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Project: Documenting COVID-19: Stony Brook University Experiences

Title: Oral History Interview with Dr. Peter Tonge - Transcript

Narrator: Dr. Peter Tonge (PT)

Interviewer: Clara Tran (CT)

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Summary: Dr. Peter Tonge is a distinguished professor and chair of the Department of Chemistry. In this interview, he relates the challenges that the department faced in continuing to teach chemistry, particularly regarding the use of labs. He also discusses his and colleagues' efforts to create hand sanitizer for university hospital workers, as well as the impact of COVID-19 on students in chemistry.

00:00:02

CT: Today is Thursday, March 4, 2021. This is Clara Tran of Stony Brook University Libraries interviewing Dr. Peter Tonge for the COVID-19: Documenting Stony Brook University Experiences project. Dr. Tonge, thank you for sharing your experiences with us and contributing to this project. Can you tell us to start what your position is here at the university and how long you have been here?

00:00:33

PT: Hi Clara. I'm delighted to join you for this interview. Yes, I've been here about twenty-five years and I'm currently a distinguished professor and chair of the Department of Chemistry and also professor in the Department of Radiology. I am also the director for the Center for Advanced Study of Drug Action which is a center I started to improve the success rate of new drug approvals. I'm also the founding member of the Institute of Chemical Biology in Drug Discovery, and with another faculty member I started the NIH [National Institutes of Health]-funded Chemical Biology Training Program in 2009. Lastly, I'm also the founder of a startup company called Chronus Pharmaceuticals.

00:01:18

CT: Thanks. What groups or areas of campus are you most involved with?

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PT: So I've been—ever since I came, really—I've been involved in initiatives to strengthen ties between chemistry and other departments on campus as well as with neighboring institutions: Brookhaven National Lab and Cold Spring Harbor Laboratory. So the Institute for Chemical Biology and Drug Discovery and the Chemical Biology Training Program are both initiatives I was involved in starting to grow the chemical biology community of Stony Brook and by connecting faculty in chemistry with those in the life sciences and the School of Medicine. In particular, I have really strongly supported the Positron Emission Tomography Imaging Program at Stony Brook which links chemistry with the School of Medicine.

00:02:11

CT: Do you remember when you first heard about the pandemic?

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PT: Yeah, that's a good question. So I—you know, I guess I was aware of infections spreading in January and maybe early February last year. But I still planned to go to a conference in Northern Italy at the beginning of March. And in fact, at the end of February I was on my way to Italy. I'd stopped off in the UK [United Kingdom] to catch another flight, and during my flight across the Atlantic the organizers of the conference cancelled the conference. And so I simply turned around and came back to the United States. And so that was at the beginning of March. And then, of course, the impact of the pandemic on Stony Brook quickly accelerated.

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CT: So what challenges did you face when the pandemic started?

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PT: Yeah, it's interesting. I was looking back at my notes. So everything happened really quickly. March seventh we were told to prepare for online instruction. In fact, March seventh is the last time I had an in-person faculty meeting. March tenth we discussed putting all our classes online which was a big challenge because we teach—chemistry teaches more than five thousand students a semester.

And then March fifteenth, based on instructions from Governor Cuomo, we closed our research labs, and all faculty, staff, and students started working remotely. In addition, they closed the dorms.

Chemistry also implemented a system for regular check-ins with faculty, staff, and students to make sure everybody was okay, and that was a big task because we have more—almost three

hundred people in chemistry. And then, on March thirtieth, the semester began again after an extended spring break, and, you know, whilst the transition to online instruction went pretty smoothly, it was a huge problem for our lab classes. So in one case, we purchased GoPro cameras so we could record experiments performed by teaching experiments in the lab.

00:04:22

CT: So you're talking about labs, right? What was the impact of the lab closings on the chemistry undergraduate and grad students?

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PT: Yeah, that's a—I mean, it had a huge impact, right? I mean, all instruction was interrupted at some level or another, but the biggest impact, of course, was on the courses that were—where we needed in-person instruction. So the laboratory courses. And so we had to quickly put everything online, and, in addition, we had to empty our labs. So no grad students could continue doing their research.

In the summer of 2020, we continued teaching everything online, including our Organic Chemistry lab which we offered in a virtual format. And we also offered our General Chemistry labs remotely using kits purchased by the students. In the summer of 2020, we also offered our General Chemistry lecture—our first-semester General Chemistry lecture, Chem 131—in both the first and second summer sessions to try and capture high school students who might be interested in a college course but couldn't go to chem.

Then for the fall of 2020, all our labs were back in person, apart from the General Chemistry lab which has fifteen hundred students, and that was still being offered remotely. And because that lab was remote, we were able to put some of the smaller labs—such as the Solution Chemistry lab—in the General Chemistry lab space so the students could be socially distanced. In addition, for our Software Organic Chemistry Lab 327, we had only 50 percent of the students in lab at any one time. So that was the undergrads.

For the graduate students, over last summer we gradually brought students back into the labs. There was a committee that approved proposals for lab occupancy following social distancing and personal protection equipment guidelines laid down by Rich Reeder, who's the Vice President for Research, and his research restart committee. And so over the course of the summer and into the fall, we got most of our graduate students and postdocs back but very few undergrads and no high school students. And normally we have a high percentage of high school students in the summer.

And I would just like to say, you know, in this process, the chemistry faculty and staff were amazing, and they worked incredibly hard to make this work—to adapt very quickly to this evolving situation. And we were immensely helped by a number of different organizations on

campus. In the College of Arts and Sciences, Dean Nicole Sampson, and Patricia Aceves [in] the Center for Excellence in Learning and Teaching.

And then you talk about impact, you know, I—we talked about the impact on instruction and learning. I think my concern is long-term impact on mental health. And so we've had students who've been isolated in dorm rooms without too much personal contact with other people. That certainly happened at the beginning of the pandemic. And so I don't know what's going to surface in the future but this is—I think we're seeing what at the moment is the tip of the iceberg.

00:07:49

CT: Yeah, I totally agree. The mental health is a very important issue for all the students because of the closure of that type. Could you please share with us the story of making the hand sanitizer, and what was the hardest part about making the hand sanitizer?

00:08:10

PT: Yes, sure. So, you know, as we were busy adapting to teaching remotely and getting students out of labs, of course our colleagues in the School of Medicine in the hospital were doing a phenomenal job looking after this huge influx of people who were infected with SARS-CoV-2. And they were running short of personal protective equipment and they were running—and including hand sanitizer.

And so I got a call at 9 a.m. on March twenty-fourth from Nicole Sampson, the Dean of the College of Arts and Sciences, who relayed a message from Larry Zicarese, the Assistant Chief of Police and Director of the Emergency—Office of Emergency Management—that the hospital needed hand sanitizer. So that was at nine o'clock in the morning. I immediately sent a poll around to my faculty to find the ingredients that we needed to make the World Health Organization hand sanitizer. This is the sanitizer we decided to make which is comprised of ethanol—or isopropyl alcohol—glycerol, hydrogen peroxide, and distilled water.

And so with this, I told the faculty what we needed and within two hours, I had a list of the location of all these ingredients in the department. Then, together with two senior research people in the department, Dr. Shabnam Davoodi and Xinxin Yang, by five o'clock in the evening we had made—so within eight hours—we had made seventeen gallons of hand sanitizer using the General Chemistry teaching labs because they were appropriate, large spaces for handling large volumes of alcohol. And so, so far we've made—I think, in the end, we made about two hundred and fifty gallons. And, interestingly, the biggest problem we had was finding the right size containers to distribute the hand sanitizer.

We could make the sanitizer in these big five gallon bottles, but that's not very easy for putting on your hands, and so smaller bottles was much better. And in fact, Colby Rowe, who works in the Stony Brook Trauma Center, who is involved in distributing PPE [personal protective

equipment] across campus, he worked with Three Village Dads to get spray bottles that we filled with hand sanitizer. So that was the—actually, in the end, we didn't have problems getting ethanol or glycerol or hydrogen peroxide. The main problem was getting the bottles to put the hand sanitizer in.

And just to put things into perspective, one of my colleagues calculated that the amount of ethanol that we used is equivalent to the alcohol content of fifty thousand twelve-ounce cans of beer. So it's always good to keep things in perspective.

00:11:04

CT: Just some follow-up questions: and why did you decide to use the World Health Organization hand sanitizer recipe?

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PT: That's a good question. So this was a—this is a recipe that the World Health Organization has come up with that's easy to make in situations where it—with where it might be normally difficult to procure complex ingredients and where there are no labs. In addition, the FDA [Food and Drug Administration] gave permission for the production of alcohol-based hand sanitizer by non-registered facilities, like our chemistry department, because of the public health emergency. And so that's why—because the ingredients were easy to get, it was easy to make, and also because the FDA had given permission to make it.

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CT: And then another question. I would imagine it would be very complicated to handle the reagents, too, right? Or the—

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PT: Yeah, we had a production line going in the General Chemistry labs. The General Chemistry labs hold thirty students, and so they're big open spaces and so they were appropriate for handling these large volumes of reagents. But in the end, we had a good system down—or Shabnam and Xinxin had a good system down. I shouldn't say "we." They did. They made it. I made labels for the hand sanitizer. I made these nice labels, but they did a great job. They had big beakers and measuring cylinders, and it worked out very well in the end.

And then Colby and other people came across and picked it up and took it to the Wang Center which they were using as a distribution site for the PPE. And I should also add, talking of PPE, there are—like many laboratories across campus, we also donated all the masks, lab coats, goggles, [and] shields that we had as well.

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CT: And earlier you mentioned—you have to source all these ingredients, right?

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PT: Uh huh.

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CT: How did your team source the material so quickly from the other lab?

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PT: Well, I mean, most people have a—or should have—chemical inventory of their labs so they know what they've got and where it is. And so they just put it on an Excel spreadsheet, and then I got a cart, and with Shabnam and Xinxin we went through the whole building going to each person's lab finding the reagents and bringing it down to the Gen Chem labs. We also had some donations from our colleagues in biochemistry and also in pharmacology. But in the end, we were able to order more reagents from commercial sources. It just took a while to come.

00:14:05

CT: So how was the distribution of the hand sanitizer go?

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PT: I think it was handled by the university, by the Office of Emergency Management. So they distributed it to the hospital.

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CT: Oh, I see.

00:14:19

PT: We heard on the grapevine that our hand sanitizer smelled better than other people's hand sanitizer that was being used at the same time.

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CT: (laughing) I wish I have one sample.

00:14:30

PT: We've still got some.

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CT: Talking about that, so, yeah, the making of the hand sanitizer is an extraordinary achievement under your leadership during the COVID crisis. So is the hand sanitizer still being produced now?

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PT: No. I think, in the end, the need decreased and also commercial suppliers caught up with the demand. We've been asked if we could make it again in the future if we had to. Certainly we could, but we haven't had to since last summer. And I think, you know, I just had a comment. We were extremely concerned about our colleagues in the hospital, the frontline health workers dealing with people infected with COVID. And so, this was a small thing that we could do to help them.

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CT: Thank you. And now, looking forward when students come back on campus this fall—so how will you bring students back to the labs?

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PT: So what can I tell you? This coming summer is going to be the same as the spring. So our labs are in person, socially distanced. We have, except for the General Chemistry lab—so the General Chemistry labs, we have something like thirteen hundred to fifteen hundred students. So it's a huge lab. And those labs have been taught remotely since the shutdown, and now we have a faculty member who's actually making kits for students to use remotely.

In the fall, the university is saying that we will be back in person with full occupancy, and so we're planning for that. We're planning to have the labs open as normal. But, you know, we don't know what Governor Cuomo might decide. We don't know what might happen in terms of infections in the next few months, and so if we have to teach some of the labs remotely, we will do so. I think the remote lab instruction with kits is fine. It's not as good as having teaching assistants or a faculty member walking around the lab correcting experimental technique. So that's what's missing from this experience.

And obviously, this is the best we can do because of the pandemic. But we really, really, really want to get students back in labs so we can show them how they should be holding a pipette, how they should be dispensing reagents, how they should be making measurements.

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CT: Yeah, that's a great plan. And one more thing I would like to ask you—how was the impact on being online?

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PT: That's a good question. I think—so I think this is quite interesting. Everybody has now got used to the Zoom environment. And, in some ways, the Zoom environment is very good because it's inclusive. It's very easy for people to join meetings. They can join from wherever they are. You know, they're not impacted. So when we had faculty meetings, some faculty couldn't come because they were—they had to be out of the building for different reasons. Maybe childcare, maybe other things they had to deal with. So I think that the Zoom environment is more inclusive.

The problem, of course, is that we have lost social interaction. And thinking about the impact on our students, our students aren't going to conferences. And I, you know, I give lots of talks. I give talks online. I've given lots of talks at conferences. I've been to lots of conferences, but our students haven't been to lots of conferences. And so they're missing out on that fantastic opportunity to meet people at the same stage of their career who are also interested in science.

And so one of the things I'm doing is working with the American Chemical Society. I'm an associate editor for a journal, *ACS Infectious Diseases*. We're going to start having online pop up meetings organized and given by students to try and improve the connection between students who at the moment are unable to travel to conferences. Obviously, we hope this will change later in the year as people get vaccinated and conference sites open up again. But I think we have—there's going to be a whole generation of students who have had this atypical experience, and so anything we can do to help them, I think, will be good.

00:19:23

CT: That's wonderful. Dr. Tonge, do you still have any other experiences to—that you want to share with us?

00:19:37

PT: I think I've covered most of the—you know, we're a year in, right? We're a year since this started, and I look back and I think it's amazing what we've accomplished as a department and as a university. I think if you told me what we would have to do and the period of time we've had to do it in, I'd have not thought it would be possible. But everybody—nobody complained about what we had to do. Everybody just met the challenge head on and did the best they could. It hasn't been perfect, of course. And there are things that we've learned, and we're now doing better. But I'm very proud of my faculty and staff and the students for adapting to this altered existence. I sincerely hope that we can go back to proper in-person university experience as soon as possible.

00:20:33

CT: Yes, hopefully, in some way we'll be in kind of normalcy again in the coming months. Thank you again, Dr.Tonge, for sharing the story of making the hand sanitizer and also your experiences during the pandemic. We really appreciate your taking part in the Stony Brook University Experiences project. Thanks again.

00:20:59

PT: You're most welcome, Clara. I'm delighted to talk to you.

00:21:02

CT: Thanks.

[end of interview]