William D. Phillips
"Ordinary Science, Ordinary Faith"

Episode 21 of The Advent of Evolutionary Christianity

EvolutionaryChristianity.com

Bill Phillips was co-recipient of the Nobel Prize in Physics in 1997 for development of methods to cool and trap atoms with laser light. An evangelical Christian, he is a United Methodist layperson and a founding member of the International Society for Science and Religion.

HIGHLIGHTS

William (Bill) Phillips, **an evangelical Christian**, is one of two **Nobel laureate scientists** included in this series. Phillips is a powerful **advocate for the scientific way of discovering and testing truth claims**. His personal story of discovery that led to his Nobel Prize in physics is more than instructive. It is **a fascinating inside look** at the ups and downs of **high-level research and the curiosity and persistence required to carry it out**.

Phillips is equally clear and open about why **he accepts a literal interpretation of the resurrection story of Jesus**. (See question 11, below.) He speaks about **religious doubt** in a gentle and accepting way — which he suggests is actually the norm for most people, himself included. He calls this kind of faith, "**ordinary faith**." Phillips explains, **"It is not inconsistent to be a person of faith and also to have doubts."** Overall, he builds **a welcoming and sturdy bridge between the findings of science and moderate-to-conservative approaches of interpreting the Bible**. "I just have to insist that people of faith not see science as being threatening to faith," he concludes, "but rather being celebrative of faith. And that people of science not see people of faith as being morons — because we're not!" (Note: This is one of five episodes that include recitations of **poetry**; the others are Sanguin, Southard, Schaab, and Morwood.)

SUGGESTED AUDIENCES

This is a superb interview for all audiences. Moderate and conservative Evangelicals will be able to relax into Phillips' embrace of biblical scripture — specifically, his literal understanding

of the Resurrection — while being offered an insider's tour of the methods and excitement of the scientific endeavor. Theologically liberal or secular listeners will have an opportunity to learn how a brilliant scientist doing mainstream research (which he calls "ordinary," as distinct from "fringe" or "revolutionary") fully accepts the findings of "repeatable" science, while also accepting scriptural accounts of Jesus' bodily resurrection. This interview demonstrates that respect and even friendship can develop between a top-ranking evangelical scientist (Phillips) and a celebrated atheist in the same field (Lawrence Krauss).

BLOG COMMENTS

Gary M says:

I was richly blessed by the humble and gracious nature by which this conversation was conducted. Here we had what was probably the most conservative voice so far, with Bill espousing a more literalistic view than the other guests; and yet Michael's diplomatic approach was to constantly come back to agreement.

The other thing I found fascinating, as has been for the other dialogues, is hearing how the biography of the guest has shaped their understanding of the intersection of faith and science. In Bill's case, I suspect that his grounding in faith from childhood has led to a perspective that sees the Bible as more than metaphorical in nature. It's interesting that both Michael and I had a similar charismatic conversion experience, and were both raised in a high-church tradition, and I now find myself deeply drawn to his understanding of the nature of Reality.

I have finally reached the point where I can now enter back into the fellowship of a local church, appreciating the differences in understanding and perspectives while celebrating the communion of faith in Christ.

Ed Gibeau says:

Thank you, Bill, for sharing your thoughts as an "ordinary" scientist and "ordinary" believer in Christ. You are (of course) not "ordinary" in either regard. And of course (as a scientist) you know creation is not ordinary; it is extraordinary. The most extraordinary part is that we have been given the opportunity to be part of it—that we exist and that anything exists at all is extraordinary.

As a Lutheran, I believe every word in the Bible is divinely inspired, but the Bible is a "living" document—to be interpreted in the context of both the time it was written and the time in which the reader exists. All the resources of hermeneutics and tested human knowledge should be brought to bear in one's prayerful study of scripture. Why would God want us to do otherwise?

KEYWORD TOPICS

Evangelicalism, **scientific discovery** (as repeatable and falsifiable), **Ian Barbour** ("Four Types" model), "**non-overlapping magisteria**" (criticism of), **ethics** (as drawing upon both science and religion), **convergence** (of science and religion), **Charles Townes**, **New Atheists**, **Young Earth creationists**, **Methodist Quadrilateral**, **scientific method**, **falsifiability** (as required in science), **Nobel Prize**, **atomic physics**, **laser**, **atomic clocks**, **scientific discovery**, **quantum simulation**, **scientific research** (excitement, serendipity, and collaboration in), **collective intelligence** (science as contributing to), **intuition** (importance in scientific research), "**ordinary science**" (v. revolutionary science), **Einstein**, **quantum mechanics**, "**ordinary faith**," **prayer**, **suffering** (as an unresolved issue of faith), **Rabbi Kushner**, **Billy Graham**, **modern-day prophets**, **revelation** (in Book of Nature), **Advent season** (poetry for), **doubt** (as not in opposition to faith), **Doubting Thomas** (biblical lesson of), **miracles**, **signs and wonders**, **laws of nature**, **repeatable science**, **Resurrection** (of Jesus as literally true), **scriptural literalism** (as compatible with mainstream science), **faith**, **evidence** (in science v. religion), **deep time**, **global heart**, **atheism** (acceptance of), **parable of the Good Samaritan**,

BIOGRAPHY

William D. Phillips was co-recipient of the Nobel Prize in Physics in 1997 for development of methods to cool and trap atoms with laser light. Dr. Phillips is a United Methodist layperson and a founding member of the International Society for Science & Religion. He is one of three well-known scientists and Methodist laity who have entered into the religion and science dialogue. (The other two scientists and fellow Methodists are chemist Charles Coulson and 1981 Nobel laureate Arthur Leonard Schawlow.)

Phillips is a professor of physics at the University of Maryland, College Park. He received his physics doctorate from the Massachusetts Institute of Technology and was one of 35 Nobel Laureates to sign a letter urging President Obama to provide a stable $15 billion support for clean energy research, technology, and demonstration. He is on the advisory board and has participated in the USA Science and Engineering Festival's Lunch with a Laureate program, where middle and high school students get to engage in an informal conversation with a Nobel Prize–winning scientist over a brown bag lunch.

SUPPLEMENTARY VIDEO

"On keeping time with supercool atoms": William D. Phillips (4 mins, televised excerpt)
http://www.youtube.com/watch?v=mGkeOi02EpE

SUPPLEMENTARY WEBPAGE

Listener comments to this audio can be found, and new ones added, at the following url:
http://evolutionarychristianity.com/blog/general/william-phillips-ordinary-faith-ordinary-science/

QUESTIONS FOR REFLECTION AND DISCUSSION

Part A: On the Rigor, Excitement, and Methods of Science

1. **Exciting, serendipitous science: The story of Bill Phillips's Nobel Prize research.** In this "Evolutionary Christianity" series, both **Nobel–Prize winning physicists** (the other is Charles Townes) recount the stories of their discoveries in ways that are both fascinating and revealing of **how scientific research actually is performed**. Here Bill Phillips recalls,

> I started working on [whether laser technology could be used to cool atoms] 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!
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> 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! 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.

Question 1: *Whether or not you understand in a physical sense what Bill Phillips is talking about, do you find* ***his story of discovery to be a useful (even exciting) inside look*** *at how scientific research is actually performed? Please elaborate?*

2. **Rationality and intuition in scientific research.** Here is how Bill Phillips describes the importance of nonrational ways of knowing in scientific research:

> [We scientists are] **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.

Question 2: *What is your response to this explanation by Bill Phillips? For example, does the* ***role of intuition in science surprise you****? And does the use of intuition in the conduct of science make the results any less dependable? Please elaborate.*

3. **"Ordinary science."** The title of this interview is "Ordinary Science, Ordinary Faith." Bill Phillips humbly describes his kind of scientific research — including the work that led to his Nobel Prize — as "ordinary" because it is neither "fringe" nor "revolutionary."

> **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. . . .
>
> 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."**

Question 3A: *What did you most appreciate in Bill's explanation of why his style of research is "ordinary science."*

Question 3B: *Overall, has Bill Phillips' description of the standards, methods, and actual practice of scientific research* ***affected how you view science*** *and especially its* ***trustworthiness*** *in helping humanity understand the universe? Please elaborate.*

Part B: The Faith of an Evangelical Physicist

4. **Ordinary faith.** Here is how Bill Phillips speaks of his faith as being "ordinary":

> 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.**

Question 4A: *Putting aside any worldview differences that may set you apart from Bill Phillips, what* ***is your response to him as a person*** *— as a person of "ordinary faith" doing "ordinary science"?*

Question 4B: *How did Bill's* ***openness and humility about his faith challenges*** *have you feel about your own?*

5. **Faith and evidence.** Bill Phillips is a Nobel Prize–winning scientist and an **evangelical Christian,** so his views on faith and evidence are important to consider. In his interview he

says that one of his favorite scriptural passages is *Hebrews 11:1,* "**Faith is the substance of things hoped for, the evidence of things not seen**." He goes on to say,

> . . . and that position 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."

Question 5A: *How do you regard* ***the distinction between the kind of evidence*** *that is valid for religious faith and the evidence that is demanded by the community of scientists? To what extent did you find this interview helpful in* ***clarifying how you choose to relate*** *to the two domains of science and religion?*

Question 5B: *Throughout this conversation series the host, Michael Dowd, regularly refers to* ***scientific, historic, and cross-cultural evidence as "divine revelation,"*** *and even "modern-day scripture." Do you agree? Why or why not?*

6. **Four pillars of belief.** Bill Phillips calls upon a teaching from his Methodist denomination of Christianity to clarify a variety of foundations of belief. He explains,

> 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.

Question 6A: *If you had an opportunity to* ***ask Bill Phillips one question*** *to help you better understand how he embraces both* ***the most rigorous standards of evidence in science*** *and the* ***four-fold "pillars of belief"*** *of his Christian tradition, what question might you pose?*

Question 6B: *Take another look at the question you just framed. If it is not entirely* ***respectful*** *of Bill's worldview — and if it would therefore likely be received by him as an overt or veiled challenge, rather than genuine curiosity on your part — take the time to* ***revise*** *it.*

7. **Doubt and faith: not inconsistent.** Bill Phillips says of faith and doubt:

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.

Question 7: *Is doubt, in the context of faith, troubling for you? And did you find Bill Phillips's solution to the problem of doubt helpful? Please elaborate.*

NOTE TO DISCUSSION LEADER: The interview with **John Shelby Spong** contains a long sequence near the end in which Spong claims he would not want to be free of doubt; that doubt is a vital part of his humanity.

8. **Suffering: an unresolved faith issue.** This interview with Bill Phillips is remarkable for his willingness to talk about aspects of his faith that are not wholly resolved. For example, he shares that,

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**.

Question 8A: *Very likely, Bill's bible-based interpretation of* ***doubt as a "gift"*** *(as explored in the previous question) plays a big part in his willingness to live with and to talk about unresolved matters of belief and faith. But what about his experience in science? Recall Bill's multi-stage story of the ups and downs of the research that eventually led to a Nobel Prize? To what extent is* ***the ethos of the scientific community*** *itself one in which participants readily admit that they are unsure, that something is yet unknown, or that a research result is only tentative? (Please discuss.)*

Question 8B: *As to the substance of Bill's ruminations on the matter of* ***suffering****, how do you account for the existence of suffering in the world? Does your faith or worldview make this a* ***difficult issue*** *— or not? And is the response given by Bill Phillips helpful to you in any way? (Please discuss.)*

9. **Modern-day prophets.** The host of this interview, Michael Dowd, characterizes the scientific discovery of new factual knowledge about the physical world as "**revelation**." He suggests, therefore, that **the scientific community itself should be regarded as a new form of prophetic voice**. Bill Phillips responds not by speaking of science as prophetic, but by pointing to **Billy Graham as an example of a modern-day prophetic individual**. Science and scientists are *not*, in his view, "prophetic." But they do play a vital role in **discovering God's "word" as it occurs in the "Book of Nature."** What Dowd and Phillips *do* seem to agree on is that **revelation and new discernments of truth are not only the past**, and thus that the Bible is not the only source of guidance for humanity today.

Question 9: *Did this segment of the dialogue intrigue or challenge you? And if prophets were not limited to ancient times,* ***where do you experience prophetic words*** *coming from today?*

10. **Questions of ethics require both science and religion.** Bill Phillips reiterates that both science and religion are sources of guidance. With respect to ethical issues he says,

> 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.

Question 10: *What is your response to Bill's sense of* ***where ethical guidance*** *relevant to today's challenges is to be found?*

11. **Accepting both science and the Resurrection.** Bill Phillips offers **a remarkable inside look** at how it is ***rationally*** **possible for him to embrace the findings of mainstream science while accepting a literal understanding of the biblical accounts of Jesus' bodily resurrection**. He says,

> **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.**

Question 11: *Was this an important part of the conversation for you, and, if so, in what ways? Overall, what came up for you in your encounter with Bill's way of* ***accepting both mainstream science and the biblical portrayal of the Resurrection as literally true****?*

12. **Cross-spectrum shared values.** The host, Michael Dowd, suggests in this interview (as he does in several of the other interviews in this series) that there may be three values that all of the guest speakers could agree on. He goes on to say that these values "are not trivial." The three are, in his words, that "we all **value evidence**; we all have a **deep-time evolutionary understanding**; and we all have a **global heart**." Bill Phillips then characterizes this set of values as being "strongly Christian."

Question 12: Where do you stand on those three values*: valuing evidence as, in a very real sense, divine guidance; embracing a deep-time evolutionary understanding; and caring about people (and, for that matter, other species) all around the globe?*

13. **Religion and science in dialogue.** At the end of their conversation, Dowd and Phillips explore which of the "**Four Types**" model posed by Ian Barbour best applies to Bill's approach to religion and science. Here is what they say:

> **Dowd:** 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**. . . . 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.

Question 13A: *Setting aside your own worldview for the moment, do you find that Bill Phillips **clearly communicates his position**? If not, what aspect of his response **confuses** you? Overall, has this opportunity to learn about his stance on the science and religion issue been helpful to you in **formulating or better understanding your own**? If so, how?*

Question 13B: *To what extent (if at all) have you begun to use the "**Four Types**" model in sorting through the variety of positions you encounter **among family, friends, colleagues, authors, media pundits**, etc. on issues where science and religion are both involved? To what extent (if at all) might you now want to start using that **simple classification system**?*

14. **Evangelical befriends atheist.** Bill Phillips speaks warmly of his friendship with a fellow physicist (**Lawrence Krauss**) who is an outspoken but respectful atheist.

Question 14: *In your close relationships with family, coworkers, or friends who hold religious or worldview perspectives very different from your own, do you find it possible (and helpful) to*

***discuss religious differences**—or do you simply avoid the topic? And how might your experiencing this **Evolutionary Christianity series** of interviews provide some assistance?*

15. **Poetry.** Toward the end of the interview, Michael Dowd recites a poem by a listener in the original series, Judy Speer. Bill Phillips seems to really resonate with it, too.

***Question 15:** Was this poem (by Judy Speer) meaningful for you? Please elaborate.*

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.

———