

April14Experimenting2023PodcastEP.mp3

Lisa Cantrell You're listening to "Capital Storytelling Live." I'm your host, Lisa Cantrell. The recording you're about to hear came from an event held in April of 2023 at the Verge Center for the Arts in Sacramento, California. The event was a collaboration between Capital Storytelling and Story Collider, and it was sponsored by Capital Public Radio. All of the stories for this event centered on the theme experimenting. And each showed some aspect of science intersecting with our lives. Now, Story Collider is a nonprofit organization. They have a mission of showing that science is a vibrant part of our lives through the art of storytelling. They host science storytelling events all over the country, and you can listen to more of their stories from their events at StoryCollider.org. And as you know, Capital Storytelling is a nonprofit based in Sacramento, California, and our mission is to empower people to tell their true stories while fostering connection, empathy and compassion. On this recording, you'll hear from a neuroscientist, a llama wrangler, a former mad scientist, a nurse and an entomologist. Up first, we have that llama wrangler, Leslie Allen. Leslie is an avid wilderness enthusiast. She earned degrees in Zoology and English from the University of California, Davis, and she's traveled the world as a wildlife researcher. Three kids later, she settled in Northern California and her career shifted to what she calls a llama trekker, allowing the whole family to continue wilderness adventuring. After years of working in the wilderness, Leslie entered the urban jungle to become a science teacher, sharing her love of the natural world with future generations. Now retired, she continues to celebrate nature through nonprofit conservation, work and art. [Applause] The title of her story is "Slight Problama."

Leslie Allen So in the 1980s and 1990s, I was a commercial llama packer in Shasta Trinity National Forest. I led catered wilderness vacations where the llamas carried the load. I had 23 head of llama that I kept on a small farm in West Davis, and because I was the only llama packer in Northern California, I cornered the market [Laughter]. I was lucky enough to host guests from all over the United States. Now, most people think of llamas, they think of long-necked wooly animals that spit. I've heard it. It's a bum rap, though. Llamas spit for the same reasons that dogs growl - to prevent a fight. So if you had a dog that growled at people, you wouldn't consider it very well trained. And the same is true for llamas. If you have a llama that spits at people, that is not a well-trained llama. However, if you're a llama, spitting can come in kind of handy communicating to other llamas. For instance, female llamas are pregnant 11 months out of the year. I know [Laughter]. They drop their baby, called a cria, and three weeks later they breed back. A female llama's status in the herd is dependent on her ability to be pregnant. Now this makes sense biologically for a prey species like llamas. But female llamas have a very specific, let's see, way they communicate whether they're pregnant or not to the males who are obviously quite interested. A female llama who's already pregnant, is not interested in breeding. And if an amorous male comes up, she tilts her chin in the air, puts her ears down the back of her neck in a warning that she's going to spit. If he doesn't heed the warning, she does indeed spit. Kind of a mood killer. A female llama, however, who is open, not pregnant, and therefore needs to be bred to maintain her status will do quite the opposite. She turns her back to the male, swishes her deer-like tail, flirtatiously inviting his attentions [Laughter].

Leslie Allen Llamas communicate in more ways than just body language, though. They use lots of different sounds, but they have a very specific sound they use for breeding. The sound is made only by the males and it's called orgling. And it sounds like this: mmm nom nom nom [Leslie imitating llama orgling] [Laughter].

Leslie Allen Breeding for llamas is a seemingly intimate affair. They breed lying down with the male behind and on top of the female - picture frogs. But their necks entwine while they're breeding. The breeding lasts for 20 to 30 minutes and the male orgles the entire time [Laughter]. So my business was primarily a trekking and training business. But I did keep a small breeding herd, and I had two intact male llamas, known as studs in the llama world, that I used for breeding purposes. Their names were Thunder and Teton. Both of them were really well trained llamas, docile. In fact, my young kids showed them at the California State Fair every year. They did birthday party rides regularly. That's how they paid for their hay. And every week at the farmers market in downtown Davis, they gave rides to kids around the park. But I came home one day and Thunder and Teton were fighting. They were in separate pastures, but they shared a common fence line. They were reared up on their hind legs, striking with their front legs at each other over the top of the fence line. And as I hurried to intervene, Teton came down from his elevated position and landed on a fence post. And the post went right into his chest, cutting open his chest muscles, obviously necessitating a trip to the vet. Now, early in the llama industry, veterinarians knew very little about llamas in general, let alone their medical care and treatment. In fact, as distant relatives of camels, most agencies at the time classified llamas as exotic species.

Leslie Allen Fortunately for us, UC Davis' Veterinary Medical Teaching Hospital, our country's premier exotics vet hospital, was right down the road. Veterinarians there experimented with latest treatments, so I knew Teton would get cutting edge, cutting edge care. The exotics treatment room at the Vet Medical Teaching hospital is a cavernous cement building. Picture a Costco, but instead of tables and shelves with chairs and paddleboards and food and coffee makers for sale, this facility has 20 foot doorways for giraffes to walk through. It has giant rotating metal tables to strap elephants to for X-rays and surgery. It has treadmills for horses built into the ground so that veterinarians can stand and watch horses run from over the top of them. So into this great facility walked Teton and I. And two young women, vet students, are given our case. They're professional. They've got their sky blue scrubs on. Their hair is pulled back in ponytails. They carry a huge traveling medical kit with all the supplies they'll need for this surgery. They asked a few questions and then they expressed a concern. They were worried about Teton, kicking them during the procedure. I understood their concern as llamas can kick 180 degrees around both sides of their body and their kick is strong enough to break human bones. However, Teton is so well-trained and so docile he works with kids. I assured them they would only need a topical anesthetic. After all, he's the world's friendliest llama. But still, they insisted on acepromazine.

Leslie Allen Now, acepromazine is an injectable sedative used in horses and large livestock. It makes them feel drunk, so they stand with all four legs spread apart in order not to fall down. And when they're standing that way, splayed like that, it's very difficult to kick. So we waited while the acepromazine took effect, and then the ladies got to work. In front of Teton on the floor they laid out the medical kit and then squatting side by side, they began to swivel back and forth between Teton and their supplies. They grabbed shears to trim his wool. They grabbed irrigation fluid to flush the wound. They grabbed swabs to dry the wound. They grabbed anesthetic wipes to disinfect the wound. And Teton started orgling, [Laughter] quietly at first. But then, louder [Leslie imitating llama orgling] and louder [Leslie imitating llama orgling]. The young ladies looked up at me questioningly and I said, 'Don't worry, it's just breeding behavior.' They got back to work, each time, swiveling between Teton and the medical kit. Their ponytails swishing [Laughter]. I looked around the treatment room for the female llama that was exciting him so much. None. In fact, there were no other animals in the entire treatment auditorium. But Teton's, energetic

orgling, which was echoing in this cavernous building, was beginning to attract a human crowd. Staff from the front of the building came in curious about the novel new sounds. Vet students from other buildings came in to observe. A cleaning crew, put down their buckets and walked in for a break to watch. A tour of prospective students filed in. Now, this audience was very respectful. There was, after all, a surgery going on and Teton's ogling was kind of intimidating. And so they stayed on the far wall of the auditorium. And when that wall was full to capacity of onlookers. Teton made his move. All 450 pounds of him lunged forward. The vet student who was facing him scurried like a crab backwards across the floor, out of the way. But the other vet student who was reaching into the medical kit had her back to him. And like a huge wooly frog, he leaped on to her, pinned her to the ground and began to breed her [Laughter]. Mortified, I yanked on his lead rope to get him off, to no avail. I grabbed both sides of his halter and I pulled his head all the way back towards his tail. His neck made a giant arch, but his body stayed right where it was. And that hapless vet student lay spread eagle [Laughter] like some kind of cartoon roadkill being bred by the world's friendliest llama. And he continued to sing passionately [Leslie imitating llama orgling]. I looked to the far wall of onlookers for a little assistance, but the once curious crowd was now spellbound, mute and immobile. Desperate, I grabbed his halter with one hand and a fistful of his testicles with the other, and I squeezed hard. Apparently, that was enough to help him reconsider his choices [Laughter] and he stood up. I quickly tied him to a nearby post and ran back to the vet student who was slowly picking herself up off the ground, dusting herself off. And she assured me she was actually just fine. Rather sheepishly, the other vet student who had run to the wall of onlookers came back across the room. And while the three of us discussed how to safely finish the surgery, the crowd of onlookers slowly dispersed, whispering no doubt about modern techniques and llama medicine. In the end, we put the Teton in a chute. We cross tied him, so that he couldn't move sideways, backwards or forwards. And the two ladies finished sewing him up by reaching in from the side of him rather than sitting in front of him.

Leslie Allen Not long after this event, I was relating it to Dr. Murray Fowler, UC Davis is a world renowned exotics veterinarian. He laughed and he said, 'Yeah, last week I saw a male llama under the influence of acepromazine breed a hay bale.' So, I have two pieces of advice for you should you find yourself around llamas. One, make sure they're not under the influence of acepromazine and two, if you wear your hair in a ponytail, do not swish it, invitingly, flirtatiously, in front of the world's friendliest llama, lest he think it's an invitation to breed. Thank you [Applause].

Lisa Cantrell That was Leslie Allen on stage at Verge Center for the Arts. And the next storyteller of the evening was Alejandro Merchan. Alejandro is an entomologist that hails from Colombia, and he has lived in Sacramento since 2019, working for the state. He came to the U.S. in 2007 to pursue his doctorate degree at North Carolina State University and after many twists and turns, he says he graduated in 2016. Alejandro likes to spend time with his cats, Gaby and Haruki. He enjoys traveling and making crossword puzzles. The title of his story is "Muddy Feelings."

Alejandro Merchan Good evening, everybody. Ah, wow, it's a lot of people [Laughter]. I'm going to tell the story. My girlfriend and I - Paola was her name - had been together for about two years when we decided to go study mangrove forest in Colombia. If you never, if you didn't know what a mangrove forest is, imagine this luscious, green, tropical forest right where the river meets the ocean, with huge trees exposing their roots. Then flood it, turn up the heat, fill it up with biting bugs [Laughter] it's really magical [Laughter]. We had been discussing this idea of spending some summer together doing research, kind of thinking of a possible future for us in science after school, at the school. We're both

studying biology in college. Now, I'd always been intrigued with mangroves. That's from my childhood. So I kind of was kind of like the instigator for this project. and for this trip.

Alejandro Merchan Sanquianga was the park that we chose for this project. And it's a natural park in the southwest part of Colombia. It's a remote park, no roads, away from all major ports, and the only way to get there is through a boat. And we got into this boat for an overnight trip that will bring us to this place some time in the, in the morning. These boats are the only means of transportation for people in the area. So they go there with all kind of goods. And people were boarding with live chickens, with gasoline, diapers, everything you can imagine. It was very lively. People would just sit at the deck sometimes singing with the guitars. And we just got there, found a spot under the tube and got ready for the night. We actually managed to sleep. And at some point around, I don't know, four in the morning, complete darkness. I hear 'People for Sanquianga,' someone shouting. And I opened my eyes and I saw this flashlight illuminating people's faces. I raised my hand, we got up, and some guy came and introduced himself as the park ranger that was picking us up. He asked us about our bags. We show him what we had. He grabbed them all, walked to the side of the boat and started like, throwing them. We just went there and we looked and there was another motorboat in the water with another guy just getting our bags. We, once they had it all in the, on the boat, the guy just told us, 'Alright, go in.' And I was like 'How?' We were still moving. I mean, the boats were still moving. We were in open ocean. It was complete darkness. And there was just a rope ladder. Swallowing our fear, we just started going down. The water was completely dark. It looked like a void that will basically swallow you if you fell in. It was terrifying. But we made it. Made it to the boat. We made it to the park. Still darkness.

Alejandro Merchan They showed us to a room and we slept for a few hours. We woke up in this beautiful little town. The headquarters of the park were in this grassy meadow with about 20 or 30 houses right next to the beach, surrounded by mangrove forests. It was beautiful. We spent the next few days exploring this little quiet paradise, and that was basically what we wanted, right. Some nice summer by the beach doing research. But then after a few days exploring, we finally made it to the front of a mangrove forest. We just stood there with this wall of aerial roots [Laughter] and I told her, I told Paola, like, 'Yeah, we need to get in.' How? We tried. We got in and we were not really prepared at that point. So we just went in for like 5 minutes, tried. And those 5 minutes were already pretty terrible. She hated the experience and asked if we could do something else. But after all the months that we spent together crafting this project, I felt really disappointed. I was like, and she agreed and we decided to move on.

Alejandro Merchan And the first day of real work came, we jump in a boat with a ranger and start going through meandering channels. The mangrove trees were just towering above us, covering the sun. Their roots will come up through the water. And the tide was kind of ebbing, and we could see like, mud on the edge of the channel. Eventually, the guide stopped at a drop off point. He told us that he could only go back once the water was up again. So we had like about 6 to 8 hours to do our work. And I told him like six hour was probably okay. We jump off the boat and immediately sunk in the mud up to our knees. The guy, the ranger, was really amused as we pull out, and we try to like, pull out of the mud to the trees. We finally, we made it to the trees. The guy left and it was just the two of us in the middle of nowhere in a mangrove forest, surrounded by mud, trees and water. We were novices in this mangrove ecology thing, but we knew immediately that the sampling was going to be really hard. The idea that we had in our head was to sample every 50 meters and the way we work, it was we were basically defining a sampling point. Paola will stay there, will measure some trees. I will take a string, which was 50 meters

long, and try to walk in this mass of roots and mud on a rather straight line, and then establish the next sample point. Once there, I will call her, get out the string. She will come and we will measure the distance of the trees, four trees, to the sampling point. Height, the width, the species and write all that down in a field note in a notebook and move to the next one. So she will then stand in the sampling point holding the string and I will move another 50 meters.

Alejandro Merchan It was terrible [Laughter] just slogging through the mud, trying to get through the tree roots. But the worst part of everything were the bugs. It was just a cloud of these small biting flies that will get into your eyes, will get into your ears, will bite any exposed skin that you had. It was the worst, really. We were both in a very bad mood [Laughter]. We're sniping at each other. We're just screaming. And at some point, she said, like, 'We, we need to get out.' And I was like, 'Where?' Like, they were picking us up. There was really nowhere else to go. And I didn't want to just sit there waiting for the boat for hours, being basically mosquito bait. And I told her that and she agreed. And kind of like we just kept sampling. After about, I'll say, like 4 hours, we decided to rest. We stopped. We sat in, on a tree. We had some snacks, got our snacks, water, and just kind of calm ourselves down. We have done about a dozen sampling points. And once we were there, we were in a nice mangrove forest. And then we just kind of, like, started looking around at other things, not just measuring trees. We're looking at snails that will cover all the roots. We look at other animals that were like crawling around, insects. I'm an entomologist. I love bugs. We're looking at insects. So I kind of started moving around with her, looking at cool things until we decided it was time to go back. When that happened, I looked around and all I see was trees. There were no sun. There were no horizon, and I had no idea what direction to go.

Alejandro Merchan She just saw me looking around and she told me, she asked me what happened, and I was like, 'Yeah, I don't know where we're going next.' She thought I was messing with her because we'd been to the field together in the past and she knew like, I have a good sense of direction, but I assure her that no, I wasn't messing. Like, I really had no idea where to go. And she just lost it. She just started screaming and crying really hard, and she was like sobbing and like this mix of anger and sobbing. She just told me, 'We're just here because of your stupid project. I wanted to do something nice.' And she was right. I mean, I was, I, I came to this mangrove forest out of, like, fondness of childhood memory, even though I never really had been walking through a childhood, to a mangrove forest, ever in my life before [Laughter]. So I took it to the chin, sat down. She just kept sobbing there, hurt on her root [Laughter]. And I just took out the notebook. Yes. To do something, to look at the data, see what we had. I had taken directions with my compass of the way I was trying to go, but I mean, they were all different because I couldn't keep a straight line and I have some blanks, but I just got a pencil, got my compass, and kind of started like drawing the way. And when I finish, even with a few blanks, I knew more or less where we were, at least where we had to go, because I kept to, I always tried to be like, perpendicular to the water so I knew more or less the direction.

Alejandro Merchan And I told her, like, 'Hey, I think I figured it out.' I explained it to her. She wasn't really paying attention. She just told me, 'Are you sure?' And I was like, 'Yes, I swear.' So we started going back. The mud, the roots, everything was still there. The mosquitoes obviously were still there, but at least we were not dealing with like strings and me measuring trees and sampling points. So we just kept going and we made it to the starting point. We sat there for a while and we heard the boat coming in. We jumped in, the ranger asked us how it went. And she just said, 'It was horrible!' And the guy just made a startled face and we just rode back in silence. After a few hours back in the

headquarters, we had a shower, we had rested and we were making dinner and I came to her and I said, 'Sorry.' I was like, 'Yeah, I'm sorry. I wanted to do the mangrove project. We can do something else if you like.' And she just looked at me and her eyes water again and she just said like, 'No, no, it's fine. It's just that those stupid bugs almost killed me. Look at my face!' And as I kiss her bug-bitten cheek [Laughter], I told her. 'Yeah, yeah. But, I mean, we made it out. We just need to get you ready for life in the Pacific.' Thank you [Applause].

Lisa Cantrell That was Alejandro Merchan sharing his story onstage at an event in April of 2023 where we partnered with Story Collider. The next storyteller is Tammy Spence. Tammy is a neuroscientist and a self-proclaimed professional worrywart. She earned a doctorate from Wake Forest University in the Science of Worry, and she says she would do almost anything in the name of science and education, including authorizing an entire class of medical students to observe an invasive procedure on herself that she herself could not bear to witness. She's been called the brain lady for bringing buckets of preserved human brains to elementary schools as a part of brain awareness campaign. She loves illuminating young minds, one brain at a time. As a proud aunt, she relishes the fact that her nephew considers Mr. Axon, his plush neuron toy, to be worthy of show and tell at his preschool. The title of Tammy's story is "Clinical Trials and Goofy Smiles."

Tammy Spence I'm an anxious person. Always have been. And since I couldn't beat anxiety, I decided to try to understand it. I knew the answer had to be somewhere in the brain, so I enrolled in a Ph.D. program in neuroscience and committed to spending most of my twenties in a laboratory, experimenting. First on rodent brain slices containing the amygdala, which is a region linked to the generation of fear and anxiety. And then I worked my way up to experimenting on anxious college students. I was so ready for academia. I even supported the pervasive attitude of publish or perish, meaning that your success is measured entirely by the number of manuscripts that you publish each year. After all, this is kind of like the last and most crucial part of the scientific method. If you do great work but no one knows about it, then what's the point? To encourage academic success, the Ph.D. program required students to publish at least one lead author manuscript in order to graduate. So that became my primary goal. But halfway through my first semester, something in me shifted, and I felt this overpowering desire for a partner, a best friend, someone who would always be there for me. And I knew that I was finally ready for a dog [Laughter].

Tammy Spence So I bought a small house with a big backyard and drove to Carolina wine country to meet a free border collie German Shepherd puppy. I gently picked up this black and tan fluff ball and held him in the palm of my hands, and I brought him up to my eye level, and when our gazes met, I felt a wave of calmness wash over me. I loved him instantly, and I knew that he would be my baby. I named him Java Bear. Java Bear had such an expressive face. Picture these distinguished tan eyebrows hovering above big, curious brown eyes, which he clearly inherited from me as his mom [Laughter], tiny ears that never grew with the rest of his body, black lips curled upwards in a perpetual smile and a large floppy tongue hanging out of a dry, open mouth. As a teenager, he, as his undercoat came in, he shed so much, but his fur was soft, thick and magnetic, and it would clump together to form Java Bear tumbleweeds that gently rolled across the floors of my hardwood, or the hardwood floors of my house. Java was great for my well-being. He encouraged me to be more active, begging for hikes in the forest, long walks and short jogs. And as a neuroscientist in training, I understood the positive impact of exercise on mental health. But I attributed my newfound calmness entirely to Java Bear's happy go lucky attitude. He was wearing off on me. But my anxiety was not relieved for long.

Tammy Spence One day, as I was scratching Java's head, I noticed a firm mass behind his right ear. I squeezed it and he didn't respond. So I panicked and called the vet because Java was clearly growing a third ear. When I took him to the vet, she politely listened to my concerns and then asked if I wanted to watch as she treated Java's third ear. She then pulled out a razor and shaved it off. I was horrified, as she laughed, saying, 'Relax, this is only a patch of matted fur.' I had never seen matted fur before, but I breathe a sigh of relief and apologized for overreacting. Offering an explanation like, 'Oh, sorry, first time dog mom,' In case that wasn't totally obvious. A few months later, I took Java for a jog, like usual. Near the end, we bumped into each other, which wasn't uncommon given our shared clumsiness. And I didn't think anything of it until the next morning when Jabba woke up with a limp. Over the course of the day, the limp did not subside. So naturally I took him to the vet. They examined him and gave him a prescription for doggie Advil. And it worked. So we went on a road trip for the holidays. Once Java finished his medication, the limp returned. I massaged his muscles and traced the outline of his bones, trying to figure out where he was hurting. When I got to his back left foot, it felt sort of warm. I squeezed it and he did not respond. I figured that was a good thing, considering what had happened with his third ear. So I waited until we were back in town before taking him to the vet. I dropped him off in the morning and went to the lab because I had to run an experiment.

Tammy Spence When I called to check in on Java halfway through the day, they asked me if I was sitting down. The vet proceeded to utter a bunch of technical terms about lesions and blood, and I temporarily lost my hearing only to regain it for the concluding remarks. 'This is really surprising given that Java is a mixed breed puppy, and in all of my years of practicing medicine, I haven't seen this before. Ms. Spence. What I'm trying to say is that cancer doesn't read textbooks.' They ran a few more tests to confirm that Java Bear had developed osteosarcoma or bone cancer in a toe on his back left leg. Java Bear was barely two years old and the cancer was so far away from the big joints where it typically grows, so we discussed his treatment options with true optimism. Bone cancer is aggressive, so the recommended course of action was limb amputation, followed by chemotherapy. And the vet told me about a clinical trial that was about to launch at North Carolina State University, which is one of the best veterinary schools in the United States. A clinical trial is a type of research study where participants are broken into groups, a control group which typically receives no treatment or a standard proven treatment, and an experimental group which may receive an experimental treatment. At that time, I was actually gearing up to start my own clinical trial on anxious college students, so I jumped at the opportunity to enroll Java in the study. I felt that it was part of my duty, both as a dog mom and a scientist. Two days after Java's cancer diagnosis, his back leg was removed. One week later, he became the first patient enrolled in that study at NC State. And every three weeks I drove 2 hours from Winston-Salem to Raleigh, North Carolina, for Java's chemotherapy. And while he was receiving treatment, I set up shop in a cafe on campus and worked on my dissertation, reading, writing, thinking all about anxiety. And the more I read, the more worried I became. I even developed meta worry, which is worrying about worry. That was a brutal time. Java had all the side effects of chemo, nausea, vomiting and a lot of diarrhea. But he never stopped smiling. 50 weeks later, he successfully completed the trial. I remember asking the vet if this meant that he was cured. They told me that we would continue to monitor him for another year, and I counted the days until Java's second ampu-versary and threw him a party to celebrate how far he'd come.

Tammy Spence Shortly after that celebration, Java Bear woke me up by jumping in bed with me. I remember tenderly stroking his face when I felt a lump on his upper right lip. It

was warm, almost hot to touch, and I felt a knot develop in the pit of my stomach because I knew what this meant. I took him to the vet and they confirmed that his cancer had spread to his jaw. And at that moment I accepted the inevitable that my baby boy was dying and there was nothing else I could do to save him. I was not going to remove his face. The timing was awful. I was in the middle of the clinical trial of my own, which was the biggest and most important study of my Ph.D. and several participants had already dropped out of my study, and I was worried that if I didn't have enough people in my experimental condition, I wouldn't be able to publish my findings. My anxiety was at an all time high. I felt like my research was a dumpster fire. I was losing my son and I felt helpless. I knew that Java was getting ready to cross the Rainbow Bridge. So I hugged him tight, ordered all of his favorite treats, and took him to a garden for a picnic.

Tammy Spence The next day he passed and I gathered my composure to the best of my ability because I had to go into the lab and continue my research. I had a participant scheduled. We were nearing the end of the semester and this is one of the last people to participate in my clinical trial. This participant was a young man and he was critical to my study. And about three quarters of the way through the session, he asked to stop the experiment and it is his right to do that. So I stopped. And I disconnected him from the equipment. And as I was letting him go, I asked why he stopped. I wanted to make sure he was okay. He shrugged his shoulders and said, 'I don't know. I want to go to the beach.' I wanted to kill him [Laughter]. I was so furious. It took every ounce of professionalism that I had to swallow my rage. And once he left, I fell to the floor and just screamed. Somehow I finished that study and managed to squeeze out one lead author publication, unrelated to the clinical trial, to meet those Ph.D. requirements. During my time in grad school, I learned a lot about research, commitment and priorities, and most of what I learned came from my time as a dog mom to Java Bear. For this reason, I dedicated my dissertation to him. I haven't known of another person to dedicate their dissertation to a dog, but there was only one Java Bear. And several years after Java Bear passed away. The clinical trial that he participated in, it was published in a well-respected journal. So even if my big study wasn't published, I'm happy to know that Java's big study was. And his legacy will continue to live on both in the hearts of people who had the pleasure of meeting and knowing him. And in the scientific community as veterinarians continue to learn about the cancer that doesn't read textbooks. Thank you [Applause].

Lisa Cantrell You're listening to a recording from a live event held at Verge Center for the Arts in Sacramento, California. The event was hosted in partnership with our friends at Story Collider, and it was sponsored by Capital Public Radio. The stories you're hearing all centered on the theme experimenting, and they were all stories that showcased the ways in which science intersects with our lives. Up next, our storyteller Xavier Bettencourt. For over two decades, Xavier has been bringing laughter to the Sacramento and Bay areas of California. An improviser, comedian, drag artist, storyteller and fashionista, Xavier's true passions are bringing joy and love to others and building and growing the queer performance spaces that are truly needed today. The title of his story is 'Fire and Ice.'

Xavier Bettencourt Well, I don't have a story about humping llamas or dogs dying, so I feel like I'm coming from behind, but I'm going to do my best [Laughter]. I've known I was gay my entire life. But, growing up the child of conservative parents in Folsom, California, I always felt like, really being like, a out and proud gay man was not in the cards for me. By my late adolescence, I felt really backed into a corner, sort of forcefully ejected from both my high school and my home. I really had nowhere to go. I decided because of this that instead of searching for the path towards, like, my true, authentic self, I'd make a hard right turn, and instead I'd create a fictitious life for myself as a straight person. It was very

interesting. I tried my best to compartmentalize my queerness. It did not go easily. You get this. You've heard my voice now [Laughter]. But I did my best in creating what I like to think of as the American dream. Exclamation point! I created what I thought was a compelling narrative. I dated, proposed to, and married my high school sweetheart. And by the age of 21 in the year, Y2K, as we called it at the time, some of you guys might remember, I was married working a minimum wage job and pretty much just miserable with my life. But still, for some reason, dedicated to projecting this like idyllic Rockwellian image to the world. Which is why at this time, I decided that it was the perfect time, working a minimum wage job, recently married and just pretty much miserable, to buy or try and buy at least, a new house for my wife and I. So, you know, something that people have told me throughout my life is that I'm very resilient and my story is always the same. I don't really see myself as resilient, maybe a little bit, but what I really am is resourceful. I will get shit done. I will find a way.

Xavier Bettencourt So one day working at I was at work and on my break I was looking through real estate ads, just kind of dreaming, in the Sacramento Bee. I know some of you guys are young. You might not recognize the words real, newspaper, those are, it was like the Internet in the early 2000s. So I was looking through the real estate ads in the Sacramento Bee, and I came across one that was for a low income new home buyer program in Mather, California. I got goose bumps. I was like, This is the way. This is the path. I can do this. So I tore it out of the newspaper. Right? News - do we all know what a newspaper is? Most of us probably do. I tore, I tore it out, actual from the breakroom newspaper, put it in my pocket. And between customers, I would pull it out and just reread the details, thinking like, this has to be too good to be true. There's no way that this can actually be something that really happens. Are you keeping up? We're doing okay, right? We're doing good. Partners in crime here, my buddy. There we go. So. I'm really excited. I finally make it to my last break and I call the number. I can't wait any longer. I call the number in the ad and I'm connected to a woman named Maria. Maria is the homebuying counselor assigned to prospective buyers to help them through the low income new home buying program. Maria was great. She had us come in. We signed this complete mountain of paperwork, and about three days later, she called us enthusiastically to tell us that we did not qualify for the program. We actually made too much money income wise, with two incomes to qualify for the low income program so we wouldn't be able to move forward unless we made less money. We needed to make less money to buy a house in Sacramento [Laughter]. Welcome to the year 2000 [Laughter]. So the choice was actually pretty easy. I was working at the time as a bank teller at a local business bank, and while I really enjoyed kind of like the customer interaction on the other side, my cash till never balanced. Something that my bosses were like, 'this is a big deal.' And like, really like 'this is the function of your job.' So I quit my job. My wife kept hers.

Xavier Bettencourt This is a furious pace, I know. I quit my job. My wife kept hers. We moved in with my mother-in-law and we were back on track to the American dream. Exclamation point! About a month before the home loan closed, I get a frantic call from Maria. 'Xavier! We have a problem!' Okay, she doesn't sound like that. It was more 'Xavier, we have a problem. With the one income you guys qualify for the program. But now our loan underwriters are saying you're \$400 a month short of qualifying for the loan.' I was actually pretty calm about it, right, That, that resourcefulness had gotten me this far. I'd find a way. But \$400 just seemed like a very specific amount, and I had no idea, well, I did have an idea, actually, I would turn to where I looked for anything in the year 2000. Craigslist. I scoured the job boards on Craigslist looking for anything that would get me even close. I applied for a job as a day laborer, a phone book delivery guy, a door to door coupon salesman. And then I saw the ad that would change my life. 'Enthusiastic science

educators wanted to teach four classes a week.' One hour classes make \$25 a class. Now, I know this is for a science podcast, but we can do some quick math here together, right? Four classes a week at \$25 is [Audience Answers '100']. Times four weeks in a month is [Audience Answers 400] \$400 a month. That's the exact amount of money I need. And you guys are great, by the way. I'm going to put you in the pocket for when I need you next time. \$400 a month. I was over, I was like, wow. And this job actually sounds fun and it's the perfect amount of money I need. I typed up a resume as quickly as I could and a little cover letter explaining my love of working with kids and the fact that I sort of knew a little bit about science and I faxed it [Laughter]. That's like a newspaper, but you send it over the airwaves [Laughter]. I don't even know how faxes work, to be honest [Laughter]. I faxed in my resume and my cover letter. Within an hour I got a call from, Oh, wait, yeah, I got a call from Christina at Mad Science of Sacramento Valley. And Christina said, 'We think you might be perfect for this job and we would like you to come in tomorrow to the Mad Science Laboratory for an interview.'

Xavier Bettencourt I was so excited. I picked out my interview outfit. I remember - never forget it - pleated Dockers, a blue chambray shirt, square-toed faux leather, black shoes, and a Crayola crayon necktie that I thought was like the pièce de résistance for this interview. I'm still convinced it might have gotten me the job. I drove up to the, I drove the next day into sort of a nondescript strip mall, fully expecting a Mad Science Laboratory, but instead finding a door with an atomic symbol sticker on it, wedged between a dental prosthetics workshop and an independent State Farm agent. I was underwhelmed. But I saw a woman peeking her head out of the door and she looked at me and she was like, 'Xavier! Over here!' So there was no turning back. I walked to the door and she was like, 'Xavier, I'm mad scientist Christina, it's so nice to meet you. Come on in.' So I went in. I was still a little underwhelmed as we walked past some like, just some little office furniture and stuff. But we went into the back room of the Mad Science Laboratory, and it was a very impressive. Floor to ceiling stacked with these big plastic totes with names on it, like 'wacky waves' and 'rockin' rockets' and 'the science of magic.' I was like, this is so cool. I didn't even know this existed yesterday, and now I might get to be a part of it. She walked me over to a table where one of these boxes was open and she explained that they were called kits and each one had everything you needed to teach an after school class to the kids, and each one had a special finale. And in this case it was a dry ice demonstration. The class was called Fire and Ice. It was all about temperature and sublimation. And I was like, I don't know what those words are, but we can worry about that later [Laughter]. She walked over to another little table, that was sitting there, was a little red igloo ice chest, and she brought it over to the table and she opened it up and this big poof of white sort of smoke in front of her face. And I'm just going to keep doing this and watch him doing it with me as - woooo! There it is [Laughter]. And she reached in. She put on some safety goggles, plastic safety goggles and some leather gloves. And she reached in and she pulled out a big chunk of dry ice. And then she reached into her pocket and she pulled out a quarter and she shoved it vertically into the dry ice. And it started vibrating really quickly. And she explained to me that that was because of the temperature differential between the warmth of the quarter, even at room temperature and the below freezing dry ice. I was like, 'Oh, wow, that is pretty cool.' She pulled it out. She looked directly at the quarter and she said, 'If you think that's cold, Mr. Washington, try this on for size!' And she shoved that quarter face down into the dry ice, resulting in this really obnoxiously loud hiss and squeal. I laughed a little louder than I should have, but I was beginning to sort of give way. All of the sudden I realized I hadn't even thought about that \$400 since I walked into all this. I was just having a good time learning about all of this stuff. She finished her demonstration and she took off the goggles.

Xavier Bettencourt She set the gloves on the table and she said, 'Alright, Xavier, your turn.' And I was like, 'what do you what do you mean, my turn?' And she said, 'well, this is your final interview question. I want you to just do it the best you can, you know, kind of show me what I showed you and let's see how you do.' Now, it came back to me, that \$400, I realized, oh, I got to really prove myself here. I got to show that I can do this because I need this job. I got to get this money. So I put on the gloves. I put on the goggles. And Christina walked over to a hat rack and she grabbed a spare Mad Scientist lab coat. She walked over and helped me put it on, and I just felt chills down my spine. And I looked at her and she said, 'I'm ready when you're ready.' And I said, 'Hey, Christina, I'm Mad Scientist Xavier, and I'm here to teach you some really cool stuff about science.' And she got this big grin on her face. And I kind of knew at that point the job was mine. I relaxed into it. I did the best I could remembering these demonstrations. And I taught my first Mad Science class the next Monday. A week later, I had a letter from Bill. An affidavit - Bill was the owner of Mad Science - to the home buying program, explaining that I would be making exactly [Audience answers \$400] \$400 a month that I needed in order to qualify for the loan. And I got the keys to that house a month later and moved in. A few months later, I realized that it wasn't about extra money anymore. The loan had closed. Everything was fine. But now I realize I really enjoyed doing this. I wanted it as a career, and I told that to Bill, and within three months I was the general operations manager of Mad Science of Sacramento Valley. I still got to teach the kids' classes. But now I was going to elementary schools and selling the programs to principals. I was hosting birthday parties. I was doing full on full production school assemblies and eventually the main stage at the Solano County Fair. It was so fucking cool [Laughter].

Sometimes in our lives we have these moments where we feel seen. And at this time, I was still deep in the closet, pretending to be someone who I wasn't. But when I showed up to that job, my life managed to work its way out of the threshold of that door. And sometimes I could just tell that people saw the real me. And what that did was it made me yearn for more of those moments. And it was a slow process, but year over year I wanted more of it. I wanted a life with less hiding and pretending and more pride and authenticity. And in 2014, I came out to my wife and the world, and I found that life. Now, I know there is no the American dream. Exclamation point! It's more like the American dream, ellipsis. And it's always changing and it's different for everyone. But recently, for like maybe about two months, my American dream has been to show up to the Verge Center for the Arts and get up on a stage and tell a silly little story about my life as an out and proud gay man that I never thought I could be. So I guess that you could say for tonight only, my American dream came true. Thank you [Laughter and Applause].

Lisa Cantrell That was Xavier Bettencourt with his story about being a mad scientist. Our last storyteller of the evening was Barb Todd. Barb is a nurse in Roseville, California. She was born, raised and attended nursing school, however, in Canada, before being recruited by a hospital in California over 30 years ago. That one single decision to move herself to California launched her on an adventure that included marriage, children, new cities and new opportunities. One of those opportunities came through a chance encounter with Capital Storytelling. She came to one of our live events and she says from that moment on, she was hooked. She has since that time attended classes and ultimately participated in the Capital Storytelling Ambassadors program. That is a program where we train community members to lead storytelling workshops. And she says through that program and the support of her fellow ambassadors, she has loved bringing the amazing power of true personal storytelling to her fellow health care colleagues. The title of her story is 'Forgiveness.' And as a side note, this is sincerely one of the most impactful and memorable stories I have personally ever heard.

Barb Todd When I was ten years old, my family moved to a small town on Vancouver Island in the hopes of fulfilling my dad's dream of owning a house right on the ocean. My story begins three years later. I am 13 years old and I'm watching my dad look out our window at the ocean with his eyes full of tears, whispering goodbye. Two years before this moment, he had been diagnosed with an aggressive form of cancer. He became sick very quickly. He was only 37 years old. He wasn't able to work because he was so sick. So my mom had to work extremely long hours in order for us to not lose our home on the ocean. Because of that, my dad and I got to spend a lot of time together talking about his past, my future, and how overwhelmingly sad we were that he was not going to be a part of it. It was becoming clear that my dad was going to die soon, and my mom was terrified at the idea of him dying at home. But he did not want to leave the house. She'd asked the doctor to come, to come to the house to help convince him that he should go to the hospital, that he would be more comfortable there in his final days. He reluctantly agreed and slowly said goodbye to everything, including the ocean that he loved so much. The next ten days were a blur. We lived pretty far from the hospital, so my mom was only able to get us over there every day, every other day, or maybe even every three days. When we did go, it was just so hard to see my dad in that hospital bed, just filled with a combination of anger, fear and sadness. One day my mom had picked me up at school and dropped me off at the hospital and then carried on back to work. And I remember walking into the room and my dad had a cookie for me, and his eyes brightened. He smiled as I came into the room, but as he handed me the cookie, his eyes filled with tears and he began to cry. I took the cookie. I did not want to disappoint him, and I ate the cookie, but I couldn't even taste it. I could hardly swallow it. As we entered the second week, it had been a few days since we've been up to see him, and my mom promised us that on Saturday we would spend the whole day with him and we'd take a picnic lunch and it was going to be great. Unfortunately, Friday night, late, we received a call that he'd taken a turn and we needed to come to the hospital right away. I really couldn't believe my ears when I heard my mom say, 'Is he asking for us?' And the nurse said, 'Well, no. I think he's pretty much in a coma at this point.' And my mom said, 'Just let us know when he's gone.' I was devastated. I immediately pictured my sad dad in that hospital bed alone. And I turned to my mom and I was going to say, 'Mom, what are we doing?' But I could see just how completely overwhelmed she was. And so I stayed silent. A few hours later, we got the call, and he had passed.

Barb Todd Every single night in my teen years I talked to my dad. I would go to bed and I would tell him about my day and I would end by saying how sorry I was that he was alone. I just needed to know, I just wished to know somehow that he could forgive us. Forgive me. Also, during my teen years, I was trying to figure out what my next chapter was going to be. I was experimenting with different ideas for my career. I took some drama classes and thought about maybe being an actress. Not, wasn't going to be me, but I thought about being a teacher. And then I took this advanced first aid class and I was like, 'Oh my God, I'm kind of good at this.' And I felt so powerful having actual tools to help people. And I thought, 'Oh, my gosh, I need to be a nurse.' I was 15 years old. I'm like, 'I'm applying to nursing school right now.' And I did. And I got accepted. I started nursing school the September following high school graduation. This R.N. program was amazing. It was a hospital based diploma program, and we lived in dorms right across the street from the hospital, basically on the hospital campus. Our first year was a lot of bed making, vital sign taking, assessing, care plan writing - pretty straightforward stuff. But at the end of that first year, I was assigned a six week practicum on the palliative care unit.

Barb Todd This unit was filled with people who were at the end of their life, and most of them were a lot older. But there was one very young patient, Jane. She became my primary patient. She was 36 years old and she had a very aggressive form of lung cancer. This cancer grew so quickly, the tumor actually burst through her skin. And she just was so angry. She was so, didn't want to believe that this was happening to her. And her emotions were so familiar to me. It was this combination of anger, fear and sadness. Jane had a 16 year old daughter. I was only 18 at the time, but yet I felt so much older than her daughter. Over the next few weeks, I really got to know Jane and her loving family. She had her sisters and her daughter coming to visit. Most days she would stay in bed and I would read to her or just do anything I could to help her feel comfortable. And then one day I went into work and she looked brighter and she said, 'You know, I feel really good today. I think I want to get up in the chair.' And I said, 'Yeah, let's do it.' So I got her up into the chair, kind of getting her organized, and she said, 'You know, I really want to read a newspaper.' So I was like, 'Let me go get a paper. That's great.' So I step out into the hallway and the phone's ringing at the nursing station. So I answer it and it's her family and they're asking if they should come visit. And I said, 'Yeah, today's actually really good day. Jane's feeling good. She's up in the chair. Come on down.' They said, 'Great, We'll be right down.' I walked down the hallway to the newspaper rack, got the newspaper and headed back to the room. As I entered the doorway, Jane coughed a loud cough and was looking down at her hand. I caught eyes with her and she looked terrified. I looked in her hand and there was a massive blood clot. I yelled for help and quickly started moving Jane back into her bed as she began coughing up copious amounts of blood. The nurses ran into the room and brought the suction equipment and the basins, and I just sat on the bed with Jane and held her hand in between the coughing and the sputtering. She said, 'Help me.' She looked terrified. I said to her, 'Jane, the other nurses are getting the doctor. I'm not going anywhere.' We knew that we were not going to stop this. This was going to be the end. But she didn't know that. And so I held her hand and I just suddenly had this overwhelming feeling that whatever was next for her was going to be okay if she could just let go. So I just looked at her with my most reassuring tone, and I said, 'Jane, you're going to be okay.' And she looked back at me and closed her eyes, and then she died.

Barb Todd We all sat in silence for a few moments. And then suddenly I remembered that her family is going to be here any minute. I turn to my preceptor nurse and said, 'Her family's coming. They're going to be here soon.' She said, 'Oh, my gosh. Get out to the nursing station. Stop them. You need to tell them what's happened. We're going to stay in this room and we're going to get her cleaned up and get ready for them to come.' I'm like, 'Oh, my God.' I head out to the nursing station and I'm going to sit down and take a deep breath, but I can't because there they are at the end of the hallway. They look happy. They're so excited to come see her. I start walking toward them and I can see that their faces are changing because they can see my face. And I realize I've got to get this out. I've got to tell them. So I just kind of blurted it out. I said, 'I am so sorry. Something's happened. And Jane has died.' I watched their face change. We were all in shock. I mean, just a few moments before I was bringing her a newspaper, and now she's gone. They started to cry and hugged each other. And then they pulled me into their hug, and we're all hugging. And then suddenly her sister steps back and she says, 'Oh, my gosh, were you with her when she died?' And I said, 'Yes, yes, I was. I was holding her hand. I was with her the whole time.' And she said, 'oh, my gosh, she was so scared. Thank you so much for not letting her be alone.' And suddenly the picture of my sad dad in that hospital bed, he was no longer alone. I now pictured him holding the hand of a nurse. And in that moment, I was suddenly able to forgive myself. And over the last 30 years, I've had the honor and privilege of being at the bedside with many people as they pass when their

families can't be there. And each time I feel even closer to my dad, and I know that he would be very proud of me. Thank you [Applause].

Lisa Cantrell That was Barb Todd sharing her story on the Capital Storytelling stage at an event hosted in partnership with Story Collider. We want to thank Story Collider for all of the work they did on this event. Their producers, Leslie Bernstein and Brian Kett, coached all of the storytellers for that show. And if you want to learn more about Story Collider, visit their website StoryCollider.org. The event was sponsored by our gracious friends at Capital Public Radio. And of course, if you want to find more stories from us, you can visit our website CapitolStorytelling.com. You'll also find out about our upcoming events, workshops and classes there. Until next time, don't be a stranger, as we like to say, you are now a part of the Cap Story family.