Bang Theory. The entire universe is compacted into a dot. It explodes. Why? Well they don't know why, so they call it a singularity. That's like a bimbo saying, well it just did. It explodes, and out of it comes all the stars that you can see in the sky, all the planets, Madonna, corned beef sandwiches-- now if you didn't hear that and say, oh come on.

But I am going to give you the theorem, and you're going to say, why didn't I think of that? What does all of this tell us? That we are not the highest life form? This is the theory of reverse incarnation.

Some people believe in reincarnation. And what they believe is that when we die, we come back as better and better people. What the theory of reverse reincarnation says, if we are good people, we will come back as a golden retriever then a cow, then a worm, then grass.

Now, if the reincarnation was working in the other direction, coming back as better and better people, where are they? Duh! So it becomes clear that the theory of reverse reincarnation may be the scientific finding of, not the decade, not the century, but of all time.

Now, my brother and I, El Ron Magliozzi, are going to help you to achieve nirvana. We're going to help you to get to become not smarter-- smarter is no good. That's the wrong direction.

R. MAGLIOZZI: You've been doing that.

T. MAGLIOZZI: You have spent the last four, five, or six years of your life working on the wrong direction. You are sliding down, as Tom Lehrer says, sliding down the razor blade of life. You are sliding down the happiness curve. You must stop this from happening, and you must go in the other direction, and we are here to help you.

And as you know, there is a process for reaching nirvana, and we are going to give it you now. It is this. You must repeat the mantra. And the mantra, which happens to be emblazoned on our flag, which stands here-- none of you morons will be able to read it because it's in Latin.

R. MAGLIOZZI: It says, "non impediti ratione cogitatonis."

T. MAGLIOZZI: Which, of course, mean "unencumbered by the thought process."

Now, I am going to give you a very brief history of how this mantra has helped me.

R. MAGLIOZZI: I can't wait.

T. MAGLIOZZI: If you repeat this mantra, what happens is everything slows down. Life slows down. Being unencumbered by the thought process allows you to identify and hear in see defining moments in your life, things that will change your life. Unencumbered by the thought process. You say it over and over again. And as everything slows down and begins to stop-- we call these, by the way, moments of inertia--

R. MAGLIOZZI: Oh, God is that bad.

T. MAGLIOZZI: I had to use it, though. I had to. I was once trapped by the scientific logic left-brain life. I graduated from here and I went to work as an engineer.

And I will tell you about my defining moment. I was driving-- I lived in Cambridge at the time-- I was driving from Cambridge to my job in Foxborough, Massachusetts, and I was driving in a little MG, weighed about 50 pounds. And on Route 128 I was cut-off by a semi. And I almost, as they say, bought the farm. And, as I continued my drive, I said to myself, if I had, in fact, bought the farm out there in Route 128, how ticked off would I be that I had spent all my life, that I can remember, at least-- going to this job, living a life of quiet desperation. So I pulled into the parking lot, walked into my boss' office, and I quit on the spot.

R. MAGLIOZZI: See now most people would have just bought a bigger car. So act now.

T. MAGLIOZZI: Yeah, see. That those people would have been using their left brains. I had been saying my mantra in the car. That's why that guy cut me off. I think I cut him off. In any event, I quit my job. I became a bum. I spent two years sitting in Harvard Square drinking coffee. I invented the concept of the Do-It-Yourself auto repair shop. And I met my lovely wife. None of which would have happened if I had been using my left brain.

My second great defining moment came-- also showing the power of the mantra, unencumbered by the thought process-- I was having an argument with my lovely wife one day. I mean, how can you argue with such a wonderful person? Well, left-brain people do that. Because all they can think of is, this is an argument. This person's over here, and I'm over here, and I am going to use every ounce of logic and skill that I have so I can win this argument. And my wife says to me, do you want to be right or do you want to be happy? Holy shit says I. I wanted to be happy. So now I have reached nirvana, and my brother and I can help you to reach it. If you want to repeat after me-- unencumbered by the thought process. Say it.

R. MAGLIOZZI: You may have to stand for this.

T. MAGLIOZZI: Unencumbered by the thought process. Louder, come on. Unencumbered by the thought process. One more time Unencumbered by the thought process. Follow us, my children, to happiness.

R. MAGLIOZZI: Ah yes.

T. MAGLIOZZI: Are there any questions?

R. MAGLIOZZI: Thank you.

T. MAGLIOZZI: Are you happy?

R. MAGLIOZZI: I'm excited. Thank you Professor Wagstaff. That was most informative. You know, that does remind me of a famous Latin expression. Caesar si viveret ad remum dareris. Which means, if Caesar were alive, you'd be changed to an oar.

Look, we won't belabor this anymore than we have to, but this is the part of the address where we're supposed to say something meaningful and impart some words of wisdom. What?

T. MAGLIOZZI: What did I just do?

R. MAGLIOZZI: We're not sure. But I'm not sure that we're in position of any wisdom, but we never let that stop us. So listen up I'm going to say this a few times.

Today you will receive a document that states that you've earned a degree, or maybe degrees, from MIT. You know, you've worked hard, and you should feel a great sense of accomplishment. I know I did. And most of you will leave here today with a pretty good idea of where you're going and what you're going to do. Some of you have no clue, and you'll just have to move back in with your parents-- if they haven't rented out your room already.

But others among you may have charted a course, or had one charted for you, that you know is wrong. And you may feel some creative energy coursing through your body. Don't ignore it. If you feel the urge to create and discover and to do something that will bring you fulfillment and happiness, do it now while you're young. You will never have more energy or enthusiasm, hair, or brain cells then you have today.

Do you know when Albert Einstein was less than half my age, he was already world famous for his Special Theory of Relativity. When Isaac Newton was less than half my age, he was already famous for having invented calculus, and he pretty much had written your entire 801 physics textbook. Mozart, when he was half my brother's age, had been dead for three years. So act now.

Lastly-- I skipped a bunch of things because--

T. MAGLIOZZI: Thank God.

R. MAGLIOZZI: I just want to encourage you to never get so involved in your work, whatever it is, that you forget to have fun. You know, my brother may be right. If you're lucky, you may come back as a schnauzer, or a bichon frise, but you may not-- I mean, with all this spaying and neutering going on, the odds are getting worse and worse every year. So have fun now and enjoy yourself.

And I'd like to leave you with some words of a wise man, wise man from the East my brother and I know. All wise men are from the East. Have you ever met a wise man from the West or the Middle? They're all from the East.

T. MAGLIOZZI: I think Spielberg's from the West.

R. MAGLIOZZI: And this wise man is no exception, except he's from East Boston. And his name is Deepak Fonzarelli.

T. MAGLIOZZI: He's quite a man.

R. MAGLIOZZI: He is quite a man. And Tommy and I go to him from time to time to learn the answers to weighty questions like, what is the meaning of life? What are next week's winning lottery numbers going to be?

And we went to him recently, and Tommy and I sat with him, and Tom asked him how he could attain immortality. Deepak sat for a minute, and got up and turned off the TV. Baywatch, it just ended.

And he said, my son, if you wish to attain immortality, you must do the following. You must work hard every day, seven days a week, never taking time off. You must attend no social functions. You must not smoke, you must not drink, and you must not go with women. Never had received such a definitive answer to any of our questions. We were astounded.

And Tommy asked--

T. MAGLIOZZI: I say to Deepak, you mean if I do those things I will live forever?

R. MAGLIOZZI: Oh no my son, he said, it will just seem like forever. Have fun, enjoy the ride, and don't drive like my brother. Congratulations.

T. MAGLIOZZI: Don't drive like my brother.

R. MAGLIOZZI: Thank you.

[CLAPPING]

D'ARBELOFF: Thank you Tom and Ray. Any comments I make, though, are coming from an unhappy, left-brain workaholic, but I wonder whether golden retrievers are truly happy. I don't know. But I thought the speech was both inspirational, but a singularity. And I was nice to see brothers get along so well, squeezed on one lectern.

Anyway, Brian-- now it's Brian J. Schneider, president of the Graduate Student Council, will give a salute to MIT from the graduate student body. Following this, Miss Pooja Shukla, president of the senior class, will present the class gift to President Vest. And then president Vest will deliver his charge to the graduates.

SCHNEIDER: Thank you Chairman D'Arbeloff. Thank you Tom and Ray. I think it would have been a lot easier to follow up boring Head of State or a stodgy academic.

Fellow graduates, today you are amid over 2,000 of the most fascinating people on Earth, discoverers and inventors, entrepreneurs and artists, designers, and much more. You can, and I think will, shape our world for the better. I certainly hope so.

But have you gotten to know these people around you? At matriculation here, they used to say, look left, look right, one of you three, well, won't make it to commencement. Now you're here I ask you, look left, look right, is one of you three a future world leader, a Nobel Laureate to be, or an internet trillionaire in the making? How about a budding radio talk show host?

As you leave, I hope the personal relationships that you build with your MIT peers, both here and beyond, will serve you well for the rest of your life. To do well in this world, you and your colleagues must tackle those problems which excite and motivate you. Since MIT is fundamentally about initiative, I urge you, and those around you, just to make it happen. Thank you.

SHUKLA: Good morning. Members of the class of 1999, welcome back to Killian Court. As you probably recall, the last time we convened as an entire class was August 28, 1995, here in Killian Court, happy and bright, for the freshman class picture. Today we convene, happier and brighter, to celebrate the completion of four tremendous years.

In the next hour, as you eagerly await receiving that \$120,000 certificate, reflect on the intense bond holding our class together. Reflect on the good times, reflect on your favorite class, reflect on all the free food you consumed at senior Fridays, and then start thinking ahead. Let's be honest, we are an enthusiastic, energetic, and innovative class.

Seniors, when you leave this court today, focus on both the impact of our work at MIT and the process by which we achieve this impact. Each one of us has left our mark on the Boston, Cambridge, and MIT communities, and now we continue to leave our mark through our class gift. President Vest, could you please join me at the rostrum?

On behalf of the class of 1999, I'd like to present you and the Institute, the class gift. This mug, and \$18,700 designated to the coffeehouse gift fund. We'd like to help make the student center coffeehouse a popular social alternative on campus through physical changes, addition of billiards, an area for entertainment, and more. This is only a start. Over the years, we'll have more to come.

And now, a special addition to our ceremony. MIT is well known for its unique culture and special traditions. At this time, look hard at your Brass Rats. And now, please join me in officially reversing our special ring and showing the world a whole new side of the brass beaver.

Thank you president Vest, thank you family and friends, and congratulations class of 1999. We made it. Thank you very much.

VEST: Thank you very much Ms. Shukla. Thank you for this magnificent gift and for all that you have meant to us and the MIT community.

Once again, we are gathered in Killian Court to celebrate accomplishment, heritage, and passage. We're surrounded by parents, family, friends, spouses, children, and loved ones who supported and sustained you through the years. You will recognize them today by their smiles, brought about by their great pride in your accomplishments and no doubt, by a great sense of relief to their pocketbooks.

Let us then express our deep appreciation to all who have come to Cambridge today to join in your commencement ceremony. Will you the graduates please rise, turn to your families and friends, and give them the applause they so richly deserve.

[CLAPPING]

I want to tell you a story about an incident in the career of Charles Proteus Steinmetz, the great electrical engineer. In the early years of the century, Steinmetz was brought to General Electric's facilities in Schenectady. GE had encountered a performance problem with one of their huge electrical generators, and had been absolutely unable to correct it. Steinmetz, as you know, was a genius in his understanding of electromagnetic phenomenon, and he was brought in as a consultant. Not a very common occurrence in those days, as it would be now.

Steinmetz also found the problem difficult to diagnose, and for some days, he closeted himself with the generator, its engineering drawings, pencil and paper. The end of this period, he emerged confident that they knew how to correct the problem. After he departed, GE's engineers found a large X marked with chalk on the side of the generator casing. And there was a note instructing them to cut the case open at that location, remove so many turns of wire from the stator, and the generator would then function properly. And indeed it did.

When GE asked Steinmetz what his fee would be, he had absolutely no idea in the world what was appropriate. But he replied with the absolutely then unheard of answer, that his fee would be \$1,000. Stunned, the GE bureaucracy required him to submit a formally itemized invoice. They soon received it.

It included two items. One, marking chalk X on side of generator, \$1. Two, knowing where to mark chalk X, \$999. Thus, Steinmetz left his mark in more than one way in early 20th century technology and business. You will do the same in the 21st century, because you too will know where to place the X.

But Steinmetz lived in the age of iron machines. Your careers will play out in the age of knowledge and information. 15 years ago, shortly before his untimely death, the author Italo Calvino wrote six memos for the next millennium. In his memo titled *Lightness*, he put it simply. "I look to science to nourish my visions in which all heaviness disappears. Today, every branch of science seems intent on demonstrating that the world is supported by the most minute entities. The iron machine still exists, but they obey the orders of the weightless bits." The iron machines obey the weightless bits.

Indeed, your millennium will be quite different than ours. It is already clear the 21st-century business enterprise and other activities will be knowledge-based, global in scale, fast-paced, and often entrepreneurially spawned. And MIT has prepared you to be leaders in such a time.

What will be required for leadership in the 21st century? In some dimensions, leadership will have new imperatives. In particular, a much higher level of technological literacy and adeptness than in the past. It will require an unprecedented level of agility and willingness to change. It will require a new level of understanding of and commitment to stewardship of the Earth's environment, and of our energy and material resources. It will require new level of understanding of cultures around the world, and of the significance of technological advances to these cultures. And I believe it will require an ability to analyze and confront moral and ethical issues associated with the advancement, deployment of new scientific and technological knowledge. Knowledge that is growing at a truly revolutionary pace, particularly in the life sciences.

But at the end of the day, 21st-century leadership will also require the age-old attributes-- respect for one's fellow human beings, recognition of their potential, and understanding of their personal joys, triumphs, and tragedies. It will still require an understanding of the lessons of history, and the intellectual passion and insight of writers and humanistic scholars. It will still require the change of perspective, and the challenge, beauty, recognition, and shock created and transmitted by the artist. And it always will require a good dose of humor. It keeps things in perspective.

The setting of today's ceremony is an icon of these ingredients of 21st-century leadership. Look about you. Art and continuity are represented by the massive curves and volume of Henry Moore's great sculpture. Juxtaposed with a strong rectilinear lines of this great center of science and engineering, all representing aspects of discovery, change, and invention. And within this setting sit the remarkable members of the class of 1949, leaders of the generation that shaped the world of the second half of the 20th century.

But our future will be shaped by those of you who graduate today. You have joined us from all over this nation, and from throughout our world. You are the hand and mind and face of the future. It has been said that leaders are those who take us elsewhere. You will take us elsewhere.

I want to leave you with a related matter to ponder. It's the tension between the individual and the society. Modern history has taught us, time and time again, that centralized, planned economies and governments do not work. They have crumbled, leaving behind much damage and lost potential. It has been freedom, and individual action and incentives, that have thrived and progressed. The new jobs in this nation are created by entrepreneurs, and many boats have risen on the tide they have produced. I believe this will remain the case in the future, and its marvelous to behold.

But there are functions that must be undertaken on behalf of the whole. Those who succeed and accumulate wealth in the purported new economy must shoulder certain responsibilities in order to improve the lives of those who have not fared as well. There are responsibilities that require collective commitment and action, whether accomplished in the private or the public sector. The world must be fed, the spirit must be nurtured, new knowledge must be generated, peace must be maintained, health must be advanced, the environment must be sustained, and the young must be taught. I ask you to think about these responsibilities and incorporate them in your lives, as you exercise your leadership in the gifted age before us. And this age will be gifted by science, and its advances will be made by the work of the engineer, the manager, the architect, the artist, and the scholar.

Many who have borrowed term-- this gifted age, from Edna St. Vincent Millay-- not the least of those who have done so is my friend Jack Gibbons. Until recently, Jack served as science advisor to the President of the United States. And he took that phrase as the title of a book on his life in science.

It's an altogether fitting title for such a treatise, for here is what she wrote. "Upon this age, that never speaks its mind, this furtive age, this age endowed with power to wake the moon with footsteps, fit an oar into the rowlocks of the wind, and find what swims before his prow, what swirls behind-- upon this gifted age, in its dark hour, falls from the sky a meteoric shower of facts-- they lie unquestioned, uncombined. Wisdom enough to leech us of our ill is daily spun; but there exists no loom to weave it into fabric. Undefined proceeds pure science, and has her say, but still, upon this world from the collective womb, is spewed all day, the red triumphant child."

Put more simply, and far less poetically, this is what we are asking of you. Look beyond facts for meaning. And ground your actions and concern for consequences and care for the whole.

As you leave MIT, consider what we ask of you as leaders in the 21st century. Our request, and my charge to you, is this-- take us elsewhere. Leave the facts of science neither unquestioned nor uncombined. Weave them into fabric and imbue it with wisdom. Ponder the unthinkable.

Question the status quo. Live in the world as well as in your own nation. Welcome the immigrant to our shore and our lives. Dream of a better future, but contribute to the present.

Share your talents. Be competent friends and bold companions. Address the truly important issues of your time. Be honest in all that you do. Do this, and you will serve yourself and your society beyond measure. Men and women of MIT, I wish you Godspeed and the very best of good fortune.

[CLAPPING]

D'ARBELOFF: I depart briefly from our usual pattern to recognize an individual who, today, marks 40 years of conducting the music at MIT commencements. His contribution to the life of MIT have been outstanding, and we're grateful, most of all, for his dedication to our students. Please join me in expressing congratulations and best wishes to Mr. John D. Corley.

[CLAPPING]

MOREFIELD: Please join me and the distinguished members of the 50th reunion class of 1949, as we congratulate the graduates and welcome them into that most select company of men and women who are the MIT alumni and alumnae.

[CLAPPING]

133rd commencement exercises of the Massachusetts Institute of Technology are now concluded. And now would you please join the MIT Chorallaries in singing the school song. The stage assembly and graduates will please rise.

[MUSIC PLAYING - "ARISE ALL YE OF MIT"]

CHORALLARIES:[SINGING] Arise all ye of MIT, in loyal fellowship. The future beckons onto ye and life is full and rich. Arise and raise your glass on high; tonight shall ever be a mem'ry that will never die for ye of MIT.

[MUSIC PLAYING - "AULD LANG SYNE"]