

**LEARNING**

**HOW**

**TO**

**SEE**

with

**Brian**

**McLaren**

Season 6, Episode 2  
Seeing Nature as a Scientist (Part I)

feat. Paul Wallace

Brian McLaren: In the previous episode, you met some of my grandchildren. I have another granddaughter who was taking a walk with me one day around the neighborhood, and I picked up a little piece of stone or gravel that was nearby. And I showed it to her and I said, “Did you know that every stone tells a story?” And she had big curious eyes, and I said, “See this stone? You can see layers in this stone. That tells me that this stone formed from layers of mud that were on the bottom of a big lake or a big ocean.

And over time there were so many layers that the bottom layers of mud became hard as this rock. And now here this rock is and we can learn its story.” She had never really thought about rocks as having a story before, so she then for the rest of our walk would run and see a rock somewhere and grab it and bring it to me and say, “What’s the story of this rock? What’s the story of this rock?” It made me wish that I paid more attention in geology class back in college.

It strikes me that science is about storytelling, the story behind a rock, the story of how a planet came to be, the story of how a mountain range rose or was eroded into a beautiful canyon. In the Bible, we have stories, Genesis stories. Interestingly, there are two, as if we need more than one story to help us make sense of how the world came to be. I think we have a sense across cultures, across religions that if we want to figure out what to do and how to be, we need to know the backstory that brought us to where we are.

And so storytelling from our natural world as well as from our human stories and individual biographies is so deeply important to us. In Charles Darwin’s notebooks, there’s a page where he has a simple tree diagram drawn. And I just imagine when he drew that tree diagram probably while he was on a ship heading across the Pacific Ocean, he must have suddenly seen something that really I don’t know if anyone had ever seen before.

That tree diagram became the image for him of a family tree, and he saw that every species had a lineage that it came from that connected it to other species. And those species were connected like smaller branches to bigger branches and bigger branches to still bigger branches to a trunk that eventually unites us all in one family. What Charles Darwin saw is what St. Francis saw in his great Canticle of the Sun when he sang of all creation, sun, moon, wind, air, fire, water, even death as part of one family tree, one story.

I know that for many people the way to mystical insight involves sitting quietly and deep meditation and contemplation, but I also know that for many of us going for a walk and picking up stones or maybe even talking to a scientist and learning this story behind things can lead us to deep sense of connection and wonder and awe, reverence, even worship. Because among other things, contemplation includes a sensitivity to story, not just to the description of what something is, but a sensitivity to what it has been and is still becoming.

We open ourselves to the was-ness, is-ness, and becoming-ness of everything we encounter, including ourselves. Listen as I read from *Life After Doom*. This is a short reading from chapter 10 of *Life After Doom*. After letting go in the place of letting be, we feel like castaways who have washed up on a new shore. Surprised to still be alive, we wake up. We blink. We open our eyes wide, but everything looks different. We feel we need to learn to see all over again. We who thought our civilization was superior and exceptional begin to see its downsides.

And so we turn to Indigenous peoples for the treasures of insight that colonial civilization tried to destroy. We realized that our sacred texts are actually repositories of that Indigenous wisdom, and we understand why our civilization's authority figures trained us not to see that wisdom. If we open our eyes wide enough and long enough, we hear echoes of the Sufi poet Rumi's most famous poem. We realize that "out beyond ideas of wrongdoing and rightdoing doesn't mean a field of amorality where right and wrong don't exist or don't matter."

Rather, Rumi's field is a place where we see that our ideas of right and wrong are simply that, our ideas. Whatever right and wrong really are, they may not correspond to our simplistic ideas as people shaped by a civilization that has proven itself both wildly successful, amazingly arrogant, and deeply unjust and unsustainable. There's a story that helps me begin to see what can be seen in Rumi's field. I've heard it told in a variety of ways sometimes as a Chinese folk tale, sometimes as a Buddhist parable.

It goes like this. Once there was an old Chinese farmer who sat in front of his house each evening to watch the sunset. Just after dark one evening, his son came home leading a beautiful stallion. "Father, I have wonderful news. I found this horse today wandering near our fields. We never could have afforded such a wonderful creature. Such good fortune." "Maybe it's good," the old farmer said to his son. "Maybe it's not." The next day just before sunset, the old man heard a commotion.

The neighbors came carrying his son on a stretcher. "Sir, we have terrible news. The stallion threw your son and ran away. And worst still, your son's leg is broken. This is terrible fortune." "Maybe it's bad," the old farmer said. "Maybe it's not." A few days later, a group of soldiers came to the old man's village drafting all young men to go to war. The farmer's son couldn't walk, so he alone was spared from going to war. His neighbors came to him again. "It's such good fortune that your son had that accident.

Now he doesn't have to go to war. And even if he walks with a limp, at least he can take care of you in your old age." "Maybe it's good," the old farmer said. "Maybe it's not." The story goes on and on with various twists of fortune, and each time the old farmer's refrain is the same. Maybe, maybe not. The old farmer saw enough unexpected consequences through the years that he had learned not to rush to judgment as quickly as his neighbors.

People who study the subject of contemplative transformation, a personally transformative experience, a kind of mystical awakening, often speak of the experience of an intimate vastness. Put those two words together, vastness and intimate. We all know there's something breathtaking to us about being exposed to something vast.

In fact, the word gorgeous that we use to mean super beautiful really relates to how people feel when they look into a gorge, a river gorge, where we see a vast amount of empty space carved by a river, and then to feel both vastness and intimacy, connection, warmth. That combination is... There's something about it that is very unique and deep and powerful in our lives. It speaks to us in ways that we could never put into words. I had that feeling of intimate vastness when I was talking to today's guest, Paul Wallace, who is a nuclear physicist in his day job and an astronomy professor.

Nuclear physics takes you down to the very tiniest subatomic particles and astronomy takes

you to the largest celestial structures. And he has a particular love in his life that brings into this vastness something very intimate and personal. I'm glad you're going to get a chance to meet him in today's episode of Learning How to See. It is not often you meet a person who has a master of divinity degree and a PhD in nuclear physics, even rarer when that person is also a great lover of birds and a serious birder.

And that is my guest today, Paul Wallace. Paul, we are thinking about how we see this natural world, how we see nature, and I just thought I would love to have Paul here to talk about that. So thanks for being here. Could you tell folks a little bit more about yourself, your teaching and life in general?

Paul Wallace: Yes. I teach physics and astronomy at Agnes Scott College, which is a women's college in Decatur, Georgia. Decatur is just right smack upside the City of Atlanta. Decatur was actually here first and then Atlanta grew up around it. So that's where I live. That's where I was raised. I was raised a few miles from here, lived in Georgia, in Atlanta for 45 out of my 55 years. And so I'm a native here.

As Brian said, I have a PhD in nuclear physics that I received from Duke back in 1996, and I taught physics and astronomy at another college in Georgia for 10 years before I resigned and went to seminary at Emory and I went and received my MDiv, gosh, 13 years ago in 2011. And since that time I've both taught physics and served on pastoral staff of a local church here.

So I have done both things. Right now I'm full-time at the college. I'm not a minister in the official church sense, but I still think of myself very much. I'm the chair of the department starting this year, and I've found myself using a number of my pastoral skills with colleagues and, of course, I use them with students all the time.

Brian McLaren: That's for sure. So I just have a quick question about you as a birder. What was your spark bird, and maybe you can explain what that is?

Paul Wallace: A spark bird is a thing in birding. It's the bird that got you sucked in. Got you, "Hey, this is interesting." The thing that pulled you into birding. I think the one was for me... I was quite young, because I was a bird freak when I was about 10. I don't know what happened to me, but I got completely into birds for about a year or two, and a cedar waxwing was in my neighbor's yard.

I had never seen one. It was the first bird that I had seen in books first, not outside my window with the feeder. We had bird feeders, but it was the first time I saw a bird that I had seen in a book and I thought, that's a cool looking bird. And then I saw one. That was the spark bird for me for sure.

Brian McLaren: Oh, that makes sense. Anyone who's seen one, they are just spectacular.

Paul Wallace: They look airbrushed. They're very strength looking birds.

Brian McLaren: So true. I don't have great eyes, and so my encounter with cedar waxwings is always by their sound and almost always, as you know, from way up in the top of the trees and usually a little bunch of them moving from one tree to another. So that

makes great sense.

Well, we could talk lots and lots about birds, but I think for people who are interested in a more contemplative or reflective life, a life that takes the deeper dimensions of life seriously, that doesn't just go along with conventional attention to money, wealth, power, pleasure, that sort of thing, I think all of us learn to see the natural world as a vehicle of meaning, and we might even say revelation and insight and framing.

You bring one of the most interesting combinations of skillsets and education to that. I mean, when I just think physics, nuclear physics, moreover, astronomy, spirituality, birding, and many other dimensions too that I'll feed in. So can I just throw it out and see what you do with this? How do you see the natural world? How does someone like you see the natural world?

Paul Wallace: That's really a great question, and of course, it would require a book probably to answer that question, but it's a phenomenal question, and it is true that the natural world has been the focus of my attention pretty much my whole life since I was very young. I'll answer that question by saying that throughout my life I've been interested in the more remote, maybe even abstract ways of investigating the world. I mean, nuclear physics is not remote in the sense that there's nuclei all around you, you're composed of them, but it is remote in the sense that it seems a little bit...

The ideas of nuclear physics and the ideas of quantum mechanics that we need to describe nuclei, it seems remote, but I've been interested in that sort of thing. Also, on the other end of the scale, cosmology and astronomy. It's been a real intellectual adventure. But the last maybe eight years of my life, yeah, eight years of my life since my dad died, I shift... I mean, I still teach quantum mechanics.

I still teach physics. I still think about these things, but my real attention has shifted to the immediate and to the imminent maybe parts of creation, and that's where birds come in. But I really see it I think as a physicist, I see it ultimately as an integrated thing. I see creation as one single enormous integrated thing with both the imminent and the more remote aspects of it all sort of in my mind somehow unified.

Brian McLaren: I'd love you to unpack that a little bit. What do you mean by that?

Paul Wallace: What I mean is that to use maybe a religious image, I feel like when I just living in this world, in this cosmos, I feel like I'm living in a cathedral, like in a single beautifully constructed, intricately constructed, mind-blowing, and again, beautiful place that is both random and not random at the same time.

It has dynamic aspects to it. It has more stable aspects to it. It has just so much going on all the time at every single possible scale of length, distance, and time. Everything from the remotest galaxies, quasars down to nuclei, all the way through living things. I could never in a hundred lifetimes comprehend it all.

Brian McLaren: So this is not to cast shade on anybody else, but I'm going to guess that there are a lot of people who study nuclear physics or astronomy who don't have that feeling so much. Maybe they do. Maybe they do.

Paul Wallace: My own bias, my own guess, my own thing is that I think they do. I just don't know if it's fully realized. I would never presume to read somebody else's mind or know somebody else that way. But still, it's consistent with my own view of the world that they are at some level the thing that actually drives them to investigate the world to do science, whatever they do.

I think that it is something that is in my mind fundamentally religious that drives people to do that. I would never say try to trick them into, oh, see, you believe in God, or some thing like that, but I think they're in the middle of the same universe I'm in the middle of and they can't help but notice it.

Brian McLaren: I should say that you have written a number of books on the subject of how faith and science converse and interact. I think just about everybody who becomes even moderately knowledgeable about science goes through some experience where it feels like the wonder of life is drained away and reduced to equations and becomes "disenchanted" and a little flat and monotone, but there's another way that the more you know makes it pop into that cathedral and make you have tears streaming down your face.

Paul Wallace: I think that does happen. I'm not sure if that ever happened to me exactly that way, but I definitely hear students express that kind of thing in some scientific writing. I encounter that as well. It does seem to sap the sacred out of things to comprehend it in this way. But for me, I don't know what it is, but I think my concept of God ever since I was very young has been pretty large. I remember, I told this story in a book I think somewhere, I went to a large urban church. One night we were running through the church.

It was nighttime. We're running through the church and we were playing some game like eight-year-olds do. We were chasing each other or something. It's a huge campus with lots of hallways. And at one point I had to get from one end of the sanctuary to the other at night because we were playing some game, and I ran in there and it was so big and so empty and so quiet and dark, I felt like a presence. It was like this really weird... And I stood there and I was like, oh, maybe God does live in here.

It was like the silence was like a thing. And it wasn't just an absence of something, it was the presence of something. And I remember just sitting there and almost getting weepy as an eight-year-old, and I think I've always had this very expansive idea of God. So I think that's kept me from that disenchantment.

Brian McLaren: Come to think of it, it happens in the world of science. It also happens in the world of theology. Some people, once they get a little more information on biblical criticism or historical theology or denominational politics or something, or similarities and differences between world religions, they go through a kind of spiritual disenchantment.

Paul Wallace: You're right, Brian. You're right about that. And I was just talking to a friend about seminary yesterday about how that happens to so many who go into a seminary like Emory at least, which tends to have a more open questioning view of things. A lot of people do hit that point. They hit historical criticism or something like that, and all of a sudden they're like, "Well, if that's all there is to it, then I'm out of here."

Brian McLaren: This is very sincere. I'm not just trying to flatter you, but I feel your students are super, super lucky whether it's in a physics class or astronomy class or what. Because

every time I hear you communicate, you communicate both the electricity of scientific understanding. You can feel your neurons are buzzing with a lot of understanding, but you also communicate this sense of awe and love and wonder at it all. I was a humanities major, English major through college and grad school, and I had one moment.

I had to take a bunch of history classes. I shouldn't say I had to. I loved them. But when you're doing British literature, you need to know British history and when you do American literature. So I was in a British history class and the last lecture of the semester in British History II, the professor talked about the British Empire ending and releasing its colonial holdings. And in the middle of the lecture he began to cry.

Paul Wallace: Really?

Brian McLaren: Now, I had one other professor cry once, but I think alcohol was involved. But this one, he literally got choked up and he stops and composes himself. And he says, "I don't mean to make you uncomfortable that I've gotten emotional." He said, "But to think of a great power surviving its divestiture of its colonial holdings," he said to me, "is one of the most moving things in all of history."

And I get a little choked up now remembering how choked up he was. But there is something of being able to see things with that sense of you used the word beauty many times. Maybe we can just hope your students catch it.

Paul Wallace: I hope so. I might've gotten close to that kind of thing in class at some point or another, but that's the kind of teacher that no matter what the subject is, you get into it because they are certain that they're talking about the most important thing in the world at that moment.

Brian McLaren: Yes.

Paul Wallace: And when somebody has that kind of connection to their subject, it's really hard to not be interested.

Brian McLaren: Yes, yes. One of the reasons we named this podcast Learning How to See is because at the Center for Action and Contemplation, one of Richard Rohr's favorite definitions of contemplation is a long loving look at the real. I suppose that word loving is super significant there because it's not simply a long analytical look at the real, although analysis can be done with or without love, I suppose.

Paul Wallace: I believe it can. I think that it can. Yes.

Brian McLaren: It could be done with hate, but it could also be done with love. So I wonder if you could talk about the scientific vision as a kind of contemplative experience.

Paul Wallace: It really is, and this is one thing that... I'm 55, so I'm on the threshold of talking to my kids about the way it used to be. And one thing that I find to be challenging with students is basically their ability. I really believe that... And this is where I start to gripe about social media and all the rest of the things that distract us and that reduce our capacity for attention. I really think that the attention required to master a subject like physics, it requires a sustained, really contemplative attention to something.

I mean, if you ask Isaac Newton what it was that he had that other people didn't have, what he would say is that he has the ability to sit and pay attention to a problem and let it rest in his mind very much like a Buddhist monk or something. I've actually taught Tibetan monks before. They can just sit, and they listen, and they focus, and they are able to hold a concept or a question or a problem in their mind and turn it around without panicking or feeling like they don't understand and arrive at an answer.

It might be the wrong answer, but still they have an ability to pay attention. And I really think the ability to pay attention is at the heart of both contemplative life and of science. The ability to just sit and pay attention and to see, to use the title of your podcast here, to see what is in front of their nose.

Brian McLaren: I want to tell you a quick story and I'd love to just hear you riff off it. This story just popped into mind as I was listening to you say that. When I was a pastor, I remember one Christmas Eve service, a member of our congregation came up to me before the service and said, "Hi, I wanted to introduce you to my friend," and this fellow worked at NASA. He would introduce himself, "I am actually a rocket scientist."

And he says, "Here's one of my rocket science friends from NASA. He is finishing up his doctorate, and he normally doesn't come to church. He's really not into religion at all, but he said he wanted to come with us tonight." So he and I start to chat and I said, "Oh, tell me what your PhD is on." And I'm sincerely curious about that, but I could tell he immediately was uncomfortable because normal mortals could not understand what his PhD was on. And he said, "I study information," and so I said the absolute pretty simple thing, "Oh, you're in computer related?"

He said, "No, no." He said, "I'm involved in the kind of physics where we see the universe as information." And that little phrase has just stayed with me through all these years. I'd love to hear your reflection on it. Maybe help people understand what he meant by that.

Paul Wallace: I don't really have a really good understanding of that. I've had glimpses of what that means. I don't understand information theory very well. But my first thought when I hear that about information is that I think of all the metaphors we've had in history for the universe, all the way from Aristotle who thought of the world as a living thing, people who think of it as a machine during Newtonian times, and now we have this emerging idea of the universe as information, and it just so happens that this is the age when we're dealing with computers.

And so we take what we have and what is the dominant way of thinking and we apply it to the universe. I don't think of it as a machine or as information because that's not the way I normally think. I'm not sure what I see it as. But anyway, the first thing that pops to mind when I hear about seeing the world as information, the universe is information is I think, well, that's a metaphor that is right at hand for us right now.

Brian McLaren: Yes, and we through history and maybe even through our individual lives, we pick up metaphors. They work for a while. We pick up another one. One of the things you have to do as you see the universe is you have to, it seems to me, you develop the ability to go from the micro, micro, micro small to the biggest macro possible, and you develop the ability to think in terms of spans of time that normal people can't really think of and in both



directions again.

Paul Wallace: In both directions.

Brian McLaren: That feels to me like a deeply contemplative process.

Paul Wallace: Boy, I'll tell you, Brian, it really is, and it makes a lot of people uncomfortable, at least at first, I've discovered with students and even with adults, when I start to talk about cosmic time, evolution, time scales, things like that. That was actually one of the things that caught my attention when I was very young was the idea of I knew the dinosaurs had come before us, but I had never really properly stood face to face with deep time until I was about 10 or 12. And it made a deep, deep, deep impact on me.

For some reason, I was ready to absorb that and I did. I think at its worst, it can generate a feeling of hopelessness, a feeling of futility, a feeling of what does it all mean? I think at its best, it can encourage humor and humility, this idea of the scale both in space and time of the universe we live in. It's pretty awesome.

Brian McLaren: It's pretty vast.

Paul Wallace: There are different ways of visualizing it, but I don't think any of them really... I could talk all day to you about it, and I'm not sure that I could really convey the thing that I'm talking about.

Brian McLaren: That you get a feel for because of your work over many, many years. Yes.

Paul Wallace: Occasionally you get a glimpse of.

Brian McLaren: Yes.

Paul Wallace: It's almost like somebody has a contemplative experience. It's like, oh my God, I see it, but then it's gone. But for a second there I was like in this existential free fall. And then all of a sudden, I'm sitting back in my office again. It happens periodically like that, but not when you expect it, not when you try to make it happen. You're just thinking about something, then all of a sudden, it goes.

Brian McLaren: Well, one final question. We are living in this time when we human beings are finding out that we're putting the earth in real danger on many different levels. I'd love to note maybe for you as a human being, for you as someone who loves birds, very particular set of species that are each struggling in the face of human expansion and climate change especially and just thinking about this whole planet, how is this sitting with you? How are you living with this awareness?

Paul Wallace: It eats me up a little bit. I think it struck me a couple years ago really when Audubon Society came out with a result of a I don't know how many decades long survey, at least probably I'm guessing a 50 years worth of data or so. They came up with basically the decline of the bird population. And 50 years ago, if you were to look out in your front yard and see four birds, now you would look out and see less than three. We have actually cut into the population of birds by a factor of about 26, 27%.

Now, it's not distributed equally among species. Some species are doing quite well. Many species like those that are found more in fields and so forth, more prairie species are doing very poorly. But in general, the population of birds has fallen in just 50 years. And it worries me because of the way a generation will grow up and think, "Oh, this is normal." Their starting point is this severely depressed level already, but they don't think of it that way.

When I read back about people who were birding back in the early 20th century or even the 19th century, I mean, the abundance of species and the abundance of just regular non-threatened species, it was just enormous. It just makes me feel like... I don't know. It makes it feel hopeless and powerless. And I hope that in some small way, my celebration of birds, when I do get some decent bird pictures, I put them up online and so forth, that something in what I do when I write about creation and about nature would help people to see it in a new way.

Brian McLaren: That's really a significant thing when I think about it because to have a professor who I'm sure you're doing all the regular stuff with scientific papers and presentations and all the rest, but also that you're taking time to post beautiful photographs of birds that you love as a way of saying, "Hey, our love to preserve and save these amazing creatures and the habitats that sustain them and the balance of the physics of heat transfer and air and sea, all of the rest is part of our responsibility and opportunity together."

Paul Wallace: I am a little bit hopeful because when I read about the mentality that people had up until really the middle of the 20th century about animal life and about creation, about the eastern forest, whatever, and the way that it was just... People gave no thought whatsoever to just clear cutting the entire East Coast. And now the mentality is quite different. And so is it perfect? No, but there has been an enormous change. I don't know if it's Rachel Carson or who started it, but I think there really has been an enormous change in perception.

Brian McLaren: Well, hopefully our conversation reinforces it for both of us and will nudge many thousands of other people in that direction and strengthen that in them too. That's a deep and needed change in the way we see. Thank you for all you do, and thank you for just reminding us that we all woke up in an unbelievably big universe with unbelievably small dimensions, and here we are in the middle of it.

Paul Wallace: Right in the middle of it.

Brian McLaren: Just amazing. Thank you.

Paul Wallace: You're welcome, Brian.

Brian McLaren: Thanks so much for investing your precious time and attention in Learning How to See. I'm especially grateful to have you along this season as we learn to see nature in new and deeper ways. I believe a transformation in the way we see the earth and all her creatures will deeply enrich your life personally. And I also believe that our shared future and the future of our planet depend on more and more of us learning how to see nature in a new way. This change in seeing isn't just a matter of enrichment, it's also a matter of survival.

As a result of our being part of this season of the podcast, I hope we will learn to see ourselves not only in relation to nature, but also as part of nature. I hope we will learn to

encounter the spirit or presence or glory of God incarnate in nature to see the divine and all creatures and all matter and energy, including ourselves as part of one sacred web or cosmic dance of life. I hope we will all be converted from destroyers or consumers of the web of life into its lovers and healers.

If you're interested in learning more, be sure to check out the show notes for links to our guests and the resources they offer. And you may also be interested in my upcoming book, *Life After Doom: Wisdom and Courage for a World Falling Apart*. Thanks as always to Corey Wayne, the skilled and kind producer of this podcast, and to the whole CAC community, staff, faculty, students, and supporters.

If you'd like to leave us a question, brief message or story, you can write us an email or send us a voicemail, and you'll find instructions in the show notes. If you enjoy this podcast, I hope you'll share it with some friends. Again, I thank you.