

## Sidedoor (S10E10) – To Sidedoor, With Love

**Lizzie Peabody:** This is Sidedoor, a podcast from the Smithsonian with support from PRX. I'm Lizzie Peabody.

**James Morrison:** *Okay. All right, so I'm shuffling them all up, but I want you to give them another quick shuffle before you pull anything out of the bag.*

**Lizzie:** *Okay.*

**Lizzie:** Today is a very special day. Sidedoor producer James Morrison has prepped a different kind of episode.

**James:** *So I have in this bag all of these different questions, and you get to draw from them randomly and see if you can find answers from somewhere here in the Smithsonian.*

**Lizzie:** *Oh, I like this game!*

**Lizzie:** It's the mailbag episode!

**James:** Yeah, and so these are all questions that have come in from listeners, and I've been collecting them and putting them into this bag.

**Lizzie:** Okay, I am very curious to know what people want to know. So are there any rules to this game?

**James:** No rules.

**Lizzie:** No rules?

**James:** Just get the questions answered. That's the only rule.

**Lizzie:** Okay. I love it!

**James:** And the first question is actually mine.

**Lizzie:** Oh!

**James:** I figured since this is a mailbag episode, can you track down an actual mailbag right here in the Smithsonian? We have to have at least one mailbag here somewhere.

**Lizzie:** Oh, I'm sure. At least one. I'm guessing there are at least four mailbags at the Smithsonian.

**Lynn Heidelbaugh:** *We easily have over a hundred mailbags in the collection.*

**Lizzie:** James, I was a little bit low in my estimate. Anyway, you might have recognized that voice as Lynn Heidelbaugh, curator at the Smithsonian's National Postal Museum. She was in our episode on the last great American train robbery, "[CSI: Southern Pacific](#)".

**James:** I hosted that one.

**Lizzie:** Yes. And Lynn said that there are many many mailbags at the museum, but there was one with a particularly thrilling story.

**Lynn Heidelbaugh:** *It's bright orange, a light fabric. Very typical used pouch.*

**Lizzie:** She says the mailbag alone isn't so remarkable, but it was collected along with two other things.

**Lynn Heidelbaugh:** *An oxygen tank and a pair of boots. Put those together and figure out what was going on. [laughs]*

**Lizzie:** What do you think, James? Why would the postal museum have collected a bright orange mailbag, a pair of heavy winter boots and an oxygen tank all together?

**James:** Um, I don't know. Is this a story about delivering mail to some super high elevation, like the peak of Mount Everest or something?

**Lizzie:** Whoa, that's a really good guess. No.

**James:** Okay.

**Lizzie:** It's actually a little more scandalous than that.

**Lynn Heidelbaugh:** *So this was a mail bag on an airline. And the boots and the oxygen tank were there to help out the stowaway. And his plan was to steal the mail mid-flight.*

**Lizzie:** The story Lynn told me goes like this: in May of 1980, two men head to Los Angeles International Airport, ready to board Eastern Airlines flight number 82, nonstop to Atlanta. Two men, one of them had a ticket.

**Lynn Heidelbaugh:** *And the other one was checked in as cargo.*

**Lizzie:** William DeLucia had not paid for a seat because he was going to ride inside a very large, very heavy custom-built trunk.

**Lynn Heidelbaugh:** *The trunk was marked 'musical instruments' so that it would be handled with care. And he didn't trust whether the cargo hold would be pressurized, so he had his canister of oxygen with a mask. He had those lined boots in case it was cold, and he had a sandwich.*

**Lizzie:** *Gotta pack a snack. Always pack a snack. Yeah.*

**James:** *[laughs] Yeah. I know I would, yeah.*

**Lizzie:** So he also brought a flashlight, a screwdriver, a pair of pliers and a roll of tape. Which, that's gotta be the most suspicious cargo I've ever ...

**James:** *[laughs]*

**Lizzie:** It's like, what are you planning to do? But the plan was to hide out in the trunk until it was safely stashed in the cargo hold. Then mid-flight, he'd open this special Houdini-style latch inside, climb out ...

**Lynn Heidelbaugh:** *And the plan was to steal registered mail that was being transported on the airplane.*

**Lizzie:** Think, like, heirlooms, jewelry, important documents.

**James:** Yeah, so basically anything that's really important that you don't want lost in the mail, that's the stuff you're gonna register.

**Lizzie:** Exactly. So DeLucia had worked for an airline company, and he knew planes carried registered mail. He also knew registered mail carried valuable stuff, and he was going to steal as much of that stuff as he could at 30,000 feet.

**Lizzie:** And it started off well. His accomplice heaves him and his tuna salad sandwich onto the checked luggage belt, whispers "bon voyage," and then checked a few more empty bags,

knowing DeLucia would need somewhere to stash all the stolen mail as he goes about his nefarious deeds in the cargo hold. Meanwhile, his accomplice goes through security, gets some peanut M&Ms and an US Weekly, boards the plane like nothing's amiss. The plane takes off, and somewhere over the Rocky Mountains, deep in the cargo hold, DeLucia creeps out.

**Lynn Heidelbaugh:** *He cut the seals of the registered pouches, and then rifled through, found things like jewelry and rare coins, even classified military documents.*

**Lizzie:** He stashes it all in the empty luggage, climbs back in his Houdini trunk, enjoys his victory sandwich, and the plane lands in Atlanta.

**James:** Oh, so he got away with it.

**Lizzie:** Not quite. On the tarmac in Atlanta, the baggage crew opened up the cargo hold, threw the trunk on the luggage belt, and just as it came down the ramp ...

**Lynn Heidelbaugh:** *The lid popped open, and one of the ground crew saw there's somebody inside of this trunk and they called security.*

**Lizzie:** *What a shocking revelation!*

**Lynn Heidelbaugh:** *Exactly. Yeah. [laughs]*

**Lizzie:** *Imagine being that airline worker who's just like, "Wait a minute, there's a man in here!"*

**James:** Yeah, I'm just envisioning him, like, tumbling down this conveyor belt with, like, pieces of bread flying and tuna salad, you know, just tumbling everywhere.

**Lizzie:** Okay, in the interest of factual accuracy I have to say I don't know for sure it was a tuna salad sandwich. That's just the kind of sandwich I'd choose to believe he was eating. It could have been peanut butter.

**Lizzie:** In any case, DeLucia was busted for stealing over \$350,000 worth of stuff.

**James:** Whoa! Yeah, so what happened to them?

**Lizzie:** Um, they went to jail. And that's why you don't steal mail. The end. [laughs]

**James:** But you gotta give them credit for ingenuity, at least.

**Lizzie:** Yes, I totally respect the vision. This was like a straight up James Bond-style mail heist. And the orange mailbag that they stole from is part of the "Behind the Badge" exhibition at the

## Sidedoor (S10E10) – To Sidedoor, With Love

National Postal Museum, which is all about mail theft, fraud, heists. There's some dastardly schemes in there to check out.

**James:** Okay, so now I'm thinking about registered mail, I feel even more committed to the idea of the mailbag episode, you know, because who knows what treasures are inside this bag?

**Lizzie:** Like William DeLucia, we're about to cut the seal off our own bag of listener's questions—but, you know, less criminally.

**James:** Okay, so new rule, Lizzie: don't get arrested.

**Lizzie:** I'll do my best, James. All right, should we do it?

**James:** We'll discover what treasures await in our own registered mailbag episode after the break.

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**Lizzie:** Okay, James. I'm ready to draw my first listener question. "Birds on a wire—electricity wire, phone line, whatever—they hang out together on one wire when there's another one right next to it with none on it. Why? I always wondered that."

**Lizzie:** Okay, I know someone who can help answer this question.

**Lizzie:** *Help us out, Sara.*

**Sara Hallager:** *[laughs] Okay.*

**Lizzie:** *What's the deal with birds on a wire?*

**Sara Hallager:** *Birds on a wire. Sure!*

**Lizzie:** This is Sara Hallager. She works in animal programs at the Smithsonian's National Zoo and Conservation Biology Institute.

**James:** Oh, I remember her from the "[Hot Bird Summer](#)" episode!

**Lizzie:** Yes, exactly. And she said she can definitely answer this listener's question. Are you ready to hear the specific answer, James?

**James:** Yeah.

**Lizzie:** Okay, here it is ...

**Sara Hallager:** *It's just a handy place to sit, really.*

**James:** Oh, that's it? [laughs] I was expecting more.

**Lizzie:** Yeah, basically it's like the bench that's long enough to hold all your friends, especially if you travel with a lot of friends—which a lot of birds do.

**Sara Hallager:** *Grackles, house finches, robins, blackbirds, swallows, generally these birds are traveling in large flocks. And these birds tend to be more urban-based species, so the urban landscape is, you know, usually not too heavily treed, but these telephone wires offer an awful lot of perching.*

**Lizzie:** So that's the main reason.

**Sara Hallager:** *It's also a safe place to be away from predators.*

**Lizzie:** Like cats. Sara says cats are estimated to kill over a billion birds a year in the United States alone. And then there's a third reason that I honestly never considered.

**Sara Hallager:** *In the wintertime, the electricity running through the wires produces a little bit of heat. So they could be choosing to sit on wires for that reason.*

**Lizzie:** But I was also curious to know how do they pick seats up there?

**Lizzie:** *Is there like a highwire hierarchy? Is this a lunchroom table kind of situation?*

**Sara Hallager:** *That's a really interesting question. I don't know the answer to that. Certainly when geese migrate, the strongest flier is the one at the head of the V. Yeah, it's entirely possible that the most dominant birds are the ones in the middle where they're most protected.*

**Lizzie:** *I would like to put in a request that the bird researchers get on this.*

**Sara Hallager:** *[laughs]*

**Lizzie:** So there you have it: why birds sit on wires.

**James:** Yes. It's convenient, it's safe and it's warm.

**Lizzie:** Who can argue with that?

**James:** And it's like the cool kids' lunch table.

**Lizzie:** And that! *[laughs]*

**James:** Okay, so next question. Oh, and I'm gonna read this one, I guess.

**Lizzie:** Yeah, get in there, James.

**James:** Okay. "In your episode about the [history of Folkways Recordings](#), there was a person who sang to turkeys and whales. Who was that, and what gave him the idea to play music with animals? And how did he manage to play music underwater?"

**Lizzie:** I remember this guy!

**James:** Yeah, yeah. Let's play a little bit of that episode. It's called "Recording the World."

**Jeff Place:** *There was a guy who did a record where he was communicating with animals by playing music to them. So he's actually playing a song, you know, sitting in a pen with 400 turkeys, which are all gobbling and stuff like that while he plays this one folk song.*

**Lizzie:** *It was actually only 300 turkeys—which is still a lot of turkeys! For the record, this guy, Jim Nollman, also played cello for 12 wolves and electric guitar with 20 orca whales.*

**James:** So you're gonna be able to find this guy?

**Lizzie:** Oh, I found him!

**Jim Nollman:** *Hi, Lizzie. How are you?*

**Lizzie:** *I'm great.*

**Lizzie:** This is Jim Nollman. He basically pioneered the genre called "interspecies music."

**Lizzie:** *Why don't you start by introducing yourself?*

**Jim Nollman:** *My name is Jim Nollman. I live in Friday Harbor, San Juan Island, Washington. For 40 years I've lived here, and I've spent a career playing music with animals.*

**Lizzie:** But Jim never expected for that to be his career. Back in the 1970s, he was a young musician with a particular problem: he had no real interest in performing. Jim preferred backpacking in nature to playing in front of screaming crowds. But when he was 22, he got an unexpected opportunity.

**Jim Nollman:** *I was invited to create a piece for a radio station in the Bay Area for Thanksgiving. And I went to a turkey farm and played "Froggy Went A-Courting" with 300 turkeys.*

**[ARCHIVE CLIP, Jim Nollman: [singing] Turkeys gobbling.]**

**James:** Wait, so where did that idea come from? The radio station told him where to go and what to do? Just go play your guitar to a bunch of turkeys?

**Lizzie:** No, they had no idea what he would do.

**Jim Nollman:** *They had no idea, and I had no idea, but I had just come back from a trip to Mexico where there was a turkey living next door that would gobble every time I played certain notes.*

**Lizzie:** *Really?*

**Jim Nollman:** *Yeah. So I knew that it would work. It wasn't completely crazy.*

**Lizzie:** Of course, he'd never played for three hundred turkeys.

**James:** [laughs] That big of a turkey venue.

**Lizzie:** [laughs] Yeah, he'd never played that big a room!



## Sidedoor (S10E10) – To Sidedoor, With Love

**Jim Nollman:** *The interesting thing about it is that I quickly found that I could pretty much control everything they did by modulating the volume and the pitch, and finding the place where they would suddenly erupt in a gobble. And the gobble would start closest to me, and it would go out to the edges.*

**Lizzie:** Like a wave of gobbles.

**[ARCHIVE CLIP, Jim Nollman: [singing] Turkeys gobbling.]**

**Jim Nollman:** *It was only the turkeys that were closest that were really vocalizing, and the rest, it's almost as if they weren't paying attention to me, but they would absolutely respond when the ones closest to me started gobbling. And it went on all day. And I tried to get it so every time I sang the word, "uh huh," I did it louder. And after a while, the turkeys would come in right where they were supposed to.*

**[ARCHIVE CLIP, Jim Nollman: [singing] Turkeys gobbling.]**

**James:** Yeah, I can tell you Lizzie, I worked in public radio in the Bay Area, and I am not surprised by this at all, that they played this on the radio.

**Lizzie:** [laughs] Well, not only did they play it, James, it was a hit! People heard it on Thanksgiving Day and went nuts.

**Jim Nollman:** *The radio station had so many calls in that they sponsored me to go anywhere I wanted.*

**Lizzie:** Jim was like, "I guess this is my thing now." And he went to Death Valley and played music with kangaroo rats. He was invited by Greenpeace to go play with dolphins in Japan. He says he was getting tons of experience, but it still wasn't what he would call "interspecies communication."

**Lizzie:** *Why wouldn't you call it interspecies communication?*

**Jim Nollman:** *Well, because I wasn't trying to get into their heads. My intention was not to communicate so much as to make a piece of music. Is that clear? Does that make sense?*

**Lizzie:** Yeah.

**Jim Nollman:** Yeah, okay.

**Lizzie:** Yeah, to make a piece of music that incorporated their voices. It's almost like when you get audience participation in a song that you have planned out versus co-creating a piece.

**Jim Nollman:** Exactly. It was only later on after I'd done it for a couple of years, and I started working with orcas off the Canadian coast of Vancouver Island, the east coast, that I could see that I could actually get them to change their pitches, and come in at the right place and do all these very sophisticated things. That's when I realized that I had something going here.

**[ARCHIVE CLIP, Jim Nollman: [singing] Whales sounding.]**

**Lizzie:** Jim was working with a film team, and over the course of several days, he played his electric guitar through an underwater speaker and recorded the sounds of the orcas.

**Jim Nollman:** I would make recordings and put them in my knapsack, and then I would come home and listen to them. And that's when I discovered that that orca was coming in at all the right places and right on the beat. That was a breakthrough and it made me want to continue.

**Lizzie:** For years after that initial project, he kept playing with orcas.

**Jim Nollman:** I worked with them for 20 years.

**Lizzie:** Wow! Did you come to feel like you—you really did know those animals?

**Jim Nollman:** Oh, I could—Lizzie, I could talk about this for hours.

**Lizzie:** Jim came to know many of the whales by sight, and some even by their call. These were relationships that went on for years. And just a couple of years ago, he came out with a new album, *Music for Swimming and Flying*. And there's a track on there called "Orca Jazzing."

**Lizzie:** Tell me about that one.

**Jim Nollman:** I think that's one of the best examples of interspecies communication with a whale. One of the best I ever did.

**[ARCHIVE CLIP, Jim Nollman: [playing guitar] Whales sounding.]**

**Lizzie:** In the end, Jim's unorthodox music career led him somewhere I never would have guessed. Do you want to guess what his final gig was?

**James:** Um, I'm gonna guess Broadway, like a Broadway musical.

**Lizzie:** [laughs] That's a great guess!

**James:** That would be amazing. I'd love to see that.

**Lizzie:** Not quite.

**Jim Nollman:** *When I was 64 years old, I got a contract with the US Navy.*

**James:** Oh, that's a different direction

**Lizzie:** Yeah.

**Jim Nollman:** *Anyway, I got commissioned to join a multi-million dollar program to try to get the Navy to stop killing whales with their mid-frequency sonar. And I worked for the Navy for seven years, and that was a very wonderful ending to my career. After that, I retired.*

**James:** I'm so surprised by this story, Lizzie, because, like, when I first heard all this music, I thought it was a guy who would kind of play music at these animals thinking that they enjoyed it and it was kind of an experiment. But it is actually much more collaborative than I would have realized, and everything he says about animals responding to music and communicating, it really makes a lot of sense.

**Lizzie:** Yeah. And over the course of his career, he's seen big shifts in the way that humans consider the feelings and consciousness of animals. I couldn't believe it wasn't until the 1980s that researchers started to take seriously the idea that animals experience pain.

**Jim Nollman:** *And in my lifetime, that idea of animals has completely changed.*

**Lizzie:** And you know what else has changed?

**Jim Nollman:** *What I did with animals has now become a whole genre in and of itself.*

**Lizzie:** So even though Jim is retired now, he says there are plenty of musicians continuing the work he started, creating interspecies music.

**[ARCHIVE CLIP, Jim Nollman: [guitar] Whales sounding.]**

**Lizzie:** All right James, what do we have next?

**James:** We have a lot of stuff here, Lizzie, but you're gonna have to wait just a minute.

**Lizzie:** Oh, is it break time?

**James:** Yes, it's break time.

**Lizzie:** Okay. More listener questions ...

**James:** ... after the break.

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**Lizzie:** We're back. And today we are answering listeners' burning questions. Do it.

**James:** All right.

**Lizzie:** This is so exciting. I love this. I love this game!

**James:** Oh my God. Well, this question, I've seen this question before.

**Lizzie:** Oh.

**James:** And this is totally Sharon's question.

**Lizzie:** How do you know?

**James:** I don't, but I would wager anything on it.

**Lizzie:** Anything? All right, let's find out.

***Lizzie:** I'm looking for Sharon, and I have no idea where she is in this new building.*

**James:** You went and actually confronted Sharon about this?

## Sidedoor (S10E10) – To Sidedoor, With Love

**Lizzie:** Yeah. I mean, technically she is a listener.

**James:** Yeah, I guess you should explain to our broader listeners who Sharon is.

**Lizzie:** So Sharon Bryant is on our editorial team. You hear her name in the credits every episode. She runs our social media accounts and helps edit our scripts, and we've worked together for years. But I've never actually been up to Sharon's office—and it was really hard to find! I went up to her floor, which was recently renovated, and there were no signs on any of the doors.

**Woman:** *Who are you looking for?*

**Lizzie:** *Sharon Bryant.*

**Lizzie:** I accidentally crashed a holiday party.

**James:** So you were just, like, wandering around in this other unit's holiday party asking for directions?

**Lizzie:** Yeah. They offered me cake! So anyway, I finally knocked on the right unmarked door, and lo-and-behold, there was Sharon.

**Sharon Bryant:** *Lizzie.*

**Lizzie:** *[laughs] Is this your cubicle? I've never been here.*

**Sharon:** *Yes, this is my cube.*

**Lizzie:** *Oh, I like it!*

**Lizzie:** Niceties aside ...

**Lizzie:** *Okay, so Sharon, James and I are downstairs recording this mailbag episode, and there's this one question that looks very familiar.*

**Sharon:** *Okay.*

**Lizzie:** So this is the question: what is the Chesapeake Bay impact crater?

**Lizzie:** I was recording on my phone, so it's really scratchy audio.

**Lizzie:** And how did I not know about it? Is this your question?

**Sharon:** That's definitely my question. [laughs]

**Lizzie:** This question has been popping up stealthily in documents for months when we ask for pitches.

**Sharon:** Yes, because I've been just putting little Easter eggs in every document that's asking for questions and pitches.

**Lizzie:** So what do you want to know about the impact crater? Like, why has this captured your imagination?

**Sharon:** All right, so here's a little backstory. I was on social media, I was scrolling, and I saw a reel. And there was this wonderful woman and she was talking about how the Chesapeake Bay is very unusual in the way that it was formed. And I was like, "Wait, what is she even talking about?" Because I'm from DC, we're right here in the area, and I want to know, like, why is it so special. And she said that it was hit by a meteor. And I'm like, "Wait, is this the meteor that, like, killed the dinosaurs? Is it that one?" So I was just very intrigued from that moment, so I had to keep putting in documents.

**Lizzie:** All right. Well, technically you qualify as a listener because you do listen to all of our cuts and edits—thank you, by the way. [laughs]

**Sharon:** You're welcome.

**Lizzie:** So I accept this question.

**Sharon:** Okay.

**Lizzie:** Off I go.

**Sharon:** Toodle-oo.

**Lizzie:** All right. Sharon? James? Are you ready to learn some geology?

**Sharon:** Absolutely.

**James:** Let's rock and roll.

**Lizzie:** Oh my gosh.

**Sharon:** [laughs]

**Lizzie:** Okay. So I called a research geologist at the Smithsonian's National Museum of Natural History.

**Lizzie:** *So who are you?*

**Cari Corrigan:** *I'm Cari Corrigan. I am a research geologist, and I also curate the Antarctic meteorite collection.*

**Lizzie:** And I asked her your question, Sharon. Is the meteor that created the Chesapeake Bay the same one that killed the dinosaurs? And she was like ...

**Cari Corrigan:** *Nope.*

**Lizzie:** "Nope."

**Cari Corrigan:** *So only half as old.*

**Lizzie:** So the Chesapeake Bay crater is only 35 million years old. The meteor impact that killed the dinosaurs is 65 million years old.

**Sharon:** So that means there has to be a lot of these type of impact craters, right?

**Lizzie:** That's what I was thinking. I asked Cari the same thing.

**Cari Corrigan:** *Yeah, there are lots all over. Just like if you look at the moon, the moon surface is covered by impact craters.*

**Lizzie:** And she says the Earth's surface is covered in impact craters too. But unlike the moon, the Earth's surface is constantly recycling and being reshaped by things like glaciers, erosion or plate tectonics.

**Cari Corrigan:** *All the things that happen on the Earth's surface that tend to just basically rewrite its history all the time mean that we don't see the craters in as plentiful as they are on the moon surface, Mercury or any other planet like that.*

**Sharon:** So it's kind of scary to think that the Earth has been hit that many times by that many meteors. It's likely to happen again, right?

**Lizzie:** That's what I said! But Cari says NASA is all over it.

**Cari Corrigan:** *They have a goal of finding all of the Earth-crossing asteroids, and imaging them and getting all of the data that they can about them to know if they're a threat. There was a mission called the DART mission that practiced nudging an asteroid.*

**Lizzie:** *Whoa!*

**Cari Corrigan:** *They crashed a little spacecraft into it, and moved its orbit just—just a tiny bit, and just to maybe practice if we had to do that to an asteroid that might be coming our way, could we nudge it enough so that it would miss us as opposed to come smacking into the surface?*

**James:** Wow, this sounds strangely like the movie *Armageddon*.

**Lizzie:** Yeah, exactly!

**Sharon:** What's *Armageddon*?

**James:** Oh my gosh.

**Lizzie:** Oh my gosh, are you kidding?

**Sharon:** No.

**Lizzie:** James, I'm pretty sure Sharon just tries to make us feel old.

**James:** Yeah. She does a good job.



## Sidedoor (S10E10) – To Sidedoor, With Love

**Lizzie:** [laughs]

**Sharon:** Okay, okay. What else did Cari say about the crater? How did we even discover it?

**Lizzie:** Oh, by accident, basically.

**Cari Corrigan:** *The Virginia Water Board and the United States Geologic Survey, which we just call the USGS, they were drilling and they found these special rocks called impact breccias, which form when, you know, something smacks into the Earth.*

**Lizzie:** And Cari says we can tell this sort of rock, this breccia, apart from something formed by, like, a volcano because of the way rocks melt on impact. In molten lava like you'd find in a volcano, everything is melted. But that is not the case with a meteor impact.

**Cari Corrigan:** *The shock wave that goes through doesn't necessarily melt all of the rock, it just melts some of it, and then you get this big mixture like a—like a fruitcake.*

**Sharon:** Or a figgy pudding.

**Lizzie:** [laughs] Exactly.

**Cari Corrigan:** *You have something that's got all kinds of chunks of things in it, but it's held together by this melted stuff like the fruitcake batter. Then you bake it, and it all kind of just goes back together and turns into a solid thing.*

**Lizzie:** And that breccia is like a big clue that a meteor impact happened. And if you look closer at this rocky fruitcake figgy pudding thing, you might also find something called "shocked quartz."

**Cari Corrigan:** *And shocked quartz happens when quartz, the mineral quartz is affected by really high pressure, but limited high temperature.*

**Lizzie:** Whoa!

**Cari Corrigan:** *And it changes the structure of the mineral, which is a huge sign, a huge red flag that there's been an impact.*

**Lizzie:** Cari says the impact left a crater that helped create the Chesapeake Bay, because it made a low point that all the surrounding water could flow into. So there you have it: the answer to your question.

**Sharon:** Well, thank you! Finally, we've answered this question. I'm very excited to have this new knowledge.

**Lizzie:** You are welcome.

**James:** And Sharon, since you're here, do you want to stick around for one final question?

**Sharon:** Of course. But, you know, there are a lot more questions in this bag.

**James:** Yeah, I know. But whatever doesn't get picked in this episode, we'll just have to save for the next mailbag episode. So make sure you choose well.

**Sharon:** Okay, well let's see what we got. "Did dinosaurs get sick?"

**James:** Oh!

**Lizzie:** Oh!

**James:** Yeah, that's a great question. Yeah, just imagine a brontosaurus with bronchitis. That would be like the longest sore throat ever.

**Sharon:** [laughs]

**Lizzie:** Oh my gosh. Okay. Well, the world needs to know—or at least one person who listens to our show needs to know and now I need to know, too. And I know exactly who to go to.

**Matthew Carrano:** *My name is Matthew Carrano. I'm the curator of Dinosauria here at the Smithsonian's National Museum of Natural History.*

**Lizzie:** Matthew says in answer to the question, did dinosaurs get sick? A resounding yes.

**Matthew Carrano:** *We actually have evidence in dinosaur fossils that they were sick. They also were injured and suffered in that way. So they went through all the kind of trials and tribulations that animals today go through.*

**Lizzie:** He says anything that leaves a mark on a bone we can potentially see in dinosaur fossils.

**Matthew Carrano:** *So you might see evidence of a healed fracture, but oftentimes you'll see evidence of bone disease. The bone will have extra growth, it'll be misshapen, sometimes bones will have grown together. You might also see things like arthritis, and that kind of thing.*

**Sharon:** Dinosaurs had arthritis?

**Lizzie:** Yeah! Isn't that wild to think about? It kind of makes me feel a little bit connected to them. Like, you know, we all get stiff bones in the morning.

**James:** Yeah. Dinos, they're just like us.

**Lizzie:** [laughs] Matthew took me down to the Deep Time Fossil Hall to show me a few examples of disease that you can see in some of the dinosaur skeletons we have on display, like the camptosaurus.

**Matthew Carrano:** *The camptosaurus. And so if you look at the hip, right? So the bone on top, if you follow it back, there's basically a big hole there.*

**Lizzie:** *Oh, yeah!*

**Matthew Carrano:** *That's not supposed to be there at all.*

**Lizzie:** *Oh, wow!*

**Lizzie:** Matthew says that something must have grown there.

**Matthew Carrano:** *The most likely thing is that's an infection that's draining out one of those holes. And in fact, the hip joint is a little bit wonky as a result.*

**Lizzie:** We also saw an allosaurus with a broken shoulder blade that healed out of place, and a diplodocus with fused tail vertebrae, which Matthew says is a fairly common thing to see in those long-tailed dinosaurs.

**Sharon:** Oh really? Why?

**Lizzie:** It's kind of hard to know for sure, but they think maybe from whipping your tail back and

forth really fast, or maybe if they used their tails to prop themselves up when they were rearing up on their hind legs? These injuries can kind of give us clues about dinosaur behaviors.

**James:** Oh, it's like how corgis have back problems because they're so long.

**Lizzie:** Yeah, kinda. But Matthew says we don't know much about diseases that *\*don't\** affect the bones.

**Matthew Carrano:** *A lot of times we have what looks like the skeleton of a healthy dinosaur. That dinosaur could've been sick and died of a disease that simply doesn't show up in the skeleton.*

**Lizzie:** *I see. So you can't see, like, a stomach bug, pneumonia, the flu, a common cold.*

**Matthew Carrano:** *Brain cancer. You wouldn't see these things, right? But you will see things like bone cancer, which we do have evidence of.*

**Lizzie:** *Sorry. Just the idea of a dinosaur with brain cancer is so mind blowing. I don't know why, but maybe just because I think of cancer as being something that is of the modern day. But of course, I imagine that cancer has been around as long as there have been living creatures.*

**Matthew Carrano:** *Yeah, I think you can suppose that cancer in the sense of the broad kind of disease that it is, unregulated cell growth that causes tumors and other damages, sure, that's probably been around a long time. Was it a really common problem? I would imagine not. It's not a common problem in the wild. Animals tend to die of other things.*

**Sharon:** Okay, that makes sense. If you're a dinosaur, you're probably more likely to be eaten or starve than you are to die of cancer.

**Lizzie:** Right. But I couldn't let Matthew go before I asked the hard-hitting question.

**Lizzie:** *Best guess, did T-Rexs sneeze?*

**Matthew Carrano:** *Best guess? Yes. Why not? I mean, it's essentially a neurological reaction, right? If you get a bunch of junk in your nose, you're gonna sneeze.*

**Lizzie:** He said if birds sneeze, T-Rex probably sneezed.

**Matthew Carrano:** *I think birds sneeze, but I don't actually know. It's a pretty good question.*

**Lizzie:** *Do birds sneeze?*

## Sidedoor (S10E10) – To Sidedoor, With Love

**Sara Hallager:** *They do.*

**Lizzie:** *Really?*

**Sara Hallager:** *Mm-hmm. Yup.*

**Lizzie:** Well, lucky for us, we now have a bird specialist on speed-dial. I'm sure Sara Hallager did not mind me calling her back at the National Zoo—again.

**Lizzie:** *What does it sound like?*

**Sara Hallager:** *It sounds—you know it instantly as a sneeze. You can't take it for any other thing. I've even worked with some species that seem to have seasonal allergies, so they sneeze more often in spring and fall.*

**Lizzie:** *[laughs]*

**Lizzie:** As for bronchitis, James, evidence suggests that brontosaurus had a bird-like respiratory system that had one-way airflow. So again, like, if birds got bronchitis, then a brontosaurus could've gotten bronchitis. And Sara says ...

**Sara Hallager:** *I don't know about bronchitis specifically, but they are—they can be prone to respiratory disease, for sure. You know, the whole canary in the coal mine? Birds' respiratory system, I mean, they're exquisitely sensitive to these irritants in the environment. So ...*

**Lizzie:** *So it's conceivable.*

**Sara Hallager:** *I think so, yes. I would want a vet to confirm that, but yeah, I think it's conceivable.*

**Lizzie:** So speaking of vets, I happen to know a really ...

**James:** I'm gonna have to stop you here, Lizzie, before you call any vets.

**Lizzie:** What?

**James:** [laughs] We don't have any more time left.

**Sharon:** But y'all, there are a bunch of questions left in this bag, so I think we may need to do another mailbag episode down the line.

**Lizzie:** I would love that. I love following other people's curiosity. And we've learned so many things! Let's see, we learned that if you are going to steal mail, justice will be delivered.

**James:** And that telephone wires are just like the place to hang out if you're a bird.

**Lizzie:** Or that orca whales make great bandmates.

**Sharon:** And that the Earth has been hit many times with giant space rocks.

**James:** And dinosaurs most definitely got the sniffles.

**Lizzie:** And that our listeners have excellent questions.

**James:** And none of us went to jail.

**Lizzie:** And nobody went to jail!

**Sharon:** You've been listening to Sidedoor, a podcast from the Smithsonian, with support from PRX.

**James:** If you have a question you'd like us to answer, reach out. You can email us at Sidedoor(@)si.edu. Or find us on social media @Sidedoorpod.

**Lizzie:** For behind-the-scenes goodies and more of Jim Nollman's music, subscribe to our newsletter. You can subscribe at [Si.Edu/sidedoor](https://Si.Edu/sidedoor).

**Lizzie:** For help with this episode, we want to thank Lynn Heidelbaugh, Jessie Aucoin, Phoebe Sherman and Mira Muñoz Pandya at the National Postal Museum, Sara Hallager and Annalisa Meyer and our friends at the National Zoo, Jim Nollman and our friends at Smithsonian Folkways recordings, Jonathan Williger and Maureen Laughran, Cari Corrigan, Matthew Caranno, Ryan Lavery and the team at the National Museum of Natural History, and our very own Sharon Bryant at the Castle.

**James:** And an extra big special thanks to all the listeners who wrote in! Keep your questions coming and help us fill our mailbag.

**Sharon:** It's already pretty full, but okay.

**Lizzie:** Thank you to Other Minds Media for the use of "Orca Jazzing."

**James:** Our podcast is produced by me, James Morrison, and Lizzie Peabody. Our associate producer is Nathalie Boyd.

**Lizzie:** Executive producer is Ann Conanan.

**Sharon:** Our editorial team is Jess Sadeq and me, Sharon Bryant.

**James:** Tami O'Neill writes our newsletter. Episode artwork is by Dave Leonard.

**Sharon:** Our show is mixed by Tarek Fouda. Our theme song and episode music are by Breakmaster Cylinder.

**James:** Extra support comes from PRX. If you have a pitch for us, send us an email at Sidedoor(@)si.edu.

**Sharon:** If you want to sponsor our show, please email sponsorship(@)prx.org.

**James:** I'm your host, Lizzie Peabody.

**Lizzie:** [laughs] No you're not!

**James:** Thanks for listening.

**Lizzie:** Hey, stop! That's my line! I'm your host, Lizzie Peabody—though maybe not for much longer. Sharon, that was really good.

**Sharon:** Oh lord!

**Lizzie:** Thanks for listening. Okay, perfect.

**Sharon:** All right.

**Lizzie:** Thanks, Sharon. That was fun.

**Sharon:** Exciting!

**Lizzie:** *Between 33 and 42—let's say 30,000 feet.*

**James:** *Let's say he's gonna join the Mile Heist Club.*

**Lizzie:** *[laughs] Oh my God! James, that's terrible!*

**James:** *[laughs]*

**Lizzie:** *Oh, no!*

**-30-**