

William D. Phillips

“Ordinary Faith, Ordinary Science”

Episode 21 (transcript of audio) of The Advent of Evolutionary Christianity
EvolutionaryChristianity.com

Note: *The 38 interviews in this series were recorded in December 2010 and January 2011.*

Host (Michael Dowd): Welcome to Episode 21 of “[The Advent of Evolutionary Christianity](http://EvolutionaryChristianity.com):

Conversations at the Leading Edge of Faith.” I’m [Michael Dowd](http://EvolutionaryChristianity.com), and I’m your host for this series, which can be accessed via EvolutionaryChristianity.com, where you too can add your voice to the conversation.

Today, [William Phillips](http://EvolutionaryChristianity.com) is our featured guest. [Bill Phillips](http://EvolutionaryChristianity.com) is co-recipient of the [Nobel Prize in Physics in 1997](http://EvolutionaryChristianity.com) for the development of methods to cool and trap atoms with laser light. He’s a devout [United Methodist](http://EvolutionaryChristianity.com) layperson and founding member of the [International Society for Science and Religion](http://EvolutionaryChristianity.com).

Our topic is “Ordinary Faith, Ordinary Science.” One of the things I so appreciated about this conversation is how effectively Bill communicates and really embodies a passionate love of the scientific endeavor.

Host: Hello, Bill Phillips, and thank you for joining this conversation on evolutionary Christianity.

Bill: It’s good to be with you, Michael.

Host: Well, Bill, I’ve been looking forward to this conversation with you in large part because you bring a grounding in the sciences. We’ve got a whole bunch of theologians and ministers and people that are primarily grounded first and foremost in religion or in theology. They have been sharing their stories about how they’ve come to embrace (or in some cases, grew up with) an evolutionary understanding. But there are just a few of you who really are known for your work in the sciences, and yet you’re also people of faith. And so I was wondering if you could begin by just sharing with our listeners how you either came into or grew into a faith perspective that celebrates the discoveries of science—including the understanding that the universe is billions of years old.

Bill: Absolutely! Well, I was brought up in a family that took religious faith seriously. We prayed every day; we went to church every Sunday; we all went to Sunday school (parents and

children alike). And I never felt that anybody was ever telling me that the kinds of things that I was learning in Sunday school, the kind of things I was learning about the Bible, the kinds of things that anybody was telling me about the nature of God, was in any way in conflict with the scientific understandings I was gradually learning more and more about. It was just considered to be a completely compatible set of understandings and viewpoints.

Host: This was in the United Methodist tradition?

Bill: Well, yes. Of course at that time we weren't [United Methodists](#). We were just [Methodists](#). We didn't become United Methodists until I was somewhat older. But it just was for me something as a surprise when, as I got older, I began to encounter people who saw a difficulty, a conflict, between science and religion. To me that was a surprise. Now, I've come sadly to the understanding that a lot of people see it that way, and I think it's unfortunate.

The idea of faith versus evidence, to me, is a choice that is decidedly non-biblical. One of my favorite passages of scripture, and my wife jokes that so many passages of scripture are my favorite *[laughter]*—but one of my favorites is from *Hebrews*, that “faith is the substance of things hoped for, the evidence of things not seen.” And that juxtaposition of faith and evidence is something that I believe is important for Christians especially to understand—that faith is not something that exists in the absence of evidence. The evidence may not be exactly the same sort of evidence that one has for scientific understandings, but it's certainly not without evidence. In fact I think that people neglect a great deal of commonality between the understanding of religious faith and the understanding of science. I see that there's in fact a great deal of commonality, although I would never say that it's the same kind of understanding, or that it's the same kind of knowledge.

Host: I'd love for you to explore that a bit more. Where do you see some of the overlapping territory, or the fruitful ground, upon which dialogue can happen or integration can happen? The very first interview, the very first conversation in this series, was with Ian Barbour. He had laid out in the 1960s four traditional ways that science and religion relate. The first being conflict; it's one or the other. The second being they're two totally different domains—basically they're doing different things; one domain talks about *why* and the other talks about *how* or *what*. Then the third model is that of conversation, dialogue. And then the fourth is that of integration. Many of us have found that typology (that model) to be useful. So I'm curious where do you see some of the overlap or where there's common territory?

Bill: Certainly a great deal of my thinking about this subject has been shaped by [Ian Barbour's](#) thought. He's one of the pioneers, perhaps *the* pioneer, of modern thinking about the relationship between science and religion. And I am certainly greatly indebted to him for how to think about this. It appears that a great deal of modern media coverage is stuck in that first model—the one of conflict.

The second model is one that a lot of scientists find appealing—the one in which you completely separate. It's been called "[non-overlapping magisteria](#)." Well, I don't buy that either. I think that one of the great opportunities of our modern lives is the ways in which science or religion can inform each other. Very often, when faced with ethical problems, one wants to consult both the science and the religious thinking in order to come up with a good path forward. Without knowing what the science is, it's hard to know really what the context of the question is. Without consulting the teachings of religion, it's hard to think clearly about the way in which one should treat a particular problem according to a consistent and historically rooted set of values.

So I reject that idea as well—that science and religion are completely separate. On the other hand, it is true that there are a lot of things that are the province of one or the province of the other, but I think there are plenty of other things that really are fruitfully addressed by both. Now the difference between the last two isn't so clear—between dialogue and what Charlie Townes called 'convergence.' So I find myself somewhere in there. I don't believe that science and religion are the same thing. I believe they have plenty to teach one another, and I think that it would be silly if they didn't talk to each other—as if they were separate entities.

Most of the scientists that I know are people of some kind of religious faith, more or less traditional. I find myself more on the traditional side (probably more traditional than you are). But the idea that there's something here called science and something here called religion, and that sometimes they get together and talk to each other, is sort of silly when they're an integral part of so many people. Both of them are integral of so many of the people that I know, including myself.

So, one of the things that I think is very important for me as a scientist, and as a Christian, is to make it clear that this first model, this idea of conflict, is just not correct. This is not the way I (or most of my colleagues) view the relationship between science and religion. We see it as more of an integral relationship, rather than one that involves conflict.

One of the problems is that there are people of faith who somehow believe (for reasons that, I must admit, are difficult for me to understand), who believe that science is in some way opposed to their religious faith. And there are scientists (by no means the majority, I believe), but there are scientists who believe that religious faith is just silly and superstition. And while these people don't represent my belief (a relatively small fraction of people of faith or people of science), it seems that they're the ones that get all the attention from the media. I think the reason is obvious. Conflict sells papers, it sells television shows, it sells whatever you're trying to sell—and whenever anybody writes something that they want to be read, they want it to be interesting. I'm not saying that they do this in a nefarious way, but conflict is more interesting than convergence.

Host: Yes. In fact, [Charlie Townes](#) told me that point—actually, several of our guests have made that point. In fact, I think Ian Barbour did on the very first call—that the media likes a good fight, and so that's part of the reason.

One of the things that motivated me in the early stages of even thinking about this teleseries was to try to put forth in as compelling a way as possible, with as wide a diversity of thought leaders as possible, that there are many different ways to be a Christian evolutionary. That is, there are many different ways to be a person of deep religious faith who also fully embraces an evidential, science-based understanding.

There's not one way to do that; there are many ways to do that. And yet we haven't typically spoken with one voice. Some of us are [Catholics](#), some of us are [Protestants](#), and some of us are [Emerging Church](#). We've got people of all different ages, all different backgrounds—liberals, conservatives, radicals, [naturalists](#), [supernaturalists](#). We're all over the map. And so we haven't really spoken with one voice in the same way that the [New Atheists](#), on the one end do—not saying that they all agree with each other on everything, but they do tend to speak with one voice in the media.

And then the [Young Earth creationists](#) also do. So one of my hopes to result from this series is to just even ponder the question: *Is there something that we can say with one voice?* In other words, are there perspectives and values that we share that really need to be heard now in the world because there's tens of millions of us in the middle who find a way of embracing both?

Bill: It's a good question, and I'm not sure I know the answer to the question—whether there are things we can say with one voice, other than that there is nothing unusual about someone who takes science seriously and who takes their religious faith seriously. I think that is something that those of us who are in, what I would think is, the majority could affirm.

Let me say something about this point that I brought up about the commonality between our religious faith and scientific study. One of the things that Methodists are taught about is something known as the [Methodist Quadrilateral](#). This quadrilateral is, I'd like to think of as, the four pillars on which our belief is founded. And those pillars are scripture, tradition, reason, and experience.

Now, in *scripture*: we know what that is. We read what has been written and we learn from that. *Tradition* has to do with the things that have been written *about* scripture and the insights that have been gotten from people who have thought deeply about these things and have transmitted that understanding to us. *Reason*, I think, is obvious. We need to use our own brains to think about what we are trying to understand. And *experience* has to do with what we are actually seeing happening.

Now, if you think about the way we learn about science, the first thing we learn about science is we read textbooks. Some people would call that the holy writ of science. But that's not the only thing. We also have the lectures that our teachers give us that are based upon the things that are in our textbooks but provide us with additional insights that help us to interpret what we are reading in the textbooks. And without those lectures, it's very hard to come to an understanding of what's going on—just by reading textbooks. *Reason* and *experience* are, in a sense, the real-world way in which we do science: theory and experiment. We have to have both in order to develop an understanding of the way the world works.

Now, I realize science and religion are not exactly the same thing. But there is commonality in the way, in the kinds of things that we need to do in order to understand either our religious faith or our science. So I don't find the way I approach my faith that different in kind from the way I approach science. Of course, there are things that are different. In science, I demand that everything that I say about science—any kind of scientific statement—has to be a falsifiable statement. I don't demand the same thing about religious statements. So there are differences. But there's a lot that I hold in common about the way I approach both.

Host: That was very helpful. One of the things that I'd love for you to do is take a few minutes and just share with our listeners your own scientific career. I mean, you're one of the most distinguished scientists. You shared the [Nobel Prize](#).

[Charlie Townes](#) told us this really cute inside story about how some top scientists were basically telling him, "Charlie, give it up. This can't be done." So we got a glimpse into how this scientific community can work and ultimately result in collective intelligence. So share a little bit about your own scientific career and how you came to do the work that ended up with a Nobel Prize—and what you're doing now.

Bill: When I was a post-doc at [MIT](#)—I did my Ph.D. there in atomic physics—toward the end of the time that I was a graduate student, we started to get tunable lasers in the lab and we started to point these lasers at gases of atoms and atomic beams and studied the way in which laser light interacts with atoms. I looked upon this as being the way of the future in atomic physics, and I was not alone in thinking that. I read a paper as a young post-doc in which a researcher [at [Bell Labs](#)], outlined an idea that he had for taking a beam of sodium atoms, shining a laser on it in a particular way, slowing it down, trapping it using the laser light and getting the gas of atoms that resulted incredibly cold. This was the first time I'd seen this idea of using laser light to cool down a gas of atoms. In fact, the idea was a few years older than that; it's just that I hadn't seen the original ideas. One of the authors of that idea was a close associate of Charlie Townes: [Art Schawlow](#). And a number of other people had this idea that you could make something really cold by shining laser light on it.

If you think about that, it's totally crazy because we all know that if you shine light on something, it gets hot. But they had this idea; the idea was completely reasonable. There wasn't anybody saying (or not anybody that I heard who was saying) this is crazy. They might have said, *it sounds awfully difficult*.

So I read this idea paper and I thought, you know, I've got the experimental tools to try to do this. There was another paper that came out that year in Boulder, Colorado, at a place called [The National Bureau of Standards](#), which I should point out is where I work right now—except it's now the National Institute of Standards and Technology. But I was a post-doc at MIT. So this paper comes out of the National Bureau of Standards (in Boulder, Colorado) in which a guy named Dave Wendland (now a very good friend and colleague of mine) had demonstrated exactly this idea that you could cool down atoms—in this case, electrically charged atoms, that he was holding in a trap. So you'd cool them down by shining light on

them. This is fantastic! Here's this idea using the experimental tools that I have at hand, and there's this paper in which it was demonstrated that this general idea actually works. So I said, "Well, this sounds like something I've got to try." I went to the lab and I shined a laser beam onto this atomic beam. And I immediately saw that this is more complicated than was made out in this idea paper.

I thought, "Well, this is going to take some more work." When I got a job at the National Bureau of Standards (not in Boulder, but in Gaithersburg, Maryland, where I am now), I thought this would be something to pursue—because if I can make a beam of atoms go more slowly, I can make a better atomic clock, which is one of the things that we do at the National Bureau of Standards. That's one of our jobs: to make the best clocks that we can. And I knew that these clocks were limited in their performance by the fact that the atoms in the atomic clocks were moving really fast. So I thought this was a good thing for me to work on.

So I started working on it in my spare time, and over the years, one after another, developed new techniques to finally get to the point where we had a gas of atoms that was really, really cold. There wasn't any great epiphany. It was just working away in the lab trying to reach this goal.

Now, we had good times and bad times. We had, by marvelous good fortune, discovered accidentally that it was possible to cool the atoms down much colder than what people thought was possible. There was a theory for how cooling worked, and that's what we'd all been thinking about. It turned out that the theory was not wrong; but it was incomplete. It didn't give a complete description of atoms as complicated as the ones that we were working with. Now, usually when things are more complicated, it doesn't work as well. But in this case, because of the extra complication, things worked better. We discovered this accidentally. What a wonderful piece of good fortune!

Now, at that point, there were probably some people who thought we must have made a mistake—because what we reported was that we could get temperatures six times lower than the lowest temperature thought possible. Eventually, we got like a factor of 200!

Host: Wow!

Bill: I think that some people thought, "Oh, they might have made a mistake." But we were extremely careful, because [at the National Bureau of Standards] we work in the "Church of Precision Measurement." That's our business: to make precision measurements—to make measurements that are really reliable.

We made sure that when we made these measurements, they were right. So we were very confident in what we had done. I believe that the paper we published was so convincing because of the fact that we'd been so careful. A number of other people said, "We've got to figure out what is going on here!" And they did come up with a new theory. More measurements that we and the other people made confirmed that that new theory was on the right track for explaining what was going on. And it took off from there.

We just started making temperatures colder and colder—and eventually ended up revolutionizing the business of atomic clocks. Today, all of the top-notch teleclocks in the world use laser cooling: the techniques that we developed over the years in our laboratories. That's been very satisfying to see that happen, to see time-keeping completely revolutionized by these techniques that we'd developed over the years.

Now we're using cold atomic gases to do all kinds of other things. One of the things that we're using them to do is to simulate the behavior of more complex systems that are very difficult to control and measure. And so we use these simpler systems to simulate the behavior of more complex systems, to allow us to gain insights in the behavior of the more complex systems. We call this *quantum simulation*, and it's become a whole new field of study—and that's really exciting. That's just one of the things that we're working on. And it's, to me, absolutely amazing, because at every stage we learn something new. We do a whole bunch of things and a whole bunch of new experiments, and we learn new things. Then something else comes along that takes us down some other path. And we learn a bunch of new things about that—and then something else happens and we get excited about another new research direction.

It seems that every several years this field, in a sense, reinvents itself. And so many more people have become involved in it. It's really a huge community of people working on this. And that has been a tremendous thrill for me as well: to be in touch with so many people from all over the world who are working on different aspects of this, and who have something new to teach us every time we get together. It's just fantastic!

Host: Wow! I so appreciate the tone in your voice as you share that—because it really conveyed so much of the enthusiasm and the passion. People outside the scientific community sometimes get this erroneous perspective that science is just a bunch of dry, rational type people doing work in labcoats. Perhaps they have never been exposed to the idea that science really is humanity's collective intelligence—and it's constantly building on each other. And yes, there are those of you that get awarded Nobel Prizes. But it's almost like each of you is a peak of a mountain, and there's this mountain of contribution from so many others—a huge community of people that are represented by each of these Nobel Prizes.

Bill: But the other thing that you touched on is the excitement that we feel—and I'm completely typical of the scientists that I know. Just ask any scientist, "Tell me about what you're doing?" And it's hard to shut them up, because they're always just so excited about the latest stuff that's going on. And as you say, we build on the understandings that other people have.

But the other thing is: you talk about being rational and, of course, you know we're rational, but at the same time we rely very much on intuition. Now you don't often hear scientists say that, but the fact of the matter is we often will talk among ourselves about a particular scientist who has "a good nose for a problem." He's somebody who really can pick the right problems—and those are the ones that are going to be fruitful. Although we rarely

know beforehand, you just sort of have a feeling this will be a good thing to do. And that kind of intuition is extremely important in guiding the choices that we make about what avenues of research we're going to follow, or which approaches were going to use to try to crack a particular problem.

Host: One of the things I would love for you to do is to help our listeners bridge what they're hearing in your voice: this passion, this enthusiasm, this excitement. And yet the title that you gave for our conversation is "Ordinary Faith, Ordinary Science." How do you understand that?

Bill: Well, okay. I consider myself to be an ordinary scientist in the sense that I'm just like most of the other scientists that I know, which means I get excited about the things that I do. I'm not doing stuff that is completely off the wall. It's not the sort of thing where the majority of my scientific colleagues are looking at me and saying, "Why you doing that kind of crazy stuff?" It's mainstream science, but it's the mainstream science that so many people are excited about. It's not humdrum science, by any means, but it's the kind of thing that everybody is agreeing, "Yeah, this is something really good to be doing because we're excited about it, and we think that if we do this kind of research, we can learn new things about the way the world works." That's the way scientists are.

So I'm firmly in the mainstream of science. This isn't to say that I'm completely against people who are on the fringes. I just don't happen to be there; I'm in the mainstream. So that's what I mean by ordinary science—that I write papers in the scientific journals, and people read these papers and say either, "That looks right." Or, "Hmm, I wonder if that's right? Maybe I should do an experiment to see if I could show that they're wrong?"—which is the way science works, you know. Somebody comes up with something questionable. The way you approach that is you say, "Let me try it out and see, okay?" And of course the same is true of plenty of my colleagues. I'll read their paper and say, "Hmm, that sounds interesting. I'm going to see if I can reproduce that in the lab." And of course, it's wonderful! Somebody writes a theory, you know, and then you say, "That theory really helps to clarify things. Let me do an experiment and see if I can verify that." Or, "That sounds funny. Let me do an experiment to see if I can disprove that." Because one of the fondest things that we have is the possibility that out of that we can prove something wrong—prove wrong one of the most cherished beliefs that everybody else has.

So in a very minor way, that's what we did when we found that the temperatures were much lower than what everybody thought. We were able to disprove something that everybody believed. Now, of course, it wasn't such a fundamental belief. And as soon as it was explained—how it turned out that things were different from the way everybody thought—well, everybody said, "Yes, absolutely!"

But you look back in history—at the way Einstein completely changed our thinking and really changed some of the most cherished beliefs that people had about, say, the nature of space and time. Or the way that people like Niels Bohr, Erwin Schrodinger, and Werner Heisenberg changed the way we think about mechanics (quantum mechanics)—

changing things from the way Newton taught us to think about things. These were extremely cherished beliefs, and so they completely revolutionized things. This is what people dream about.

Very few people get to change things on that level. But a lot of us get to change things on a much more modest level. So that's what I mean by "ordinary science." I'm just like everybody else in that regard. I'd love to disprove some really fondly held beliefs. What I do is also "ordinary science" because I write papers and they get reviewed by colleagues and they get published in the peer-reviewed journals. That's what everybody does.

As to "ordinary faith," let me say, I go to church on Sunday. I go to Sunday school. I discuss the Bible with my fellow church members—many of whom are scientists. I consider myself to be firmly in the middle of the kind of thinking about religious faith that all the people that I encounter every week on Sunday morning are doing. So I'm not unusual at all in that regard.

I have plenty of failings in my life of faith. I'm constantly worried about the fact that I don't think my prayer life is where it ought to be. I was really happy when, in Sunday school about a year ago, we did a unit on prayer. I learned a lot, and it's really helped me. There are so many things about faith and about science that I don't understand in the way I would like to. So I keep coming back to them both in the lab and at church, to re-discuss these issues.

So at church, we're constantly re-discussing the issue of, Why is there so much suffering in the world in which we believe God is the creator and God is good? This is a problem that has been discussed since the time of Job. [The Book of Job](#) was written to address this question. In more modern times, people like [Rabbi Kushner](#) writes this book on [When Bad Things Happen to Good People](#) to address exactly the same problem in the modern era. People's understanding of this has not improved a great deal—although people have discussed it in so many different ways that a lot of people can find helpful. A lot of people find the treatment in *Job* to be helpful, but a lot of people don't. A lot of people find the treatment that Kushner gives to be helpful, but a lot of people don't. So we keep revisiting this question in our discussions in Sunday school, and the same kind of thing happens in discussions in the lab. I don't want to bore you with the kinds of things that we keep coming back to, you know: How two-dimensional systems behave when they're non-infinite. Nobody cares about that outside of a few of us who are dealing with these problems on a daily basis. But I think that in that regard, I'm a very ordinary person of faith.

So that's what I meant by "ordinary faith" and "ordinary science." That's the way I am as a scientist, and it is no different from the way essentially all the people that I know who are scientists are. Almost all the people I know and the way I am about my religious faith is not different from the way so many of the people that I know who are part of my faith community are. So that's what I mean by "ordinary faith" and "ordinary science."

Now let me tell you this story.

Host: Okay, go ahead.

Bill: Our daughters were brought up in the church, and when my older daughter went to high school with a new group of friends—a very few of the kids that she’d gone to grade school and middle school with were in the high school that she went to—so she’s meeting a whole new set of friends. She meets this one girl who she became very good friends with (and still is very good friends with), and they were talking about themselves and their parents. And this friend says, “Well, my mother’s a scientist, so of course she’s an atheist.” My daughter said, “You couldn’t walk across the fellowship hall in our church without bumping into half a dozen physicists!” So this perception that, somehow, if you’re a scientist, you have to be an atheist, which this girl thought, was the furthest thing from the experience of my daughter.

Host: Exactly ... exactly. That was great! One of the things I was impressed with, I was out in California about a month ago, and I had to give a talk in Oakland. I realized, well, since I was going to be out there, my youngest daughter had just moved to the Oakland area, and then my son had moved to San Diego. So I decided I was going to spend some time seeing them, and coincidentally, there was this large secular humanism conference that was happening in L.A., so I went to that. And right in the middle of [Lawrence Krauss](#)’ presentation, he mentioned his friendship with you—and I was delighted to hear that, because there’s a lot of atheists at this conference and he’s very well known as an outspoken atheist. And yet there was just deep respect for you, not just as a professional colleague but as a friend.

Bill: I have a great respect for him, as well. And there are plenty of people like him who are scientists and atheists and completely respectful of their colleagues who are scientists and people of faith. I always enjoy when we get together and talk. There are plenty of other people who fall into that same category, but as we all know, there are people who fall into this other category—who are not respectful of people of faith—and I don’t know where they’re coming from.

Host: I’ve got my own ideas about where they’re coming from—but that’s beyond *[laughter]* where we should go in this conversation. I am curious though, and I’d love to ask you: One of the things I’ve been finding that seems to resonate with a lot of people, both inside and outside the Church but especially within the Church, is this understanding that God didn’t stop communicating all the really vital stuff two or three thousand years ago. That [God is still actively communicating](#) to us collectively through evidence—[through scientific evidence](#).

Bill: But in fact I also think that God is communicating to us through modern prophets. Why would we think that God stopped inspiring people? Because that’s what we’re talking about: we’re talking about divine inspiration. Why should we think that God stopped inspiring people with the latter prophets of the Old Testament and the early apostles? Do we believe that [St. Augustine](#) was not inspired by God? No, we don’t believe that. We certainly believe.

Do we believe that [St. Francis](#) wasn’t inspired? Now we’re getting pretty close to the modern times, right? Do we believe that [Billy Graham](#) wasn’t inspired? No! I think we believe

that. So why aren't we (and I think many people are) completely comfortable thinking of these kinds of people as being modern prophets—people who would give us additional new insights. Why should the evolution of the insights we have into religious faith stop at any given point? I mean, it obviously didn't stop with the [Torah](#). We had all these prophets who gave us wonderful new insights that weren't contained in the Torah. In fact, in Jesus' time, there was a lot of discussion between the [Pharisees](#) and the [Sadducees](#) about whether the stuff that was outside the Torah was something that was really useful, right? Well, that argument came down on the side of the Pharisees. It was the Pharisees who became the rabbinical traditionalists, as far as I understand it. And the tradition of discussing religious questions is so strong in the Jewish tradition, and it's so strong in the Christian tradition in which I was raised.

Host: You're preaching to the choir, brother, because one of things that I've been doing a lot of thinking about just recently, especially in the last year, is that if God is revealed in what's fundamentally real—what's [undeniably real](#)—then those who are speaking on behalf of reality and essentially taking the stance of a traditional prophet, which is: "Here's what's real, folks, and here's what's emerging. We need to align with reality. We need to align with that—or there's going to be consequences to pay." And I think that many people when they hear the word "revelation," when they hear the word "prophet," they think in the distant past. And what you're pointing to, which I wholeheartedly agree with, is that it's not just in the distant past. If we have the eyes to see and the ears to hear, as it were, we can see these prophetic voices—these prophetic emergings, both collectively in the whole scientific community but also in individuals.

Bill: Yes, absolutely. There are two aspects of it. You've been emphasizing the fact that physical reality is one of the ways in which God speaks to us, and I absolutely agree with that. In fact, I'm sitting here in front of my computer, and I think that I'm going to try to pull up [Psalm 19](#), one of my favorite Psalms.

[Pause] Okay. This is the way it goes: "The heavens are telling the glory of God and the firmament proclaims his handiwork." So I think that's the beginning that everybody remembers, right? But listen to the rest: "Day to day pours forth speech and night to night declares knowledge. There is no speech, nor are there words. Their voice is not heard. Yet, their voice goes out through all the earth and their words to the end of the world."

It seems to me that what the psalmist is saying is that the evidence of God's glory is seen by just looking. It is something that is telling a story without words—without literally hearing a voice. But it is so important that the words go to the ends of the world. And so to me, this is a beautiful poetic statement of what has been said by so many thinkers about the relationship between science and religion: that God has given us two books. One is the Holy Scripture; the other is the world itself. And if we were to read only one of these books, we would be cheating ourselves and not living up to what, I believe, God expects of us thinking and striving human beings.

Host: Yes, exactly! It's interesting. One of the things that I've been doing as sort of a spiritual practice in this Advent season is reading the comments that people are offering on the website that goes along with [this teleseries](#). There was a poem that was offered just a few days ago by a woman who posted it in the comments section. To introduce it, she said, "I really enjoyed the conversation with [Bruce Sanguin](#), and afterwards, this poem came to me." It was from Judy Speer. It was just a gem. I want to read it now, just because it touches me:

Christmas again! Why every year?
Perhaps because, in our goings and comings,
immersed in daily details,
the year may pass before we notice,
there in our eye's corner:
the glorious spark of starlight
beckoning to shimmy and crawl the dark passage,
knowing only that every ancestor has made such a journey
and has emerged, gasping and wailing,
into a trough of fresh straw,
gathered into a family of astonished smiles,
warmed by the breath of the animals,
held by assorted shepherds and shamans,
oh yes, and the proud Mother of all,
singing a brand new carol into the starlight.

Bill: That is absolutely wonderful!

Host: Isn't it a gem?!

Bill: It is wonderful! I think one of the things that we need to constantly be reminded of is the freshness of our faith. And that poem really captures that idea. One of the images that really caught me was the "freshness of the straw." Something that I never knew before I learned when we visited a small parish church of the parents of our son-in-law in England. The tradition in this church (and apparently a tradition in a lot of churches) is that there is a Sunday on which they put fresh straw on the floor of the church. It's kind of a renewal. Now, your the poet wasn't thinking about it in that context. She was thinking in the context of the straw in the stable and the manger. But that image of fresh straw catches me. I don't really know exactly where it comes from, but it's all part of this idea that everything is made new. And that is, I think, one of the things we're told in scripture: everything is made new. It's one of the things that, I think, is an important message of each year's Advent season.

Host: Well, the Advent season is the beginning of the new Church year.

Bill: Indeed, indeed. And so that's a lovely poem.

Host: It's amazing! Actually, I take some time every morning to read the comments. Part of it is because, having done so now for so many days, it's like it's not at all uncommon that somebody's comment will move me to tears. They're just amazing.

Bill: Well, you see, I consider science to be a celebration of God's glory.

Host: Amen!

Bill: Every time we learn something new, what we're doing is we're reaffirming in an even deeper way how wonderful God's Creation is!

Host: I have found, as I'm sure you have and as most of us in this movement have, that my faith has been deepened and strengthened and enriched and expanded as a result of embracing an evolutionary understanding. It is not threatened in any way.

Bill: Yes. Now, of course, you know my field being physics, I'm not an expert in biological evolution. I'm not even an expert in cosmological evolution. But I'm enough of a scientist to understand where the evidence is and how clear the evidence is. But evolution, especially biological evolution, seems to have been one of those things that some people find particularly threatening. A lot of people also find cosmological evolution threatening. I'm not sure why that is. But for me, even the things that nobody seems to find threatening, like the way in which light interacts with atoms, to me is just so beautiful when one delves into it. It's just so beautiful! On the one hand, you look at it and you say, "There's just no way something this beautiful is going to have happened by chance. This isn't part of some meaningless random occurrence. This just has to have something behind it. There's just so much beauty." And then suddenly you just think, "Wow! God's really something!"

Host: Precisely that point is one of the reasons for Chapter 2 of my book, *Thank God for Evolution*. The title of that chapter is "[Evolution Is Not Meaningless Blind Chance](#)," because the most common misunderstanding of the nature of evolution is exactly that—that it's just all meaningless blind chance.

Bill: The keyword there is *meaningless*.

Host: In fact, I've recently come to think that, again—kind of like the polar opposites of one is either a creationist or an atheist—that's just not accurate. In the same way, if you think that the only two games in town are theism and atheism, I think there's a whole bunch missing because

both those concepts came into being long before we had any understanding of *emergent creativity*: this nested understanding of reality and this emergent creativity over time. And so in some ways, I've come to think that *theism* and *atheism* are outdated, misleading, and unnecessarily divisive understandings.

Bill: Well, perhaps on the other hand, I will firmly identify myself as a theist *[laughter]*—without any doubt *[laughter]*.

Host: Sure! I always have to couch that because, if somebody says, “Are you a theist?” I would always have to ask, “What does that mean to you?”—because by how they define it, I may be or I may not be.

Bill: But let me say this, too, because I sort of said, “without any doubt,” but at the same time, I don't think anybody who thinks carefully enough about their religious faith can be without doubt.

Host: Good point.

Bill: I think that that is something that is affirmed in the scriptures as being okay. So often, when we read the scriptures, we will read about people who doubt: for example, the story of Thomas, which is of course the most famous one in the Christian scriptures, right? And I think one of the reasons why we are given that story is the scriptures are a gift in a very real sense. One of the reasons why we are given that story is to reassure us that *this is okay*. Here's a guy who spent a long time with Jesus every day. And yet, when it came to the question of the Resurrection, he doubted—as do many people today. And I think that one of the reasons why we're given that story is to affirm to us: *It's okay to have doubts*. At the same time, it's important to have faith. The fact that those two things are not inconsistent is, I think, an important insight that we should own. We should really own that insight that it is not inconsistent to be a person of faith and also to have doubts.

Host: That also brings back the whole question of interpretation. I had one commenter say, “You know, you haven't really touched upon the Resurrection, and what do you have to say about that?” My honest response is, I give people the latitude to interpret things like the Resurrection in a multiplicity of ways. I mean, even just among the people who are involved in this teleseries, there's probably at least two dozen different ways that people hold that. People hold the Resurrection in a serious way, in an inspiring way, but they interpret it in very different ways. For me, I'm less interested in arguing about how someone interprets some aspects of their faith than I am in asking, “How does your faith commitment lead you to live your life? How is it expressing fruit in the world—fruit of the Spirit, as the Apostle Paul talks about?” That's what I'm most interested in.

Bill: I certainly agree with your point about how the fruits of the spirit are certainly something that one has to look at. At the same time, I guess I fall into the fairly literal camp when it comes to the Resurrection. People say, “Well, how could you, as a scientist, believe something like that?” And the answer that I give is very simple, “All you have to do is to believe that God is God. And then, there’s no problem in believing in the Resurrection.”

Science is about things that are repeatable. I don’t publish things that I see once. Science is about repeatable things. Science doesn’t tell us about things like miracles. I hesitate even to use that term because, again, what does it mean? The word that is sometimes translated as miracle in the Old Testament means more something like “signs and wonders”—not necessarily something that is contrary to the laws of nature. The people who wrote the scriptures didn’t really have a concept of the laws of nature. That was something that came much later. They had a concept of *the way things usually work*.

People were used to seeing unusual things that weren’t completely unheard of, but it was clear which things were unusual and which things were usual. So the whole concept of miracles as it appears in the Bible is not the same thing as people often think today—that it’s something contrary to the laws of nature. But at the same time, science doesn’t rule out things that are contrary to the laws of nature. It can’t—because what it studies are things that happen consistently. That’s the way we’ve made progress in science: by understanding the consistency of things. The fact that there is consistency is one of the best kinds of evidence that we’re on the right track with scientific study. But who could say if there was one outlier? In the lab, if we have a whole bunch of data and then one thing that isn’t consistent, we say: “We’re going to throw that one away, because it is just so far outside of everything else we’re observing.” You know, we figured something went wrong. Nobody’s going to base a new understanding, a new theory, on a single event. But on the other hand, I’m perfectly willing to base my faith on a single event when I read the accounts of the Resurrection. For me, these accounts have the ring of truth.

Host: I, as you know (because I think you’ve read my book), interpret the Resurrection in a metaphoric way. I don’t interpret it literally but I also [*overlapping conversation*] ...

Bill: ... That’s okay [*laughing*]. I don’t think you’re bad guys. [*laughter*]

Host: That was the point that I made to this person who made the comment. It’s like, we can work together. Because what I think we *do* agree on—and I think in so far as I’ve tested this out with the others—there seems to be some agreement. If there is common ground about our values that we hold together or perspectives that we share, I think it’s around some pretty basic things: like, we all value evidence as, in some very real sense, divine communication. We have evidential, deep-time eyes. There’s not anybody that’s a part of this series who doesn’t have a deep-time understanding that’s grounded in evidence. We get that deep-time perspective from evidence.

Bill: Right. And I remember my comment earlier from *Hebrews*: “the *evidence* of things not seen.”

Host: Well, yes. And I’m speaking a little bit more in terms of ...

Bill: I know, and that’s why I wanted to get that point in *[overlapping conversation]* ... because I believe that, too.

Host: Okay, that’s fine. There you go. But the other thing that I think we all agree on is that we all have what I’m thinking of as a “global heart.” That is, we all have a commitment to the health and the wellbeing of this larger community of life that we’re part of—this larger body of life. It’s not just a commitment to our own soul salvation. It’s not just a commitment to our own religious group or to our own nation-state. Our circles of compassion and commitment have now broadened to where we’re really committed to the whole. And I think that that’s an important thing to be able to say to the larger world, which is: “We’ve got a lot of diversity among people.” These close to forty thought leaders that are a part of this conversation series: we all value evidence; we all have a deep-time evolutionary understanding; and we all have a global heart—we’re all committed to the health and wellbeing of this larger community of life. Those, I think, are not trivial agreements; those are not trivial values that we share.

Bill: But I think they’re strongly Christian.

Host: Oh, interesting point. Say more about that. *[overlapping conversation]*

Bill: Well, what I mean is that I believe that what we are taught in Christianity is a genuine, loving concern for all of our neighbors. And remember what happened when Jesus was asked, “Who is my neighbor?”

Host: Yes.

Bill: And [the parable of the Good Samaritan](#) involves somebody caring for somebody who is completely outside of his own faith community.

Host: Yes.

Bill: And so I think that that parable—perhaps better than any other—teaches us what our responsibilities are as Christians. This kind of “global heart” that you have spoken of is at the heart of what Christianity expects of us.

Host: Yes. Amen! I'm really glad you said that... Well, anything else, Bill, that you'd like to share with our listeners before we bring this to a close?

Bill: Well, I just have to insist that people of faith not see science as being threatening to faith, but rather being celebrative of faith. And that people of science not see people of faith as being morons—because we're not! *[laughter]*

Host: Yes, Amen!

Bill: I want to be sure that I get this one last thing in [overlapping conversation] ... who told me this story but it's a wonderful story. Someone is asked, "Do you believe that the Bible is literally true?" And the answer given was, "Oh no! It's *far more true* than that!" *[laughter]*

Host: That is great! I'll repeat that one. That's a gem! ... Well, Bill Phillips, thank you so much for sharing your enthusiasm, your perspective, and your ideas with our listeners today on the leading edge of faith.

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