

## Slice of MIT Podcast | Secrets of the Caltech Cannon Heist

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[SLICE OF MIT THEME MUSIC]

**INTERVIEWER 1:** You're listening to the *Slice of MIT* podcast, a production of the MIT Alumni Association.

[MUSIC PLAYING]

**SUBJECT 1:** We started looking at the cannon as not just a cannon that was sitting as a piece of furniture, but something to do something with. So there were a whole bunch of logistics involved there.

**SUBJECT 2:** And in general, when you tell someone your idea, if it's good enough, they will throw up their arms and go, are you insane? Then you know you have a good idea.

**JIM BALES:** Got it. So it passed the crazy test.

**SUBJECT 2:** Yeah.

**HOST:** In the early morning hours of March 28, 2006, a small group of young men disguised as movers arrived on Caltech's Pasadena campus armed with phony work orders and a moving van with a custom logo of the non-existent Howe and Ser Moving Company. Within a few hours, the crew departed with the college's two ton Fleming cannon in tow. Eight days later, the 130-year-old cannon, a remnant of the Franco-Prussian War, reappeared 3,000 miles away on MIT campus with a massive 24 carat gold plated brass rat on its barrel.

Howe and Ser, it turns out, were MIT students who had just carried out perhaps the longest distance MIT hack of all time. The prank, which was retribution for a series of hacks Caltech had carried out at MIT a year before, received national attention and was featured in the *Boston Globe*, the *LA Times*, and the *Washington Post*. And in 2014, the MIT community voted it their second favorite hack in MIT history.

So how does one borrow a cannon, drive it cross country, and place it in the middle of a crowded campus completely undetected? In this episode of the *Slice of MIT* podcast, we'll hear from the MIT hackers involved in the infamous Caltech cannon heist as we celebrate the prank's 10 year anniversary. This conversation is hosted by Jim Bales, the associate director of MIT's Edgerton Center, where that giant brass rat was constructed. We'll hear from two of the hackers who helped plan the hack and traveled to Caltech. The interview also features Dave Barber from MIT Security and Emergency Management Office, who's an expert on MIT's hacking culture and the Institute's unofficial liaison between hacking students and MIT

administration.

Complying with MIT's hacking ethos, these hackers, of course, will remain anonymous. So let's just call them Mr. Howe and Mr. Ser. So in this interview, we'll hear why they conceived the hack in the first place, and how long it took to plan, how they convinced Caltech security that they were legitimate movers, how exactly they got a two ton cannon across the country, and what happened when Caltech students showed up at MIT to reclaim the cannon.

This episode is produced in association with the MIT Edgerton Center, a multifaceted resource hub for undergraduate and graduate MIT students. The center honors the learning by doing legacy of Professor Harold Doc Edgerton and operates a K through 12 science and engineering outreach program for students and teachers. Find out more at [Edgerton.MIT.edu](http://Edgerton.MIT.edu).

**BALES:**

Welcome, I'm Dr. Jim Bales. I'm the assistant director of the Edgerton Center, and back in the beginning of 2006, I had a couple MIT students show up at my office. They had an idea. They were going to do a hack against Caltech, and we're in favor of that. They were going to make a giant replica of the MIT class ring, and they were going to put it on the barrel of a cannon on the Caltech campus. And they asked if it would be appropriate for them to use the Edgerton student machine shop for making the class ring.

Since the shop exists in part to help students do personal projects, I said, well, this is a personal project. Have at it. And I forgot about them. And then on the morning of April 6, 2006, the students showed up at my office again. And I said, hey, how'd it go? Is the ring on the cannon? And they went, yeah, the ring's on the cannon. So I said, what aren't you guys telling me? And they said, well, the ring's on the canon, but the cannon is here.

They and colleagues had managed to take a cannon from the campus of Caltech and deliver it to the MIT campus with no one being the wiser. They enlisted the expert moving help of the Howe and Ser Moving Company to pull this off, and fortunately with us tonight are two representatives of Howe and Ser. And we're delighted to have you gentlemen with us, as well as David Barber, who is MIT's unofficial and probably nonexistent liaison between MIT and the student hacking community. Thank you all for coming. And can you tell us a little bit about the story? So when I was brought out that April morning, what did I see?

**SUBJECT 2:**

You saw the cannon adorned with a 22 pound gold plated brass rat replica that we had machined ourselves completely in all the MIT student shops and over only a span of 10 days.

**BALES:** And where did you put it on campus?

**SUBJECT 2:** Right in front of the big green dot in front of the Green building.

**BALES:** Which is a crossing point, where lots of people will get to see it?

**SUBJECT 1:** Yep, and pretty bright and sunny on an April day. And we also aligned it so it was pointed more or less right at Caltech.

**BALES:** Very good. I think that's an appropriate aiming. So I got to ask. This is a hack that's going to go down in the books. I mean, decades from now MIT people are still going to be talking about this hack in part because it's just such an outrageous thing to do. So where did the idea come from?

**SUBJECT 2:** It actually came from a reason that you probably wouldn't guess. One day years beforehand a bunch of us were wandering through the Esplanade, which is on the other side of the Charles River, and we stumbled across a howitzer. It's in front of the Hatch Shell, and I guess it's been there for decades. But we saw that, and we thought, man, it would be great if we did something with this. But after further thinking, it may not have been the most wise idea, and it was kind of locked down, but we still liked the idea of taking a cannon.

And we knew that Caltech also had a cannon, so that was in our minds as well, but there was never enough momentum to really go ahead and do it. And then, as you may be aware, Caltech came to our campus in 2005 and pulled a series of hacks. And they were kind of looking for us to retaliate even, and so at that point, we realized we had the perfect thing up our sleeve.

**BALES:** That's quite the sleeve that holds the cannon. So fine. You've got a group of people, and you think let's go steal a cannon. Sure. So how do you get your arms around the logistics and the planning of something like that?

**SUBJECT 1:** That's one of those things that as you slowly get to MIT, and you start looking at things, and seeing them as not just immovable objects, but things that you can do something with, and buildings you can adore, and things like that, you start thinking about things in terms of, hm, that thing over there-- I wonder what it would take to do that. So we started looking at the cannon as not just a canon that was sitting as a piece of furniture, but something to do something with. So there were a whole bunch of logistics involved there.

**SUBJECT 2:** And in general, when you tell someone your idea, if it's good enough, they will throw up their arms and go, are you insane? Then you know you have a good idea.

**BALES:** Got it. So it passed the crazy test.

**SUBJECT 2:** Yeah.

**BALES:** Got it.

**SUBJECT 1:** Easily.

**BALES:** So I mean, how many people do you end up getting involved in something like this?

**SUBJECT 1:** There were a couple of dozen involved overall. There were a much smaller number who actually made it all the way out to the west coast to pull the heist off on premise there, but between the machining and all of the other preparations, a couple of dozen people.

**BALES:** Got it. So how big was the travel crew going over there?

**SUBJECT 2:** Just the five of us, right?

**SUBJECT 1:** Yeah, we did-- five of us, we rented a car and drove nonstop. Five people, lots of Red Bull and Mountain Dew-- you can keep going for a long time.

**BALES:** And rotating the drivers through.

**SUBJECT 1:** Yep, I definitely did some 3:00 AM, hey, is anybody else awake back there?

**BALES:** Please?

**SUBJECT 2:** Loud music helps.

**SUBJECT 1:** Yeah, loud music.

**BALES:** Loud music would help with that.

**SUBJECT 1:** Loud singing as you drive.

**BALES:** So I get the idea that the cannons are not immovable. I mean, armies, in fact, think it's rather important that their cannons be movable as a general rule. So how does one go about moving a cannon?

**SUBJECT 1:** So it takes a bit of work to get the cannon to a place where you can move it, but it turns out there are some problems which can be solved with large quantities of cash. We focused a lot more on the problem of how do we get a cannon that is currently sitting on their campus to not be sitting on their campus where we can ostensibly do whatever we like with it--

**BALES:** Got it.

**SUBJECT 1:** --a bit more than we focused on actually how many hours does it take to drive for the cross-country portion.

**BALES:** So you find a truck, or a truck with a crane on it to pick up the cannon? Something like that?

**SUBJECT 2:** Just a winch.

**BALES:** Just a winch. So then presumably you've thought about the possibility that there might be somebody on the Caltech campus who might ask, say, why are you taking the cannon?

**SUBJECT 2:** Social engineering--

**BALES:** All right, I'm not--

**SUBJECT 2:** The solution to all problems.

**BALES:** So what's social engineering? What do you mean by that here?

**SUBJECT 2:** Convincing someone to do something that you want them to do.

**BALES:** It's sort of what, marketing on a retail one by one level?

**SUBJECT 2:** Yeah, and we had one of our-- I guess-- employees of the Howe and Ser Moving Company was a very good social engineer. So he was designated as the foreman. So he would go and talk to whoever we might encounter on the way, and his job was to convince them that we were actual contractors.

**SUBJECT 1:** And to be clear, this happened.

**BALES:** Clearly. I mean, it worked. The cannon got here. So I mean, so part of it is presumably just demeanor, and being quick on your feet, and a silver tongue. Presumably-- I mean, I noticed, for example, you have those wonderful shirts. I assume props help. What kind of props do you need for pulling off this kind of social engineering?

**SUBJECT 2:** We definitely went all out with it. We went to--

**SUBJECT 1:** I forget what the store was, but we got--

**SUBJECT 2:** Salvation Army-- that's right.

**BALES:** I'm sorry?

**SUBJECT 2:** So we went to Salvation Army beforehand and got a bunch of raggedy clothing. We didn't shave for at least a week or two. Some of us pulled it off better than others.

**SUBJECT 1:** We got magnetic signs printed up for the side of a truck-- magnetic so that they could easily be applied and removed.

**BALES:** When you didn't need them.

**SUBJECT 1:** Yep.

**BALES:** Got it. And these were the Howe and Ser Moving Company?

**SUBJECT 1:** Exactly.

**BALES:** Very good.

**SUBJECT 1:** We didn't go with an actual cannon logo at the time because that would be just a little too much of a tip off.

**BALES:** Fair enough.

**SUBJECT 1:** We also got lettering that we ironed onto the back of jackets, workman jackets, so it looked reasonably like there was an actual company behind it.

**BALES:** Very good.

**SUBJECT 1:** Clipboards-- we had clipboards.

**SUBJECT 2:** Fake moving papers.

**BALES:** And fake moving papers? So like faux documents contracting Howe and Ser?

**SUBJECT 2:** And honestly they never even looked at them. That was the best part.

**SUBJECT 1:** But they were in hand just in case.

**BALES:** I mean, you had papers on a clipboard. Clearly you must be OK.

**SUBJECT 1:** And a map outlining are supposed to move the cannon for the work that was supposed to be done. Should we talk about what our cover story was?

**SUBJECT 2:** Sure.

**BALES:** I'd love to hear it.

**SUBJECT 1:** So the cannon at Caltech, which we keep calling the Caltech cannon. I think it's actually the Fleming House cannon, but this cannon was sitting there for I don't know how many decades, but it was just sitting on some planks on the ground, which were slowly sinking into the lawn. So the reason that we were being contracted to move the cannon was to take it somewhere else while they poured a nice concrete pedestal for the cannon to sit on. And apparently, this is convincing enough that the people who stopped us thought that, oh, of course, we've been waiting for somebody to make that better.

**BALES:** So who stopped you?

**SUBJECT 2:** It was actually the-- I guess the equivalent of a phys plant worker there, janitors. He was the one that was kind of wise to what we were doing. Now, also, there was a security guard there who confronted us, but he was the one that we ended up convincing that we were real contractors, and it turns out that he was the only one that mattered because he was a security guard.

**BALES:** And so he sort of overruled the phys plant guy.

**SUBJECT 2:** The -- [crosstalk]

**SUBJECT 1:** The phys plant people didn't really argue too much.

**SUBJECT 2:** Yeah, they had one choice quote as we drove away, which was, but their signs are magnetic.

[LAUGHTER]

**BALES:** So you drove out there. You obtained a truck with metal doors so your magnetic signs would fit on. Drove to campus and with winch, and a little bit of muscle power presumably, and

ingenuity you were able to get the cannon onto this truck. And then at what point did you guys get stopped? As you were getting it on? Once it was on the truck?

**SUBJECT 1:** Just as we started driving away. I think we actually got stopped a block away or so.

**SUBJECT 2:** Yeah, so we loaded it up in less than 15 minutes.

**BALES:** Wow.

**SUBJECT 2:** No one was around to stop us, but as we pulled out, the janitor was in a truck, and he had just seen us for the last minute, and pulled out, and followed us-- because we had kind of suspected this. He forced us to go the opposite direction than we were planning, and so we promptly got lost right after we turned. So now we have this giant cannon with the barrel sticking up through the trees driving through narrow residential streets, and now suddenly we have not one, but two trucks chasing us. And so we bumble around for a while in the streets, and then finally the janitor worker zips ahead of us and basically runs us off the road.

**BALES:** Got it.

**SUBJECT 2:** And that's when we had to bring out the social engineering.

**BALES:** Got it. And the clipboards.

**SUBJECT 2:** And the clipboards.

**BALES:** Because how else do you know somebody is official. So you soothed their nerves and drove off into the sunset.

**SUBJECT 2:** Almost.

**BALES:** Almost, OK.

**SUBJECT 2:** Because they were-- we had to use our cover story, right? And so we had a map with the circle on it that had a parking lot. And so we truthfully told them, well, we're lost. We need to take the cannon here. Can you lead us there? And so the security guard was more than happy to show us the way to the parking lot. And so we pull up in the parking lot and go, OK, this is great, but now we're in the parking lot and the security guard is watching us. How are we going to get out of this?

**BALES:** Let me guess-- social engineering?



**SUBJECT 1:** Yeah. Actually, he offered, I think, initially-- he offered to provide us with some traffic cones to put up to help make sure that nobody encroached on the cannon's space.

**SUBJECT 2:** But like all good hacks, things always go wrong. So just when you think that things are looking bad, something gets worse. And so we walked back to the hitch, and it turns out that what we thought was a one and a half ton cannon was significantly heavier than that, and it had actually deflected the hitch of the truck several inches. And we're all staring at it going, uh-oh, we need to fix this. And the security guard sees this as well, and that also partially convinces him to give us cones.

**BALES:** So the cloud had a silver lining there?

**SUBJECT 2:** Yeah.

**SUBJECT 1:** Yeah. It got him to go away, and at that point, we're on a bit of a timeline of, can we get this hitch fixed and the cannon moved so that the weight's a little better distributed on the trailer in the time it takes to get cones?

**BALES:** Got it.

**SUBJECT 1:** And run away before they notice we're gone.

**BALES:** How'd that go? Well, you're here.

**SUBJECT 1:** It worked.

**BALES:** It worked. Very good. And so now you've got a truck. You've got a trailer. You've got a cannon on a trailer, and you're somewhere in the Greater Los Angeles area. And I did-- I checked with various specials in armaments and biology, and they assure me that cannons are non-migratory. So how did this thing end up on this coast?

**SUBJECT 1:** So there's that non-migratory, which was first we had to make sure that it wasn't a truck carrying a cannon. So as soon as we were within a comfortable distance that we didn't feel like we were right next to the campus anymore, we pulled over and started making a shelter over the cannon so that it wasn't quite so obvious what we were carrying.

**BALES:** So like lumber or tarps?

**SUBJECT 2:** Yeah, two by fours over the barrel just to make it look like a box instead of a cannon.

**SUBJECT 1:** But of course, while we were doing this, it attracted some attention. So we had to gracefully talk our ways out as-- thankfully at that point we had the cannon covered over. Oh, we're a bunch of college students doing a moving job. Some resident of the street we'd stopped on presumably called in a noise complaint, or complained about teenagers, or something.

**SUBJECT 2:** That's all the cops seemed to be concerned about-- is like, you're not high schoolers? Whatever.

**BALES:** And therefore you must be law abiding citizens going about your business.

**SUBJECT 1:** Exactly. Right. It was a weekday.

**BALES:** So having now social engineered your way out of a few things-- little bit of fast talking, and clearly it sounds like a law enforcement officer who felt they had better things to do than chase down non-truants, and fixed hitch--

**SUBJECT 2:** Well--

**BALES:** [crosstalk] disguised-- well?

**SUBJECT 2:** So about that, the original plan was to just take the cannon on the highway and go to where we were going to have it shipped off, which was basically across LA-- 25 miles. But now that we had this broken hitch, we didn't want to push the truck more than 25 miles an hour, so we had to take surface roads. Now, if you've ever driven through LA during rush hour on a weekday on service roads, it is an absolute nightmare.

**BALES:** So hours later?

**SUBJECT 2:** So our caravan headed off on just taking city streets, kind of improvising, because we didn't have this really planned. Luckily, we had some amount of GPS, although sometimes we just had to wing it I think.

**SUBJECT 1:** We somehow managed to keep the caravan together. And at this point, we had the truck that was actually carrying the cannon. We had the foreman's truck that was following, and then we had another couple of cars following that.

**SUBJECT 2:** It helps to have some practice doing caravan work.

**BALES:** And then you had some arrangements then for delivering the cannon somewhere in LA to someone or some entity.

**SUBJECT 1:** We thought we could just put it on a truck ourselves. The cannon was a bit heavier than we thought, and the homebrew tools that we had that we were going to get it into a truck and secured so that it was all safe for a journey-- those weren't really going to work. So we sort of started this desperate search for-- what do we do to get this cannon into a truck if we can't do it ourselves? Thankfully, one of the people who was with us has a sister who is involved in the film production industry.

**BALES:** And they know how to do everything.

**SUBJECT 1:** They do, or at least they know the right people. So we posed as a company doing moving for a film studio for a new movie production, which, for some reason, required a cannon to be shipped across the country.

**BALES:** Sure.

**SUBJECT 2:** And I'm pretty sure they asked no questions.

**BALES:** It's probably [crosstalk].

**SUBJECT 2:** It was a prop.

**SUBJECT 1:** Just a giant prop.

**SUBJECT 2:** And when we are asking about how much it would cost to have them palletize it up professionally, he said it'll cost \$1,000. Now, normally, for a hacker, that's a lot of money, especially when you're trying to save money doing one of the most expensive hacks already. And everyone in the car said, done, without even thinking about it.

**SUBJECT 1:** At that point, we had the cannon-- whatever it took.

**BALES:** For \$1,000, you get a great hack done.

**SUBJECT 2:** \$1,000 extra.

**BALES:** Extra.

**SUBJECT 1:** Extra.

**BALES:** So the payoff for that \$1,000 was big. And so the cannon ends up being palletized and placed on a truck.

**SUBJECT 1:** Yeah, and once it's on a truck, that's the easy part.

**BALES:** That's the easy part. And then you arrive in Cambridge and a cannon arrives in Cambridge, as well. And so there's this minor problem. Now you have a cannon on a truck that needs to, A, get onto the MIT campus-- and the places where you might actually drive up in front of the Green building there are usually chains, and stanchions, and things that might be in the way. I don't know if that was an issue for you all. And there's getting it off the truck, and there's also how, in fact, is the MIT administration and campus police going to react to a very large firearm being delivered to campus?

**SUBJECT 2:** Well, partially our thought was-- there weren't really any chains. We just had a professional crane truck and the cannon roll up in front of the Green building. And it hoisted it off. Now, they did comment of how this was-- it was actually the limit of what the crane could do, I think, but they just unloaded it. And at that point, there was even a cop sitting in his car watching this entire thing happen, but it was kind of at the all guns blazing approach where it was going to happen regardless, so we weren't really worried at that point.

**SUBJECT 1:** At this point, also, there wasn't really any news out there about, oh no, a cannon's gone missing, so.

**SUBJECT 2:** Well, there was speculation , but everyone thought Harvey Mudd had taken it. Even Harvey Mudd thought Harvey Mudd had taken it.

**BALES:** Because they had just 20 years earlier.

**SUBJECT 1:** Right, within a day 20 years earlier.

**BALES:** To within the day. Oh, wow.

**SUBJECT 2:** Which we did not even realize until after we took it. We were just searching randomly on the internet, and then this thing pops up about how Harvey Mudd took it. And we're like, oh, that's funny. They took it. Oh, they took it 20 years ago today. Oh.

[LAUGHTER]

**BALES:** You couldn't have had a better deflection if you tried.

**SUBJECT 1:** Yeah, and the Caltech administrators were fairly convinced at that time that Harvey Mudd had it.

**BALES:** Sure.

**SUBJECT 1:** And they asked their contacts, and given a sort of a wink, and a nod, and a handshake, and said, well, OK, you can keep the cannon until-- I think it was the Harvey Mudd 50th anniversary was that year.

**BALES:** Or something.

**SUBJECT 1:** Yeah, so they said keep it through the anniversary. Just make sure it gets back to us after that. That attitude may have changed when it showed up on campus.

**BALES:** When they found out where it really was.

**SUBJECT 2:** We went through a lot of trouble to keep it as quiet as possible. Even a lot of our friends who were not part of it just thought we were going on your standard college road trip to Southern California, which we kind of were.

**BALES:** Dave, what was the first you heard?

**BARBER:** Oh, I got a phone call. If I remember correctly, it was relatively early in the morning, which is not unusual in these kinds of things, saying we need your help. I'm like, OK, what's going on?

Well, we've got this cannon, and the police are questioning us. And we're just trying to calm everybody down and make sure that things don't go too far astray. And I said, OK, well, let me see what I can do, having been on the campus for a while. And I don't know everybody on the campus, but I know quite a few people, especially within the police department. I said, well, let me talk to somebody and see if I can find out what their vantage point is so that I can try to get us back to some neutral ground, which is usually the way those conversations go.

Somebody is excited about something, and, well, why are you so excited about this? And tell me exactly what's happening, and what's your issue with what's happening? And is anything terribly wrong from a safety perspective or from a personal injury perspective? And if you talk through things rationally like that-- again, a little bit of social engineering, although I wasn't really cognizant that that's what I was doing at the time. Talk them through and say, look, if

there's not a problem from a safety perspective, or from an environmental perspective, or a property damage perspective, and everybody's having a good time, then why can't we just let it be.

And that worked for a while, until eventually after the whole hack, and the arrival of the cannon, and the ring on the cannon were celebrated on the campus, then some people from Caltech eventually showed up on the campus. And there was some concern that there would be maybe a confrontation at that point. So again, trying to talk people through not having confrontation. And really I did very little then. The group that had done it had the perfect preparation. They did social engineering to a next level, where they diffused any kind of anxiety or angst once the people from Caltech showed up, but rather than me tell that story, that's part of their story. So I'm going to let them tell that part.

**BALES:** So you go across country. You steal another cannon-- excuse me. You liberate a cannon from a rival institution, and you escort it safely back to freedom here in Boston. And then folks arrive from the rival institution presumably not entirely thrilled.

**SUBJECT 2:** I remember. We found out right about 1:30 AM, right before I was going to go to sleep for the first time in about a week.

[LAUGHTER]

And so we kind of held an emergency meeting with the Howe and Ser Moving Company to try and figure out what to do, because they were pretty serious, and we were pretty serious, and we had all of campus that would back us up. But we determined that the best way to do it was probably to go the opposite direction and to give the cannon a send off. And so then we came up with the idea of having a barbecue.

Now, at 3:00 AM on the Sunday night after CPW, that's pretty much the time when you find the most MIT students sleeping because they've just stayed up for the entire weekend, but somehow we managed to pull together a huge barbecue with a couple hundred people, I think, in just about an hour and a half.

**SUBJECT 1:** We may have run through the halls screaming, shouting, and trying to wake everybody up, telling them what was going on. And free barbecue!

**SUBJECT 2:** I don't think we got any complaints.

**SUBJECT 1:** No.

**SUBJECT 2:** Because everyone was more than willing to help the cannon out.

**SUBJECT 1:** Yeah, eventually I think in the morning, there were some professors somewhere nearby who complained about the loud music for the barbecue, but it was good. We fed them. We played music. We offered them to have a key to the lock that we'd been looking it up with so they could take it off.

**SUBJECT 2:** In fact, they ended up cutting the chain.

**SUBJECT 1:** Yeah, they did. I think they wanted to get pictures of cutting the chain.

**BALES:** So I have a question for you guys. So I mean, clearly a lot of thought and preparation went into this, and then a lot of reaction and improvisation also went into it. Did you ever consider the possibility of things going really wrong in a way where you would just have to go, wait a minute, no, look, we're MIT students. We came here to steal the cannon. It's not working.

**SUBJECT 2:** Plan B for the hack was, if we couldn't take the cannon, we would have put the ring on the cannon there, which would have been sad, because who knows what damage would have come to it. And so we really didn't want it to come to that, but we ended up trekking the ring all the way across the country and back again without using it luckily, but we were prepared to potentially get arrested if that came to it. But given that it was a hack and that it was MIT and Caltech, things would have probably worked out in the end.

But of course, a lot of times some of those extreme circumstances get kind of pushed to the back of your mind. Like when the security guard stopped us, and the janitor stopped us, and they wanted to know what we were doing with the cannon, and they were very assertive, and it looked like the lights were dimming, all hope was gone, we were caught, but at least I never felt any sense of urgency. I don't know if anyone else did either. It was like we were the protagonists. How could we lose? And it worked.

**BALES:** I mean and clearly it did work out. Wow. And you mentioned also that it was probably one of the most expensive hacks ever pulled off. And did you pass the hat among the people involved? Did you find any other sources of income that you could tap into?

**SUBJECT 1:** We passed the hat amongst ourselves, and we paid for things out of our pockets, but at a certain point, you get beyond undergrad, and grad student, and recent grad levels of money.

So at a certain point, we started going to alums who we knew to be friendly to hacking and--

**BALES:** Got it.

**SUBJECT 1:** --asked them if they could make some donations.

**BALES:** How did you scope out the site to begin with? How did you know where the cannon was, what roads you could drive to get to there, how it was affixed to the ground, that sort of thing?

**SUBJECT 1:** So we have a few friends who are in the area who we were able to get in touch with ahead of time fairly early on in the process to ask, could you go over, look at the cannon, tell us if you think it's stealable? Take some pictures if you can just so we had a good idea of what we were facing, because if the cannon were inside some concrete pavilion that had armed guards at the doors all night long, chances are we couldn't take it, but it looked like something that was actually stealable.

**SUBJECT 2:** And for the ring, we just needed a piece of string around the barrel. That was the only measurement we needed.

**BALES:** To get the diameter, sure. Another question that crosses my mind is, so you're coming back, and now did you guys put it on a truck that you had rented and drove back, or was it carted back professionally?

**SUBJECT 1:** Sort of in between.

**SUBJECT 2:** Mostly professionally.

**SUBJECT 1:** Yeah.

**SUBJECT 2:** Mostly professionally.

**SUBJECT 1:** It was a company that we couldn't pay to put the cannon on and off, but they would drive from point A to point B if there was something in their truck.

**BALES:** Got it. If there was something on the truck, they would take it for you. And then presumably you guys did the nonstop drive back with five people in the car.

**SUBJECT 2:** Yep.

**SUBJECT 1:** Sleep deprived.



**BALES:** I'm trying to imagine what that ride back was like, because I mean, there must have been the, wow, we did something really cool and the, oh my god, they're after us. I mean, what did you do? What was it like?

**SUBJECT 2:** It was just like anything else at MIT where you're under a lot of stress. You kind of don't think about it very much, but enjoy it. Of course, there was the point I remember where half the people in my car were sleeping, but then the driver starts singing "Dancing Queen" because it came on the radio, and he's screaming at the top of his lungs in falsetto. And then the other guy next to me starts up, too, and I just look at them both, go, oh god, you've finally gone over the edge. Everyone snapped.

**BALES:** Seriously considering the question of stealing a cannon and carrying it across country, that's fine. Belting out dancing queen falsetto at 3:00 AM is crazy?

**SUBJECT 2:** Yeah.

**BALES:** So as I recall from that April morning when I went out and saw the cannon, I remember the cannon. I remember the ring clamped around the barrel, and then you also had something else there, right?

**SUBJECT 2:** Yeah. We realized after we had taken the cannon successfully, oh god, we suddenly have this cannon, and it worked. So we needed to add something else to it, because just putting the cannon there with the ring, we felt like it needed a description. And then so it was only a couple of days. We designed a plaque that basically said, posing as the Howe and Ser Moving Company, we appropriated the cannon to MIT and pointed to its past donors. And then we cast a concrete pillar or pedestal, and when we put it out there, the concrete wasn't even dry it.

**SUBJECT 1:** It was good enough.

**SUBJECT 2:** Good enough, yeah.

**BALES:** Did you have people back here in Cambridge, then, who were doing the machining and creating the plaque while you guys were driving across, or once you got back you--

**SUBJECT 2:** Same group. Same group.

**BALES:** Same group of five.

**SUBJECT 2:** Well, no, not the same group of five, but while we were there, nothing really happened on campus.

**SUBJECT 1:** So we made the ring in advance and got that all set. We stole the cannon, and then we made the plaque. And all three of these happened in serial. We didn't really, as was mentioned, think of the plaque until after we had it.

**BALES:** It was a great afterthought, because it quickly and pithily set forth the story.

**SUBJECT 1:** And relatively simple compared to making a ring.

**BALES:** Yes, the ring is quite the piece of engineering. It's multiple parts, right?

**SUBJECT 2:** Yeah.

**BALES:** How many pieces?

**SUBJECT 2:** Three parts. That's the only way we could machine it.

**BALES:** So this is clearly one of the classic hacks of MIT history. What is it that makes a classic hack? And what are the attributes of the process of carrying one off that is sort of characteristic, be it cannons from Caltech or balloons in the Harvard-Yale football game?

**SUBJECT 1:** So there's the you're-crazy factor when you come up with it. Oh, hey, we could go steal a cannon from Caltech. No, you're absolutely crazy.

**SUBJECT 2:** If one of us, who has done a lot of these things before, says it's crazy, to the public, it's got to be really crazy.

**BALES:** It's just so outside the pale.

**SUBJECT 2:** I mean, if it's not outrageous, then you're not really inclined to be inspired about it. And you're inspired about it, then you're unstoppable.

**BALES:** You're the protagonist.

**SUBJECT 2:** Yeah.

**SUBJECT 1:** Yeah. And there's also definitely a factor of afterwards. Wow, did we really do that? Yeah. Wow, that actually happened. It somehow seems unbelievable, even having done it. There's

also the usual factors of, whatever it is that we did, it should not just be impressive as a feat, but it should also not leave anybody thinking, oh no, our bridge is about to collapse because somebody just stole all of the cables off of it or something like that. It's nondestructive and hopefully at least something that people will laugh at.

**BALES:** So outrageous, imaginative, nondestructive.

**SUBJECT 2:** And inspires people to think of how they did it, because even if you're not that interested in hacks, you still kind of have to wonder, well, there's this physically massive object that was just moved across the country. And at first glance, it's like, well, maybe there are a few obvious ways, but then you think about it some more, and you're like, wait a minute. How did that actually happen? And so it gets people to think.

**BALES:** And I don't know if you guys think of it this way, but in a sense-- in a very deep and real sense, the hacks like this are inspirational. I mean, when we have visitors to campus, one of the things they routinely commonly-- they speak about why MIT figures prominently in their imagination, and it's the hacks, and the whimsy, and the willingness to go off and do the outrageous things simply because-- because it's there, as Mallory said in wanting to climb Everest.

So this is a very well known hack, and it's discussed fairly often. Presumably there are situations where people who don't know of your involvement speak of it. How do you handle that?

**SUBJECT 1:** A lot of times when it comes up, it'll come up at a party or something, and somebody will say, oh, yeah, hacks. Do you remember that Caltech cannon that showed up on campus with the giant ring on it? In some ways, it's more satisfying to just sort of sit there, and try not to smirk too much, and just listen to all of the theories that they have, and all of the ways that the story has grown over time. Just like any legend, there's all these layers that get added that, oh, really? I didn't realize that we rented a helicopter to move it. Things like that. For the record, we did not rent a helicopter, but you hear things like that, and it's really interesting to listen to them.

**SUBJECT 2:** Caltech wanted to, though.

**SUBJECT 1:** I don't remember that.

**SUBJECT 2:** To take it back, they actually wanted to rent a helicopter, but they couldn't do it because there

were radio antennas coming from the Green building.

**BALES:** Got it. So they had to settle for trucks like you guys did.

**SUBJECT 2:** They had to settle for trucks.

**BALES:** So Dave, how long have you been at MIT now?

**DAVID BARBER:** Well, I've been an employee of MIT for 20 years, and I was an outside contractor for about seven years prior to that. So I have a little bit of history on the campus.

**BALES:** Got it. So you've seen a lot of hacks.

**BARBER:** I have indeed seen a lot of hacks.

**BALES:** So from your perspective, as an MIT person, but not a student, what makes a good hack or a great hack?

**BARBER:** Well, I have a tendency to have my own kind of scale, if you will. It's not a numerical scale. It's more of a association scale of what I think in terms of a hack based upon a few criteria. One, its ingenuity, but distinct from that, its uniqueness.

I know that many people always point to the police car on the dome as, oh, that's the best tack ever. And from my perspective, not so much. That's probably the most impressive-- it's not even the most impressive thing that's been on the dome. It's the one that got the most attention. R2-D2 or the beanie cap were probably two of the most impressive on the dome in terms of just the magnitude of them-- or the Wright brothers airplane.

Those were ultimately way more extensive in what it took to get them up there than the police car, but the Caltech cannon coming to the MIT campus and being adorned with a ring-- which by the way, I wanted to know. Did you guys ever figure out what size ring that would be for that cannon? That's maybe something for the future.

**SUBJECT 2:** [crosstalk]

**BARBER:** But it was so unique. It was not on the dome. It was not like a lot of the others, and it was obvious that it took an enormous amount of dedication, and legwork, and thought process to pull off something to really make people think-- because this was exactly what I heard on that morning when the cannon appeared on campus. How in the heck did they do that? And that

prevailed, and it still prevails to this day. I have people in the world that I deal with at other universities and emergency managers. They want to know, how did they get can cannon over here? They ask about that even in my world.

So the test of time makes a hack very successful. Its uniqueness makes it very successful. Its inventiveness makes it very successful. And again, that magic or that wow factor-- how in the world did they pull that off? Those are the criteria that makes a hack a classic hack. This one, from my perspective, is right at the top of the list.

**BALES:** I think we're out of time, but I do want to wrap up with a question for our three experts on hacking. If you have any advice you might choose to give, what would you say to them?

**BARBER:** Dream big, and I would have to say be safe, but dream big.

**BALES:** Chris?

**SUBJECT 2:** I guess be creative. Try doing something that has never been done before, because if you can pull off something that's never been done before, then you will go down in history books.

**SUBJECT 1:** Similar lines, nothing is impossible.

**BALES:** Well, with that advice, we wish you the best of luck with your hacks. And gentlemen, thank you so much.

[MUSIC PLAYING]

[SLICE OF MIT THEME MUSIC]

**SUBJECT 1:** I could point out that we left some details out of the story for people who are still wondering that they might never solve.

**SUBJECT 2:** We left a bunch of details out.

**BALES:** I'm sure you did.