PROFESSOR: OK, well, Mark Jarzombek is a professor of architecture here and has written this really interesting book.

MARK JARZOMBEK: So if you have any questions about something you don't understand, or you need to clarify or elaborate, just raise your hand and say so. I just sort of picked some images out.

First, I'm sure you've seen the Rogers Building, which doesn't exist anymore, as you know. I mean, this building still exists. I'm not sure what happened to the store. Did they go bankrupt? [INAUDIBLE]. But this was torn down.

But what I point out in my book is that if we look at this and we go, well, it's 1860s, and you want to make a building for an institute that does sciences, what do you do? I mean, what should it look like? And so we may look at this and say, well, it's sort of a building like any other building.

But it's sort of a bit of a problem because that type of a building didn't really exist. So the architect did something that was pretty clever, but also says something about the world view. Basically the building is modeled a little bit on the Apsley House. And basically is a gentleman's residence.

So you want to make a building. You want to make scientist and technology guys, miners walking around in their big boots, you want to tell them that they're basically not just doing technology, but basically they're gentlemen. So the students that are coming in here are meant to be raised at a level of gentlemen in the 19th century sense of that. They're sort of cultural holders of a type of cultural thing. They're not just wandering around, shuffling around with slide rulers in their hand thinking about science. They have a certain status in society.

So basically this is a gentleman's residence that is, then, sort of designed on the inside to be a school. So this says something about the transition of science into legitimacy. And the type of premodern notion signs, where science was still associated with sort of a gentlemanly class and gentlemanly behavior.

So that is MIT's first source of claim, which was very expected. Perhaps you think of the mid-19th century worldview. Of course, what happens is that MIT grows gangbusters and starts to spread out in every direction. So there you see the Rogers Building. And then there's their Walker building, which is a chemistry building, a beautiful building. One of the first buildings specifically designed for chemical fumes and so forth.

And then here and there and right and left, the campus expands around Copley Square into warehouses and into sheds and other things. The Lowell Laboratory gets built here. But as you can see, after a while, it's something like 20 buildings. The face was that not only is the buildings all over around Copley Square-- which is difficult if you want to go from class to class in the middle of a snowstorm-- but also, science was changing, too. So the professors were complaining they needed dust free environments to do certain things. They needed laboratories that won't shake every time the beer truck rumbles by.

So if you're in the middle of a city, 19th century cities where unbelievably stinky, fumy places filled with black soot from chimneys. I mean, today clean air law has done a lot to our cities. But you've got to imagine, into the winter the heavy odor and cloud of soot making everything sort of black.

And so if you do any experiments that require special atmospheres, and this and that. So the professors were complaining about being in the city. They wanted to be away from the city, away from the noise, and the pollution, and the sounds, and all that type of stuff. So this was sort of one of the problems that the faculty faced. And one of the reasons that spread along the desire to move.

So then the question was, well, what you do? So you need a bigger building. So the

model for this was actually in Europe, mainly in Germany, and then Switzerland. So the ETH was created, you see, almost at the same time, but designed a little bit earlier. Gigantic building.

So here, I mean, this makes MIT look, I mean, literally, like a joke compared to what the Swiss investment in technology was at that time. Huge building, massive amount of laboratories, huge library. I mean, this was an institution of gigantic scale.

So here we have the United States trying to create some enthusiasm for the independence of science and learning and technology as a material, and basically adopting, initially at least, not the German model, which was that this is a massive institution supported by the state government. And it still is. The ETH is financed and supported by the state government. If you're a professor there, the prime minister has to, ultimately, accept your tenure proposal, not the university president.

Whereas MIT adopted sort of the English gentleman model. Which is very low key, different worldview. Ultimately, of course, this wins out. But the transition is what's sort of interesting about this.

So Robert Ware, who's founded the School of Architecture here. "The first principle of architecture is truthfulness, good sense, perspicuity. Considerations of method, order, form, clearness, precision, sobriety, are what make a good working style, both in writing and in building." So in other words, he's describing a building. But in reality, he's also describing what it means to be a gentleman.

A gentleman is truthful, and good, and has great perspicuity. Order, form, clearness, precision, sobriety-- this is what you tell a young man to be. So in some sense, we can sort of read through some of the architectural mandate a type of relationship to, in fact, MIT's mandate, which was what kind of men-- because it was all men in those days-- what kind of man are we trying to shape here?

But then, of course, the world changed. So in 1863, we have the four categories, of which basically fine arts and architecture is the only one that survives as such. Course four is the only one that sort of keeps us going. But you see in 1873 all of a

sudden we have different type of world. It's astonishing how in basically 10 years, MIT's mindset has changed.

So before, we had agriculture. Farmer Joe wanted to figure out how to lay out a field, right? Well, agriculture, we don't do agriculture anymore. I mean, go out in Kansas for that. At the top of the heap is civil engineering now. So you can sort of see, you go from an institution that is really sort of about agriculture, geology, chemistry, very sort of oddly primitive. I don't know, you know? It's sort of an institution where we could sort of see modernity being formed.

So civil engineering, mechanical engineering, geology, architecture stays, chemistry. So here, history, geology, and chemistry were all one department. Maybe it's sort of a little bit hard to imagine that. You know, natural history, geology, and chemistry all being sort of one thing. But we sort of imagine that during this time, there was still debate about, let's say, for example, what do you call these? Dinosaur bones in the sand. What do you call them? Fossils.

AUDIENCE: Fossils.

MARK JARZOMBEK: Right, right. You don't know, OK. So up until 1820, 1830, they all said that God put the fossils there because they were the mistakes that when he made heaven and earth, he made a few mistakes. So he put them in the ground so no one would see them.

And this was a current theory. And people thought this was sort of it. So geology was sort of having to do with divinity, in a way. Because when you started digging, you encounter fossil. It's like, there's God's mistake. And it's like, what do you do with it? I mean, he should cover it up.

So geology, chemistry, everything, these ideas were still floating around. I mean, not so much here. But you can sort of see geology wasn't what this is. And you can see where geology is going. It goes from just looking at stones to mining. Which we can sort of see by the time we get to 1900 a much more sort of precise focus of how the sciences sort of operate in the real world now. Here this is sort of all very

abstract. Here we see the emergence of whole new genres of reality.

We have a philosophy department. Philosophy disappears and then, in a funny way, sort of comes back in the 20th century. So philosophy is still the holdover of the idea that you should know something about the world in a philosophical way.

So by 1873, we see the emergence of the professionalization of the sciences, which means professional journals, publications. And think, all the things we assume completely normal today just really didn't exist, actually, until really into the 1880s and 1890s, sort of journal publications and peer reviewed publications, and so forth like that.

So then by 1900, we see we have now 13 departments. So it's sort of growing exponentially. And it has continued to grow. We got, I don't know, 23 AB now. I mean, we're at least in the mid '20s. And we see new things. America's just had the Spanish American War. Naval ships for the Defense Department are important. So we have a Naval architecture thing.

The cities in the turn of the century were really terrible, complicated, messy places. The streets were not paved. There were sewage problems, and so forth, and so on. So sanitary engineering comes into play along with sort of the conventional type thing. So we have new departments and new programs being developed.

But the point is, in some sense, what we get here is really the modern notion of science that we just assume is completely normal. We see it literally happening, if you will, decade by decade, rapidly changing into the professional world that we have today. So the model of a gentleman's villa, it is just clearly not working. But of course, the building remained to be functional for a long time.

So the first attempt to, in some sense, modernize MIT's look was the Walker building. Here's the Rogers Building next to it. And at first you go, well, it doesn't look all that much different. But it was designed with these chimneys. You see the air vent chimneys on the exterior facade so that the chemistry laboratories would have these vents going up to vent the fumes.

So instead of hiding the chimneys, the chimneys become, in fact, part of the whole architecture. And basically it's sort of the first real attempt to make a laboratory building at a monumental scale. This is in Copley Square, right across from Trinity Church.

This is one of the best real state areas in the city. And to put a chemistry lab there, I mean, it's like, oh, you got to be kidding me, right? So it shows the capacity to sort of start to think of what a science building is at an urban scale. But still, it's a relatively small building.

They were living in these type of warehouses. This was the architecture building and engineering building. Which were useful, because you could much around in there. And there was no damage done, really, if you banged in to something. They made some of these experiments. They made the lower laboratory down here, which at the time would have been the most advanced laboratory for electrical engineering. They only used it for a few years.

The building contractor was a guy called Gilbreth. Everybody seen *Cheaper By The Dozen*? Well, anyway, he's the one who built the building using new techniques. Because he was famous. You know what he was famous for? The guy, Gilbreth?

Well, he was interested in making labor less expensive. So the ways you do that is you study, let's say, you take a bricklayer. And the bricklayer's got to go get a brick. And then he's got to bring the brick down. And then he's got to put a brick in. Then he's hungry. They he puts the chewing gum in his mouth. And he slathers something [INAUDIBLE].

Well, he figured out that takes a lot of time. So you have the dolly. And the dolly will bring the brick. One guy gives the brick. The other guy puts it down. The other guy slathers it.

So your job is just to take the brick and put it down. Take the brick, put it down. Take the brick, put it down. Take the brick. And the next guy's job is to go-- kuh-chunk, kuh-chunk, kuh-chunk, kuh-chunk, kuh-chunk, kuh-chunk. And you can build

buildings a lot faster if you do this time-saving thing.

He was the inventor-- or not the inventor but one of the great champions of time-saving labor. Ford Motor works would put it into mass production window to make a Model T Ford. So this was sort of advanced technology at the time, if you will. And of course, has debatable effects. But anyway.

So anyway, there he is, Mr. Gilbreth, with his cheaper by the dozen family. And so they hired him. In other words, they brought in a new type of engineer to experiment with a new type of building. And so it shows MIT's search for the avant-garde of the time.

So then you compare, of course, that there's MIT's building. And this is another building from 1861. The Opera by Charles Garnier in Paris. I don't know if you've ever seen it. But if you go to Paris, you should see it. It's certainly one of the great buildings of the 19th century. I mean, [? vastly, ?] hugely beautiful, extravagant building.

So once again, in Europe, they were making these gigantic things. Whereas at MIT and Boston, there were still small little building after small little building. But they this world, which is sort of the Beaux-Arts architecture here is sort of a European development of how to make these buildings work within the city, and so forth. Wasn't really in the United States yet. And I'd say its building styles were still English driven, still relatively small scale, still relatively modest in their desire in terms of spacial expression.

So around the world, you were having these huge buildings being built. And so here we are in Japan. Here's Cairo. I have to show you this because this is the old building from the medieval period. And then they built this gigantic mosque here in 1910. And the Cairo National Museum of 1900, which is in the news a little bit today.

So Boston around 1900 would have looked like a real gritty, brick, working class place. Very few prestigious buildings, nothing really grand about the place at all. You had the Back Bay that had been laid out. And you had some fine residential

quarters. But you really didn't have high architecture, any examples of high architecture at all compared to almost everywhere else around the world.

Well, in 1893, they brought in this French architect, a guy called Despradelle, to teach in the school of architecture. And he sort of changed everything because he brought this much grander, much more imposing sort of tradition of sort of architectural world that was in Europe at the time. And it was sort of a risk.

And so they bought this guy. As you can see, he's sort of a strange character. The students sort of loved him. He was very quirky much beloved by the students. We taught them how to make these absolutely drop dead gorgeous drawings, some of which are in the museum. Hopefully we can, one day, exhibit them.

This drawing, which was gigantic, some 12 feet high or something, was for a building, of course, that was never built. I mean, it was impossible to build at the time. Some huge, huge, huge, huge monument sort of celebrating the Americas called the "Beacon of Progress."

So actually it looks a little old fashioned, because it was, like, not a modern building. But it would have been a really very early use of concrete. It was actually a very interesting type of edifice. And so we have to see it as much more progressive than we today might see things.

And then he went around and bought drawings for the students to learn. So this is another one of the leading architects of the time, a guy called Viollet-le-Duc. And he and Ware basically brought all these drawings from Europe for the architects to look at to teach them. So we have, of course, in the process, then, drawing capitals and things like that for presentation drawing.

So all of a sudden, the principle of architecture, prestige, quality buildings sort of comes into play. And these are just drawings from the archives made by students here at the turn of the century.

So the point is that basically he changes the architectural culture that's taught here from just basically more pragmatic architectural buildings to be a type of culture that

really speaks to high-end architectural production. And MIT is really the first place in the country which does that. Now that means you and I will look at this, and [INAUDIBLE] all sort of old fashioned. We look at this and go, oh, this is the stuff that modernism sort of got rid of.

But this would be a bit of a mistake-- this is a synagogue that was planned-- largely because 1900 and that era was an interesting moment in history. There was the Spanish American War. And the two sort of, I guess, events was the market crash of 1893. 1893 was the first stock market crash in the United States, the first great one. It's like we never learn.

It was another big bank financial scandal of too many people buying too much land. And then all of a sudden, it went belly up. It was like, duh. So anyway, and basically everybody was out of a job. I mean, probably about 10 times worse than what we have today, what we just recently experienced. And probably not quite as bad as the crash of '29. But a significant shock to the system.

And after that, the United States' warehouses were filled with stuff that no one could buy. So what they did was they made it very cheap. And they shipped it around the world. And basically the United States, afterward from 1893, basically became an international supplier of things, in particular steel. So it discovered international markets after 1893.

Then came the Spanish American War, where America now was a quasi-colonial imperial power. So by 1900, the United States had established itself as a network, global, expanding trade world. And it wanted to market itself in particular ways. Well, what you could market, of course, is architecture.

So MIT knows by teaching its students how to make these big and huge and grand buildings, whilst preparing them for big time commissions around the world. And it's not just these commissions. But it was the steel that came from the steel factories. It was the parts that came from the American parts factories. It was the labor and the contractors that came from the labor contractor.

So this was all originally controlled by the French, largely, who built their buildings as export commodities. Now MIT's Department of Architecture really was sort of at the cusp of basically producing architecture as an export commodity. So it's not just that this Beaux-Arts architecture, as we call it today, is sort of frilly and cute. It basically was the first world export commodity. Because to make a building, you need steel, you need foundations, you need technology, you need engineers.

At the end, it might look sort of interesting. But it's the whole package. So this is why MIT developed this.

And meanwhile, Harvard was looking at this. And they said, well, if MIT is gambling for the Beaux-Arts and the principle of world domination, we think that this is sort of not correct. And we want architecture to be humble and appropriate to the human scale.

And so they went into sort of the anti-internationalist phase. They went into what's called the arts and crafts. So whereas MIT went into sort of internationalism, Beaux-Arts, huge buildings, Harvard brought in faculty that made little Gothic things. Very beautiful, very sweet, very elegant.

William Brigham was one of the professors there. And these are the things that he made. And you compare that with Allen Ross, who is a graduate from here, who went out and built huge buildings like this. Or Hood, a graduate from MIT who went off and did the Chicago Tribune. He did other buildings, the Rockefeller Center, designed part of the Rockefeller Center, which were gigantic buildings, all about the progressive spirit and so forth.

So this was the two approaches that MIT and Harvard had at the time in architecture. MIT went for big-scale, urban, huge projects. Harvard went for the little scale, for the domestic, for the house, and so forth.

Eventually MIT would win that argument. I mean, it is a short term or long term perspective on that. And Harvard would eventually bring in a French architect in the first decades of the 20th century. And that was sort of the end of the arts and crafts.

And so one of the characters that sort of comes in is, of course, Bosworth, who is a product of MIT. So he, in some sense, is a student of Despradelle. He knows and understands Despradelle's principle of buildings that represent the big international scale. Not buildings that are going to be humble, and sweet, and Gothic, and nostalgic. So the project that he designs for MIT is at that large, international scale. It's meant to be big and grand.

Now he worked for various people. But including a man called Fish-- who was an AT&T CEO-- and Ware, and some other people, and Rockefellers. He was sort of like a gentleman's architect. He didn't have a big practice. He had a small practice. But basically these super rich people would bring him in to design buildings.

So this is one of the buildings are designed in New York. It's literally right next to, no longer the World Trade Center, the towers which you don't see anymore, which would be right there. So if any of you know New York, the Wall Street area, you would hopefully know this building.

Really a gorgeous building, strictly neoclassical. It has a Doric on the inside, ionic on the outside. But it's a steel building. Basically it's a modern steel building wrapped in this sort of casing. And the casing is meant to show the stability of AT&T, the magnificence of it as well.

So these buildings, which we may look at as sort of a little bit old fashioned were, at that time, all about the bravura of these new corporations that were emerging. So in particular, sort of AT&T--

AUDIENCE: Is that the West Street building?

MARK JARZOMBEK: Yeah.

AUDIENCE: That's where Bell Labs is founded, in that building. Bell Labs is founded in that building.

MARK Yeah, that's right. Bell Labs is founded here. That's right.

JARZOMBEK:

So when MIT, then, was making the move, they didn't talk to Bosworth initially. It came a little bit later. There's this huge institution. They're having these problems. And they were going, well, we need to find somebody to make the design.

So they hire this guy called Childs. Childs was an expert in sanitation engineering. He made the sewer lines for Brookline. I mean, OK, he's an OK architect. But I mean, the guy makes sewer lines, for crying out loud.

So he made a project. And at first, it looks OK. He's got a thing. It's got an esplanade. It's got its funny towers, and so forth like that. But fortunately, they realized it's really bad. I mean, it's really, really, really, really bad.

So his idea was that X marks the spot. I mean, literally. And that this line, if you look at it, points to the State House. Because the State House was where the money comes from. So you want an avenue that when I can look down, I can see the State House and say, thank you very much, State House. Even though State House was giving it practically nothing. They were practically bankrupt.

So I don't know where these lines would be pointing to. But they're just off into distance somewhere. And then, as you see, it's not really symmetrical. One has got longer. And then you see there's a track. And you see here one building bumps on the track. It's really sort of weird, a weird building, right?

So not a good architect. And obviously somebody complained about it. Well, the guy who complained about it was this man called Freeman who was a civil engineer who would later go off and design the canals for Panama Canal. So this was a really top civil engineer. And compared to, if you will, some local hokey-bonky architect that they found in some sort of neighboring village.

So Freeman comes on the plane and says, we've got to get rid of all these architects. They don't know what they're talking about. And convinces the president, Maclaurin, to fund him to do some research on what MIT needs to do.

So he travels around the world. He goes to Mexico. He goes to the United States. He goes to Canada. He goes to Germany, and France, and Italy.

And he collects this portfolio of plans and photographs. And then produces his report that I publish at the end in my book. And he falls in love with the German model of buildings, like the ones that I had showed you.

And he said that the Germans and the Swiss had come up already 50 years earlier with this notion of a giant building. Not one building in sort of the landscape in the gentlemanly fashion. But huge, mega structures that if you go to Berlin, and you go to the Technical University in Berlin, or these universities in Zurich.

And so he puts the map of them together. And he says, this is what MIT should do. I mean, this is what we need. We need a mega structure, not just a little old building somewhere. And then to make his point, he makes a design which he says, OK, this is what a bad architect would do.

We'll have the architecture department. We have a chemistry department. We have a physics department. We've got an electrical department. We got some labs. We'll just scatter them around, whatever, willy-nilly, and call that a campus. And so he makes this sort of fake plan, if you will, to show this is how we would do it if we wanted to be a little bit like Harvard. And we might have a quad in there, and so forth.

He hated architects. He thought architects were pompous arrowheads. He calls them beauty makers. And basically the world should be designed by civil engineers. And this was sort of an interesting moment where MIT Civil Engineering Department is sort of asserting itself in the architectural world against the Beaux-Arts.

So he doesn't like the Beaux-Arts at all. He doesn't understand, really. Because basically by the 1910s, and so forth, what is being exported is precisely dams, and bridges, and canals, and so forth, not buildings. So this is where huge investments of exportation of MIT's position in the world has to do with civil engineering. And architecture's now a little bit sort of on a smaller scale.

So his plan for MIT looks actually quite like what MIT looks like. Basically it's a concrete building. Concrete, because it won't burn. And today we go, concrete? The hell with concrete.

But you've got to remember, the Romans had concrete. And then sometime in the Middle Ages because they didn't believe in science, they forgot how to make concrete. And then no one knew what concrete was. I mean, it had been completely forgotten, basically, until the 1880s. And people were going, God, we could make concrete now.

So they started making concrete. And people were very uncertain about it. Because they needed to test it, and stretch it, and all these things. And then in the early 20th century, they finally figured out that by putting steel mesh into the concrete, you can sort of give it a substance. And it can both be compressed and, in some sense, also intention. So that made concrete into a basically usable thing.

But it was still seen as sort of a low material. If you do a public building, it had to be brick. Brick was seen as prestigious-- stone, marble. The last thing you want to do is concrete. The advantage of concrete, of course, is that it's really good against fires. And the building doesn't shake when the trucks go rumbling by.

So he designed for this building to be in concrete. And it would have been, and in fact, when it was built, the largest concrete building in the world, some million square feet, sort of giant structure. And that in itself is, in some senses, another aspect of MIT reaching out to a type of really being the most modern thing available.

So this is another building designed as a shoe olfactory. And you can sort of see it has the same sort of principle, a concrete structure with these columns going down the middle that become the corridor. And then all you have to do is makes slabs, and then the circulation system for people to go up and down.

So basically the concrete columns, circulations in the corners. Here is an auditorium. And then behind here was various laboratories for the electrical

engineers and whatnot.

So he did that. And MIT thought that was all pretty good. But they got a little nervous because they still wanted the architects to come and give a blessing to the building. They had this being built. Unfortunately, the skin of it would have still had some classical furnishings. Oh, he wanted the skin.

The skin was going to be out of ceramic, white ceramic, so that you could wash it down. You got to remember, in the winter all the soot makes all the buildings black. So he didn't like that. So he invented this sort of ceramic that you could just hose down and the building would be very gleaming in the spring again.

So all very clever, very practical, very useful. But MIT was a little nervous. So they went to, as many institutions do, the power elite. So at some moment, President Maclaurin called up Rockefeller and said, hey, Rocky, we're building a building here. And can you recommend something?

So Rockefeller, and this is Theodore Vail. Theodore Vail's the President of AT&T. And you see, he's on the telephone. And he's in his little bungalow in Jekyll Point in Carolinas. They had a little villa out there.

And this is the first transatlantic telephone call from his little bungalow in Jekyll Island-- and that's where all the rich people lived-- to California. So this is the moment where he's calling this guy and talking to him in California. And so he's sitting next to his buddy, another millionaire, Rockefeller.

And who are the people behind him? Well, they're his architects. So here he is at this unbelievably amazing moment. And it could be his daughter. It could be his wife. It could be some engineers. But he wants to sort of memorialize this moment by the two guys being on the telephone. And the architects are behind them who are going to get the commissions to build the buildings that will represent them in the world.

So we saw the one that Bosworth has just done. You see him beautifully attired. He knows how to dress in those days. He's an MIT gentleman.

And so basically we don't know exactly all of the ins and outs. But more or less, Maclaurin basically calls up both of these men. And they both say Bosworth is the man to do it.

So there was no competition. There was no announcement in the paper looking for an architect. There was no first they just went down the street and found the first shingle where the guy said, I'm an architect. Here they called up the top CEOs and said, we need a guy who can do this building that you trust. Because we don't need simply someone who can make the building in a pragmatic way. We need someone who can give us the representational capacity that architects can bring. So they pointed to Bosworth.

Now Bosworth used Freeman's plans. Basically built Freeman's building. Here it is, you can see. And had this been built more or less like it was, and glass put in, it would have been the first, the largest, and the most important modern building in the history of ever. So 1913, it was just when modernism was starting to be discussed in Europe as well.

But the Europeans would eventually figure out they're just putting glass. Let's get rid of all the skin. Americans were a little bit more reluctant to do that. And so that's why the modernism began in Europe.

But this is basically a modern building and would have been in every history book had they just stopped there. But they didn't. And they put the skin on it.

But you can get a sense of basically the sort of radical, modern, clean, functional aesthetic that comes from Freeman in some of the buildings and some of the rooms that are on the corner. This is an old room now. It's got a sunk ceiling. I mean, we do all this stuff to it. And you get a very cushy, different world today.

But you get a little bit of a sense of Vail, who wanted to donate his library to MIT. And he wanted, of course, Bosworth to design the dome to house this library. So this is the Vail Library. And we see it as it was originally was. Now today, it'd look like a parking garage with these stupid lamps.

And of course, I mean, I just go in there, I just really want to vomit. It's just really, really, really bad. And then in 1941, they painted the dome. So they thought the German airplane bombers were going to come and bomb MIT. So they painted the dome so that you could turn the lights off and there wouldn't be any lights.

Of course, the German bombers never made it to MIT. And everyone forgot to take off the paint. So you go in there and it's sort of dark. And you don't have the oculus, you know, with this warmth of the light coming down. And of course, these wonderful chairs and people just reading there. Instead you've got these sort of bean bags and kids sleeping and snoring right and left.

So hopefully that can be done something about that. So Bosworth took the modern building, basically, and wrapped, as you can sort of see, in a restrained classical, not the glorious, usually excessive classicism that you might find other places. But a relatively restrained classicism. Very simple sandstone facade. And of course, the front of it.

Of course, the whole thing was paved, because this was, in some sense, the urban center of the building. In the '20s and '30s, paving is hard to do. You've got to maintain it. And if you don't maintain it, things and weeds grow. And then the paving does this and this. And finally, you just rip the whole crap out and put in a few plants.

So that's what they did. And made it into a park so that you can't see the building at all. But the building was meant to be sort of really, really visible, this white, beautiful structure, visible from across the river. Clearly a statement of constitutionality in the landscape.

And then it was opened in a big celebration where Vail gave all the MIT alumni in the various clubs around the country headsets. I think this is in Kansas. And so they're all listening to the speech that was taking place during the opening ceremony, you know, all at the same.

So it was the first sort of simulcast-- I don't know, that wouldn't be the right phrase-- simultaneous transmission of sound in the history of the world. And to make sure that people understood, there was a relationship between AT&T and his donor, Vail, and MIT. So this is the front of the AT&T headquarters. And here you can see the doors of them. And here you see the doors of MIT, which are basically the same doors.

So when you walk into the doors, you're basically walking into the doors that say, thank you, Mr. Vail for your gift. I mean, it's a bad photograph. Just take my word for it. It's the same doors. It says so even on the construction drawings, copied the drawings from the AT&T headquarters.

So MIT's relationship with AT&T, with electrical engineering, with this progressive corporate world is sort of cemented in the building. So the building we could say looks like classical. But in reality, what it's doing is giving MIT what it really wanted, which was a type of relationship to the corporate America. Corporate America we assume has been around for 8,000 years. It really hasn't. It really starts to emerge, these giant corporations, exactly at this moment.

So at that level, this building does what was happening in corporate America, too. These large, impressive, institutional buildings in the landscape that are referring to the classical past as a way to sort of stabilize the idea that we're here forever. Even though we're only a few years old, don't worry, like the Doric columns, we'll be around for a long time. Good luck.

So of course, this building refers partially to the dome of the Pantheon in Rome. I hope some of you have seen that. So we have the dome. And then we have these sort of columns in front. There are eight columns in front of the real Pantheon. Whereas there are 10 columns sort of here.

And of course, the dome is much, much, much, much, much, higher. Because the dome in the Pantheon is very low. And actually, you don't see it all. You can sort of see it if you're way up high and you can sort of photograph it. But from the street level, you don't see the dome at all.

So it's not an imitation. But clearly, obviously he's saying the dome of the Pantheon is one of the great buildings. Clearly the pantheon translated into the idea of learning. And so the Enlightenment project of the unification of the sciences. So that's sort of part of it.

The other part, of course, is that if you look at the dome of the Pentagon, you'll notice these capitals are what you call Corinthian, which is sort of a typical type of capital that was developed in Rome that does not match up with here, which is capitals that are called ionic, which are actually Greek. And they're a lot older.

So he's sort of playing with these languages to craft a type of MIT message. So the model that he's taken is the Temple of Athena in Priene. Priene was a Greek town in Western Turkey. And so he's using the capitals, which I show here, from that temple. So he wants Athena to be in there, because Athena's [? learning. ?] Among classicists, this temple is supposed to be seen as the most perfect temple that had ever been built. And if you do architectural history, you would know that.

So he takes the capital of Priene here and basically copies it. So when you walk in building seven up on the third floor, you see these gigantic capitals. Well, why spend $2,500 and go to Turkey and look at it? Well, you can look at it right there. I mean, they're sort of the same thing.

But as you can see, the bottoms are different. Now I know you guys are like, ugh. They all had bottoms. But bottoms-- it's a whole story. So he's taking the top but not the bottom.

So where do the bottoms come from? Well, the bottoms come from another temple in Athens called the Erechtheion. So here you see MIT's bases. And compared to the Erechtheion, they're pretty much a perfect match. The Erechtheion, anybody seen that in Acropolis, Athens? You guys travel? You got to travel.

It's a bit of a ruin now. You don't really get what it seems. But it's seen as one of the most sophisticated of buildings that the Greeks had ever produced. Very complicated building. Not a classic temple with a front and a side. But actually a

very, very sort of complicated temple, showing that the Greeks could actually produce temples with porches, and fronts, and backs, and this and that. And such a different type of complexity.

So it's a building that shows complexity. And you can sort of see these MIT bases. So he takes the bases from one temporal to show sort of a type of architectural mastery of complexity. He takes the capitals from another temple to show Athena, and knowledge, and sort of purity of design.

Then he takes the Roman idea of the great vault which holds knowledge and the sciences together and basically makes that into the message, the corporate message of MIT that gets sort of put into its front. So today, of course, we look at buildings and we don't see them as messages. We just see them as, wow, I like that, or I don't like that.

But this is the great advantage of what the classical world brought while it was still being used, was that you take the pieces and you can construct arguments out of them, depending on how and what you're referring to. So this was, in some sense, a message. And this was why they brought in Bosworth to, in some sense, do Freeman's project. But basically give it the proper message that it needed to have.

And so what you get is really the best of both worlds, I think, is this positioning of MIT in the corporate world, as the corporate progress of world was understood at that time-- right-- in the emerging world. But also have in its core-- of the inside-- this sort of fantastic concrete slab building. Which was also progressive in its own right, but it's not celebrated in any particular way. It's just there-- right?

And of course, that interior of the building got repeatedly nibbled on and transformed, and [? resealings ?] and new windows and doors. So it's very hard to see that.

The best places are the staircase. Which if you just think, 1913, these really amazingly clear, functional concrete staircases that are so simple, you hardly think that that's anything to be proud of-- right? But if you're thinking of what could have

happened-- right? Which would have been a building-- free standing buildings in a quad, like in the Harvard model. It would've been a very different story.

Yeah, that's the end of my little spiel here about the old building, at least up until it was built.

So, questions? Thoughts?

Yeah?

AUDIENCE: This is a litle off-topic, but do you think the reason why we call Athena "Athena" has anything to do with the architecture? Like, the computer system?

MARK JARZOMBEK: Yeah, I don't know. Could be just coincidence, it could be just coincidence.

MERRIT ROE SMITH: Interesting.

MARK JARZOMBEK: At one moment, Boston was seen-- was trying to define itself as the Athens on the Charles. So the ionic columns that are on our building-- and if you go to the museum, the Fine Arts Museum has ionic columns. Many of the buildings designed first by MIT, and then during the '20s and '30s will have ionic on them. Because Boston was sort of trying to nickname itself as the Athens of learning and civilization on the Charles. So that maybe leaked out.

Yeah?

AUDIENCE: Was the Infinite Corridor planned today, like the [INAUDIBLE]?

MARK JARZOMBEK: Absolutely. That's right, yeah. The corridor was-- corridors were complicated spaces. We see them today as pretty generic. But in those days, corridors were actually very special places used-- like a novel types of spaces. Partly, they were rejected because they didn't have a good ventilation. So you needed to have very, very tall-- because there's no air conditioning, and there's no heating. So they would be very cold, and then in summer if you put bathrooms there, the fumes would

collect and they'd be sort of stinky, maybe-- right?

So during the 19th century, you're going to find few buildings actually designing with corridors. But they start emerging in the late 19th century in state houses, parliament buildings, as representational places. You know when we say someone is lobbying-- right-- because the corridor was next to these lobbies in the parliament building. So the idea that you could have these corridors-- places where people would hang out-- was seen as a positive thing. But that's one of the reasons these spaces and the building was so huge, is because the idea was the ventilation, you don't have artificial ventilation. So the whole building had to be circulated through these windows and through the corridors.

But yeah, it was designed with these corridors in mind. Initially, the idea was that the offices would have walls out of very thin wood, and he called them curtain walls, which is different from the technical term today in architecture. But they were literally like curtains, so that if the physics professor wanted more space, he could expand or something like that. Of course, that turned out to be completely dysfunctional, because you give a professor space, he's never going to give it up. I mean, now we have the space wars at MIT, and it's just like to death. We've been trying to move a one wall between two offices, now, for 10 years in Department of Architecture, and it's just not gonna happen.

So this idea that this was like a free plan, where the corridors are the spine and the stable part of it, and the walls are sort of moving and expanding and contracting as disciplines. Because he knew that disciplines were moving and contracting. So he wanted a building that was very flexible. That's why there are no walls. Right? Just slab and columns. Right? Then the walls are all in-filled. Unfortunately, the walls became permanent, as all walls do.

So even that would've been-- the idea of a building with no walls was just unbelievably modern.

AUDIENCE: I was wondering about the "V's in "Massachusetts" on the building. Why "V's" and not "U's?

MARK JARZOMBEK: That's because the Romans didn't have "U's"-- right? So they were copying the Roman script, and so Romans didn't have "U", so everything was "V". So they didn't have-- it stuck.

AUDIENCE: Do you know anything about the design or the rationale behind the huge tunnel system that we have between all the buildings. It seems to be a unique feature of the campus.

MARK JARZOMBEK: Yeah. That, I don't know. Maybe you guys might have a little bit more of a clue on that. I think it would have came out just almost accidentally, is what I understand, but--

DAVID MINDELL: I think so, and then I think that more recently it's been explicit that there's been connections between the new buildings. But that's a good paper topic for somewhere.

MERRIT ROE SMITH: Yeah, that is a good topic.

AUDIENCE: There really aren't that many more basement systems rather than just the regular systems, anyways. I mean, there's a couple extra hallways in the basement. But in general, the buildings are connected above ground just as much as they are underneath.

AUDIENCE: I'm thinking that especially the connection between Philips 66 and all the way across the Kendall Square, it seemed to be pretty deliberate to want to do that. In any case, I heard it was like the second longest tunnel system compared to the Pentagon or something like that. I might have been [INAUDIBLE]. But it's pretty big.

MERRIT ROE SMITH: Interesting.

MARK JARZOMBEK: The whole building is designed on field because, as you know from your reading, this was all swamp. And field is not a good place to design a building on-- right? Because it basically wants to be a swamp again. So the engineering of the building--

basically you have design of gigantic, basically, bathtub slab-- right? And the building sort of sits in this huge footprint-- right? Sort of sits down and you're-- and so in other words, you just put a point in and a point in it'll start leaning and tilting-- right? So you put a big platform, and then you can put your building on it.

So the engineering of this, actually was hugely complicated. Done by a guy called Stone-- engineering firm Stone, which was one of the largest engineering firms in the world at the time. He was also a [? graduate. ?]

Freeman was so upset when they hired Bosworth to take his plan and basically botch it, that he took his entire research and burned it. And so all that we have left in the archives are these really bad photographs, some snapshot that someone took of some of these sheets that are left. And they haven't given a cent to MIT, ever-- right? I mean, still today, if you talk to the Freeman [INAUDIBLE] guys, they go, we're not coming, we're not coming, we hate you guys. Because he felt that he had really studied this thing exhaustively, and was going to give MIT the best building that they could possibly imagine, and was upset that MIT then basically went for Bosworth. And it's a conflict, as I write about in my book, between two different types of identities-- right? I mean, Freeman was a type of modern person where he wanted concrete, he wanted engineering, he wants building to be proud of itself as a civil engineering expression. And he understood that this was the moment of history where an institution could do that.

And so he's sort of right. But there was another type of modern movement being developed, which was the modern corporation. And MIT was sort of like trying to figure out which one do we want-- right? And ultimately, they opted for going with the idea that the modern corporation is what an institution like this is, as opposed to a public institution-- right?

So it was shifting from a public institution, which had to be humble and small to a private institution-- right-- like it is now-- right? With one fell swoop when Eastman gave the $10 million, right? Boom, it's a private institution.

So private institutions operate on very different representational models. So being in

the world-- having an argument about your position in the world was key to that. And for that-- only architects at the time knew how to do that-- right? I don't know if they still know how to do it, but that was the point.

MERRIT ROE SMITH: Was there a time prior to the Freeman-Bosworth divide that architects and engineers considered themselves one in the same? Or did that never exist?

MARK JARZOMBEK: Yes, probably in the 1880s, I think architecture and engineering were a lot closer. Then, engineering professionalized itself much earlier than architecture. Engineering was already professionalized practically in the 1880s, whereas architecture started to professionalize itself around 1900. And even then, many architects were going, we don't want to be professional, we are artists. So really, it was only in the 1940s, really, that architecture as a professional practice really takes root, really with the second World War.

So being a professional practice gave engineers a powerful leg to stand on. Because they understood deliverables, they understood how buildings operate and function in the real world, whereas architects could give you the appearance-- right-- but not know anything about how to build it. And that split begins to emerge around 1900, between architecture as a design project, and engineering. So in other words, when civil engineering and architecture start two different fields-- right-- that's when they have this antagonism.

But because engineers were so incredibly competent, they could build buildings in their sleep. I mean, sort of dumb buildings-- right? So they thought, that's how you should be building. So the engineers had something to argue for themselves. They make buildings, they knew how to make them safe, they don't burn, they don't do this, so that's all you need to do-- right? So that antagonism basically heats up around 1900, and this is an example of that.

MERRIT ROE SMITH: Where does William Ware stand in this? Was he an engineer slash architect? Or was he--

MARK Yeah, he was sort of the gentlemen architect tradition idea. So he's the one who

JARZOMBEK: founds the Department of Architecture along the gentleman model-- right? And, yes, the engineering is important, but engineering still was something that wasn't too much of a problem because if you make these types of buildings, you make your walls, you put in some big beams. There's not a big question-- right? But if you make MIT out of concrete, in a million square feet-- and how do you pour it? How do you-- on the swampy soil? This is an engineering problem of mega proportions-- right? And this is not for an architect .

So architecture in the mid-20th century was at a scale that engineering wasn't a real problem, because most of it was just pretty easy to do. But as soon as you make big buildings like this--

MERRIT ROE SMITH: Different story.

MARK JARZOMBEK: --engineer has to be really front and center.

MERRIT ROE SMITH: Interesting.

AUDIENCE: Isn't the divide between architecture and engineering still a big problem at MIT? Because you look at buildings like the Stata Center, in a sense they both have-- they're both very artistic, but have a lot of structural problems. So isn't that still a pretty modern problem?

MARK JARZOMBEK: Well my uncle, who is an architect lawyer, architects come to him to get them out of lawsuits. So he always says, there's no such thing as a building that doesn't leak-- rule one-- and there's no such thing as a good building that doesn't have a lawsuit. And so someone's always suing something because-- no one knows. I mean, my windows in my Building 10, they leak, I mean. And they're rusted shut-- the upper one-- I just like-- you can't even move it. Just-- you know. So that's maybe a question of maintenance, rather than design.

But I'm a little bit more sympathetic to Gary. I think some of the lawsuit anxiety is

misplaced a bit. Because most buildings of that scale are going to have mistakes and problems. And anyway, almost every Gary project gets sued. You get sued. For every building, he's got a lawsuit. So when MIT hired him, they should have known that. It's sort of like, don't they read the newspapers? So it's just a little bit his fault, a little bit everybody's fault. The client should of known better. If they're going to get a building that is designed at the cutting edge of a certain type of technological revolution, there might be problems, and so forth. If they wanted a simpler building, they shouldn't have done it with Gary. That's the point.

DAVID MINDELL: So in the Bosworth-Freeman story, would you describe the main group that we ended up with as kind of a solution that reflects some anxiety on the institute's part? Because they voted for-- and as the corporations had some anxiety, too, trying to communicate their permanence and their established nature, which clearly indicates it's in question, as we read with all the mergers, and all this sort of stuff? As opposed to whether Freeman, or somebody else, pushing forward light spaces, international style, very new, very cutting edge, but leaving open the question of whether it was really the establishment or not.

MARK JARZOMBEK: Yeah, one of the points about the book is that MIT had to learn how to find it's patronage voice-- right? So when they first say, we want a building, the guy just walked down to the store somewhere to Central Square and saw someone that said "architect" and said , oh, can you design this for us? Right?

They didn't imagine this to be anything more complicated than just going out and getting box of cereal. Then they had to learn that this was a historical moment. So they really didn't see that at the beginning. They just thought, we just want a campus and get some buildings up. And what Freeman forced him to do was to slow down and understand the historical moment.

Once they understood historical moment, in a way thanks to Freeman-- right-- they put everything aside and waited a year or two for him to make his research. They actually thought more about the historical moment than Freeman wanted them to. Because they said, the moment isn't just to do a great factory-style campus. The

really historical moment is our new relationship and identity as a private institution, dependent on the corporate institution. And so that's the actual thing we need-- right?

So they had to learn how to find that, thanks to Freeman. But actually, thanks to Freeman, then they went past Freeman-- right-- and articulated a different project.

It was a huge spectacle. It was a age where a vast public spectacle-- this one, the early 20th century-- where something happened that you could do these things.

So yeah, there was a searchlight on top of the Rogers building, and there's a searchlight on top of MIT building-- the Dome. And they got these from some Navy frigate that was out in the dock harbor-- they borrowed the searchlights.

And then everybody left the procession down from the Rogers building to the dock. And then there was a special boat, and they all piled on to the boat. And the boat almost sank because no one had ever bothered to figure out what 800 people weigh. And that would have been interesting-- right? It would have been a very different story today about the death of the faculty--

MERRIT ROE SMITH: The charter sinks into the Charles.

MARK JARZOMBEK: Students dying and swimming and--

DAVID MINDELL: I've heard that that building's actually in the Charles.

MERRIT ROE SMITH: Yeah, that's what I've heard, too.

DAVID MINDELL: Does anybody know where you walk by that boat everyday? Where you see it everyday? There's a huge picture of it right at the end of the Infinite Corridor, right here on this wall. I just walked by it this morning. And it was also the last one in this whole little collage about that set of events.

MARK JARZOMBEK: And then they got on the boat and they went off to the dock. MIT was supposed to have a dock, which was never actually built. And then they all got out. And then every student was participating, in one way or other, in an opera that was custom designed called-- what was the name of this? I can't remember-- The Grey World, or something like that, which featured the history of the world with MIT at the culminating piece of that.

MERRIT ROE SMITH: Of course.

MARK JARZOMBEK: And it featured this woman called Tanner, who was this great swirly, dirly-- not wearing many clothes and illuminated with red and purple and orange lights down below. It was one of the great first light show events-- right? They would take with lights going off and on [INAUDIBLE]. But this was one of the first experiments in colored light shows. And Tanner did her swirly dance. And then the big opera came. And the music came. And Rockefeller gave a speech. And everybody gave speeches. And da, da, da, da. And Cram, who was the head of the department, was the master of ceremonies. And then he opened the door. And then the two searchlights were touching, like this. And then when you open the door, the searchlights went like that. And the MIT-Roger Williams searchlight cut off, and you only had MIT searchlight on.

And so that was the great, heroic moment. I mean, you could imagine it was spectacular. But it was all at night, so there's only one photograph that someone drew in to show a little bit what it was like. But you couldn't photograph any of that stuff.

MARK JARZOMBEK: The Rogers building was used until-- it was only torn down the '20s, or even later-- right? In the 30--

DAVID MINDELL: The main group was built in one big swoop that was that time. But then there were various other pieces filled in until the end of the '20s-- right? It wasn't really complete until around 1930--

MARK JARZOMBEK: That's right.

DAVID MINDELL: --when the last of all what we now know as [INAUDIBLE]. So if you look at them, they look a little different [INAUDIBLE].

MARK JARZOMBEK: That's right, yeah. That's right. I mean, I. M. Pei, who studied here--

DAVID MINDELL: [INAUDIBLE] stayed over [INAUDIBLE].

MARK JARZOMBEK: Yeah, see architecture is over there, so I. M. Pei, who studied here when he was here in the '40s-- he was in the Rogers building, still. He was like the last student to use that building .

AUDIENCE: [INAUDIBLE] the MIT building for--

MARK JARZOMBEK: Yeah, it was still-- they rented it, the various floors at that time. Then, sadly, it was torn down.

MERRIT ROE SMITH: That's interesting.

MARK JARZOMBEK: Well, there's sort of a playfulness about it, which I think one has love. MIT had this incredible-- you read, also, the skits that were being performed. MIT had this tradition of skits and theater skits. And in the yearbook you see these guys will be dressed up as god knows what. And they make some skit imitating some professors or doing [INAUDIBLE].

We lost all that. I mean, somewhere MIT became very serious, and all that playful skits and irony just went somewhere. I don't know where.

MERRIT ROE SMITH: It went to the students.

AUDIENCE: Yeah.

MERRIT ROE SMITH: Isn't that what you were saying in your paper?

AUDIENCE: I feel like it's still around, maybe on the undergraduate level. But I feel like MIT is a more unique place than the other college campus, just because of some of the weird stuff we do here.

MERRIT ROE SMITH: Yeah, good point.

DAVID MINDELL: But I think your point is right. The spectacle of that [INAUDIBLE] was a moment in time when-- who knows what? There was enough technology to bring a lot of people together, but people weren't yet jaded by radio and television. Where they wouldn't put all of their effort in to that thing. The allegories and all of the performances was something we studied a lot with the 150th. And try to figure out what parts of it are repeatable and what parts--

MARK JARZOMBEK: --are goofy.

DAVID MINDELL: --are not.

MERRIT ROE SMITH: So I take it, that's not going to be repeated this spring.

DAVID MINDELL: Well, Professor Smith is going to dress up as Merlin for [INAUDIBLE].

[LAUGHTER]

MERRIT ROE SMITH: Well, if you do-- if you dare do something like that, David, I'll be Merlin. I don't think you dare do it.

DAVID MINDELL: [INAUDIBLE] MIT charter in it.

MERRIT ROE SMITH: Oh yeah.

DAVID MINDELL: Across the river, almost like *Raiders of the Lost Ark.*

MERRIT ROE SMITH: Wasn't the-- it was like a Venetian galley, wasn't it? That was built to carry the stuff across the river?

MARK JARZOMBEK: That's right, the Venetian was a theme.

MERRIT ROE SMITH: And it was built up in Gloucester or somewhere, and they had to bring it down along the coast.

MARK JARZOMBEK: That's right.

MERRIT ROE SMITH: And I think it's in your book, that you talk about how it got damaged on the way, or something. And they were worried about it sinking.

MARK JARZOMBEK: Well, they were worried about it sinking because they'd never really thought about people in it. And they'd never tested it. I mean, it's just a barge, dressed up with all that stuff on it.

AUDIENCE: Yeah.

AUDIENCE: When we go to the MIT Museum, Debbie Douglas has a piece of that, a piece of the plaster.

MARK JARZOMBEK: Oh, really?

AUDIENCE: Yeah.

AUDIENCE: Really? Oh, interesting.

AUDIENCE: And she tells me that it's still out there on the river. And maybe we'll drag sonar around and see if we can find it.

AUDIENCE: Well, get that side-scan sonar. He's an expert on this stuff.

MARK JARZOMBEK: Yeah, let's go find it. Yeah, it was a great moment for MIT. There's no doubt. [? Elliot ?] was at the ceremony.

AUDIENCE: Was he really?

MARK JARZOMBEK: Yeah. But, I mean, you could-- they were just clearly probably chafing at the bit on this. It was a huge [INAUDIBLE]. And it was a great moment for MIT. The reality was they were practically bankrupt again. Because they had this great building. But the building was vastly over-expensive, by more expensive than the 10 millions. And so Eastman kept on dishing out millions and millions millions.

And you got to remember, 10 million back then, I mean, it's not 10 million even [INAUDIBLE] today. But you probably have to add a zero. So it's something like 100 million, which is a huge amount as a single gift to create a building like this. I mean, it's like an unbelievable event in the history of philanthropy.

American philanthropy is just one of these great, marvelous inventions. I mean, one can think about capitalism in all sorts of ways. But you go around the world and capitalism does not produce philanthropy like it ever did in the America sense. And this is one of the great moments of that.

AUDIENCE: That's interesting.

AUDIENCE: It said that he's been donating money as [INAUDIBLE].

MARK JARZOMBEK: I'm sorry?

AUDIENCE: He was known as Mr. Smith. And he didn't want to be known. So when did he--

MARK JARZOMBEK: When did he come out?

AUDIENCE: Yeah, when did he tell everybody that he was [INAUDIBLE].

MARK It came out, I think, when Maclaurin died. I think he leaked it out. I mean, the whole

JARZOMBEK: thing killed Maclaurin. I mean, it made him age overnight. And within a few years, he was dead. I mean it's just astonishing, they type of effort it takes, the human and human cost, to [INAUDIBLE].

AUDIENCE: It's in the Prescott book, but not on the part that was assigned, I think, where they revealed the identity of Eastman, with Eastman's permission, once the whole thing was done at a reception for the corporation at Gray House. And Maclaurin basically went upstairs and keeled over and died at the reception at the president's house.

[INTERPOSING VOICES]

AUDIENCE: Up in their apartment's where [INAUDIBLE].

[LAUGHTER]

AUDIENCE: [INAUDIBLE] killed a lot of presidents.

AUDIENCE: Somebody had a question in their reflection about why did Eastman give the money to MIT. He was not an MIT graduate. Who asked that question? Somebody did. No? Am I think-- boy, I'm having a bad day here. Pardon?

AUDIENCE: --was why he gave it anonymously.

AUDIENCE: OK. Why? Does anyone know?

MARK JARZOMBEK: I don't know.

AUDIENCE: Because I think in Prescott's book, when MIT was Boston Tech, isn't he the one that says the reason why Eastman gave the money was that it had to do with the fact that he employed a lot of MIT graduates and was impressed by them.

MARK JARZOMBEK: Yeah. But why he remained anonymous, I have no idea.

AUDIENCE: Eastman was a strange guy too.

AUDIENCE: Was he?

AUDIENCE: He was dead by suicide within a few years after all this happened anyway, I've heard. I've never seen any evidence for this.

It's also interesting to look at was that one of the sources of MIT's big impact in 20th century industry was that they were so broke after they built the buildings that they basically laid off the faculty one day a week and encouraged them to make up their incomes by consulting. And it's still true today that the faculty are allowed to consult one day a week. And that, born as a budget-cutting measure, actually ended up doing a lot to diffuse MIT's technology into [INAUDIBLE].

AUDIENCE: Wow. Cool.

AUDIENCE: But I've only heard that as a story. I've never actually seen any documents about that.

AUDIENCE: Well, I know that in the School of Engineering, not in the School of Humanities and Social Sciences, as recently as 1980, assistant professors were required to raise I think it was 50% of their salary through outside grants. And associate professors had to raise a certain percentage. And even full professors, although it was a small percentage at that point.

And that ended basically when they started to go-- well, convert over to a more endowed professorships, things like that. It was during a fund-raising venture in the 1990s perhaps. So that's lasted.

AUDIENCE: Do you think MIT's relationship to it's architecture has stayed the same? Or how has it changed since 1960? A lot has been said in the last ten years.

MARK JARZOMBEK: As you point out, MIT, so much went into the main building that basically the rest of the campus, apart from the president's house, the dormitory [INAUDIBLE] just didn't really get built. So that, I mean, for better or for worse, I don't know. But the dormitory section was going to be behind Walker, that whole area. And eventually they built those two dorms back there. But they're absolutely nothing like what

Bosworth had really planned. He planned a whole little sort of community back there.

So that opened up sort of this territorial problem about expansion. So the idea of a mega building expanding but always be one building then also went against the modernist ethos of free-standing great buildings and so forth. So you had the library building, which is a lovely building. It's '51 or something like that. But that was supposed to be the library. Then where the music hall was is a little student center.

AUDIENCE: Which building is this?

MARK JARZOMBEK: The Hayden Library. That's right. So there's a courtyard. And the courtyard belonged to the little student center. So where the music library is would be the student center. The doors would open up. And at night you could have social life and then professors. So it was professors, books, and students. It was a whole little island.

Well, that lasted for all of five or six years. And then the library wanted more space. And the professors wanted more space. And to hell with the student life. So they got rid of those. So the courtyard died. And now no one goes into the courtyard. And it's sort of sad. You know, they put some statues in there. But that was [INAUDIBLE] experiment.

But it was exactly an anti-Bosworth world. Let's build a building like a little enclave as opposed to this sort of connected tissue. So that was the beginning of sort of the mistakes, I think, that the campus eventually made.

Then they built these buildings which sort of continue it but don't really continue. Whereas these buildings were designed, obviously, in continuation of the courtyard to some degree. And I do like these buildings better. But basically this part of the campus just got fizzled up and chewed up with discontinuous buildings.

The worst building of them all is building nine on Mass Ave, designed by Skidmore, Owings, and Merrill. So you know which one. You have the steps going up to your left. It's sort of a modern thing.

AUDIENCE: It's also, like, connected--

MARK JARZOMBEK: And it completely disconnected.

AUDIENCE: No--

MARK JARZOMBEK: It's connected, but not on the third floor. And the fourth floor, you've got to go down some steps. Because they wanted to put five floors in the space of three floors.

AUDIENCE: It didn't used to be that way. That happened with the library. It used to be connected.

MARK JARZOMBEK: That's right. So the idea of these giant floors and ceilings was a big problem for these modern buildings because by this time we had ventilation. And we don't need to have 12-foot, 20-foot floors. You want 8-foot, 9-foot, and then you're done with it. So you can pack much more floor space that you could in these older buildings. But it means, of course, that you're going to ruin any kind of continuity of that.

AUDIENCE: Interesting.

MARK JARZOMBEK: And then they refurbished these buildings. They weren't too bad. The skins of these buildings used to be orange and yellow, which I thought was really lovely. And then they painted it this sort of blah, MIT blah--

[LAUGHTER]

MARK JARZOMBEK: I don't know, white. Not white, it's sort of beige, beige-y. They painted everything, just sort of toned everything down when they did the big restoration of these buildings, which I think is really sad.

But yeah, I mean, it was a problem. I mean, campus design in the beginning of the '40s through the war, after the war, into '70s, was basically big, chunky buildings. And this went against-- and it was great for everywhere else. It was great for other campuses, which had big spaces. You could put a big chunky building. So we got

our student center, which is the big, ugly chunky building designed by the former dean of MIT. So that's how you design buildings.

And this idea of these sort of continual flow buildings, open-ended spaces just wasn't going to happen. And the Gehry building tries to return a little bit to that. I mean, that's the great thing about it. It tries to actually re-envision a world where you can go into space and there's some flexibility of ownership to some degree.

AUDIENCE: The student center and the Dewey Library, Political Science Building remind me of-- I don't know if they were designed by the same person. But were they built during the Vietnam War period?

MARK JARZOMBEK: Yeah. Well, '68.

AUDIENCE: They remind me of being-- they're like frontier garrisons. They're like stockades, and walled-off, and very defensible looking.

MARK JARZOMBEK: You can date these buildings 1968 to '72 usually. The University's basically decided students are bad. We're going to make buildings that look like fortresses-- they're made out of concrete-- that they can't ruin, destroy, beat up, or do anything with. The student center has a certain elegance to it's design. And look at it at night, it's actually quite spectacular. But basically it is a fortress, I mean, literally. It's got the shooting arrows up there.

[INTERPOSING VOICES]

MARK JARZOMBEK: I mean, [MAKES SHOOTING NOISES]. Like, what kind of a message does that send? I mean, that is like not good. But every university in America has one. This is very popular among-- you know, the administrators want mean-looking buildings.

AUDIENCE: Why do the interesting buildings like Kresge, which is kind of not normal, and the chapel, and the Stata Center [INAUDIBLE].

MARK JARZOMBEK: In the '50s. And after the '50s, MIT had this process-- you might know more about it-- the new man type thing. Which they were afraid that MIT students were going to

be too engineering oriented. And they wanted MIT students to have culture, so be cultural representatives.

So the idea of the Kresge Auditorium was where symphonies could be held. And people could learn something about symphonies, music. And the nondenominational chapel was a place where we sort of think.

You know, after the war, and after the atom bomb, MIT felt a little guilty about all that stuff. So this was where we're going to try to heal. And so we need scientists who are healing agents and who are sophisticated people, not just going to go out and make bombs and whatever. So this was part of that thing.

Yeah, so that was a very sliver of a moment. And that's when the [INAUDIBLE] gets formed. So it's part of the emergence of humanities departments.

AUDIENCE: I loved what you said in your lecture when you were describing the emergence of different schools, 1873, 1900. You said-- I don't know if you purposely said it, but you said it. And you said here we see modernity being formed. I thought that is a very interesting comment. To see these departments changing and shifting, that's a very interesting comment.

AUDIENCE: Another good student project would be to make a family tree of the MIT department's over time. People have done these trees with other kinds of knowledge systems. And sort of show how each department either morphed or got substituted over time coming down. Because we talked a lot about or a little bit about that [INAUDIBLE]

AUDIENCE: This was actually something I found online. The San Diego Club of MIT has a list of all of the departments course numbers corresponding with things in history.

AUDIENCE: How do you find it? Do you just Google it?

AUDIENCE: I can send it to you.

AUDIENCE: Yeah, great.

MARK JARZOMBEK: Yeah, the point is to understand that all these shifts reflect things that are happening in the outside world. So in what way does this map, which is what this is, give us the topography of the world? We don't see what's happening in the outside world.

I can't remember when it was, but in 1943 there's a psychology department. And it lasts about 10 years. And then it disappears. And you sort of scratch your head. You know, what was that about? Well, a lot to do with military psychology. And things like that.

So all of the shifting signifiers of these departments are really sort of traces of energies that are taking place. And MIT, in an odd way, is really-- you know, something could happen and you can sort of see it. I mean, it doesn't take 20 years or 30 years for these departments. What's beautiful about [? MIT ?] is the really rapid elasticity of these departments in coming and going.

So in the 1880s, when it was the great evolution, if you will, of the idea of a professional class-- it happened very rapidly in the 1880s, the emergence of a professional class, politically, in so many ways-- you just sort of see that in the MIT departmental structure. From a gentlemanly class to a professional class, and it just happens right there.

And all of these changes are mapping these forces. And it's a great way, it would be certainly a great thesis to use that as indicators.

AUDIENCE: It would be, definitely.

AUDIENCE: When did people start referring to the courses by their number? So, like, was it confusing for a while when they were making all these changes? Or did no one say, like, oh, [INAUDIBLE] use that terminology?

AUDIENCE: I don't know.

AUDIENCE: Good question. Debbie Douglas, when she comes, we should ask her. Because I know she has a particular way of thinking about that. There are lots of suppositions,

I guess. And I don't know that anyone has the answer. But she has some pretty interesting things to say about how the numbering system came about.

AUDIENCE: Anybody hear of the Engineering Systems Division? It's a big thing on campus today. And I've been very involved with them. And 10 years ago when it was just forming, we used to have these off-campus retreats a couple times a year to talk about what this department or division was going to be. And it was sort of a lot of hand-wringing. But there were people in the room from six or eight different schools of engineering and the management school and humanities and all kinds of different places, and they were all talking together.

And at the time, MIT had a big relationship with Cambridge University in the UK. Still have a little bit of that, the Cambridge MIT Institute. And there were a couple of guests there one year from Cambridge. And we spent a whole day sort of with this kind of conversation, and a little bit anxious about what's it going to be? How's it going to define itself? Where are all these people?

And at the end of the day, the people from Cambridge raised their hand and they said, I just have to tell you, as worried as you all are about how you're going to make this thing work, from where we come from it looks just totally amazing. Because at Cambridge, a department gets formed. And then for 600 years nobody talks to anybody else in any of the other departments. And you can't even get people in the same room together to talk about this issue. And here there are people from ten different departments talking about this. And that was just one of those moments that sort of puts into relief what's so fluid about this place.

MARK JARZOMBEK: I mean, civil engineering is now subsumed, right? What happened to civil engineering? It's one. It's still one?

AUDIENCE: Yeah, I think it is.

I was going to-- I wanted to say something about I call it boundary crossing that takes place here at MIT. It has surely picked up here in the last 10 years. I mean, you see it when students that major in mechanical engineering end up doing what I

would identify as electrical engineering. You know, there's just lots of crossing over in research groups.

And had that existed since when? Were there more-- there must have been stricter disciplinary divides between these departments as you go back in time. But I don't know exactly when do you identify the end of that and the beginning of more of these interdisciplinary collaborations? Is it World War II, [? NORAD ?] lab or something like that?

AUDIENCE: I mean, I saw, like, in the MIT Museum, that little place where they had like the-- something about, like, electrical engineering and [INAUDIBLE] basically or Psychology. So that was in the 1940s. And they show up as one of the first interdisciplinary projects at MIT where they combined electrical engineering and, like, proto-computers.

AUDIENCE: So it's World War II-ish anyway.

AUDIENCE: I think it also relates to, like you saw from Mark's chart, if you're talking about English, and history, and law, and theology, you really do have these 600-year traditions. But beginning with the sciences and certainly in engineering, there's no field of engineering that's older than 200 years. And most of them are less than 100 years old.

So any time you're in that game-- and the same is true, to some degree, of the sciences-- and things are professionalizing over the course of-- the boundaries are not particularly hard. I mean, electrical engineering is this funny combination of physics and other kinds of engineering that comes out in the 1880s. And computer science, that's also a strange hybrid of psychology, and mathematics, and electrical engineering. So at any given point, the disciplines that we have in a technical school are only ever going to be 40 or 50 years old in a certain way.

AUDIENCE: But it seems to have really increased in the last 15 years or so around here anyway. There's a lot going on.

AUDIENCE: Well, I think when Roz Williams comes in, she'll talk about the sort of anxieties about

are the engineering disciplines worth anything at all anymore. I actually think they are. But that's another conversation.

MARK JARZOMBEK: Well, engineering strikes me, from the architect, as going downhill in the United States, going uphill in Europe. I don't know why there's a bit difference. But the crossover issue, I think, at MIT is, I mean, when I leave my office, I pass a colleague's office. I pass the skin lab. I don't know what the hell goes on in there.

[LAUGHTER]

MARK JARZOMBEK: That's where, someone told me, they invented artificial skin. And then I pass a lab that built a room with a lot of nitrogen tanks sticking out in the hall. I don't know what the hell is in there. Then I pass a part of a library. Then I pass a student center. I mean, if I go from my office to the dean's office, down the hall, I'm walking past three or four departments who own bits and pieces of this landscape.

And it's very irritating. Because to us, in the dean's office, we're going God. I mean why do we have to walk all the way around. But on the other hand, it's very MIT. This sort of odd, gerrymandering of space that we have, as frustrating as it is, is actually interesting. It's sort of unique. You can go to Harvard to the architecture school. And there are only a whole building filled with architects. I'm not going to see people making skin lab or see big hydrogen tanks sitting out in the hallway with smoke coming out of them. And I think that this is part of MIT culture and should be maintained.

AUDIENCE: Yeah, I agree. It makes it interesting.

AUDIENCE: OK, on that note, I think we can--

MARK JARZOMBEK: All right, guys.

AUDIENCE: Yeah, thank you very much.