

Yale Talk: Conversations with Peter Salovey
Episode 9: Sustaining Yale's research mission during the COVID-19 pandemic

Peter Salovey: Hello everyone, welcome to Yale Talk. I'm Peter Salovey and am delighted to be speaking with you at the beginning of a new academic year. Of course, the start of this semester is unlike any other. Over the summer, we have been preparing for this moment, implementing innovative teaching methods, setting up comprehensive COVID testing strategies, creating quarantine and isolation protocols, and enhancing disinfection and cleaning procedures.

In the midst of all this activity, we have also been reactivating research at Yale. As a global research university, we have a responsibility to resume our search for ideas and solutions as quickly but also as safely as possible. Of course, reactivating research during a public health crisis is a challenge. However, we have the advantage of being home to internationally recognized experts in public health and medicine and nursing. With their guidance and the careful deliberation of research reactivation safety committees, comprised of faculty, graduate students, and postdoctoral trainees, we've been able to resume, successfully, this critical aspect of Yale's mission.

Today I'm joined by two graduate students who went through the ramping down of research in the spring and the reactivation of research over the summer and into the fall. Diondra Dilworth is a doctoral candidate in the Department of Chemistry and Chris Londa is a doctoral candidate in the Department of Classics. Before we get to what happened during the pandemic, I think it would be helpful for each of you just to say a little bit about what you work on. Diondra, tell us a little bit about your research.

Diondra Dilworth: First, thank you President Salovey for inviting me to this podcast today. I'm an organic chemist here at Yale, as you mentioned earlier. And I'm working with Professor Scott Miller. My project is actually part of a center which the NSF supports funding these Holy Grail ideas. The idea here is that the ribosome, as we know it, makes proteins, which is a polymer. But we wondered if we could use the ribosome to make things other than bio polymers; like materials like Teflon, or polyketide's, like antibiotics. And so, as a chemist, I'm working on figuring out the types of reactions we can get to work in biomimetic conditions that could possibly be facilitated by the ribosome to make all these cool polymer structures.

Peter: Wow, that's very cool. You know, my father was a polymer chemist.

Diondra: Oh!

Peter: He started his career at Bell Labs and finished his career at the University of Southern California. He wasn't into synthesis the way you are. He was more a measure of the physical properties of polymers, like PVC and polyerathane and polystyrene. He ended up with some applications to materials that could be used for example, in artificial hips and things like that. But I don't think he would have ever thought in a million years that you could take the ribosome and actually use it as a testbed for synthesizing these materials.

Diondra: The ribosome has been doing this for billions of years now for us. Scientists are just really just in the beginning of thinking about, can we really push the boundaries of what the ribosome can do. It's really an exciting field and I'm really happy to be working on this project.

Peter: It is both synthetic organic chemistry but also feels a little like bioengineering.

Diondra: Yes. It's really at the crossroads of all of those fields and that's why this is like a center that really pulls on a lot of talents. It's not just organic chemists working, we have biologists, we have biochemists, bio engineers, as you mentioned, computer scientists, so it really brings in everyone.

Peter: It's great. When I talk about one Yale, it really is that idea that all disciplinary boundaries that may have some meaning, but it's not really the way problems get addressed anymore.

Chris, tell us a little bit about what you do in classics.

Chris Londo: Sure, and I'll just say it's a pleasure to be here. My dissertation is interested in the question: who in ancient Rome gets to be an author and why? A good way to start thinking about this is: how does a person become an author in the 21st century? So, let's say President Salovey, that you wanted to write a novel and get it published. So, you put pen to paper and you bring it to printing presses. They say, okay, this is a great novel. We will publish it. It gets distributed out to libraries from all over the country. We get a copy in Sterling, for example, and then scholars in the humanities 10 years from now are writing essays about this novel and so forth. We have all these institutions in the 21st century that do a good job of linking people to their labor, their intellectual labor, linking their works to their products.

I'm interested in how this works in ancient Rome where there's a couple of different caveats. One, the Romans didn't have a strong legal sense of intellectual property, and two, ancient Rome is a slave society. Many of the voices that we hear coming out of Rome are these sorts of elite Romans who are really habituated to sort of thinking about labor in a way that include slavery and they're very used to extracting labor without giving credit.

My dissertation tries to examine this tension between how we still talk about a lot of authors in antiquity, a lot of classical authors, as these kind of genius figures, who are singular talents and they get all the credit for the work that they're doing. A tension between that rhetoric and what we're finding out about what actually happened in the room where Latin literature is composed. And in that room, it's often a multi-person enterprise. You'll have the titular author, but there will also be secretaries, scribes, tutors, scholars, who are in various ways involved in the process of producing Latin literature. And a lot of these individuals were actually enslaved to the titular authors. They're in the room because of this power relationship that's extracting labor from them. I think they shed light on what authorship is in Rome, which is less about sort of writing texts, it has more to do with relationships of control and power and access to networks.

While most of my dissertation is focused in antiquity, I think these questions have relevance to how we think about authorship and authority today.

Peter: What an interesting set of issues. Diondra mentioned that her mentor is Scott Miller. Who is the professor that you are doing this work with?

Chris: Irene Peirano Garrison in the Classics Department.

Peter: Wonderful. Are there any exceptions where a Roman author actually gives credit to the scribe even though it's exploited labor? Something more generous than what we might expect to see?

Chris: Yes, it's really hard. One of those major pieces of evidence for these kinds of relationships is in the Roman author Cicero. We actually have a book of letters that survives between him and his secretary Tiro, who at one point, was enslaved to Cicero and then eventually emancipated. But the problem with this kind of evidence is the only letters that survive are ones that Cicero himself wrote. Cicero is dictating

the terms of this relationship. At times he'll seem to extend credit to Tiro in these letters, but he's very quick to pull it back if it seems like he's getting too far away from Cicero himself.

A lot of the problems of my research get in to how do we deal with these kinds of sources; where we're trying to read between the lines and through these, sort of, elite perspectives.

Peter: Very interesting. We will get back to both of the actual research that you're doing in a moment, but what I want to talk a little bit about is what happened when we essentially shut down. When the public health crisis began, we got everybody on campus to focus on our most pressing needs and at that moment it was really, what can we do to prevent the spread of the COVID virus? Public health officials basically said we needed to do everything we could to reduce potential mortality rates, potential infection rates. We really ramped down research and most university operations last spring. You were both doing research last spring. I'd be interested to hear what happened. How were you able to continue? Where you able to continue in anyway? How did you preserve productivity while also being safe and keeping others safe?

Diondra, do you want to start with that? And then I'll ask the same question to Chris.

Diondra: It's an interesting question, tying productivity to safety, because it's something as a chemist we think about all the time. We always have to be productive in the confines of safety. And usually in those confines, safety comes first, and this was no different. Our first concern was safety. We made sure that all of our instrumentation could be shut off in a proper manner so that nothing would be damaged if we had to leave it for a long period of time. We made sure reactions were stalled in a safe fashion. Everything was quenched appropriately, making sure that our freezers weren't too full to the brim, and things that could be discarded were discarded. And so, in those first weeks, I think maybe we had a week and a half to really bring everything to a closing point, and in that time as well if we finished early, then it was recommended that we just stay at home and don't try to come in and do more things. In the beginning it really was safety over productivity.

Peter: A certain amount of standard operating procedures for a synthetic chemist, probably includes PPE.

Diondra: Absolutely.

Peter: So, you're halfway there already.

Diondra: Yes.

Peter: Chris, you do a very different kind of scholarship, more archive based. How did you have to wind down? And how did you continue your scholarship?

Chris: There wasn't a sort of abrupt wind down in the same way. There were definitely sort of interruptions in the kinds of routines and habits one sets up to be able to do this kind of work well on a day-to-day basis. I really enjoy working, for example, in Yale's big reading rooms in the library. But workspaces suddenly disappeared. But the work was largely able to continue at home.

I should say the big interruption for me was that I left New Haven, I think, on March 6th, for spring break. I went out to Berkeley, CA to visit my partner, and basically stayed there for much of the pandemic. For me, it was kind of intersection of well we can't go outdoors, there's no library space. That sort of thing, but also, I'm in this different place, and having to, sort of, rearrange how my work continues.

Peter: Yes, those Bay Area counties shut down quite early!

Chris: They did.

Peter: You must have been the last flight in or something.

Chris: Yes! I was heading out to JFK and I just sort of can see on the subway, just sort of, panic in everybody's eyes. And everyone was very agitated at the airport. But, I got there okay. I should say, that I was preparing to go out there for my dissertation fellowship, which would have been at the start of this year. I had done a lot to try to download various online resources, scholarly articles. I was preparing to be removed from my work, from sort of Yale's physical resources already. That was a real stroke of fortune, being able to continue because I had a lot of these things on my computer.

Peter: Let's talk a little bit about reactivation of research. Diondra, when did you get notice that you could actually return to the lab? What was that process like starting back up?

Diondra: While we were in the shut down, similar to Chris, we were also just doing a lot of text-based research. That could still continue, and so we still had meetings maybe three times week. In the meetings, getting closer to May, we started hearing word that we might be able to start reactivating soon. we were officially allowed back in the labs in the first week of June.

Peter: Chris was it the same time schedule for you?

Chris: I still have not been back into Yale's classics library. I hope to get back there in a couple of weeks. I've been removed from a lot of the major physical resources. There were some sort of checkpoints along the way in which the kinds of research I could do changed. Yale has this great program called "scan and deliver," where you can put in a request for chapter of a book that Yale has a physical copy of and it will get sent to you. That was working for a little while but at some point, that service shut down as well.

A real stroke of fortune was that two weeks after that, this initiative with Hathitrust Digital Library took off. They made open access, a huge library of books corresponding to the ones that Yale had physical copies to. And so, at that point you can go on and check it out digitally for an hour and flip through the pages. That really allowed me to continue with a lot of things.

Peter: What about travel? Would you have gone to Italy at some point in all of this? Or maybe there's archives at other universities? Is that all shut down? Are you able to do some travel?

Chris: I have talked about how some short-term research continued. The long-term things are more in jeopardy. I had plans to attend a very specialized training in reading Latin inscriptions in Rome in June. And they offer this training once every two years, so I had waited for it. That has been canceled. That was to set up a future research trip to really sort of go on my own and explore these collections in Italy. So that's still a big question mark and it'll depend on what's safe and what the university and national policies look like. There was a conference I was supposed to attend this month in Austria, actually. And that has been moved online. So, these kinds of international gatherings have really taken a hit.

Peter: Yes, in my life too. Usually I would spend, I don't know somewhere between a third and a half of my time on the road. And since that second week of March or so, I haven't left New Haven. Actually, that's not true, I haven't left the state of Connecticut.

Diondra, what about you? A very big part of scientific culture is sharing ideas at conferences and visiting others at other labs and that sort of thing. Is any of that possible at the moment?

Diondra: That's a good question. Organic chemistry here at Yale has been very, very lucky. We actually had a lot of extra space available in our labs to actually expand. One of the great things is that all the organic chemists are actually working on a pretty normal full-time schedule, but we've just separated it so that instead of having four people working in a lab space we have two people working in a lab space at a time. As far as the amount of people that you can run into in the lab on a day-to-day basis, that hasn't changed. I know in some departments, especially a lot of science departments, it switched to a shift schedule. So, you might not be seeing half of your lab just based on how space works.

However, talking to people in other labs has been very difficult. It's a great thing that with all of these new protocols we can make it so that you don't run into people from other labs, but you do miss out on a lot of good conversations, and a lot of good ideas that can come out of those sorts of interactions.

Peter: You know I'm reminded by what you're saying of something that was written by Tom Steitz. Tom Steitz was a Sterling Professor of Molecular Biophysics and Biochemistry at Yale. He also did a lot of work on the structure of the ribosome and its role in protein synthesis. He won the Nobel Prize in chemistry in 2009 for that work. He wrote his Nobel Prize autobiography in a very compelling way. He talked about how in-person interactions facilitated by Yale's laboratory culture were critical to research excellence, and critical to his own work. And he talked about how you get ideas for research through face-to-face discussions with peers, with mentors, while hanging out at a coffee shop or moving laboratory glassware from workstation to workstation, bench to bench. How do you do that now? Is it all through the magic of Zoom?

Diondra: Yes, more realistically a lot of the conversations that are happening, are happening on Zoom. And we set up sub-group conversations, where people who are not working on similar projects meet once a week to talk about our progress, talk about our problems. In that way we can have other people in the lab take a look at what we're doing, maybe give suggestions. In the past couple months, that has been my main source of project ideas and getting over some of the walls that I'd hit in my research.

Peter: That sounds good. Diondra, I know you're doing something in New Haven too. You share science with younger people in New Haven. Tell us a little bit about that and can you do it during the pandemic?

Diondra: I am a part of Pathways to Science at Yale. Which is a large STEM outreach organization. Over the course of the last couple months we have started "Exploring Science," which is an online outreach program for New Haven and the surrounding areas. We've been running this program for 17 weeks now and we just tabulated the numbers. Over the course of the last 17 weeks, we've been able to reach just under 500 students.

Every week we bring in two graduate students in a STEM field and they talk about the research at a middle school level. The students are able to ask questions and we take them into breakout rooms so we can have more organic conversations with them.

Peter: And you are doing all of this remotely over the internet?

Diondra: Yes, this is all over Zoom. We have 10 year-olds who figured out how to get on Zoom. Sometimes they have their younger siblings there as well, and you can see that sometimes they have their photos on or their videos on. We get to see them in their living rooms enjoying science.

Peter: One of the things that seems to have happened here is people are looking for that kind of interaction and stimulation. A lot of kids are looking for something different to do. I bet they're quite receptive to attending.

Diondra: Yes, they definitely look forward to it every week. And you know we give them little activities to do afterwards as well. They always come back the next week with “Oh, look what I did!” They are so excited.

Peter: I'd like to end our podcast with a question about the future to both of you, Diondra and Chris. I believe what we all went through in the spring and over the summer, will make us more resilient when it comes to challenges that our world will face, that we will face as individuals, in the years ahead. And I think we learned a lot about Yale and we're still learning a lot about Yale. How we approach our work, how we approach the operations of the university, and I think some of that will carry over to more normal times. I don't like the idea of what's the silver lining of a pandemic when people are getting sick and some are dying. But having said that, what is something that you learned or that you learned in your interactions with Yale that you think will help us when we put this crisis behind us? Chris, you want to start?

Chris: I'm thinking about how we build communities, and it's much easier, as we've talked about, to build them when we have people in the room, but how to build them at a distance. I think because of the pandemic, suddenly our departmental community, everybody scaled up, and got Zoom capacity and are learning how to use new tools like Slack and these sorts of things. One thing that's going to enable these communities to continue to exist when people, for non-pandemic reasons, are at a distance. If someone's on a research fellowship abroad, they may still be able to attend the sort of talks that are happening physically in the department. I think there's some positivity there.

The other thing I would point to is going on this semester, where we are teaching via Zoom online, is obviously a big challenge, but I think in some ways although there's a lot of labor involved it's a really healthy impetus to rethink why we teach the way we do. What's actually important? How do we communicate with our students in a space where communication is very difficult? And so, I hope that some of those habits will sort of enter the pedagogies that we bring forward into the future.

Peter: Now that is good to hear. I know the Pourvu Center for Teaching and Learning has done a lot of workshops on how to teach over Zoom. My wife, Marta, is teaching her maternal and child health class at Southern Connecticut State University over Zoom, and she didn't think she would enjoy it. She didn't think she could be effective in that medium, and instead is finding that, actually it works. Her students are being, in many ways, during the first couple of sessions more participatory than ever before, which is a bit of a paradox. Probably there's some lessons about pedagogy that we could learn there.

Diondra, are some things that we can learn, takeaways for the future, that are positive?

Diondra: I want to echo a lot of those same sentiments. Working on a large collaboration where many members are at other institutions, you know some at Berkeley in California, and all over the United States, and even in other places around the world, the conversations that we would have over video chat before this pandemic felt a little bit more artificial because it was in place of what would be in person communication. However, now I see just how effective and how real video communication, video collaborations, can be.

Peter: I know for me, I have always felt that there were certain kinds of meetings that I had to do in person and had to fly to do. I don't have to do that anymore. That saves a bit of wear and tear, saves a bit of money, but maybe most importantly, it reduces my carbon footprint. I don't have to get on a plane every time I need to see someone and could instead use Zoom. I think some of those habits are going to carry forward in a way that benefits all of us.

I want to thank both of you for joining me. This is a busy time in the semester. I very, very much hope that your research flourishes in the year ahead and wish you the very best of luck.

To the friends and members of the Yale community, thank you for joining me for Yale Talk. Until our next conversation, best wishes and take care.

The theme music, “Butterflies and Bees,” is composed by Yale Professor of Music and Director of University Bands Thomas C. Duffy and is performed by the Yale Concert Band.