Westminster Abbey
Learning

Does Science Need God? Q&A: Religious Education Masterclass 2020 teachers' notes

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Watch the lecture here: https://youtu.be/g7B9DdM51zY

Questions for discussion

Watch the recording of the Question and Answer session between Madeleine Davies and Brother Guy Consolmagno.

Question 1 – *beginning at [0.00:00]*
In your point of view, what aspects of religion are most compatible with science?

Brother Guy considers this question by noting that 'the universe is *real* and *good'.* Do you agree? How do you think both science and religion support this assertion?

Question 2 – *beginning at [0:01:11]*
Why do many scientists disregard religion?

Brother Guy comments that it is really only in the UK that he has felt that scientists can be hostile to religion. Why do you think this might be?

Question 3 – *beginning at [0:06:22]*
From a Christian perspective, how is the act of contemplating the laws of nature seen as prayer?

Brother Guy answers this by speaking of the importance of creating space to listen to God, "Because God doesn't talk to you face to face. God whispers behind your ear." How do Christians try to create this space?

Question 4 - beginning at [*0:08:04]*
One of the basic religious rules of science was to make an effort to learn the Laws. How would you measure the effort to learn these Laws?

Brother Guy says as part of his answer:
"But admitting you're wrong is often the very moment when you learn something new."

How do both scientific enquiry and religious belief do this?

Questions 5 & 6 – *beginning at [0:10:11]and [0:12:31]*

[Has] science has ever made you question your faith or religion at any point in your life?
Have [your views] evolved…or did you always have this understanding of faith and science?

Brother Guy's response was to point out that for him, the excitement of his scientific endeavours lies in finding out how to make something that seemingly contradicts his faith, be reconciled with it.
Do you agree with this approach?

He also says, "I know scientists at the Vatican Observatory who went through their atheist phase when they were teenagers. I was not one of them. I didn't have that kind of fear or arrogance."

Why do you think he considers the atheism of some of scientists to be 'fear or arrogance'?

Question 7- *beginning at [0:15:40]*

Do you think Plato's analogy of the cave has any relevance to understanding of the universe?

Brother Guy answers this by saying "In some ways our scientific theories are the shadows…". Do you think this is true?

Question 8 - *beginning at [0:16:43]*

Do you believe in extra-terrestrials? And if so, how do they fit into God's plan for salvation?

Brother Guy quotes the theologian Paul Tillich: "The opposite of faith isn't doubt; the opposite of faith is certainty." Do you agree?

Question 9 – *beginning at [0:21:08]*
There are two theories of creation: the scientific and religious. Which one do you believe is the most accurate?

Brother Guy answers this by saying: "I'm not going to base my life and my religion and my total belief in how I should live on the best science of 2020, because of the science of 2020 is going to be found to be very wanting in 3020."

How do you feel about his point that scientific theories will constantly develop, but religious truths are unchanging?

Question 14 - *beginning at [0:36:55]*
Do you think Christianity has been guilty of stifling scientific inquiry?

“If you don't have faith in your faith then you're going to be afraid of some other source of truth.” Do you think that all Christians would agree with this?

Question 16 – *beginning at [0:40:32]*
What is the position of the Vatican on Darwin's Theory of Evolution now?

Brother Guy makes a point about Social Darwinism and eugenics as has having been erroneously derived from Darwin’s theories. Do you think that Christianity’s initial condemnation and removal of itself from the discussion of evolution helped create a world in which theories of Social Darwinism could take root?

Question 20 - *beginning at [0:49:54]*
How do you feel about the persecution of early scientists by the church?

In his answer Brother Guy mentions that the Vatican is a carbon neutral country.
Can you think of any other examples of where science and religion have actually come together to bring about positive change?

Question 22- *beginning at [0:56:27]*

If God lives outside time does it matter the order of things?

Do you think it is necessary for God to be outside time to have free will?

Transcript

Speaker:

Brother Guy Consolmagno SJ

Chair:

Madeleine Davies

Question 1 *[0:00.00]*
Brother Guy, the first question is: In your point of view what aspects of religion are most compatible with science?

Answer
I think the idea that the universe is *real* and *good* are the two that really make science possible. If we didn't think that there was a universe, if we were living in an entirely spiritual realm then there'd be nothing to study and no reason to study it. And if we didn't think it was good then we wouldn't have the joy to study it.

These are the things I brought up in the talk, of course. But the other aspect of that which I think sometimes gets lost in the discussion, is that religion reminds you, you don't have all the answers.

Religion reminds you that the universe is bigger than me in my bed, and the refrigerator, and what's for lunch, and science ought to remind you of that as well.

So, they really reinforce each other in pulling you out of whatever it is you were worried about at three o'clock in the morning. And to say, no there's a bigger universe than this.

Question 2 *[0:01:11]*
Why do many scientists disregard religion?

Answer
It depends on where you are whether that's true or not. Some cultures are much more open to being religious than others. And as someone who's travelled through Europe; I've worked in Italy; I have a number of friends and colleagues in Great Britain and of course in different parts of America, the proportion of scientists who are church-goers pretty much follows the proportion of the general community. In Britain an awful lot of people don't go to church, for whatever reason, and so you find a lot of scientists who don't have much of a church background.

I'll be honest, the only time, anywhere, that I've gotten pushback like "Why are you doing that? You're a scientist. Why do you believe in God?" has been in Britain.

And I don't know… the difference in the culture, the difference in the education, why that is, but it doesn't happen in America.

The oddest thing that happened to me is that a lot of scientists don't talk about it. I'd been a scientist for 15, 20 years when I decided to enter the Jesuits and at that point I sort of came out in public as being a church-goer. I was wondering what kind of reaction am I going to get from my colleagues and my friends? And more often than not the reaction was, "You go to church?!" As if you couldn't tell from the way I behave!

And then they'd say, "Let me tell you about the church I go to…"
"You go to church too? There's two of us?!" And just putting on the collar gave them permission to talk to me about their religion.

That said, of course, there are I'm sure as you know a number of prominent British scientists who are very devout church goers. One of whom I discovered when I was in my own field of meteoritics: Monica Grady, whose father taught at a Jesuit school and she's very Catholic, very Irish and this also created a bond. So that at the time she was the Curator of Meteorites at the Natural History Museum. So, whenever I needed a favour I could go to her and she said "Oh sure, anything for the Vatican!"

So, you know there's certain advantages to having this.

That said, let me go in a little bit deeper on a topic that I think, since this is one of the other questions you'd ask me, maybe I'm going to get two at the same time.

When we learn about religion as kids we're given a book with a bunch of things to learn. When we learn about science as a kid we're given a book with a bunch of things to learn, and passing the class means getting the answers in the back of the book. That's not religion and that's not Science. But if that's all you learned about religion and at age 12 after you did your confirmation classes you never learned anything more about religion you'd think it was just this big book of facts. And that's not science.

But if you stop learning science at age 12 and you go on and you're tracked in some arts classes instead, without the science, then you think that science is just a big book of facts and then you've got, well there's the facts in the one book and the facts in the other book and what if they don't agree?

And the scientist who has the experience of science seems to work says “Well, if I’ve got to choose religion. I'll choose the one I know works.”
The religious people who don't know much about science know that religion works and they say well if I’ve got to choose between the two I'll choose religion because I know that works and it's a lack of experience with the other.

Madeleine Davies
I was thinking on that topic that obviously, you went to a Jesuit high school. Do you think that influenced your career and the fact that you don't necessarily see, a sort of, tension between the two?

Brother Guy
Absolutely. Not only that but even in grade school I went to a Catholic grade school where the nuns taught me science. The nuns taught me and they're very, very good at it and taught me math and encouraged it. When I was at the Jesuit school I did the classics track: I did Latin and ancient Greek, and the way I learned to analyse data was in my literature class where I was taught how to analyse a poem. It's really the same skills and I think anyone who is going to be a scientist who hasn't had a background in writing in literature and art is losing out on some of the essential tools you need to be a scientist.

You know as a scientist what do I do most of the day? I write whether it's writing papers or writing emails or writing proposals or writing articles for the popular press. How do I present my material? With figures? You have to have a background, some basic knowledge, in art and proportion, how you display things. These are a lot of the skills that everybody needs. Certainly, scientists do and I feel badly for people who are tracked too soon and don't take the time to learn the other either.

Question 3 *[0:06:22]*
From a Christian perspective, how is the act of contemplating the laws of nature seen as prayer?

Answer
It goes back to what I said earlier about being: recognizing that the universe is bigger than yourself and your immediate concerns. It also means that word “contemplation” is essentially you turn off all of the noise in your head and try to let God have a moment to get a word in edgewise, and that's something you have to be able to do both as a scientist and as a religious person.

God should be your friend, your father, your spouse, your child, in the in the sense of a loving relationship. And in any of these family relationships or any of these relationships of friends, shutting up for a while is really, really important and it's something that's hard for some of us to do.

So that contemplation is the first step and then contemplation with something in front of you whether it's a star, or an animal, or a beautiful garden, or a beautiful painting, gives you something to focus on. And then by focusing on that you're allowing a place where God can sort of slip in in the side. Because God doesn't talk to you face to face. God whispers behind your ear.

Question 4 *[0:08:04]*
One of the basic religious rules of science was to make an effort to learn the Laws. How would you measure the effort to learn these Laws?
Answer
It's really tough and it's tough in an obvious way, and in a subtle way. Learning laws means looking at lots and lots and lots of things that may be related and may not, and guessing ahead of time intuitively, do these things have something in common? What is it? And what can I generalize from that? So, that's the first problem. It's like putting together a jigsaw puzzle and you don't know if all the pieces of the puzzle are from the same picture.

But the more subtle problem, and this is also a spiritual problem, is that once you think you see a pattern, it's very tempting to then try to confirm what you saw in all of the data. You say, oh this works so it must work here. So pretty soon you're seeing that pattern everywhere.

But that's often like finding faces in the clouds. You're reading into the data what you want to see. Just as a person who says “I’m a very prayerful person and I went to God and I prayed to God, and God said I should do this which interesting and strangely enough is just what I wanted to do anyway!”

Yeah, and you're tempted to read into what you're getting, whether it's the insight from your scientific data or your insight from your prayer to read into it the thing you're looking for, rather than allowing yourself to be surprised.

And the hardest part in anybody's life is to admit you are wrong. But admitting you're wrong is often the very moment when you learn something new.

Question 5 [*0:10:11]*
Another question which I’m really curious to hear your answer to is whether science has ever made you question your faith or religion at any point in your life?

Answer
And that goes back to that two books model. It would only have that problem if there were two books about the same subject telling me two wildly different things but that's not what science is and that's not what religion is. So that question just has never even come up.

I'll tell you what has come up though. It's when I have one bit of science that I'm very confident of and another set of observations that don't mesh with that first bit of science so it's not when science disagrees with religion, it's when science disagrees with science!

And when that happens my reaction is not "Oh no, it's all wrong," but "Oh wow, I'm about to discover something new!" And the most exciting things in science are where you have things that you *know* don't conflict but *seem* to conflict because that's where you're going to get there.

There was a famous science fiction writer, Isaac Asimov who said uh the most exciting thing you hear in a laboratory is not *Eureka, I found it!* The most exciting thing is "Huh that's funny." Yeah, and so if there ever is a time when my religion and my science somehow caused me to say, "Wait a minute, something that I thought was working here does not work there," it would not be a moment to give up one or give up the other because then you're giving up the opportunity to learn anything.
That's where you say: "Ah, everything I knew here was right! Everything I know there was right but there is more. There's something else going on that I didn't even know about." That makes these two things work and so we live for those moments.

Question 6 *[0:12:31]*
The next one that I have is around obviously the people on this are still at school, perhaps preparing for university. When you were around that age, they're kind of on the cusp of going off to College, what were your views on this topic? Have they evolved since then or did you always have this understanding of faith and science?

Answer
I know scientists at the Vatican Observatory who went through their atheist phase when they were teenagers. I was not one of them. I didn't have that kind of fear or arrogance. I think being the youngest in my family I was constantly reminded by my older siblings that I didn't know at all so shut up and listen. And that's not necessarily a bad thing to have! I was also blessed with both teachers and parents who were very encouraging and gave me the confidence to say if I don't understand it now I might but I never went through an atheist phase.

I went through phases where I would question this or question that. The biggest challenge really was when I was in my late 20s and I was beginning to lose faith: not in my religion but in science. Not in the sense that I thought the science was wrong but that the actual business of being a scientist was getting me down because I was running into scientists who were opposed to me. Scientists who were trying to block me from doing what I thought was good science. Scientists who were behaving very badly in a lot of ways.

You know any kind of human sin that you can imagine scientists someplace are committing those things and then you look in the mirror and you go which one of them…. Never mind, not going to go there!

But seeing the frailty and the fallibility of personal scientists, some of whom you know were cheating in their marriages or cheating on their grants or cheating in their data which is, you know, just a terrible crime. You're ready to throw up your hands and walk away and [say] "Why do I even want to do anything with this?" But even at that moment I never doubted that the universe was the way that

science was trying to describe it. And the odd thing is that 30, 40, 50 years later, a lot of the people who I thought of as my great enemies back then, are my friends now. There are people who have gone through the challenges and in some cases paid the price of the things that they did, but there are also people who act you know an extent of time I can now see where they were coming from and why they thought those terrible things about me, just as I was thinking those terrible things about them.

And also, when you get to be sort of grey-haired you realize there's a limited number of people who remember the old days and can share the old stories and the old jokes and that's not something to be turned down.

Question 7 *[0:15:40]*
In your presentation you mentioned ancient philosophers and this question asks “Do you think Plato's analogy of the cave has any relevance to understanding of the universe?”
Answer
Oh absolutely! It's such a marvellous picture that’s worked for 2500 years. It's not an answer to anything.

It's an analogy. It's an analogy to make us recognize that what is the truth, the shadow or the reality. In some ways our scientific theories are the shadows because every person is a different person but they all cast similar shadows.

When we say we're only going to comment on the things that are common to everything we lose sight of the things that are unique to everything. So, it's good to remember that there's more than one way of looking at things and more than one level to which we can understand things.

Question 8 *[0:16:43]*
I love the next question. It actually reminds me of a priest who's at Cambridge University and he was actually given a grant by NASA to explore some of the theological implications of discovering extra-terrestrial life, Professor Andrew Davison. This question asks you, do you believe in extra-terrestrials? And if so, how do they fit into God's plan for salvation?

Answer
I love that question with the word belief. I believe that there's extra-terrestrial life. I don't have the data. I don't have any reason to be sure that it's there but as Paul Tillich said in a phrase much more concisely: “The opposite of faith isn't doubt; the opposite of faith is certainty.”

If I was certain that I wouldn't need the faith. What does my belief in extra-terrestrials mean? It means that as the Director of the Observatory, I’ve got access to the resources of the observatory. If you as a scientist came to me and said I want to study extra-terrestrials and here's the way I’m going to study extra-terrestrial life, I’d say go for it. Maybe you'll find something! Maybe it'll be there. It's worth doing. If you came and said “I want to study UFOs and little green men and flying saucers,” I’d say get out of here because I don't believe in them.

In both cases I could be wrong because I don't have the data, but the one is much more consistent with the way I see the universe and the other much less consistent with the evidence that I've seen in front of me.

How does that fit into God's plan? The problem is we never make God big enough. God is bigger than me and my church, and my parish and my school and my religion, and my planet and my solar system. When we say in Genesis, "In the beginning God created…", that's the God who is bigger than every multiverse. So, any creature made by God, (in the sense that God created the universe that allowed this creature to come to be), is a child of God, just as you are, just as I am.

And that means if they have the ability to know that they exist and that you exist and that maybe God exists, this is called intellect. And if they have the ability to make some choices about it: yes, you exist and you're hungry but I don't care I'm going to hold on to my food, or I decide instead I'm going to share it with you. I'm decided I'm going to like you or not like you; I feel that there's something bigger but I'm going to ignore all that and pretend there's no God; Or I'm going to ask myself, "Is there a God? Do I want to be in some kind of relationship? These two elements, intellect and free-will are what the classical theologians, like Thomas Aquinas called "the soul"; the human soul; the part of the human being that is the image and likeness of God. If they've got that and I've got that we're both in the image and likeness of God. They're not aliens, they're my cousins.

Now in reality are we going to go out and baptize them? The answer to the question in the book is, "Only if they ask!"

This is a way of reminding you that the odds are very big and the universe is big that there's life someplace. The odds are really small in a universe this big that we and they will ever be able to communicate just because of the distances involved.

Madeleine Davies
Lovely I'm always really interested that C.S. Lewis who was best known for the Narnia stories was also a huge science fiction fan and explored some of these ideas.

Brother Guy
Yeah and I don't like some of his ideas and I do like some of his ideas But that's the way science fiction's supposed to work. It's supposed to make you mad and argue and say "No wait a minute! That's not how it would go. Let me write this story to show you how it really works.

Question 9 *[0:21:08]*
There are two theories of creation: the scientific and religious. Which one do you believe is the most accurate?

Answer
Yes! The sound bite answer is this my religion tells me God made the universe.

My science tells me how he did it. If you look in scripture you will find descriptions of the creation of the universe. In many different places with many different descriptions. So, there's Chapter One of Genesis,

but there's also Chapter Two of Genesis which is a very different story and doesn't perfectly match up with the story of Chapter One.

Chapter 38 in the book of Job. It's got this fantastic description of the universe; there is the [book of the] Prophet Baruch has a few bits. The point is that scripture everywhere says God made the universe. The way that scripture describes this creation is different from book to book, in place to place, in person to person because scripture was written by man different people at many different times.

If I might take the opening chapter of Genesis, you can find all sorts of parallels between that story and the Babylonian creation myth and the scholars tell us it was probably written by Jewish scholars who were in Babylon during the Babylonian captivity. There're even linguistic connections. So, you're saying Genesis is just a copy of the Babylonian's?
No, the important stuff of the book of Genesis isn't in the Babylonian myth. The Babylonian myth says the universe was made by accident. The book of Genesis says it was made deliberately. The Babylonian myth said there were a bunch of gods who were fighting each other. The book of Genesis says there was one God. The point that the author was trying to make in writing Genesis was to take the best "science" of the day [which was 2500 years ago] where the world is flat and there's a dome and water above and below the dome, and say okay, everybody knows that's what the world looks like but here's what you don't know: it was made that way by a God who deliberately decided to make it that way and who made things in order as regular as day follows night and who at every step of the way said not only did I intend to make this but, it's good.

And then the final point, the climax of creation to the Babylonians, is the city of Babylon. To the writer of Genesis, it was the Sabbath. The moment when we can take the time to contemplate the universe.

So, if you ask me is the Big Bang the way it really happened? I don't even believe that, because a thousand years from now our science will have gone beyond the Big Bang. We couldn't get there without the Big Bang now but science changes and it's supposed to change. And it's not that the Big Bang is wrong but the Big Bang is going to be found scientifically incomplete. And I don't mean that it's going to stumble across God someplace because that's the God of the gaps. I'm just saying that I'm not going to base my life and my religion and my total belief in how I should live on the best science of 2020 because of the science of 2020 is going to be found to be very wanting in 3020.

Whereas scripture that's 2500 years old still tells me things that I know are true: That God made the universe; that God deliberately made the universe; that God made the universe orderly; that God made the universe good and that God made us to be able to contemplate the universe.

Question 10 [0:25:16]
Will science ever explain religious concepts such as angels?

Answer
Explain? Science really doesn't explain. Science describes, and the descriptions will always get bigger and better.

But it's funny how those descriptions are conditioned by the questions of the culture at the moment. What's an angel? I'll give you a hint an angel is not some guy dressed in a white suit with wings. That's the way that the “science” of the middle ages attempted to describe it, and with the culture of the middle ages doing art in a way that they could say, “Okay this is what our art is supposed to be doing.” It made sense to those people probably much better than it makes sense to us.

But what is an angel? If nothing else it is a message from God, a messenger from God. Anyone who has been in prayer and has been surprised by prayer has been “surprised by joy” as C.S Lewis put it, has had that experience. That experience of going, “Wait a minute I didn't realize, but of course! Wait a minute I should be doing this course and not that course. This is the person I should marry and not that person!” However, these things come to you it's like having a silent friend tapping you on the shoulder but that's poetry that's a simile. The only way we can describe these things is poetically because something like an angel could not be weighed or measured the way science weighs and measures. And yet to say that it can't be weighed and measured isn't to say it isn't real.

I mean a wave in an ocean doesn't have any more weight than the water in the ocean and yet the wave in the ocean is real and there's nothing supernatural about it. The love that I have for my favourited basketball team can't be weighed or measured, can't even be rationally explained but it's real. It's real enough that it causes me to go pay some money to go you know watch the games.

When you're looking for a description there is a science that attempts to describe angels: it's called the science of theology. Theology, in many ways, was the first science.

What is a science? Science is something that observes and then attempts to generalize and attempts to explain in general principles what happens in the particular. In an attempt to do this with logic and with reason and that's exactly what science what, what theology is. Theology was the first science!

Question 11 [*0:28:32]*
Is science necessary for humans to understand or potentially prove the existence of God?

Answer
If you are looking for a proof of the existence of God the way that Euclid can prove theorems about triangles and angles, you're in the wrong business. God is bigger than science. God is bigger than mathematics. God cannot be “proved” by science, rather it's my belief in God that gives me the evidence to say that science might have something worth saying. God proves science; science doesn't prove God. Any God that could be proved that way is not a God worth believing in because it would be subservient to the science.

But how do we actually proceed in science because we don't do proofs in science? Anything that's in your textbook today that they're teaching them conservation of mass, was around from Newton until… “oops! we got atomic reactions and mass and with being turned into energy.” Things that we thought were proved turn out to be incomplete. Science describes it doesn't prove but it describes by looking at the evidence and coming up with a way of thinking about it - making assumptions about how will this work - and then if your further observations continue to not only confirm the assumptions you make but allow you to see more deeply into the assumptions, then you have confidence that there is truth.

I can say there is no God, that it's all mechanical and with that assumption I can come up with explanations for what happens everywhere. I described I fell in love that was just chemicals in my brain. I love that picture it was just different chemicals in my brain. I feel bad when I tell a lie. It's because I know that I'm going to get punished in the future. All of these things could be described mechanically and that will reinforce the assumption you made that there's no God. It's all just chemicals. I can assume there is a God and say this love that I'm seeing, this joy that I'm experiencing, this curiosity that I have, yes they are expressed as chemicals in my brain, because they're real.

But why should those chemicals be the same thing as the taste of chocolate? The joy and the fun that I get in the taste of chocolate and to my mind the belief, the assumption, that there is a God not only can make sense of everything I can experience, it's the only thing that can give meaning to my life and what I'm doing here. And the more I learn about the universe the more I can appreciate and understand and get used to the that assumption that I made that there is not only a God but a God who actually wants something to do with me.

Question 12 *[0:31:52]*
How do you respond to scientific colleagues who might consider your faith as a childish response to reality?

Answer
Well I'm of a generation that where you say childish you could take it as a compliment. I have not been so cynical, I've not been so burned out and I'm not so insecure that you know I give a rats whatever for what other people may think! I've still got the joy and the curiosity and that sense of fun that a 12 year old has, and if they don't have it, boy, do I feel bad for them because what a miserable dull life you must be living without that!

Question 13 *[0:32:49]*
The next question has come through: Could we ever travel through space and time to get to a place we could call heaven?

Answer
No and yes, okay. Because you don't have to travel to get there.

I don't know what Heaven is and I don't know what Hell is, except for the theological principle: Heaven as being in the presence of God; Hell is rejecting and turning your back to God.

But I certainly see that we make heaven and hell for ourselves here on earth, doing things that are hard to do. But you, know in the long run they're going to give you a joy and a satisfaction that you would never get any other way.

Or doing things that you're really tempted to do even though in the long run. Oh, you know, I mentioned chocolate. You put a big ice cream chocolate brownie mess in front of me and it would be really hard for me to resist it. But after it's done I'm gonna have a toothache. I'm going to have a stomach ache. I'm going to put on five pounds which means I can't eat anything for the next week to get rid of that weight.

And all for a taste that wasn't as good as I thought it was going to be. That's hell in a really, really tiny way and you don't have to travel anywhere to get there.

That said, let me say something that I think is going to be very challenging. It's really, really, really tempting when talking about what happens after death, what is our relationship, to say "Oh, after I die my soul physical universe. Polkinghorn, the great physicist and theologian and Anglican priest says that we are somehow apprentice angels. We're stuck here on this stupid earth where I get cold and I get hot and I get hungry and I get mad, but my body eventually - the stupid body - will be thrown away and then the angel part of me will go flying off and I don't have to ever think about. No, that's not Christianity. Christianity is that we are physical beings this is how we were created and the physical part of our being is so important that Christ himself became incarnate to participate in this. And in the Incarnation the physical universe was cleansed and quickened. "Cleansed" in that it was redeemed; "quickened" in the sense of becoming pregnant (is what that word really means) it has become something that can be even more than what it was. The physical universe was so important that God redeemed it and that means it doesn't go away.
How can this be? We know that nothing lasts forever. Well, one way it can be is to recognize that God is outside of space and outside of time.

All times are the same so that I can say to use a pop reference, John Lennon died 40 years ago. He would have been 80 years old if he'd been alive but he's no longer with us. Except he is with us, because he existed and the fact that he existed can never be changed for good or bad. The physical universe is an essential part of what we are. So, I would also say not only if Heaven is where you are, Heaven is where I am. Heaven is wherever we go if we are doing it in the presence of God.

Question 14 *[0:36:55]*
Do you think Christianity has been guilty of stifling scientific inquiry?

Answer
Oh, absolutely and so has atheism. And so has lots of other sciences. And the stifling occurs because we're human beings and we're fallen human beings and everybody is guilty. Science has been guilty of stifling science and sometimes for good reason! Everybody who's a scientist and gets their name in the paper starts getting letters from people who have "worked out" the grand theory of the universe that they've sat in their basement and they send you now emails and all caps.

When I was younger before there was email they would send you letters on very flimsy paper with very tiny writing and you just get one of these you go "It's one of those guys and, you know, I toss it aside. They're gonna say I'm suppressing their science. And one out of a thousand of those people might actually have a real insight which I didn't bother looking and I didn't see. You can't be open to everything because a box that's always open has things falling out as often as it has things coming in. At a certain point you have to limit what am I going to study, What am I going to accept? Where am I going to go from here?

Always recognizing that number one you could be wrong (probably aren't but you could be). Number two, you're always going to be incomplete. And so, at end of the day Christianity has not stifled science any more than anybody else has but certainly there have been Christians who have tried to do it,

generally acting out of fear, generally acting out of some insecurity. If you don't have faith in your faith then you're going to be afraid of some other source of truth.

But you know, Jesus says in the scripture anyone who's not against me is with me. If something is leading you to the truth I believe it's ultimately leading you to God and it's nothing to be afraid of.

Question 15 *[0:39:05]*
How does science correlate with Augustine's belief in us being born with original sin?

Answer
Not just Augustine who thinks that. It's the human propensity to screw things up. Anybody who's been in the lab knows that we all have a propensity to screw things up and that we also have the ability to go back and try to fix it. It's what Augustine is not is doing, is not proposing. He's describing. He's looking around at the universe or reading the daily paper and saying this is what I observe. People have this propensity to screw things up. You realize I'm quoting from that wonderful book "Unapologetic" by Francis Bufford.

It's an observation. We do have this propensity to not get things right. But you know, that's what makes it fun. If you had a football team where every player was perfect and never made a mistake and they were up against another football team, or every player was perfect and never made a mistake, what kind of game would that be?

It is in fact in overcoming the places where we screw up that we get our greatest joy and have the most fun.

Question 16 *[0:40:32]*
What is the position of the Vatican on Darwin's Theory of Evolution now?

Answer
The Catholic Church has never officially come out against Darwinism and late 1940s there was a specific Encyclical by Pope Pius XII who said this is a marvellous way of describing things, with a certain caveat that I'll get to. More recently pope Saint John-Paul II (saint) had an entire address called "Truth" which encouraged theologians to take the Theory of Evolution seriously. Pope Benedict, the Pope before the current one, had a student who was an evolutionary biologist, somebody whom he had taught in Germany. So, if by "evolution" you mean that one kind of thing got turned into a different kind of thing over a long period of time, not only is there nothing wrong with that, that is exactly what even the story of Genesis says because that's the only way things get to be if there was a time when there was no life. And now there is a time when there is life. Something must have happened that turned the one into the other. If you want to say, well God did it, you could say God created the universe where it was possible for this to happen. And then you know this week's version of evolution is the best way we've got to understand *how* that happened. Not necessarily *why* it happened. not necessarily what the bigger meaning of it is.

On the other hand, people tend to extrapolate from what they know of to things that they don't know, and if you're using evolution as a way of extrapolating, well because it could happen mechanically,

there's no meaning that's philosophically unbound, unbiased. If you say that, well because I'm a pile of chemicals in this whole pile of chemicals I'm no better than the pile of coal, well that's not true either and that's a false philosophical lesson you can get out of evolution. There's the far more nefarious one and the one that I think got a lot of people upset about evolution because it wasn't the evolutionists who were saying this but the "pop writers" about it in the end of the 19th century who said that "Ah if I'm rich and you're poor that's the law of evolution. That's the law survival of the fittest, so there's no point in me trying to help a poor person because that would be going against science. And my social class happens to be on top of your social class well live with it because that's the way it's supposed to be."

We call that was called Social Darwinism and not only is it not justified by the science it's also really nasty evil stuff and the nastiest and the evilest is eugenics, thinking that we could breed human beings to be better or smarter or whatever because people who look like me are clearly superior to people who look like you and therefore everyone should look like me if we just bred more of me's.

And that's horrible of course that you know ended up in the Nazi death camps, and yet that was what people were using evolution to try to justify.

In around 1900 people who should have known better like, H.G Wells and we know now that, number one it actually doesn't work: you can't breed people that way. We've done the science, we've done the math, we've done the statistics, it doesn't work because there were about 30 years of people trying to figure out why isn't it working but it's not. And the second is the moral evil behind it is unmistakable, so the description that this animal because of these stresses and these random changes you know 27 generations down now looks like this, it's an observation and I can even work out in the genetics where it happened and that's fine to say that out of this I can deduce that people who look like me are better than people who look like you is not only scientifically absurd it's one of those things I was mentioning before where you leap to a conclusion that you wanted to get to rather than one where the truth was actually leading you.

Madeleine Davies
Thanks. It's a really important point to make. I remember reading about how quite a few prominent British intellectuals were quite taken with the idea of Social Darwinism which perhaps isn't a history that's so well-known necessarily.

Brother Guy
Yeah and a lot of the great uh medical institutions in America were founded by eugenicists who thought that they could and fortunately they were good enough scientists to be able to recognize at the end of the day it doesn't work, it's not true. But even if it did work, which it doesn't, it would still be wrong, it would still be evil.

Question 17 *[0:46:12]*
So, we've got our next quite ponderous question: If judgement day is an actual event, what would be your first question for God?

Answer

[Laughs] Was I right? And you know it would be some tiny bit of science that only he and I would know and we'd both get a good laugh over it.

Question 18 *[0:46:45]*
This connected to the ethical point that you were making earlier.
Does religion approve of scientific and medical procedures such as genetic engineering, cloning and IVF?

Answer
Religion is worried about them, as well it ought to be. And to say it's worried is to say that we can see both the enormous good that can come and the potential for evil. Unfortunately, this is true of anything. The better something is the worse it is when it's misused.

How do you know when you're misusing it? That's not so easy. We've learned the hard way that you cannot come up with a calculus of ethics: If this then that. And the whole field of ethics is one that I studied when I was doing my theology classes. It's a can of worms and yet it is something that you know every hospital has a committee of people that you go to and you say I want to try out this procedure, this experimental procedure that might help this person who's in a coma. But the person in the coma can't give me consent because they're in a coma. Is it okay for me to do this? I remember reading a description from Stephen Tullman who was one of these episodes. He was on a committee like this and he said you know there were people who were from a different religion, a different philosophy, a different way of looking at the world. I thought, “We'll never even agree on what room to sit in,” but in most cases the answer was obvious. Yes, go ahead do that, there's no problem. They all explained in a different way why they came to that conclusion but they could all see that that was a conclusion to come to.

Or no, you shouldn't do that and the parts that are our border cases are going to be border cases, they're going to be hard cases and we're going to make mistakes because we're fallen people. And so we have to be prepared for the fact that we're going to make mistakes and how we deal with the guilt and how we deal with the actual aftermath of whatever mistakes we made.

Madeleine Davies
One of my favourite books is called “The Great Partnership” by Rabbi Jonathan Sachs. He talks a lot there about how we do need religion or an ethical system to help us to explore the potential of science and questions of right and wrong and where we go with it.

Question 19 *[0:49:24]*
To what extent do you think God is discoverable in the natural world?

Answer
Incompletely, but enough to occupy the rest of your life. You'll never see all of God but you'll never run out of ways to see God in the natural world.

Question 20 *[0:49:54]*
How do you feel about the persecution of early scientists by the Church?

Answer
Name three!

Madeleine
I guess the one that came to mind which I don't know whether this questioner was thinking of is Galileo is brought up and perhaps you can talk a bit about what may be inaccurate about our sort of popular understanding of what happened there.

Brother Guy
Well, basically everything you know about Galileo is wrong! The truth doesn't make the church look any better but it wasn't a persecution because of his science. It was interfering because of you know political or personal the historians are now arguing vehemently, “Why did Galileo get into trouble?” But you know he was cruising for 20 years as a favourite of the Pope's when suddenly everything fell in on him and it's a wonderful historical question. Why then? Why in that way? And then why was he able to go home and write more science books?

So, the Galileo story is not what you think it is. Some people would bring out the Giordano Bruno, that's another favourite one. You look him up, just read about him on Wikipedia, and you realize this guy was number one, not a scientist: he was a kook. And number two, was a pretty nasty piece of business. Yes, he was burned at the stake and people should not be burned at the stake, but they waited 10 years for him to at least apologize for the things he had said and he refused to do it because he was stubborn and self-centred and probably crazy. If you think that scientists have been persecuted then why is it by the church? Then why is it that so many scientists including people you've heard of were actually very devout members of their church? Christians. You probably heard of the Big Bang theory. You know the guy who came up with the Big Bang theory was the Catholic priest George Lemaitre.

You may have in your pocket a cell phone. If you look on the little charger on the cell phone you'll see the name of two prominent devout religious people: Mr Ampere and Mr Volta, because amps and volts are named for two scientists: one of the 18th, one of the 19th century, who are both very devout in their beliefs. Everything that we've done in electronics ultimately is based on Maxwell's equations. If there was anyone after Newton and Einstein, James Clark Maxwell was probably the third greatest physicist. And James Clark Maxwell was a very active Anglican.

So, the thought that why, with so many, what gets you persecuted is being a jerk, being arrogant, being someone who can't help saying terrible things to someone's face. And maybe that's a trait of someone who's thinks that they're smarter than everyone else in the room, which is a feeling that some scientists and engineers tend to fall into on occasion.

Madeleine Davies
I was thinking that one of the areas perhaps where we see science and faith coming together at the moment is climate change and obviously the current Pope who appointed you produced encyclical *Laudato si’ which was* drawing on science about climate change and human responsibility for it so perhaps that's one area where the relationship's particularly healthy at the moment.

Brother Guy

And not only that but you find that the previous folks including popes that people thought were conservatives like John Paul II or Benedict XVI also had very strong things to say in defence of the climate. It was Benedict who installed solar cells on the roof of the audience hall so that the Vatican is the one nation in the world (very small nation!) which is a hundred percent carbon free!

Question 21 ***[****0:58:22]*
Does religion justify transgenderism?

Answer 21
It's I wouldn't say that religion justifies it or condemns it but I think that there is a tendency on both sides to absolute positions which means that neither side is listening to the worries, and the fears, and the hopes, and the aspirations of the other side.

I worry that people use it to answer problems that might better be answered in different ways. Maybe if we changed our idea of what gender was then we wouldn't have to be worried about changing our bodies. It's a whole lot harder to do. And not being someone in that position I'm not in a position to condemn anyone, but I can understand and absolutely see the moral worries and the fears on both sides. And you know, even if you think that someone has made a terrible mistake in what they've done, that doesn't make them any less of a person, any less of being someone who is loved by God because there's nobody on this call who hasn't made mistakes equally stupid and equally in need of understanding from the people around us.

So, it's just that there are other times in other places that it might be the appropriate thing. It's a horrible thing to try to come up with a generalization when we haven't even lived with the ability and seen, as I say mistakes will be made in both directions. I think we just need to spend a lot more time listening to and not reading into somebody else the fears that we have, but actually listening to what it is they're worried about.

Madeleine's response
Something that's really sort of positive in the UK as the church of England actually worked with an LGBT charity to come up with resources to make sure that there isn't homophobic bullying in school which I think is a really positive development from the church here.

Question 22 *[0:56:27]*
If God lives outside time does it matter the order of things?

Answer
There is a doctoral thesis in philosophy! What do you mean by 'matter'?

I'll give you a couple of things that come out of God being outside of time. It allows for free will for those of us within time because it's not that God knows what we're going to do in the future. It's that God remembers what we did because God is also at the time and that can see the results of the free will actions that we made.

Just as you know to say that I know how many wives Henry VIII had doesn't mean that I forced him to have that many wives. But the whole joy of playing with time and playing with space that, of course, Relativity gives us the chance to do is a very rich field for fantasy and science fiction, if nothing else!

Question 23 [0.57:42]
Abortion can be seen as a scientific procedure. Are you going against God if you go through with it?

Answer
Just because you can do something doesn't mean you ought to do something, and again you make a general principle “life is sacred” and then you have to apply it to a specific circumstance and very clever people can come up with very clever circumstances that make it really, really hard to decide what's right and what's wrong.

I’m not going to do that. I'll take it to a different point: There is science that we could do that I’m wondering if is the “science neutral” To create human beings that had gills that, could swim underwater. We can't do that today, but in a hundred years’ time with genetic manipulation would that be moral? Especially if you're doing it to a child who has no choice in the matter. They've been born with those gills.

I’m thinking of some of the Diane Wynne Jones stories where a father who has disabilities creates some of his children to be centaurs and the like and did the kid have any choice in that?

But then did I have any choice to have brown hair and a body that was not built for playing basketball?

These moral choices are tough, precisely because they're tough! Because there are competing goods and all of life is trying to balance out competing goods and sometimes getting it wrong.

Question 24 *[0.59:40]*
How do you think the world will end? The Second Coming or being engulfed by the sun swelling up into a red giant?

Answer
Well the, the sun swelling up into a red giant is certainly going to happen but the world is more than planet Earth. That red giant is also part of the world and whatever planet you know we've fled to or whatever creatures we've evolved into that don't need a planet anymore by the time that happens I’ve no idea.
The one point I come back to is that the physical universe in all of its manifestations is a creation of God and ultimately good and there's room for us in it one way or another.
Of course, when I can tell you much more about the Big Bang because I’ve got data from the past that are you know encased in my rocks or in the light coming from distant stars. I have no data from the future so I have no idea how the world's going to end. I can extrapolate but extrapolations inevitably go wrong they're still fun to do.

Question 25 *[1:01:12]*
Can we pray to God about past events?

Answer
Why not? You have to recognize that you're probably not going to change the past event or if you did you wouldn't realize it had happened because your memory would likewise be changed, but we pray more, not only so that we'll get this or we'll get that; we pray mostly because we love this God, we just want to hang out with him!

Biography of the Speaker

Brother Guy Consolmagno SJ, is the Director of the Vatican Observatory. A native of Detroit, Michigan, he studied planetary sciences at MIT and the University of Arizona, specialising in meteorites and asteroids. Along with more than 200 scientific publications and a monthly column in The Tablet, he is the author of several popular astronomy books, most recently with Fr Paul Mueller, “Would You Baptize an Extraterrestrial?".

Biography of the Chair

Madeleine Davies is deputy news editor and features editor at Church Times, a weekly Anglican newspaper founded in 1863. She writes and edits pieces exploring the Church, religion, and the intersection between the arts and faith. She is also the author of "Lights for the path: a guide through grief, pain and loss", a book for bereaved teenagers published by SPCK in May 2020.

Context of the event

Westminster Abbey’s Learning Department hosted the free, online event “Does Science Need God?” on 14th October 2020. Brother Guy Consolmagno SJ, one of the world’s most experienced and engaging astronomers explored the power and limitations of Science in a pre-recorded lecture that students were able to watch and submit questions before the live event. Madeleine Davies of *The Church Times* chaired a live question and answer session with Brother Guy, during which students’ questions were answered.

To hear more about attending events like this with your students, please sign up to our schools mailing list

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