Getting Curious with Jonathan Van Ness & Professor Beronda Montgomery

JVN [00:00:00] Welcome to Getting Curious. I'm Jonathan Van Ness and every week I sit down for a gorgeous conversation with a brilliant expert to learn all about something that makes me curious. On today's episode, because all of you know I'm living for nature, I'm living for things that grow outside! Today, though, honey, it's not about pumpkins. But it is with somebody who we have talked about pumpkins with in the past! I'm joined again by Professor Beronda Montgomery, where I ask her: Why are trees so clever?

Ohmigod, welcome back to Getting Curious. This is Jonathan Van Ness. You guys, if you are, like, driving, pull over. I mean, maybe don't. I'm just saying, get excited is what I meant to say, because we have, like, one of our all time, like, greatest. If there was, like, a Getting Curious All Stars edition, like RuPaul's Drag Race All Stars, but like Getting Curious All Stars, this person would be here. Welcome back to the show Beronda Montgomery, who is a professor at Michigan State University, however, soon she will be heading to Grinnell College as vice president for academic affairs and dean of the college. Welcome back, how are you!

BERONDA MONTGOMERY [00:01:13] Thank you. I am so happy to be here. This has been the highlight of my week. I've been waiting for this.

JVN [00:01:18] Ohmigod, that gave me chills. I'm not lying. Like, maybe that was, like, a latent COVID symptom that gave me chills. But, like–

BERONDA MONTGOMERY [00:01:23] No, I've been looking forward to this. I love you.

JVN [00:01:25] I love you. And the feeling is so incredibly mutual, which is probably not a surprise to you. What I should update the listenership on is that, like since our last interview with Beronda, on average, there has been probably, like, three to ten DMS a month about the garden. She is very patient with me. Sometimes I say to my husband, I'm, like, "Mark, we can't make Beronda regret that she, like, answered our DM. We have to, like, pace ourselves," because I am like, you know, my middle name is 21 questions. Who knew? Beronda just got a full interrogation this last weekend about pumpkins? Because it was brought to my attention. We better just tell everyone, I'll tell everybody. It was brought to my attention that I maybe overzealously, like, over planted my pumpkin patch I freaked out and planted eight pumpkins in a relatively light. Not that big of a cage. So then these people were, like, "They aren't going to have enough space or nutrients." And then I was, like, "You're a liar and a fraud. I'm going to DM Beronda." And so I did. And then what do you say?

BERONDA MONTGOMERY [00:02:28] I was, like, "There are too many." Yes. I mean, we have to tell the people the truth. 50% of the time you say, "Mark said this," and I say, "I agree with Mark," this is how it usually goes.

JVN [00:02:39] And I'm just, like, this, like overzealous, like, like, I just get too excited, and I just, I just love pumpkin so much. But you had said that they would maybe have flowered or they would have, like, the fruits wouldn't have been as big and, like, then nobody wins. So just as an update for you, we, and everyone, because you're hearing it here first. I did take control of this, but I haven't posted it yet. We'll see if that remains the case by the time we publish this episode. But we did successfully transplant two into pots. They both made it by and they're perky and robust and I got my BT spray. So I'm going to be spraying those roots with BT spray every three days. I have moth traps, three squash bore vine traps positioned five feet away, like, north southwest of those two pots. And then I got, like, three other traps over by the cage. But I'm not BT spraying those because they're in the cage.

BERONDA MONTGOMERY [00:03:30] They're in the cage. Okay.

JVN [00:03:31] Not to mention, from now until October, I'm swearing off sleep. I'm going to dress up in a, in a little ninja outfit. I'm going to camp out outside with, like, night vision goggles. And if I see one, I don't even care what species.

BERONDA MONTGOMERY [00:03:50] It has to go.

JVN [00:03:51] If you're flying you're around my pumpkins unless you're a butterfly, because I obviously know you're not going to kill my pumpkins.

BERONDA MONTGOMERY [00:03:53] Yes.

JVN [00:03:54] You know, it's no, I'm not I'm not I'm not going to, like, unequivocally kill all the flying things in my garden. I'm not that very cis white man energy and I'm not going to do it. I am going to just– I'm going to rely on the squash borer moth traps. Which you also said in DMs…

BERONDA MONTGOMERY [00:04:11] Yeah, those work, those work really well. And I mean, if you tilled your soil, too, because, you know, that's the problem that those, those squash vine borers, they overwinter in the soil. And so if you plant your pumpkins in the same place every year, they're likely some that were there last year. So you have to make sure you move them around.

JVN [00:04:27] Okay, well, we did move them. We did move them.

BERONDA MONTGOMERY [00:04:29] Yes, that's good. That's good.

JVN [00:04:31] But what if one of those fucks burrowed in that cage?

BERONDA MONTGOMERY [00:04:36] Well, you know, if you watch them closely, if you catch them as soon as they burrow, like, you see the little hole, sometimes you can take a wire and stick it up just a little bit. It'll poke the larvae and kill it, but it won't kill the plant. So there are lots of things you can do. You'll see it. I know you're going to be watching them. You will see it if it happens.

JVN [00:04:53] Well, I saw it last year, but I saw it too late. And, like, they were, they got in the night and then I found out what it was. So I'll see that orange muck. Will I see that orange muck on day one?

BERONDA MONTGOMERY [00:04:05] No, but if you watch closely, you can see like it'll start to look, like, little bit of a particles of sand dust, you know, and you can see it before it gets really massive. And then if you just take a wire and stick it up like an inch or an inch and a half, you'll poke right through the larvae and they'll die.

JVN [00:05:19] Oh, actually, my husband, though, Mark, he did till that soil because we had to get all of those stupid little, like, spinach growth things from last year. We had to, like, go through all that stuff. But if you till it does that mean we stab those little fuckers, so they probably died?

BERONDA MONTGOMERY [00:05:34] Yeah if you turn them over and they get exposed and a lot of times they die. So that should be really helpful. So we're back to listen to Mark.

JVN [00:05:40] Okay. Thanks. I just, when you said the till thing, ever since then I wasn't prepared for that and my heart sank for, like, the last minute and a half, my heart's been sunken. Okay. So great. Anyway, so this is the thing, just to catch everyone up. Last year you came on the show. We discussed your new book at the time, Lessons from Plants. So good. What have you been up to since the book came out? And do you have any recent, like, lessons from plants that, like, you'd love to share?

BERONDA MONTGOMERY [00:06:08] Yeah, it's been really a fun year. It started, I think you were, like, the first podcast that I had the opportunity to do. And then I spent last year in so many great conversations with other people on podcasts, with horticultural gardens, botanical gardens, all kinds of groups. So I had a chance to have so many conversations. And as you know, when a book comes out, you also get invited sometimes to write these little short articles. So I got to write something for Elle magazine and all these fabulous places. So it was really a fun year. And in terms of lessons, I always have a lesson. One of the lessons I've been focusing on now is, you know, we're having a lot of issues in community, just, you know, people struggling, who have focused on anti-racism or other issues, and you want to work together. And then there are all these community problems. So I've been talking a lot about how we have to have intergenerational communities. And like with plants, the old roots have a role and the younger roots have a role. And we have to have respect for the differences that

those different roots bring to a community. So I've been using that to try to get intergenerational communities to work better together as well.

JVN [00:07:10] Okay. Like, making me emotional in the first 2 minutes, like, that was, like, really profound and, like, made me emosh. Okay, so I already told you about the squash bore vines, my pumpkin situation, what we're doing. Everyone else is thriving. But this is really, and I probably will accidentally, like, talk about the garden more later, even though, actually, let me just tell you, before I get there, let me make sure that I have told you everything that I need to tell you. We got our eggplants, you got our okra, we got our potatoes are going. The sweet potatoes are going. We're doing watermelons vertically this year, on this, like, arch. We're doing vertical watermelons this year. I have tons of peppers, all sorts of different peppers. I got my ghost peppers back, I'm doing, like, a strawberry pot, which is kind of fun.

BERONDA MONTGOMERY [00:07:54] Oh, those are fun. Yeah.

JVN [00:07:56] Yes. It's like. So that's all kind of the same. But here's the thing. I already had a little bit of an obsession with trees from when I went to, like, New Zealand and Australia, which I think I told you about last time.

BERONDA MONTGOMERY [00:08:04] Yes, you did, you did.

JVN [00:08:05] Yes, because that was, like, how it first started. I've now lived in Texas for, like, two years, like, two plus years. And so now I've seen, like, the trees go from, like, the first year I came here, I arrived and they were already green and, like, they were already budded. That was 2020, like, March of 2020. Then, in, like, early '21 we had, like, ice-pocalypse here and all these trees died. And what happened at my house is that, like, everything was about to bloom. Then this huge freeze happened, most all of them dropped. And then what happened was, like, all of the branches either, like, either the whole branch died or, like, there was, like, a few buds that, like, reformed, but only on, like towards the trunk or just, like, new little mini branches happen. A lot of trees either just totally died or just like a lot of the branches died. Then through the summer, the branches that were dead, like, started to, like, droop. So then we had to get this thing, which I never knew really existed. But it turns out it was like a tree surgeon had to, like, come to our house and had to, like, cut up all, like, the dead branches because like they would have just—, like and some of them actually did start to like break and like damage the tree because, like, they were so dead, you know, in, like, a windstorm and stuff.

BERONDA MONTGOMERY [00:09:15] Mm hmm.

JVN [00:09:16] Yes, because that was, like, how it first started. So I'm like seeing the nature around me, like, you know, for two years in a row now. And I just got, like, bit with the "I am fucking obsessed with tree" bug, like, hardcore. So especially watching like all the trees kind of die from the ice exposure and just seeing, like, which ones lived, which ones didn't like and

why some branches made it and other ones didn't has just been, like, really interesting. But then this spring I was, like, "Oh my gosh. Like, what's going to bud and what's not going to," cause, like, I kind of fell in love with the trees like that first year. So I was just, like, "Oh my God, what's going to happen?" But trees budding is so fucking crazy. Watching it up close and, like, really paying attention. And so I just started thinking about you, like, all the time again. I mean, more than usual, I've not stopped really thinking about you since I met you the first time. But more than usual, starting around, like, March again. And I was like, "I gotta ask Beronda about these trees, like, these buds," which I don't think I realized how cool that part was when I interviewed you the first time about trees, because I got sidetracked on the garden.

BERONDA MONTGOMERY [00:10:18] Yes.

JVN [00:10:19] So what the fuck are leaves? Why are they little nubs and how do they know to come back every year?

BERONDA MONTGOMERY [00:10:25] Yes. So, you know, I'm glad you shared that, because I was wondering how you got fascinated with tree buds, because I am obsessed with trees. I really love trees. Just the long-lived nature of them. Right. But tree buds are really fascinating in that they actually form in late summer.

JVN [00:10:43] Liza Minnelli! No!

BERONDA MONTGOMERY [00:10:47] Yeah, the very small tree buds form in late summer when the trees have a lot of energy. The tree is preparing for the next winter, for overwintering and then for the next spring. So they make these little tree buds, they're really hard and they have what look like scales on the outside. Those scales are actually modified leaves, but they're really tough and some of them, they're sometimes fuzzy. So if you ever look at the like tree buds on a magnolia tree, sometimes that, that outer scale part is fuzzy. So what I like to think of it is if you take one of these buds and dissect it and looked under a microscope, they're basically two types. There are leaf ones and there are flower ones. So the buds either have little immature leaves in them that become the new branches or for trees that when the bud burst in the spring, they have flowers, they're flowers. And basically the scales are acting like a little blanket. So the buds are really to protect the immature leaves and flowers through winter. So the bud is actually closing it up and keeping everything warm and then they basically hibernate. It's just like they go into complete hibernation over winter.

JVN [00:11:49] I'm so shook right now because, like, you know, because in winter, like, I was minding my own business this winter and I just felt like I was seeing all these branches. And then all of a sudden, there were these, like, big ass balls on the end of them. And what you're telling me is, is that those balls were already forming.

BERONDA MONTGOMERY [00:12:09] They were already there.

JVN [00:12:11] So the leaf has the little stem or whatever that it's, like, attached to on the tree. And it's just like waving around and it's like green and then it turned its color. And then some of them here in Texas don't really turn a color. They just, like, fall off, you know, cause they're, like, different. And then so. That bud was, like, if this is the stem.

BERONDA MONTGOMERY [00:12:32] Yes.

JVN [00:12:33] And then this is, like, the leaf. The bud is, like, hiding, like…

BERONDA MONTGOMERY [00:12:35] It's hiding right under that leaf. And so if you look at next winter, when you get a chance, if you look at your trees and you look at the branches, they actually look a little bumpy, like, there's little tiny bumps. And a lot of times people think that's just where the leaf fell off and it's the scar. But if you look close enough, like, with a magnifying glass, there's a tiny little bud that's there. And so the buds are actually already there in fall. Over winter they just sit there and rest, waiting for spring. And then by the time you notice them, there have been enough warm days that they start to grow and they get big enough that you actually realize it's a bud at that point.

JVN [00:13:10] Wow! So then they're just kind of sleeping during the winter.

BERONDA MONTGOMERY [00:13:14] Yes.

JVN [00:13:15] And then why is it that when we see enough warm days, like, they start to grow?

BERONDA MONTGOMERY [00:13:22] Yes. So inside are these little tiny baby leaves, the cutest leaves you've ever seen. And they basically are just protected from, you know, ice and winter in the little bud. And then once there are enough warm days, basically what happens is there is a burst of hormone production and then there are enzymes made. And so basically that starts, just like with us, you know, our hormones cause us to grow.

JVN [00:13:42] They have hormones?! I was just trying to write that down to not interrupt you, but since, what kind of hormones?

BERONDA MONTGOMERY [00:13:49] There are several hormones there, five classic ones. And one of them is something called gibberellic acid. That's one of the main growth hormones that causes the leaves to start to grow and expand. And so those outer scales start to grow. And so they're both the hormones that promote growth, and then they're enzymes that actually cause the little blanket to open up because that blanket has to break apart and open up for the leaf to grow and burst out.

JVN [00:14:14] So how does the tree produce that?

BERONDA MONTGOMERY [00:14:16] There's two things that happen that cause that change in growth. It's the change in the day length. So once, you know, days are shorter in winter, once there's more hours, that light cue and the temperature combined cause the plant to start to make hormones. And the enzymes that lead to what's called the "Bud Break" or the "Bud Burst" opens up and the leaves or flowers start to come out.

JVN [00:14:39] Okay, so my balcony outside my bedroom, there's like this big ass tree right next to it. It's like I just I'm like, looking right at this tree, and that's like, yeah, it was like and then back before when you said it was the and I quote, I'm pretty sure you said "the cutest tiny baby leaves you ever seen." So you mean to tell me underneath that little circle that's, like, expanding, there's, like, an adult shaped leaf that's a tiny little baby?

BERONDA MONTGOMERY [00:15:07] Yes. Yes. And it kind of looks, like, you know, if you cut it into it, it almost looks like a little tiny brussel sprout because all the leaves are wrapped up around each other, almost like they're hugging, right. To keep each other warm inside the blanket. And so it's time to break out in spring and grow this. It's so cute. Plants are just beautiful.

JVN [00:15:28] So then the goal of the budding in the leaves is to make… chlorophyll?

BERONDA MONTGOMERY [00:15:39] Yeah! So basically what's happening is the plants make the buds in summer because that's when they have the most energy, right? They have all these leaves to do photosynthesis. And so after winter, when spring is just getting started, you know, when they're coming out of their kind of hibernation, it's kind of sluggish. So if you didn't have that head start, it'd be really hard to get going. And so those little leaves, they start to make chlorophyl, the leaves are green, and then they expand and they're ready for photosynthesis.

JVN [00:16:06] And that's just, like, the tree, like, making the sugar or whatever to, like, grow.

BERONDA MONTGOMERY [00:16:10] Yeah. Yeah. So that's just when plants use carbon dioxide and water and make carbohydrates.

JVN [00:16:16 Okay. So this may be out of left field. And I don't really care about these fuckers because I don't really have that many of them around here, you know? So, like, but, like, what about evergreen trees. Are pines just, like, a modified leaf?

BERONDA MONTGOMERY [00:16:32] Yeah, so those pine needles are a modified leaf, and evergreens do something else in that in the winter, they also have a kind of rest period. They're not as active. But what those do is they make basically they make sugars that are almost like antifreeze. And so in the winter, the pine needles have a much more dense kind of liquid inside of them. That's like an antifreeze so that they can persist and not freeze during winter. Yes.

JVN [00:17:00] Okay. I got to write that down for later because I didn't want to get sidetracked. But that's—okay, wow.

BERONDA MONTGOMERY [00:17:05] I'm glad you asked, it's fascinating.

JVN [00:17:06] I didn't see it coming. It's, you, you are just giving me. You are just giving me curve balls left and right today. So, okay, so, like, we have, like, lots of different trees. So we got like cedars. We got a lot of oak. And then we have like this, like, cool, like Texas maple that's, like, it's, like, one of the only trees on our yard that, like, changes color. Like, the, gets, like, really, like, fall color. And it's, like, one of my faves. It's so pretty.

BERONDA MONTGOMERY [00:17:32] Yes.

JVN [00:17:33] So some of our trees, like, don't really, like, do the fall change, which is, like, devastating. So does what makes them start to die is that the days get shorter?

BERONDA MONTGOMERY [00:17:42] Yeah. So it's usually the days get shorter and the temperature changes. And so that's a sign that fall is about to transition into fall and winter. And so the purpose of trees that actually lose their leaves during winter is that it's: during the winter it's too cold to really have good metabolism, you know, and it's the chlorophyll and other compounds don't work well in the cold. And so basically you want to reduce everything that you have to take care of. And so by dropping those leaves, the only thing they have to worry about is making sure that the buds stay healthy and the trunk and everything else. The reason that they turn colors, I actually got to talk about this with the kindergarten class, which was so much fun. They wanted to know why leaves turn colors. So, you know, leaves will often turn yellow or orange or red. And on the surface, you might think they're going from green to orange or red, but those oranges and reds are often already in the leaf. You just can't see it because there's so much green that is drowning it out. And so as fall approaches, the plants break down the chlorophyll to try to reabsorb some of the nutrients. So it's like trying to recover some of the nutrients. And then what's left for you to see is the yellow and orange and the red colors.

JVN [00:18:47] That's so interesting. It's almost kind of like hair. It's, like, because when you bleach hair, it's, like—

BERONDA MONTGOMERY [00:18:51] I was thinking that, exactly.

JVN [00:18:53] Yeah. It's, like, it makes, like, different colors come out. That's. Yes. Oh, my God. That's interesting. Yes. Oh, so then like. So then there's some trees that are, like, evergreen, like, pines, and then there are some that, like, shed their colored leaves. Like, you know, they turn a color, then they drop. But then we have these other trees in Austin, like, that are, like, live oaks, and I think they're like live oaks, like, they're like green mostly all the time.

And then they just, like, they all drop their leaves that once and then they all don't have these for like two weeks, but then they start to grow back again. Yeah. So they're really only leafless for, like, a couple of weeks?

BERONDA MONTGOMERY [00:19:24] Yeah. So live oaks are really fascinating. I spent a lot of time learning about live oaks only because those are some of the biggest and oldest trees on plantations that I've become fascinated with. Right. But live oaks, basically, they do rest in the winter. They just don't drop the leaves. So if you look at the leaves close enough, they go from bright green to kind of a duller green. And then when it's in the spring, when those buds are bursting, new leaves come out. And as the new leaves are coming out, they basically push the old leaves off the tree. So that's why the leaves start to drop. And then there's this period where it looks like there are no leaves on the trees because the buds are just bursting and the new leaves are coming off. So that's why there's just a shorter period for the live oaks.

JVN [00:20:03] So you got obsessed because they're on the south and they're on plantations and they can live to be, like, super old?

BERONDA MONTGOMERY [00:20:08] Yeah, I had visited a plantation with my sister and son a few years ago and one of the trees there was like 600 years old. So it's estimated that live oaks in the South, in certain parts, can live up to about 1000 years old. Yeah.

JVN [00:20:20] Do they know that from, like, carbon dating or something?

BERONDA MONTGOMERY [00:20:23] Yeah, they can do carbon dating. And also sometimes, once some of them have died, they cut through the trunk and, you know, you can count the rings and you get a new ring every season of growth. And so I got fascinated with them just because I'm fascinated with, like, my Black history and the idea that there is a tree that could have been living at the same time that enslaved ancestors were there became completely fascinating to me. But yeah, live oaks are really cool trees.

JVN [00:20:46] That is so incredibly fascinating. And, like, I love that, like, I love that your, that you allowed your curiosity to, like, inform you all the way to, like, I love that. I love when people, like, allow their curiosity to, like, take them places. That's just so cool.

BERONDA MONTGOMERY [00:21:03] Absolutely.

JVN [00:21:05] Wow, so, that whole thing of the rings and maybe I can't remember if I asked this last time. It does just feel impossible. Like, “Really? Like, we really know that those rings…” So basically, we know that because that ring gets created from one whole season of growth and there's only one winter, spring, fall, summer a year. So we can just reasonably assume that, like…

BERONDA MONTGOMERY [00:21:25] Yes. Yeah. Yeah.

JVN [00:21:27] So it's real. Like, it’s really.

BERONDA MONTGOMERY [00:21:29] It's real. Yeah.

JVN [00:21:30] That's okay. So is there any, like, other kooky methods, a budding that we, like, haven't talked about yet?

BERONDA MONTGOMERY [00:21:38] If you look at a tree branch at the very end, there's also a terminal bud. And that's where the tree stops growing in one year. And the next year that branch will start to grow again. So you can look at a branch and see where those kind of rings are, and it tells you how much a branch grew from one year to the next.

JVN [00:21:56] What! I feel like I know what you're talking about because some, like, wait, wait, so do all the branches have that or just some have it sometimes and it's like that little, like, ring cap thing on, like, the end of the branch.

BERONDA MONTGOMERY [00:212:06] Exactly. That's it. Yeah. Most of them have it. Some of them, they aren’t productive. And so that branch starts to grow and it doesn't you know, it's not productive, but the ones that are growing, there's that little terminal gap. And the next year it looks like a ring. And you can look from the terminal to the last one and say, “Okay, this branch grew this many inches over the last season.”

JVN [00:22:25] Oh my God.

BERONDA MONTGOMERY [00:22:27] I love that you’re so observant with your plants, you're like, “I know what that is.”

JVN [00:22:31] That is so interesting. Well, because we planted a bunch of trees because, like, our trees used to be so thick before ice-pocalypse that I didn't even know that there was a house, like, 100 feet away from our house.

BERONDA MONTGOMERY [00:22:41] Oh, wow.

JVN [00:22:42] Like, I literally didn't even know it was there. And then after the big freeze thing, I was like, “Why are they so close? Like, what is that big ass house doing right there?” So now I've, like, I've, like, just replanted, like a bunch of trees and, like, and they've all been really successful. Like, only one died, which I was, like, dev because it was a live oak. It was, like, like, all the other ones have been like good, and they’re, but some of them get so like there's like three that have gotten so much bigger in the space of a year that I'm just like, “Oh, wow, wow.” Like, yes, they really grow. No, do, like, because I think these trees or, like, you know, there's, like, dog ears?

BERONDA MONTGOMERY [00:23:16] Yeah.

JVN [00:23:17] So these trees, I think they were, like, nine or, like, eight when we transplanted them because they're like pretty big, but like, like their ages, they, you know, obviously the older trees are more expensive because it's like you got to make, like, the, the hole bigger. It's, like, put the root ball and make sure that it's, like, set up for success and stuff. But, like, do trees grow, like, equally through their lifespan or do, like, babies grow faster than teenagers?

BERONDA MONTGOMERY [00:23:43] Yeah, they definitely have stages like us. So they have a juvenile stage and then they have, like, an adolescent stage. I happen to have a son. So I think about like when you get an eight or nine year old tree, that's like getting a teenage boy who, you know, one day their pants fit and then the next month it's, like, "Why do I see half of your ankle?" Yeah. And then as adults, we stop growing so much, but we can still, you know, we can widen or whatever. So they actually are like humans where they have the really infant stage, they grow pretty fast, and then that juvenile stage, they grow wild in terms of their height, a lot of the species, particularly oaks, and then later in their life, they're more growing kind of wide than they are tall, per se.

JVN [00:24:20] Yeah, because these are oaks and they're getting so tall, like, but not, like, necessarily. I haven't seen them get super much, like, wider yet, but they're taller.

BERONDA MONTGOMERY [00:24:29] Yeah, they go through the stage where they're just getting tall, not so much wide. Yeah, that's a stage.

JVN [00:24:33] So you know how bushes you can, like, cut, they trim them to make them bushier. Like I do want the trees tall, but I also kind of want them fat. Like, if I had like, I mean, not that I'm going to do this because it's, like, too hard to access, but, like, if I did cut the top of the tree, would it make it bushier but still grow taller, too?

BERONDA MONTGOMERY [00:24:53] It depends on the species for oaks. If you cut the top, sometimes you start to get more branches. But it actually shortens its overall life.

JVN [00:25:01] Really?

BERONDA MONTGOMERY [00:25:02] Yes. Yeah.

JVN [00:25:03] Why?

BERONDA MONTGOMERY [00:25:04] That's almost like the definition of a tree, where you have this one big stalk growing up and you do get branches that go off. But it's not like a bush that at the base you start to get new branches that come out of the base and really get bushy. And so a lot of times, if you top it off in that way, it can, it can change its lifecycle a bit. Although people do it, people do it.

JVN [00:25:27] How interesting! Yeah, we, we have not. And I'm so glad that you told me that because, like, now we never will, honey, like, I need them to be. So what's, like, how old is, like, the opposite? Like, if a live oak can be, like, 600. Like what about just, like, a, like, just, like, a regular oak?

BERONDA MONTGOMERY [00:25:39] So I'm from the South too. I'm originally from Arkansas. A lot of the common oaks in Arkansas grow to be, like, 200 years old, which is still old, right. When you think about it, it's just not as long as some of the other live oak.

JVN [00:25:50] And then they die?

BERONDA MONTGOMERY [00:25:52] A lot of times they will, yeah, yeah. But they make babies!

JVN [00:25:56] Oh, yeah. Oh, yeah. I actually wanted to, I actually wanted to talk about that too. So, but let's say their cycle is 200, like, when will they reach, like, their tallest probably.

BERONDA MONTGOMERY [00:26:09] Yeah. Usually it's, it's for a lot of the trees. It's like if there get to 200, a lot of times they're at their tallest by the time they're 20, 25 years old.

JVN [00:26:17] Oh, really? So pretty quick.

BERONDA MONTGOMERY [00:26:20] Yeah. And then sometimes they still grow a little bit, but it's much, you know, much shorter, much less than they would in those first few years. Sometimes it's 50. It depends a lot on the soil and the, you know, the weather and all of that. But usually in the first 25 to 50 years, they reach the largest part of their height.

JVN [00:26:36] Okay. This is, like, going on like another, like, sidebar tangent, but it's, like, important. So the great freeze, right? We had this, we had this, like, lemon tree and this lime tree. The lime tree lived. Oh, actually, no. The lime tree died, it, like, died as fuck. Just totally dead.

BERONDA MONTGOMERY [00:26:54] I remember those citrus tree debacles!

JVN [00:26:56] Oh, yeah! Because I told you about–

BERONDA MONTGOMERY [00:26:58] No, I saw it on Instagram. I think you posted some of them on Instagram.

JVN [00:27:01] Yeah, yeah. But, but the lemon, but the lemon one lived so we still have the lemon from back then. Yeah, but then what Mark realized was, is that it was, like, you know, an improved lemon tree or whatever, right? So it was, like, grafted. And the top one was dead,

but the bottom one was alive. [CROSSTALK] So now we have, like, this, it's, like, this, like, spiky-ass, like, lemon or something. And it doesn't flower, but it is, like, big. But I won't let Mark put it in the compost bin because I was, like, "It went through the great freeze. And if it does, even even if it doesn't make lemons, like, it doesn't matter, like, it's our baby and we're going to, like, let it, like, live its life!" But if it was grafted, which apparently it definitely was, and, like, the top is dead and now it's only that bottom original one. What do you think that thing is?

BERONDA MONTGOMERY [00:27:51] It's hard to know. It's probably, it has to be another citrus because usually they graft plants that are closely related. And a lot of times what they do is probably, it could be another lemon rootstock. A lot of the lemons that grow wild in nature that you wouldn't want to eat the lemon because the actual lemon is pretty small, have really resistant roots. And so they often will take that as the base and then put on top of it the one that makes the big, fleshy lemons that we like to eat and use in cooking and things like that.

JVN [00:28:18] So will it ever flower, do you think, if it was grafted, is the bottom one, like, dead or something?

BERONDA MONTGOMERY [00:28:23] Does it have any branches on it or they just did the root stock.

JVN [00:28:26] No, it has branches and it's growing, there's leaves and stuff.

BERONDA MONTGOMERY [00:28:29] Okay! It might flower. Yeah. If it still has branches it might. Yeah.

JVN [00:28:32] But it also, could it also just be, like, a green leafy lemon tree that never flowers?

BERONDA MONTGOMERY [00:28:37] It could be. It depends on how they cut it. Yeah.

JVN [00:28:42] So not to go so off track from my planned questions but, like, in that ice-pocalypse, why did my baby die? Why did that one die? And, like, why did all the other trees die? Like, what happens when a tree freezes to death?

BERONDA MONTGOMERY [00:28:55] If trees are exposed to cold over kind of an extended period, like the natural transition from fall to winter, they have time to prepare. They start to sense that the days are getting cold and they start to make this antifreeze. Right. But if cold comes in suddenly without them having time to kind of turn on their protective mechanism, if you like, snap a branch within the branch, there are two pathways. One of them is the phloem pathway where the sugar goes from the leaf to the roots and the other is called xylem, where water comes up from the root to the tree. And so if you don't have enough time to get, you

know, the equivalent of antifreeze when cold comes in, that water freezes in the branch. And when water freezes, it expands like ice. And so it causes this internal damage that kills the tissue. And that's generally why a lot of the branches die.

JVN [00:29:47] Because that ice-pocalypse, Beronda, there was, like, this mini ice-pocalypse right before that one and then another one, but they were only, like, a week apart. And we were here for the first one, but then we weren't here for the big one. But even in that first one, we were, like, watching TV and then all of a sudden, like, it sounded like thunder, but it was literally, it was, like, a tree exploding because they had like frozen, like, literally, like, shattered, like, Game of Thrones-style. And like, it left, like, the first, like, six feet of the tree, but all of the top of it, literally just, like, shattered and fell to the ground. I mean, it was still in like branches and like parts that didn't, like, disintegrate, like dust, but it was, like, all fucked up. So that's what happened in there. Like all of it. Just, like, it froze and then it just, like, [cracking sound].

BERONDA MONTGOMERY [00:30:30] Yeah, so it can expand, and then you get cracking, and then branches fall off, and it can be really damaged.

JVN [00:30:35] Yeah, because we just heard, like, crazy noises randomly, like, that first. So that's what happened. Okay, devastating. Now I'm going back to my planned questions. Wow. Okay. Yeah. So what is the deal with my one tree that's, like, grafted, like, when I was thinking about, like, you know, wanting to learn about budding. But then there's also, like, that other type of, like, bud, like, you can, like, "bud a tree." What's that?

BERONDA MONTGOMERY [00:31:02] Yeah. So people do a lot of, like, what they call bud grafting or grafting of, of plants and trees, it's actually quite common in horticulture as well as agriculture. And a lot of times it really is to try to get plants that are more resistant in terms of the roots. But the shoot is making whatever kind of leaf or fruit or nut that we really want. So I lived in California for several years, and if you drive through the agricultural parts of Northern California, like, through the walnut groves, all of the walnut trees are grafted. So you see a completely different kind of three at the bottom and on top there's a completely different part. And so this kind of grafting is common in horticulture to make plants that are supposed to be more resistant and more resilient.

JVN [00:31:45] So but, like, whatever the walnut tree is grafted to it needs to be something that's, like, kind of closely related. So it's have to be, like, another nut tree.

BERONDA MONTGOMERY [00:31:53] Yeah. So most in fact, most of the trees are two walnut species. So the bottom is usually black walnut. And I don't know if you've heard about black walnut. Black walnut can be a real problem in yards, because black walnuts make this compound called juglone, which is actually a toxic. And so it does that because it releases it into the soil. It's also sometimes in the leaf and, like, the, the nut covering. And basically it serves as a pesticide, so it keeps other plants from going too close to it. And so it's basically

like a competition: “I don't need any other plants growing.” So by using that as the root stock in agriculture, it keeps farmers from having to apply herbicides. They just use the kind of natural properties. But black walnut nuts aren't the ones that we like to eat. We like to eat English walnuts. And so they use the black walnut bottom to keep other weeds from growing and graft onto the top of that English walnut that makes the meat, you know, kind of meaty walnuts that we really like to eat and cook with. It's fascinating.

JVN [00:32:51] So, okay, I think I understand. Okay. Okay, yeah. Okay. So, like, how did people figure that out that you could like merge and how do you do that?

BERONDA MONTGOMERY [00:33:05] So it's really quite interesting. It can happen naturally sometimes in nature. You can sometimes find two plants that are growing so close together and if they got wounded, you'll see where two of their branches started to kind of fuse. So it's a natural process that can happen. But it was actually one of Aristotle's students is, like, known as the father of horticulture. And so he's the one who's actually, like, in 300 B.C., one of his students was the one credited with first doing the grafting where they would cut one plant and cut another, and you put them together. And if you keep the fusion together close enough, they start to grow together and reform the connections. But I'm almost convinced this, you didn't ask me this, I'm convinced that there were, like, Indigenous people around the globe that knew how to do this because that's how it usually goes, right? If you look in nature, there are some species that are just very hardy. They're resistant to pests. They can resist, like, vine borers and all of that, but they often don't make the fruit. And so I think people just started doing kind of tests to see, “Well, can we use this to actually get the thing we want to grow more hardily.” So it’s been around for a long time.

JVN [00:34:10] I need to put, like, that skinny borer vine moth-resistant squash real on, like, something vine.

BERONDA MONTGOMERY [00:34:18] Yeah. Yeah.

JVN [00:34:20] How can I do it? Can you do that?

BERONDA MONTGOMERY [00:34:21] It's hard! That, that's the problem is that it's actually hard to do with some plants. If you graft 100 plants, only five of them might survive. So that's why a lot of times people just rather plant a lot of squash or a lot of pumpkins and sacrifice some of them, hoping some of them stay healthy.

JVN [00:34:35] See, that's the hard part.

BERONDA MONTGOMERY [00:34:37] That’s hard. It is.

JVN [00:34:38] Cause I don't want to sacrifice any. I want them all to live.

BERONDA MONTGOMERY [00:34:41] I know. That's why when I thought that your pumpkins might flower and then die, I didn't want that for you. I knew that would break your heart. So I was like, “Just, thin them out.”

JVN [00:34:50] You know? Yeah. You know, that was, that was really good. That was really good. Okay, that's good. Okay. So, like, let's say that, like, someone wants to, like, bud an apple tree.

BERONDA MONTGOMERY [00:34:58] Yes.

JVN [00:34:59] Like, can they? Like, can you do it at home?

BERONDA MONTGOMERY [00:35:02] Yeah. A lot of people actually like to do budding and it's, it can be fun to do, but it's actually relatively easy to do. So if you have, for example, okay, say, for example, your lemon, the one that has the really good rootstock, but you want it to graft on it, to its some buds to try to get it to start to flower more. You can actually take a bud from a very small tree and graft it onto one that's more mature. And a lot of people do that because often if they want to do, like, an apple tree or a citrus tree, if you start from a very young tree, it'll be ten years, right, before you're able to actually get fruit. But if you take bud from a young one and grafted onto one that's more mature, sometimes you can get it to fruit earlier. So what you do is, you know how earlier we were talking about how the leaf is on the branch and that under the leaf there's that little bud? So basically you get a branch that you can see has healthy buds under the leaves. You cut that off and then most people go and cut all the leaves off, but not not all the way to the branch. You leave, like, maybe an inch because you're going to want something to handle it by.

So basically you end up with just the branch of a tree that has the little nub of the leaves that are on there with the bud underneath. And then you go in with a knife and cut, maybe, let's say an inch below where the bud would be and then above the little nub. And then you just slice that out. So you have the little, tiniest little piece of the stem that has the bud and just a little bit of a handle. And then on a rootstock that you want to put that on, you cut something that's the same size, so it fits together like a puzzle piece. So you cut on the growing stem of a root and you have to do it enough that you actually expose the living tissue, right? So you'll see, like, little secretions. And the reason you want to keep that little piece of the leaf, you never want to touch the parts that are the living parts that have a little liquid because you'll introduce bacteria or virus or something from your hands, and that will cause it to be sick. But basically, you take that little piece you cut and you put it on the living rootstock and then you take something, there's grafting tape, or you can use plastic, and you wrap it around, so that they're stuck together tightly. And usually you want to do that in the fall when the little buds have just been made. You wrap it up and you leave it there until spring. And then in spring you unwrap it and they have fused together and then that bud and that will grow off. And so you really it's like creating two little puzzle pieces, putting them together and making sure they're not, you know, there's nothing in there to cause an infection.

JVN [00:37:26] So if I had, like, a different healthy, like, juicy lemon tree, which I do have, just so you know. So if Mark and I took like a little piece of one of our, like, yummy lemons, we had grab onto the bottom of the one that survived so we could, like, Frankenstein, that fucker back to life, and like—

BERONDA MONTGOMERY [00:37:43] Yes, get new kid new branches to grow off of it. I was thinking that when you said that the root is I was like, "Oh, this is perfect." You can use it. Yeah.

JVN [00:37:52] I think I need to, like, fly you to Texas. We need your help. Like, make sure that me, like, we need to, like, sanitize our hands. Like, get it just right. Wrap it up with the grafting tape. Like, if I can resurrect this lemon from the literal, this is going to be next level. It's, like, it's, like, a whole series I'm—. So how are we going to know if, like, if it is on track for success, you just have to, like, keep the hands clean, do the cuts just right?

BERONDA MONTGOMERY [00:38:21] That's why some people use grafting tape, is why I like to use it. I've done it in the, in the laboratory. I'd like to use plastic to do it because you can actually see it. And if it's not working, it starts to look brown like, you know, tissue that's dying. And you can see. But if you still just see the kind of color of the tissues that you put together, it's likely not dying, which means that there's something positive going on. They call it, like, a compatible grafting.

JVN [00:38:46] What if they're incompatible? It just dies?

BERONDA MONTGOMERY [00:38:50] Yeah. So they can be incompatible just because they don't healthily live. Or sometimes some plants produce something that's called, like, cyanoglucoside, which is basically, you know, a cyanide is a poison cyanide connected to a sugar. Some plants produce that to protect themselves in nature. And if that gets transmitted to the little, but sometimes the cyanide actually gets released and can kill it. Or sometimes it's just because they're not compatibly put together.

JVN [00:39:15] Dev.

BERONDA MONTGOMERY [00:39:17] Yes.

JVN [00:39:18] Okay. So, like, like, ooh, can a tree ever, like, grow more than one type of fruit? Like, if I grafted the new tree and, like, it was successful, but then, like an old branch grew. Like the old thing.

BERONDA MONTGOMERY [00:39:35] Yes, actually, yes. So they do that a lot sometimes in, in orchards where they will have a say, a macintosh apple tree where they will graft on a different kind of branch. And so they'll be one branch making a different kind of apple on an otherwise

tree. But one of the most fascinating examples, a few years ago, I was a part of this conversation that they were trying to get scientists and artists to, you know, interact. And I got to do a conversation with this artist named Sam Van Aken. He has done something called "The Tree of 40 Fruits." If you've never seen this, you have to see pictures of it. I still want to go see it in person. But basically, he grafted 40 different stone fruits on one tree. So he's an artist and he wanted to have a tree that had all different kinds of flowers and colors of flowers. And so this tree has 40 different kinds of plums, nuts, nectarines, that it makes on one tree. And the pictures are gorgeous. I begged him that I can come and see it in person one year. I really want to see this thing in person.

JVN [00:40:35] How long did it take him?

BERONDA MONTGOMERY [00:40:37] He said it took him about, I think three or five years to make the first one. He's made several and apparently now he's installed them because he's an artist. He did it for a visual art project, but now it's also part of his understanding of ways to use this to increase, like, preserving biodiversity.

JVN [00:40:56] How long will those trees live, do you think? Like what's, like, the base of it? Like because it does it kind of depend on, like, how long, like, whatever it's grafted onto's lifespan is, like, how strong that phase is?

BERONDA MONTGOMERY [00:41:06] So it really is driven by the lifespan of, you know, the root. But as long as the grafts are successful, they can grow for quite a long time. I know some of these are quite old and I really do want to see them in person, in bloom.

JVN [00:41:18] What's "quite old" mean? Like, 30 years?

BERONDA MONTGOMERY [00:41:20] Yeah, I think he has some that he started. I think he started the first ones in, like, 2004, 2008. So it's been almost 20 years that these have been growing and healthy.

JVN [00:41:30] Yeah, that is so cool.

BERONDA MONTGOMERY [00:41:32] Yeah. Yeah.

JVN [00:41:33] What about, like, a hybrid, like, fruit or flower? Like, like, like, grafting them together and then, like, a lemon-orange or something.

BERONDA MONTGOMERY [00:41:45] Oh yeah. So you don't, they generally don't like whatever branch you graft on continues to make the fruit that it was supposed to make. So there's you like, don't see a fusion of the fruit or flowers usually.

JVN [00:41:58] Okay, wait. This just came to me. What? Especially with, like, trees. What does budding have to do with, like, sex? Like–

BERONDA MONTGOMERY [00:42:08] Yeah.

JVN [00:42:09] Is it something, do they… [SINGING] How do they get it on?

BERONDA MONTGOMERY [00:42:15] Yeah. So it's, there's all kinds of trees. There are trees that only make male flowers. There are trees that make only female flowers. And then there are trees that make flowers that are have all parts. And so it depends on the kind of tree. There are cases where budding is really important. So for example, if you're growing a pear orchard or something and you only have pear trees that make male flowers, sometimes they will graft in a branch from a tree that makes female flowers so that there's both parts that they can reproduce. And so sometimes grafting is used to make sure that you have all the sperm and the eggs to produce offspring. So it depends on the kind of tree.

JVN [00:42:55] What about, like, just yearly budding, just, like, normal, like, like, trees just, you know, having their normal buds. Does that ever have anything to do with, like, like, sex and reproduction, like for trees?

BERONDA MONTGOMERY [00:43:09] It does in the sense that for the trees that make both male flowers and female flowers, if you don't get those buds produced in the right ratio, sometimes the tree won't have a successful year because it'll have more male flowers than female flowers, and then there's not enough parts to have successful production of offspring. So that's a lot of times driven by what happens in the environment, you know, in terms of how it impacts the development.

JVN [00:43:34] So just in the way that my pumpkin vines have like male and female flowers.

BERONDA MONTGOMERY [00:43:37] Yes.

JVN [00:43:38] The tree has that. So then they just get, like, introduced and then they just, like, drop a fertilized tree seed in the ground and it grows?

BERONDA MONTGOMERY [00:43:47] That's how it goes, yup. So that's why all the acorns and pine cones when they drop, those are often, you know, they're and they either germinate right next to the mother plant or sometimes, you know, they get blown around or carried around. And then you have the trees produce elsewhere.

JVN [00:44:04] And then, I think we talked about crown shyness this last time, didn't we?

BERONDA MONTGOMERY [00:44:07] Yes, we did. We did.

JVN [00:44:09] But then, like, all trees don't have crown shyness. Then some trees grow to fuck into each other, like, they don't give a fuck.

BERONDA MONTGOMERY [00:44:18] Yes. Yeah, yeah. Not all of them have it.

JVN [00:44:21] Why do some respect each other's space and others of them don't give a fuck.

BERONDA MONTGOMERY [00:44:25] You know, it's interesting because I don't remember if we talked about this last time, but a lot of times the ones that protect each others' space are sometimes much more closely related. So it's like a kinship where, "If I survive and grow, I don't want to damage the person or, you know, the individual that's most closely related to me." And a lot of times where they just grow into each other, they are not closely related. And so it's a competition response of who can get into the space more quickly.

JVN [00:44:48] Yeah, because what the fuck is up with these cedar trees? They have, like, these, like, weird, what are those leaves? What the fuck are these? What the hell are these goddamn cedar trees all over the place?

BERONDA MONTGOMERY [00:44:58] Cedar trees are just about themselves. And that's, you know, every, um. Every man for himself.

JVN [00:45:03] And they look crazy out here with, what are those, like, cause their leaves aren't like other people's leaves?

BERONDA MONTGOMERY [00:45:10] No, they make, like, a modified, I think it's called a modified bracket or something, but it is a modified form of the leaf.

JVN [00:45:16] It's like a pine needle. More than like a leaf.

BERONDA MONTGOMERY [00:45:17] Yes almost. Yes, yes. Yeah.

JVN [00:45:20] I don't really love those.

BERONDA MONTGOMERY [00:45:22] You don't like those, I can see it on your face.

JVN [00:45:25] They're also a fire hazard. And I'm, like, worried about that.

BERONDA MONTGOMERY [00:45:27] That is so true. Yes. Yes.

JVN [00:45:29] So what about fucking climate change?

BERONDA MONTGOMERY [00:45:34] Yeah. So climate change is a problem. So generally you can predict each year when a certain kind of tree is going to bud, it's very predictable. But

climate change is shifting that. And so sometimes the period for budding happens too early or it happens too late, and that affects whether the flowers are maturing at the same time. So it actually can affect whether they are able to have successful reproduction. And so climate change is really changing a lot of things about how predictable this happens. And then also with, like, the, you were talking about the storms that we get, where we get ice. We in Michigan have been having, you know, a few days of warm days in the middle of winter and trees will start to bud too early and then the cold comes again. And so this whole climate change is really affecting tree longevity in terms of shifting all of the kind of predictable patterns of when it's the right time for the buds to break.

JVN [00:46:28] Ah! Do they have any ways to protect themselves if there is those warm days, but then it gets cold again? Like, can they maybe they can adapt to, like, get their antifreeze then faster, but maybe they won't be able to adapt fast enough?

BERONDA MONTGOMERY [00:46:42] I think one of the ways that we see some adaptation is that they can change the number of buds they make. So they make way too many buds. And then if there's some damage, there's still enough for the tree to be successful. But I think the thing about climate change is that often the change is too fast for them to adapt. That's the biggest problem with climate change. Trees are very adaptive. Plants are very adaptive, if the change happens slow enough, like, over evolutionary time. But the problem is that climate change happens much faster than they're able to adapt. And that's why it's more damaging than not to trees and plants.

JVN [00:47:14] So what about, like, is there anything about, like, rain forest trees that's, like, different about, like, budding or reproduction or, like, shedding that's, like, different than, like, the trees that I have around here in Texas?

BERONDA MONTGOMERY [00:47:29] Even when seasons are changing it's really stable, sometimes deep in the rainforest. So some of them make the bud and the bud grows immediately. They don't always go through that kind of rest period because their, their environment is much more stable. And then there are lots of trees, there are so many tree species that we don't even know enough about. I think there are lots of interesting things that are probably happening in some of those spaces that we just don't know about.

JVN [00:47:51] What about, like, rainforests with, like, longevity of trees? Like, is there any rainforest species that can live, like, 600 years? Or is it still, like, too hot and steamy so they like, disintegrate or something?

BERONDA MONTGOMERY [00:48:01] No, there are lots of–, some of the tallest trees in the rainforest are really quite old trees. And so there are some trees that grow quite long, even in rainforest as well.

JVN [00:48:12] And then what about, like, conservation? Because, like, obviously, like, logging and, like, climate change and then, like, you know, deforestation. Like, what is it, like, who's doing, like, the work of, like, preserving tree biodiversity and is anything, like, really working really well?

BERONDA MONTGOMERY [00:48:28] Yeah. You know, it's, it's, I think one of the problems is that too frequently our kind of approaches are if we de-log an area, one of our practices is reforestation. But the problem with that practice is that when you take out trees, you take out also the other organisms, the, you know, the butterflies and the invertebrates and frogs and everything that live in that niche. So even though we can sometimes preserve tree diversity by reforesting, we often are affecting other parts of the ecosystem. And so I think the best kind of practices that are out there are really going back to what's been known for a long time from Indigenous communities, is to do sustainable logging, where you go in and take out trees selectively without taking out clear cuts and taking out full areas so that you try to maintain the biodiversity and other plants and animals that are in that area. That's harder because most of us are in capitalistic societies and it's cheaper to just cut everything down than it is to kind of go in and carefully do sustainable logging. But I think we really have to try to look to places in the world where they're doing these sustainable practices to ask how we can do more of those.

JVN [00:49:35] And then maybe, if you are in a position where you're, like, buying timber, maybe is there, like, ethically sourced timber where it's, like, not just reforestation but more of like that fierce, like, indigenous way?

BERONDA MONTGOMERY [00:49:46] Yeah. No, it's so interesting that you ask that because I had just it's not even out yet, but I just wrote an article actually for a magazine, New Scientist magazine, about sustainable plant practices. Because, you know, I have friends who are pescatarian and we talk a lot about sustainable fishing, but we don't talk enough about sustainable practices for getting houseplants, you know, sustainable practices for gardening and sustainable practices for logging in trees. And there are ways to, to get wood that has been sustainably sourced. And there are ways to give wood from trees that have naturally fallen. That's the variety that you want. So I think there's a lot of conversations we do need to have about how we can do more sustainable plant-based practices like we do other kinds of sustainable fishing and everything.

JVN [00:50:28] There is so much plastic, like, when we do our gardening, there's just, like, everything comes in these plastic containers and none of that plastic's, like, recyclable. It's all, like, the type five and six and like those don't get recycled as much. Yes. Yeah, I noticed that. And then also, do you watch Gardeners World? Are you into that show? We're obsessed. I think we talked about that last year, but we thought that, like, "Oh, like we couldn't possibly be getting a soil that has like peat moss in it because, like, we're all the way over here and, like, who's getting fucken peat moss all the way in Texas?"

BERONDA MONTGOMERY [00:50:59] Yes.

JVN [00:51:00] There is fucking peat moss in our yard. We looked at the ingredients, and so now we got to, like, we can't use that kind.

BERONDA MONTGOMERY [00:51:06] I am so glad you–, that's one of the things I talk about in this article. Not enough people realize that peat is such one of the worst practices for our planet is the ways that it is harvested.

JVN [00:51:15] I thought that we just couldn't even get over here. But, and then I felt so–, but we're composting our balls–. Excuse me. I'm not going to say that to a professor we are composting so much and we are making so much good compost.

BERONDA MONTGOMERY [00:51:27] And that's the thing. Composting is so important.

JVN [00:51:29] We are making so much and, like, now none of our stuff, like, goes to waste and it's just, like, so awesome. I love it.

BERONDA MONTGOMERY [00:51:34] Yes, yes. See, I knew you were awesome. You already know about the dangers of peat. You're just awesome.

JVN [00:51:40] Well, because Monty Don's talking about it. But I was devastated because I couldn't believe that we were, like...

BERONDA MONTGOMERY [00:51:46] Getting it even when you thought you weren't. Yes. Yes, yes.

JVN [00:51:51] I mean, we talked about this, like, a little bit, but you have written so beautifully about, like, trees and trauma and aging. And can you share some of those connections with us here or anything else that you want to share around that with us?

BERONDA MONTGOMERY [00:52:03] Absolutely, every winter I think about I think about this and I think the thing I wrote most recently about Lessons From Trees: On Healing is, you know, in the winter you can really see the branches of trees and you can often see the entire trunk, whereas, you know, in summer you can't see everything. And so I often look at those branches and the trunk so closely in winter because you can really see the history of a tree. I mean, you can see places where many of your trees lost branches during the ice storm and when trees lose a branch or I was recently in Iowa where they had a derecho, which is, like, an inland hurricane. So lots of the trees that lost the complete tops of their trees. When you look at how plants respond to that, how trees respond to that, they do it in a way that I think has real lessons for us as humans about trauma and recovering from trauma. And that's that if a plant loses a huge branch, there is a wound there. And there are two phases of responses. Trees have a really rapid response. They start to make chemicals, which are really like an antiseptic,

to keep everything clean so that no bacteria moves in. And so they make this compound to really clean up the damage that they've experienced.

And then they slowly, if you look at a tree, you'll see a branch that's been broken years ago. It has on top of it, like, this cap that looks like a big scab. That's the second stage. So after they clean up the damage, they slowly make what's called callus, which is this soft tissue which ultimately covers over the damage. And I think that these are important lessons for us that healing has to have those two stages where you recognize the trauma that's happened and you clean it up before you cover it up and allow it to slowly heal so that the plant can continue to grow. And I think as humans, our our response to trauma is to cover it up quickly. We don't like to see the damage of trauma. So we just want to say, you know, if someone harms us, how fast can you tell them you forgive them and move on? But I think we have to have the step where we acknowledge the damage and we clean it up, whatever that cleanup process looks like.

I think one example of a cleaning up process is truth and reconciliation, right? Where you say to someone, "This is how I've been damaged, this is how I was functioning, and how are we going to clean this situation up?" And then you go through the process of healing not quickly, but to do the healing in a way that's complete so that that is closed. The other lesson that I draw from that is that when plants heal that off, that's closing off a path. No new branches are coming from there. You have to have new branches elsewhere. And I think too frequently we want to just stay on the path and move forward. And sometimes the correct response to trauma and healing is to cut something off and to find a new path. And we don't like to do that. We, we think that cutting things off is really harsh, but sometimes that's the path that has to happen for healing. So those are some of the lessons I reflect on from trees about how we can really acknowledge and heal from trauma.

JVN [00:54:51] Really quick question about that second stage just got like cool tree scab. Is that, like, different than bark, what it turns into?

BERONDA MONTGOMERY [00:54:58] Yeah. So it starts as it turns into a form of bark, but it starts out as a really if you see it when it's first happening, it's really soft tissue that's often a little bit translucent. You can probably see it if you have a break off, lik, that, maybe even on your on your plants, you can see they do something similar. Yes. Yes.

JVN [00:55:16] Ah, wow. Next level. Like, I, I love you so much. I'm so grateful for your expertise and for your time. It's, like, so if people are just, like, so obsessed with trees. Now, where would you direct them to learn more about trees?

BERONDA MONTGOMERY [00:55:31] There are so many places where you can learn about trees. There are some great books out. There's a book out called Finding the Mother Tree from Susan Zimmer, where she talks about how trees are connected and community. David George Haskell has written some beautiful books about trees. And so there are lots of books

about trees, but there are also lots of tree communities that, you know, people on, in social media spaces and the Audubon Society and other places often have articles about trees. So I think there's a lot of places. And then botanical gardens are great places to go. The people who are the docents who work there often have such great knowledge about the trees that are growing there and knowledge about plants and trees.

JVN [00:56:09] I love that. Okay, so, so good. So but then also because you're going, you're moving to Iowa from Michigan. So, like, how is your plant life in Iowa going to be, like, differing than Michigan?

BERONDA MONTGOMERY [00:56:23] So, you know, I think my garden season is going to be a little longer, so I'm excited about that. And I bought a house where the person who lived there had some beautiful raised beds, and I convinced them to leave them all. So I'm really excited about gardening next year, but I'm also excited about where, where I'll be living is right in the middle of where this derecho happened. And so one of the things I'm excited about is watching some of these trees recover from their damage and to ask what we can learn as a community about watching that process.

JVN [00:56:51] And then what city is Grinnell in?

BERONDA MONTGOMERY [00:56:54] So Grinnell is actually in Grinnell, which is a small, sleepy city that's halfway between Iowa City and Des Moines.

JVN [00:57:01] Okay! All right.

BERONDA MONTGOMERY [00:57:04] So I'll be in Des Moines a lot because that's where community is. But, you know, it's one of those things. You live in Texas, so you probably understand this.

JVN [00:57:13] My hometown is, like, an hour and a half. And I've driven through everything because, like, I am from Quincy, Illinois, and I went to school in Minneapolis, Minnesota. [CROSSTALK] So I used to drive through, like, Cedar Rapids, Des Moines, Iowa City.

BERONDA MONTGOMERY [00:57:25] Yeah. Well, I will say Iowa. I'm from Arkansas, which has its challenges. Iowa certainly has their political challenges. Iowa was not on my bucket list, but Grinnell is a campus that is committed to social justice and community change, and it was an opportunity to go and do my work in a place where you don't have to convince them to be committed to social justice, they're ready. So that's the part that excites me about the next few years.

JVN [00:57:47] And your vote is, like, equally needed in both places. So it's, like, you know, you're doing great. So it's like.

BERONDA MONTGOMERY [00:57:51] That's so true! You understand this living in Texas!

JVN [00:57:53] You're still doing good in Iowa. You know, it's not like you're moving to like Jersey or New York City. You know that there. Yeah. It's like it's really neat. [CROSSTALK] I was so excited for you and for your new role. It is so deserved. You are such a powerhouse educator and I love you so much.

BERONDA MONTGOMERY [00:58:08] Thank you so much.

JVN [00:58:09] I mean, you're just next level. I was just so grateful for you and your time and thank you for coming on Getting Curious.

BERONDA MONTGOMERY [00:58:14] I am so excited to be here and I look forward to our next gardening updates in the DMs. I always look forward to them.

JVN [00:58:19] I can't wait! And I already can't wait for you to come back already. So thank you so much for coming.

BERONDA MONTGOMERY [00:58:23] Thank you. Thank you.

JVN [00:58:24] Yes. You've been listening to Getting Curious with me, Jonathan Van Ness. My guest this week was Professor Beronda Montgomery. You'll find links to her work in the episode description of whatever you're listening to the show on. Our theme music is "Freak" by Quiñ - thank you so much to her for letting us use it. If you enjoyed our show, introduce a friend - show them how to subscribe. You can follow us on Instagram & Twitter @CuriousWithJVN. Our socials are run and curated by Middle Seat Digital. Our editor is Andrew Carson. Getting Curious is produced by me, Erica Getto, and Zahra Crim.