Harvard Medical Labcast
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Object Lessons
Inside the life of an anatomical museum curator

Dominic Hall
Interviewers: Stephanie Dutchen, David Cameron

[MUSIC PLAYING]

DAVID CAMERON: Let's just take it from the top.

STEPHANIE DUTCHEN: I don't want to say it again!

CAMERON: No, say it once more. Once more. Come on, you can do it.

DUTCHEN: Hello, and welcome to the August 2015 Harvard Medical Labcast. This podcast is brought to you by Harvard Medical School's Office of Communications in Boston. I'm Stephanie Dutchen.

CAMERON: And I'm David Cameron.

DUTCHEN: In this episode, David tells us about resurrecting ancient viruses to deliver modern gene therapies.

CAMERON: And in today's conversation, Stephanie speaks with Dominic Hall, curator of the Warren Anatomical Museum at the Countway Library of Medicine. Stephanie, can you tell us a little bit about the Warren Anatomical Museum?

DUTCHEN: Absolutely. It's a collection on campus of about 15,000 medical objects, devices, papers, that got started in about 1847. And those who have heard of it may have heard of it because perhaps its most famous exhibit is the skull of Phineas Gage, who in

the early 1800s survived an iron spike going through his head. Yes, they have the actual skull.

CAMERON: It's also, apparently, I found out through very intensive research, in 2010 the Boston Phoenix listed it as one of the least romantic places in Boston to go, up there with the former Filene's Basement and Babies 'R' Us.

DUTCHEN: The Warren Museum often makes it into the news as being, for example, unromantic or odd or strange or weird, and when I brought that up, Dominic made a face, an interesting face. And he had some very interesting things to say about the essential humanity of the collection and shared a bit about his philosophy of what it means to take care of it.

CAMERON: Well, let's go to it.

[MUSIC PLAYS]

DUTCHEN: Great, so here we are in the basement of the Countway Library of Medicine on the Harvard Medical School campus with Dominic Hall, Curator of the Warren Anatomical Museum. Dominic, thanks for being with us this morning.

DOMINIC HALL: Very happy to be with you.

DUTCHEN: So tell me a little bit about the collection. We say it's got about 15,000 objects now. It's been around for over 160 years.

HALL: Yeah, so the 15,000-object number is of the Warren Museum's core collection. And in some sense, that's still an estimate because there are even segments of the collection that we're still sort of discovering, particularly the instrumentation and medical devices.

DUTCHEN: Wow, hundreds of years later.

HALL: Yeah, absolutely. And things kept coming in over time, so there's still a great sense of discovery and wonder with even the day-to-day work of the Warren Museum, which is really, I would say, probably one of the great benefits of the job.

The Warren Museum itself is part of the much larger Center for the History of Medicine, which is one of the largest academic history-of-medicine resources in the world. And it has a very large, deep medical rare-book collection. It has the archives of the three Longwood schools, and a very large, robust personal papers collection of many well known, particularly Harvard Medical School, physicians.

DUTCHEN: Interesting. How did you end up in this position?

HALL: I don't know! Actually, it's a wonderful question that it's almost hard to figure it out. It's always been something that I've been interested in. But really what happened was I was in graduate school.

I was interested in these basically three surviving anatomical museums in the United States: the Mutter Museum in Philadelphia, the National Museum of Health and Medicine in Washington, DC, and then the Warren Anatomical Museum, which you could argue is the last one still associated with a medical school, whereas at one time almost every medical school in the United States had an anatomy museum.

So there are things that intrigued me initially, and then there are things that intrigue me now. And so initially it was really about, it's the kind of work, it's the kind of museum that just doesn't exist in so many other places. It's such a rare and wonderful thing that it survived.

And the ability to look into that kind of collection to try to get your hands around it, to try to organize it, and then try to bring it to a 21st-century public, that's the kind of challenge

that was very hard for me to pass up, because it was obviously going to be endlessly intriguing and endlessly sort of rewarding.

Now what sort of intrigues me more so is that I was always a great believer, and I still am a great believer, that a single object in a collection can take you on all these different multiple journeys, depending on how you're reading the object.

And that's the wonderful thing about the Warren. It's not like an art museum where you look at the thing and it's beautiful and you can recognize its beauty. You have to work sometimes to figure out what makes it beautiful, but once you do, it's really endlessly rewarding.

DUTCHEN: Now, we are in a room right now with some objects laid out on the table and on some carts. Is there something maybe we could look at that could show us how when you're looking at an object, you're looking at more than just the object?

HALL: Yeah, absolutely.

DUTCHEN: I should note that you are wearing white curatorial gloves.

HALL: Yep, so I'm wearing white gloves. Depending on when I'm handling, you wear different kinds of gloves. So for the anatomical stuff, you wouldn't wear white gloves. You'd usually wear nitrile gloves. That's to protect both you and to protect the object.

DUTCHEN: Now, you have just untied a cloth covering what looks like a figurine of a man with half of a body coming out of his ribs. What is going on?

HALL: So this guy, his name is Ake. He's Cantonese. And so at face value, this is one of those things I was talking about, this is one of those wonderful specimens. So it's not even a specimen. It's a wooden carved figure.

DUTCHEN: About, what, a foot tall, maybe?

HALL: I think he's about a foot. So at face value, you look at Ake, and he has something that he can communicate already. Or the wooden model of Ake. Already it's an extraordinary thing. It's sort of a well-carved wooden model, and the individual's opening his robe and showing you what is a parasitic twin that he had growing out of his abdomen.

He's also one of these wonderful things to unpack. So for example, we know a lot about him and his relationship with his twin because it was published. And so physicians went to visit Ake I believe in the 1830s, examined Ake, and then reported back to the American medical establishment through medical journals about Ake, about his parasitic twin, about what the parasitic twin could do in terms of movement, what Ake more or less could make him do.

Well, I also know, we've also figured out that there are two other models of Ake almost identical to this one that exist in other collections. Well, that tells us a different story: that now there's almost a trade in these figurines of Ake, in these wooden models. People are making them and then distributing them to medical collections.

Well, the guys studying Ake were medical missionaries, so there's a medical missionary story to tell. There's this interesting trade in anatomical teaching specimens to tell. So this one object, it's extraordinary to look at, but if you look even beyond the model, there's always interesting stories to tell.

DUTCHEN: So it's pretty clear that this collection has a lot to say about the history of medicine.

HALL: Absolutely.

DUTCHEN: Which, appropriately, it is located in the Center for the History of Medicine. But are there also ways in which the collection can contribute to modern medicine?

HALL: Absolutely. There is a reason that this collection is located at the medical school. And it's to use history to inform the modern physician community. By housing all of these narratives in a place that makes that work accessible, you're inviting the profession to get not just a sense of its history for glorification terms, but you can look at the successes and the mistakes that different physicians have made and use that to inform your own work.

One of the easiest examples is we have a large phrenological collection at the Warren Museum.

DUTCHEN: That's the part where people used to think that if you felt the skull you could tell something about the person?

HALL: Yeah, absolutely. The bumps and divots of your head was a predictor of your personality and your function. And there was a Boston Phrenological Society that was made up of well-known physicians in the 1830s. And they believed that there could be up to 42 different organs inside your skull.

And for a short period of time, the physician community, at least a part of the physician community, accepted that as science. Well, it's junk science. It's not a good science. It's not even really science.

But if you hold on to those reminders of that bad science, for example, you're holding the standard. You're holding up a certain historical standard to measure oneself against. And in that same way, if you hold, for example -- so this is actually part of the library's collection, but it's an object. It's the scalpel and probe that John Collins Warren used in the ether surgery.

DUTCHEN: Oh, wow.

HALL: It's a very straightforward object. It's a scalpel with an ivory handle and a blade and then one long, thin metal probe. It's in a nice display case because it's sort of a revered object. And it's also displayed above a card of Dr. Warren's from actually his home address in Park Street.

So by holding on to this object and displaying this object and photographing this object and making it available online, you are communicating to your modern medical community this moment where John Collins Warren takes a bit of a risk -- more of a risk for the patient, I think, than John Collins Warren -- to try ether as an anesthetic.

It's successful. It's widely published. And that event, one surgery, and multiple surgeries after it, but specifically that one surgery, changes the course of medicine.

And so you have this object, and you can use that object to communicate to your community that your science or your surgery can change the course of history. And that's a powerful message to sort of attune and make accessible and put in the hands of future doctors.

DUTCHEN: What do you think draws people to this collection?

HALL: No one community comes to visit the Warren Museum's gallery or use its research collection with one reason in mind. There are things that draw in just the general public, and it really is just to see something that you probably have never seen before.

There's the historical researcher who might be drawn to the collection to really look at something that the outside public might see as fairly mundane, but is an object that gives them a gateway into a physician's mind that they're writing about.

There are psychology students who are obviously coming, or neuroscience students who are obviously coming, to see something like the skull of Phineas Gage, who is a medical case that has probably followed them through their entire educational career. He's like the textbook case of post-traumatic personality change.

So I don't think any one person comes with any one reason in mind. I mean, everyone might come to it differently. One of the wonderful things about the Center for the History of Medicine is almost no matter what your specialty is, from primary care to neurosurgery, there is a historical example that you can draw inspiration from in the Center for the History of Medicine.

DUTCHEN: I feel like I have to ask you the standard question of, what are some of your favorite objects that you've got around here? Weirdest, most beautiful, most memorable?

HALL: Yeah, so it's interesting. So things like -- I don't think I really see anything as odd or strange or weird.

DUTCHEN: You might differ from a lot of people in that opinion.

HALL: I know, but the thing about the human body and the thing about medicine is that everything that -- so everything that's represented in a medical collection came from human beings in some way, or came to treat human beings. Everything is incredibly linked to the human body and the human experience.

I recognize that it's probably strange -- some of the things are strange to other people. But if that's the only lens that you're looking at the Warren Museum from, you're doing a real disservice to the patient community that's actually within the Warren Museum, which is maybe one of the most interesting things that we grapple with is that you can --

Setting aside the instrumentation and the devices, there's a patient population in the Warren Museum. And they have stories both medical and human that we want to

preserve and communicate in a way that respects their privacy. And so when we're put up a case against a narrative of the "most amazing" things or the "strangest" things or the "craziest" things, by classifying an individual within that context, you're stripping away certain elements, I think, of their humanity.

And at the same time, you're devaluing the important medical information that those individuals were saved to communicate. And that's the thing I think we sort of ask ourselves every single day. At least, that's the thing I ask myself every single day.

DUTCHEN: You hear about obviously doctors wanting to treat their patients with dignity, but sounds like you also want to treat the remains of the patients with dignity or things that belonged to them.

HALL: Yeah, absolutely. And that is completely, I think, informed by the culture of Harvard Medical School. Because this collection is within a caregiving system and an education system, it changes the entire way that you think about the individuals and the case histories that you're preserving.

I mean, I still occasionally will see things that I'm amazed by. But everything now really strikes me as sort of infinitely human.

DUTCHEN: What has amazed you recently?

HALL: That's a great question. I mean, one of my most favorite things I've actually taken recently was the giant skull.

DUTCHEN: Not everybody listening knows the story of--

[SIMULTANEOUSLY] --the giant skull.

HALL: So it's actually a wonderful -- everything I say sounds like I think everything's wonderful. But a lot of these things really are. So the giant skull is a giant papier mâché and plaster skull. And by giant, it's about seven feet tall. And it's on a large, heavy dolly with casters on it so you can move it around.

And it's a cross-section, so it's half a skull actually. And it was created by a model-maker and a Harvard physician. So it's a wonderful artist and physician/scientist collaboration.

So Professor Thomas Dwight, who was a sort of major figure in anatomy at the turn of the century, so the turn of the 19th into the 20th century, he was very interested in the variables within the human skeleton. So just the normal, healthy human skeleton. How everybody's skeleton was different.

And to teach osteology, he needed some new teaching tools. And to reach the students in the back of the room, he needed really big teaching tools. And so he created, with this artist's help, J.H. Emerton, very large skull models, a giant model of the foot, a giant model of the hand, a big spine model with the different vertebrae in it.

And these things were used, particularly the skulls were used in the teaching of anatomy at Harvard Medical School up until two years ago. And that's when the skull was brought into our collection. And there's still a giant skull at the Program for Medical Education now that they still use.

DUTCHEN: Where do you keep a seven-foot skull?

HALL: So right now it's in the reading room. It's very hard to find a home for the giant skull. So it's wonderfully in our reading room in Holmes Hall in the Center for the History of Medicine, so it can be continually appreciated by the people using our collections.

DUTCHEN: So does it just stare at you while you're reading?

HALL: No, it's sort of looking wistfully out into the distance actually. It's not a very focused stare.

DUTCHEN: What do you wish people would ask you when they interview you?

HALL: Yeah, I think I both want people to know how I think about the collection and ask me why I feel invested in the work… and at the same time, I don't really want to talk about why I'm invested in the work.

So I think the question that I most want people to ask me, I also don't, because I have an emotional connection to the work. And maybe you're not supposed to have an emotional -- I can't really tell.

DUTCHEN: What emotional connection do you have to the work?

HALL: I just said I didn't like to answer that question!

DUTCHEN: Yeah, but you also said you--

[SIMULTANEOUSLY] --wanted people to ask you [me].

HALL: Yeah, so I think it's unlike any other -- I don't know. I don't want to generalize about other museums, I guess. It's unlike like any other museum I've worked in in that you feel very -- you start to feel very protective of the individuals in the collection.

With something like the Warren, there's this sort of responsibility that's very hard to totally describe, in that it's not just about keeping these individuals safe. You're trying to inform the public about who they are, and why their stories are important, and why and how they can continue to change the way we think about medicine.

And you're always trying to figure out how to do that. And it's sort of amazing. I didn't think I would get there. I don't know. So I'm still not sure where I'm going actually.

DUTCHEN: But you're hopeful for the future.

HALL: Oh, yeah. I'm absolutely hopeful for the future. I mean, the Warren Museum is a wonderful thing. It's growing. Access is growing. We're describing new parts of the collection. We're looking at new ways to open it up to researchers, both historical and medical.

And we really want it to help change the perception of the history of medicine. And yeah, it's been a real positive trajectory for the last 20 or 30 years, and it's been fun to be a part of.

DUTCHEN: So Phineas Gage, probably the most famous-slash-infamous object in your collection -- the skull with a giant hole in it from a man who had a bar shot through his head. But you've got so many other things to talk about. We've got a tray of eyeballs here. I mean, let's look at one last thing before we go.

HALL: In front of me on this cart on a piece of acid-free inert foam is a series of upwards to 50, I think, the collection numbers in, of wax eyes, of different eye ailments. So it's a -- I think there might be one healthy eye. But other than that, every other eye has got some sort of condition.

DUTCHEN: Yeah, some of these are not pretty.

HALL: So the eyeball itself, I believe, is -- is it a glass eye, and then it's wax around it. And then there are eyelashes, so there are some thin fibers on some for eyelashes.

DUTCHEN: They're, what, maybe three inches across?

HALL: Yeah. I would say.

DUTCHEN: Eyebrows. Eyeballs. Sorry.

HALL: No, no, not at all. And so it was made by a wax model-maker named Jules Talrich. It was donated to us by a physician named Williams in the 1870s who transferred it actually out of Boston City Hospital. The collection itself is really interesting, just looking at it visually.

But each eye is placed on a wooden paddle, and there's a handle on each one of these paddles. So it's clear, at least to me, that this is either a teaching or a reference object. So it's not just a sort of wonderful collection aesthetically to look at of eyes. You're using this in some sort of context. You're holding it up on one of those paddles.

And so you can really interpret it in two ways. You can interpret it as a teaching tool. So you're talking about these different diseases of the eye in the classroom. You want something visual that you could either pass around or hold up to a student.

You can also imagine a context where they would be used in the clinic, maybe as a diagnostic tool. Some of that's conjecture on my part. But it's interesting that just from looking how the object is made, you can make those historical conclusions.

And then if this is actually used in the clinic, then it's really interesting to me that you might be holding this up against someone's head to try to diagnose their eye disease. You're using it as a visual reference tool. And it did come out of Boston City Hospital, so that possibility certainly exists.

DUTCHEN: I like this one here where the eye is sort of sealed over, and it's all bubbly. Do you have favorites in this tray of pathology?

HALL: In this particular collection? I don't think I do. I don't actually ever really appreciate them as single objects. I'm only really looking at them as all of them together. And for me, I'm mostly interested in how they were used rather than a specific disease they represent.

DUTCHEN: Well, I don't know where we can go from a tray of eyeballs, so I think I will thank you for spending time with us this morning.

HALL: It was absolutely my pleasure. I had a lot of fun.

DUTCHEN: So did I. I hope that we'll have a chance to come back again.

HALL: Any time. We're always here.

[MUSIC PLAYING]

DUTCHEN: And now for this month's abstract.

CAMERON: Researchers have a new technique for improving gene therapy: resurrection.

Well, not quite as dramatic as that, but close. In current gene therapy procedures, researchers use a harmless virus to shuttle a therapeutic gene into a cell. But sometimes an individual's natural immunity blocks this process.

Scientists have tried to tinker with these viruses and make them more robust, but it's hard to do this without destroying the virus itself. Here -- and this is where the drama begins -- researchers at Harvard Medical School and Mass. Eye and Ear took a different approach.

Using computer technologies, they retraced the virus's ancestral history. In essence, they figured out what the virus looked like at multiple points throughout its evolution. They

then took these ancient blueprints and built a series of new -- and by new, we mean very, very old -- viral vectors.

Interestingly, they found that the most ancient form of the virus was the most successful in targeting liver, muscle and retina cells in mice. In fact, in some cases, it was even superior to contemporary vectors.

The researchers emphasized that none of the viruses used are known to cause any disease, and their replication machinery is disabled prior to use.

[MUSIC PLAYING]

DUTCHEN: This podcast is a production of Harvard Medical School's Office of Communications. Thank you for listening, and thanks to our producer, Rick Groleau.

To learn more about the research discussed in this episode or to let us know what you think, visit hms.harvard.edu/podcasts. You can also follow us on Twitter, where our handle is @HarvardMed, or like us on Facebook.

Now we'd like to leave you with a thought by Marie Curie. "Nothing in life is to be feared. It is only to be understood. Now is the time to understand more so that we may fear less."

END OF INTERVIEW