

# OpenTheo

## Living with Uncertainty in Science and Religion | John Lennox & George Church

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### The Veritas Forum

This program was recorded at a Veritas Forum event at Columbia in 2021. The original title was, "Living with Uncertainty in Science and Religion" and featured John Lennox, Professor of Mathematics at Oxford, and George Church, Professor of Genetics at Harvard. If you enjoyed this episode, please rate, review, and subscribe. And, if you're interested in more content from Veritas, check out our Beyond the Forum podcast. Visit [veritas.org](https://veritas.org) to learn more about the mission of the Veritas Forum and find more resources to explore the ideas that shape our lives.

### Transcript

This is the Veritas Forum podcast, a place for generous dialogue about the ideas that shape our lives. Interesting phenomenon that we find in nature. There's a tendency for engineers to want to harness it.

And so, indeed, that's what we do with uncertainty. We have uses for uncertainty that are truly breathtaking. This is your host, Carly Riegel.

Today I'm sharing with you a conversation at a Veritas Forum event at Columbia University in November 2021. The speakers you will hear from are John Lennox of Oxford and George Church of Harvard as they discuss the nature of evidence and the presence of uncertainty in both science and religious faith. You can learn more about the Veritas Forum and talks like these by visiting [veritaas.org](https://veritaas.org). I hope you enjoy their conversation.

I'm very excited to be having this conversation in part because as a scholar of ancient Greek and Roman philosophy, primarily, I operate in an intellectual world where the split between religion and science and indeed philosophy has not yet happened. And so that gives me great curiosity about how modern perspectives might shed light on these same topics. Our official theme for the night is intellectual humility, sorry, I should say for the day, before the night for some of us.

And just to get us going, I'd like to ask each of you to say something about what you think intellectual humility is. Is it an attitude, a virtue, and how does it apply in your own domains of work? I guess I'll start. I think humility plays a pretty big role in all of the fields that we're talking about.

Certainly in science, we're constantly seeking surprises, things that, and revolutions, things that overturn not just the little things on day to day, but overturn the entire enterprise of science. So I think it's, and we often take our time of how deciding whether something is truly the best way to think about things. And I think that's shared with with other enterprises that are more socially oriented.

I agree with George entirely, and that it is essential. I turned to the Oxford English dictionary and discovered that humility means having a lowest estimate of one's importance, worthiness, or merits marked by the absence of self assertion or self exaltation. And I was intrigued to discover that humus, which I knew is Latin for the earth, and the word humble was used in the 16th century for a low growing plant.

So the ideas of something down on the earth, small, low, lowly, insignificant, and unpretentious. And in science, it certainly means, first of all, being teachable, being prepared to admit you're wrong, being correctable, being open to new, and what George called surprising ideas, being slow to offend, quick to forgive, and even being prepared to ask for help and treating others with respect, knowing that you can learn from them. And I would add to that that humility means being pleased for your colleagues when they get more recognition than you do.

And Richard Feynman, the great Nobel Prize winning physicist, said that it means being self critical in science, bend over backwards to criticize yourself, he said, since the easiest person to deceive is yourself. But I really like what C.S. Lewis says, humility is not thinking less of yourself, it's thinking of yourself less. And this kind of virtue, and I believe it is virtue, is very important, I think, in making progress in science.

Because when we get proud, we become intransigent, we become overdogmatic, and we're not open to learning, and we won't make the progress we do. Something interesting about both of your responses to my mind is that it started to sound like this was a quality that is, it's essential to the scientific enterprise, but there are different ways of understanding that. One is that it's a virtue of imperfection, it's a result of our fragile human intellects that we require it, and maybe responding a little bit to what you're saying, John.

It's also required by the enormity of the human ego, and the way that that gets in the way of truth-seeking and the scientific enterprise. But would someone who had very disciplined appetites and desires and a very disciplined mind need humility, or is humility just making up for an imperfection in us? That's on the social side. On the side of the scientific enterprise, is it just that we're very, very far from the truth, and so we need

humility as we grow up around in the dark.

Or in some cases, are there scientific enterprises that need it less? Yeah, I guess I'll start again. Science and engineering, the partner can progress in waves where you can accept the dogma for varying degrees of time and make a lot of progress, and you can have dogmatists, and one of the nice things that I think about science and other fields is that there are many different ways to succeed or to make progress, however that's measured. And so you can tolerate or sometimes even embrace people that are arrogance or self-committed to their own agenda.

But eventually, if their dog was incorrect, it will be replaced. But you can accumulate a lot of data within a particular dogmatic worldview that can be then reinterpreted later by somebody by a group of people with a broader or different view. Yeah, I would say that humility is not so much making up for a lack.

It's recognizing a lack in the sense that I don't know everything. And I feel a bit like it was in Newton who said, "I play around with pebbles in the sand when the great ocean of undiscovered truth is lying before me." And it's that openness to the vastness of potential knowledge that I think is a huge factor in driving the scientific endeavor. There's something in the way in which we're made.

And I believe it's because we're made in God's image that we're interested in finding out we're curious, and we want to know. But we realize rapidly that our capacity for knowledge is limited. And therefore, we need to fine-tune that.

And so humility becomes an indispensable way of making real progress. George, in what you said, there was an interesting combination of optimism and pessimism. It seemed like the dogmatists can advance their own view stridently, but eventually, we'll figure out the truth of matters regardless of their own personal attitudes.

And I wonder about that. You could have a much more sociological approach to science and think that in fact, we're very shaped by the personalities of people. The theories get accepted when they're put forward in a certain way rather than just because of their merits.

What do you think about that? Well, I think almost everything is temporary, including that. Or at least, that's an act of faith. It's one of many things that scientists take on faith, is that what they're doing is a benefit to humans or to biology or to something larger.

That's faith. And that the dogmatism has some value, but is later self-correcting. And sometimes scientists are in a big rush and sometimes they take time.

But again, we all, I think the optimistic part of it is that we believe without fundamental proof of heading in the right direction and self-correcting. This is where I resonate very

deeply. With huge George, the involvement of faith in science, it's absolutely essential.

And we're going to come to that, I believe as we go on. But there's sociological critique of science has interested me. And I do not think that it means that everything is relative and we can know nothing and we must be uncertain about everything.

But I think it has done very good service in reminding us that science is a human endeavor, that we all bring the world view to the table. We all are biased. And when people say to me, "Are you biased?" I say, "Sure, but I hope there are informed biases." In other words, we need to realize that it is a human endeavor.

And that's why sociologists and philosophers of science find it very difficult to define exactly what science is. So I accept the critique. But I suppose I would position myself as what might be called a critical realist.

In other words, you do science. Why? Because you believe something. You believe that there's truth out there to be accessed.

Otherwise, if you didn't believe that, you wouldn't do it. And we feel, I suppose, that we're getting a closer and closer handle on it, even though we don't get there. I mean, Newton got a long way.

We can land people on the moon using Newton's equations. But Einstein took it further and so on. So Newton didn't get everything.

And I suppose that for me is a kind of paradigm, realizing that there's more to be uncovered. But the first may well be an approximation in a second. We don't reject everything that Newton said, because we've got Einstein.

So we approach the truth, but we don't want to dogmatically claim we've ever reached that we might be overturned by the next discovery. So that to me also seems like quite an optimistic view. But taking into account this kind of sociological critique.

I'm also wondering what you make of intellectual humility on the individual level. I think we've been talking about mostly the advance of scientific research programs and theories and the like. But you might think that in the everyday workings of intellectual life, broadly, not just scientific life, each individual can only know so much.

And one of the facts of the modern world, both generally and especially in university research context, is that everyone is so specialized that our alliance on each other is increasing. In Newton's time, he could master whole bodies of work and multiple disciplines. And he wrote all kinds of topics.

But imagining someone like that today is much harder. Even imagining a fine man today is much harder. It is, yes.

Well, I associate intellectual humility with intellectual generosity. And I first came across this in Cambridge. I had a very famous research supervisor for a while.

And he was so generous in the sense that he would ask you a question. You'd try hard to solve it and you'd come back. And he would say, well, I've been looking at your question and this work you've done.

Now, if you just put it another way and did this and did that and did the other thing. And before you knew where you were, he was handing you ideas. And he didn't want you to ascribe them to him.

And I know of many chairs around the world, fairly distinguished chairs that experienced that. And that was one of my deepest impressions of real humility. He didn't worry that the ideas weren't always attributed to him and so on.

And I don't know how usual or unusual it is, but it's a very real phenomenon from which I've benefited greatly. Yes, your question about the personal nature of humility. Certainly, there are many good examples of that.

And they inspire certain people to be similarly humble. But like I said, it's not absolute requirements. It's just very inspiring.

And I think it does especially help when we're dealing with things that could involve existential risks to all of humanity. Either something that we do could go wrong technologically or something that's happening to us, the technology could influence like super volcanoes and solar flares and asteroids. But all these, the existential risks for all humanity nevertheless does have, we each has the individual humility as part of the solution.

That's so interesting. It seems like you're talking about humility as something that's befits a person and of course some people are scientists or engineers and so they can have these enormous effects on our lives or our civilization. I want to turn to our second topic which is uncertainty and try to locate that in relation to what we've already been talking about.

So the overarching question here is, how do you think about uncertainty in scientific inquiry? And does the pervasive role of uncertainty mean that we also need faith in science? Well, uncertainty. I'm a pure mathematician, but I did do some quantum mechanics at Cambridge under John Paulkinghorn. And so I know about the Heisenberg uncertainty principle.

And therefore physics has a built-in uncertainty. And that revolutionized physics as you know, and people are still working on the implications on it, particularly you're a philosopher, you know all about the notions of determinism that are undermined by Heisenberg's principle. But that's a very special thing.

That's an inbuilt uncertainty that we can recognize. But in what we've been saying so far, I think that it is very good to recognize that although we may be making progress, all progress is tentative and that therefore is a degree of uncertainty. And we have got to accept and believe that.

Now, I think you sort of segued into a question about faith in science. Can you repeat exactly what that question was so that I can complete my response to your question? Yes, the question was, if uncertainty is pervasive, as you're saying it is, does that mean that there's a special role for faith in science? Well, yes, it's not that there's a special role for faith. Faith is utterly indispensable in science.

And it's got nothing to do with uncertainty. Let me try and explain that. One of the fundamental things that all scientists have to believe in order to do science is that the universe is at least in part rationally intelligible.

And Einstein, no less made the point that he could not imagine a genuine scientist without that faith. No, he didn't mean faith in God. He meant faith in the mathematical intelligibility of the universe.

So that this is nothing to do with our uncertainty. It's the way to gain knowledge. And we've got to believe certain things in in order to actually get going at all.

But Richard Feynman, I tend to take seriously what he says, he once said, all scientific knowledge is uncertain. This experience with doubt and uncertainty is important. I believe it's of great value and one that extends beyond the sciences.

I believe that to solve any problem that has not been solved before you have to leave the door to the unknown ajar. You have to permit the possibility that you don't have it exactly right. And he summed up by saying what we call scientific knowledge today is a body of knowledge of varying degrees of certainty.

So we can reduce the uncertainty, but we'll not eliminate it except in very, very few cases. So faith is essential to the whole scientific endeavor. It doesn't come in because of uncertainty.

Yes, I've accidentally already weighed in on the need for faith. Depending on where you think, the origins of life, the origins of the universe, the things about the distant past and distant future are not really subject to what we normally consider experiments where we can mix together chemicals or fruit flies and do it over and over and convince ourselves that at least as far as our senses are concerned, it's happening. And so those sorts of things do tend to involve more faith than experiments.

But even experiments have faith in it. And I think the most important one is that what we're doing is of value. And some people say that science is not about whether we should or not, is whether we can and what the nature of things.

But I think there is an element where we really, on a regular basis, we make ethical decisions to whether we should pursue a particular thing, especially at the science engineering interface, which is where I am. And so back to uncertainty, very often, I hate talking about mathematics with Todd being such an expert, but even mathematics where you can supposedly prove theorems, it's all dependent upon your assumptions. And we saw that very dramatically with non-Euclidean geometry having such a big influence on Einstein and others.

So that the very fundamental assumptions have to be questioned. And with any interesting phenomenon that we find in nature, there's a tendency for engineers to want to harness it. And so indeed, that's what we do with uncertainty.

We have uses for uncertainty that are truly breathtaking. For example, in my lab, we try to fail a million times a day. And what I mean by that is that NASA and the Apollo project, their motto was failure is not an option.

But what we do is we try to make a million shots on goal that are not random, but they're slightly biased, but they're diverse. And so we make what we're called libraries, which libraries, libraries really not the right metaphor, but I share it anyway because that's what we call them. They're collections of semi-random molecules, DNA, RNA protein, whatever, and the test of perfunctions.

And you're looking for that needle and a haystack. You're sort of engineering serendipity where you can get something to be of value to medicine or agriculture or curiosity. So that's my ode to serendipity, the goal to uncertainty is that the idea of failing a million times a day, hopefully succeeding once or twice.

It's interesting that both of you are talking about value. In your case, George, you're just talking about the value of inquiry, but also, of course, the pragmatic or engineering value of different kinds of discoveries. And John, you were talking about the need for all scientists to have faith in the rational intelligibility of the universe.

And in a way, that's a kind of value commitment to thinking that it's, to the extent that things are intelligible, they're worth inquiring into. And we have to have this kind of commitment to the enterprise. I wonder what you make of the idea, just to take us in a slightly different direction, the idea that there are certain aspects of scientific enterprises that are more fixed, where there's less uncertainty.

And we talked a little bit about implicitly anyway, about a kind of cunyan theory of working within scientific research paradigms punctuated by occasional revolutions, like the Einsteinian revolution, for instance, in modern physics. Are there things that you expect to hold up to the test of time? If we think about very long today's examples, are there scientific theories that are basically unquestioned today that you think might come into question at some point in the future? Or can you think of something in your

respective fields that is just bedrock and is not going to change? Well, it's quite hard to do that, because if you could do it well, you'd probably be in line for a Nobel Prize. I think that George was dead right by the way when he mentioned in mathematics that the rigor there depends on axioms and the great logic and so on and so forth.

You can't get out of that. But as you look at the different levels of science, I make a distinction. It's a rough distinction, but I think it's helpful between science as most school people, school children, think of it, repeated experimentation.

And then there's what we might call historical science. That is dealing with things in the distant past or the future, which we cannot repeat in the laboratory, like the origin of the universe or the origin of life, where we have to use abduction or inference to the best explanation. Now, that doesn't carry the same authority, obviously.

But it's still a very important part of science provided we recognize that there is a difference in the authority of the results that come out of that. And of course, you see great shiftings of paradigms. I think one of the most impressive is the tectonic plates, vagners discovery of the tectonic plates.

And virtually overnight, everybody changed their minds. That kind of thing are relatively rare. But if I could predict the next one, then I might be allied for a Nobel Prize.

But one of the big, very difficult questions is what is the nature of consciousness, for example, from a scientific perspective? That is a huge barrier. And the artificial intelligence people are working on that to a full scale. Yeah, I'll take a slightly different tack on that, how essential faith might be.

I think to some extent, religions got ahead of science on the complex phenomenon, essentially. What constitutes evidence in religion would be whether people behave themselves, if you say certain things, whether they get along, whether they pass on key things to subsequent generations. Science is just now getting to the point where they can start appreciating those questions, because we started with the very simple, with the axiomatic mathematics, or  $F$  equals  $MA$ , very, very steep equals  $MC$  squared, even these are very simple equations.

And they apply. But recently, science has increasingly embraced very complex systems, more complex, more interesting. And not just vague generalizations about complex systems, but actually embracing the complexity, and even doing synthesis, or fabricating very complex objects and systems and studying those.

So I agree that I cannot predict in detail what would be something truly shocking. But I think that I think it's something even beyond consciousness, which is how we know. To some extent, you can make a robot that appears to be conscious, but doesn't necessarily contribute to the cutting edge of the way that, let's say, 1905 for Einstein is a pretty



good year.

We're not at the point where robots contribute that kind of thing to our knowledge. Maybe we will be someday. But anyway, the sort of shocking things is if we go into complex systems, will we ever be able to redo evolution? I mean, really, from going from atoms to cells, from cells to animals, from animals to the kind of culture that humans have created.

If we could do any of that, that would be a phenomenal breakthrough. But we would be getting into the territory that religion has pioneered. And we're already getting into a little bit where we look at, for example, MRI on people in religious, that say they're in a religious state, that turned out to be real.

Or religious leaders saying that a particular herb puts one in a different state of mind. That turned out to be real as well. And mind boggling, these sorts of things we learn.

And similarly, religion converges on science every now and then. Maybe it took 900 years to accept Galileo, but accept we did. And all things are subject to faith and evidence.

St.hood, canonization, that requires a certain kind of evidence curing miraculous cures. And what defines miraculous? Anyway, the point is, faith and evidence go hand in hand. And there are some truly complex things that we're getting to now in science that we all have huge debt to the pioneers in religion.

Well, I'd like to make a comment on that, because I think this is hugely important. The connection between the rise of modern science and the Judeo-Christian tradition is clear to most natural historians. And C.S. Lewis, his phrase always resonates with me.

Men became scientific because they expected law and nature. And they expected law and nature because they believed in the law giver. So there's a huge debt there.

But I'd like to pursue George's notion of evidence and faith belonging together. Because from my perspective as a Christian, that is extremely central to me. Because Christianity doesn't simply discuss the evidence in human experience and in the complexity of personal relationships.

It deals with certain historical claims, like the life, the death, the resurrection, and the miracles of Christ. And I believe these things can be approached not by the natural sciences, but by an equally respectable intellectual rational discipline that is ancient history. So that I wouldn't be on this program tonight.

I didn't believe that there was evidence, rational evidence from ancient history, that confirms my confidence in the authenticity of the gospels. But what is very interesting to me is that Christianity explicitly states that the faith that is required is evidence-based.

There's a famous statement where John, the author of the fourth biography of Christ, explains why he's writing his book.

And he says, Jesus did many other signs which are not written in this book, that is his book. But these I have written that you might believe that Jesus is the Messiah, the Son of God, and not believing you might have life in his name. In other words, John says, I've collected these signs, semion and Greek pointers, to the identity of Christ, and they formed the evidence upon which faith, about who he is, about his identity can be based.

And then beyond that, a complex personal psychological experience can be based, and that is having life in his name. So faith and evidence have always gone from me since my boyhood, together in science, and together in Christianity, they're inseparable. So I would support George very much in this.

Yeah, I'll just riff on that just for a second as well. Taking a different way, which is that the historical evidence is subject to change. That is to say, every so often we discover a new historical method or a new find, a new archaeological dig, or a way of using DNA to look into the teeth of a rodent to figure out whether it had a black flag or not back in the Roman era.

And this can inform us about history, it could even be that there were mechanisms that essentially movies were being taken back then, and we just haven't discovered how to find them yet. Could be aliens were running cameras or rocks were, or the point is the humility of science, in this case, corresponds to the possibility that the discipline of history and scientific contributions to it is subject to change in a wonderful way. That's absolutely right.

It makes a fascinating point that we can use the contemporary experimental natural sciences to help us investigate history. And that fascinates me, and that it brings the whole set of intellectual disciplines together in a very satisfying kind of way. It strikes me that there are two different kinds of relationships that we've been talking about between different kinds of disciplinary perspectives.

One is a kind of evidential holism, the fact that our intellectual inquiries in one domain can bear on our intellectual inquiries in another domain in unexpected ways. Any fact can bear on any other fact and principle. It can change our sense of the world and that might affect how we interpret data that we thought we already had as it were.

So there's a kind of laterality to all the disciplines, and that's why we all get together in universities and study side by side because of this conviction and the kind of the holism of the world that we're all trying to study in our different methods. But it strikes me that George earlier was talking about a different relationship, a relationship of reduction from one level to another, on which we should anticipate that there are continuities between the physical level and the chemical level, the chemical level, the biochemical level, the

biochemical, the biological, the organismic population level and so on. And in terms of that hierarchy, there's been a kind of zealous attempt to protect certain kinds of humanistic or cultural inquiries from the encroachment of the strictly speaking natural sciences, the ones that are defined by that experimental method that we discussed.

And if that's right, then there are just different perspectives on one in the same world. And that might mean that no matter how much you experiment on people in sensory deprivation tanks, you actually won't understand something about religion unless you take it on its own terms. Or likewise, no matter how much physics you do, you'll never get to the philosophical question of why there's something rather than nothing.

So I wonder what you each make of these two different ways in which inquiries bear on each other. Can you, if you don't mind, just repeat what you mean by those two different ways? Are you talking about reductionism in the sense of ontological reductionism, which I have huge questions about as a scientist, not merely as a Christian, and that therefore, and the limitations that science cannot answer, even though Hawking tried to, why there is something rather than nothing. I'm not quite sure of the force of the question.

So from see, you do is both good by unpacking it a bit more. Sure, it actually happens on both levels. It levels of the very, very basic and foundational where you run out of physical questions and you start asking metaphysical ones about this world beyond any particular physical theory to explain it on its own terms.

But you also run into them on the other end of complexity on the cultural level where if we're thinking about, well, we can study psychological phenomena, but that doesn't give us an insight into, say, literature or art or philosophy, which are essentially human disciplines. And if there are ways of knowing that are contained in those kinds of domains and maybe theology should be added to that list of humanistic disciplines, then we're not going to get any traction on the purely human phenomena from the experimental natural sciences anyway. Okay, I think I understand that.

And my first comment would be that one of the big dangers in the contemporary academy is scientism, the idea that the natural sciences are the only way to truth. And that is probably false. It's self-contradictory.

And that therefore, our investigations must go wider. And scientism, sadly, often goes together with the conviction that science and rationality are co-extensive, which is nonsense. Then you'd have no philosophy in your university and no history and no languages and no literature and all the rest of it.

And therefore, we need to bring to bear these other disciplines. But they begin to throw up questions that go beyond the scientific and we have to, the natural scientific, and we have to ask ourselves, are we going to allow ourselves to follow the evidence where it leads, even though it leads us to ask and attempt to answer metaphysical questions.

Now, some people like Dawkins won't allow that.

He won't allow you to ask the question, why? And so we can look at the brain, as you say, and we can study it under MRI and all the rest of it. But it seems to me that the naive approach is that you may be able to tell me, as an MRI expert, what's in my brain, but you can't tell me what's in my mind. And therefore, the brain story and the mind story are different.

So that requires a very different approach. So we must have the personal and the human dimension brought into this as equally intellectually respectable. Now, for me, the matrix that holds that all together is that human beings are made in the image of a personal God, so that the personal dimension is hugely important.

And one of the problems, and I'll end on this point, is that very often we're faced with a dominant naturalism in the Academy, which says that everything must be explained from the simple to the complex bottom up, that there's no top-down causation because there's no top, so that mass energy, or these days, nothing is primary and everything is derivative. Whereas I believe that mind is primary and mass energy and everything else is derivative. So the conflict between the world views is very apparent there.

And all I want to argue is even the natural sciences done on naturalistic principles lead to questions that cannot be answered within that framework. And so point to the fact that there's something beyond this. John, thank you for asking for clarification because now I'm more ready to answer as well.

And I think it's a great question that maybe it's the best question we've had so far this evening or afternoon. So something and nothing and mind and brain and mass, these are all these sounds like the sort of thing that you can't bridge. But I'll try to bridge them by going back to an earlier point that our moderator brought up, which is that we can't be Renaissance men anymore, or Renaissance people.

We can't do what we were expecting, even Newton, as recent as Newton. I'm not sure that's true. I think actually it's easier, I find it personally easier to understand things once they're understood and to understand that when they're in a great state of flux where you really talk about phenomenology that just doesn't make any sense.

You have collections of facts that are kind of jumbled into a box and you root around through them every few weeks. And it's very confusing. But once you know what's going on, that helps with humility that you don't really know what's going on.

But the other thing that helps is that we are now have, we're augmented much more than we were. We were always augmented by the academy. We would talk to each other and therefore we could be more interdisciplinary than any individual.

But we now are also augmented by computers that help us keep track of our personal

version of things, as well as our interpersonal. And so we become kind of a superorganism and the superorganism can be multidisciplinary. And then that gets us back to this final very interesting question, which is let's throw off the shackles of science as an isolationist exercise and now bring everything all the things to bear.

And I would say the science is less and less about reductionism. It's more and more about constructionism. And I get something engineering.

We want to make interesting complex things. So what if, what if one day we made something out of nothing? I mean, you could kind of see that happening with the Casimir effect where you have the vacuum, you know, the best vacuum you can get and things form in that vacuum. Maybe we could get better at that.

Maybe we could make a big bang. That doesn't necessarily threaten our view of a personal God. It simply says we're getting closer to understanding just a tiny, our tiny little sear has got a little bit bigger in making something out of nothing or maybe making something that we would all agree is a mind.

The fact we made it doesn't mean that it's not a mind, doesn't mean that it's just a brain because it, if it, whatever it is, be it biological or non-biological, if it converses with us and it claims it as a mind, if it refuses to die before it's time, then we might, we might break out of this reductionism where we take things apart and stare at them and to building things up, not building up a tower battle, but just building things up so we can appreciate the interdisciplinary wonder. Thanks for that. I think we're going to begin our transition to the audience Q&A.

And so to begin with the first one, unlike science, which by necessity must make allowances in the scope of their claims given the limits to human knowledge, faith apparently seems to make claims to absolute truths, which are at least not materially probable. How can those who hold to faith make such claims with certainty, but also simultaneously lay claimed intellectual humility? Professor Lonex, would you like to begin? Well, I'd love to. Faith makes claims.

My first question would be faith in what? Because what we've been saying all evening is that faith is an everyday thing that intrudes or is involved in everything. Faith in science makes claims. And I think what the question or means by faith is a subsidiary meaning.

It's not talking about subjective belief or trust in something. It's faith, i.e. religion makes claims. And I think it's very important to make that distinction because every time I hear the word faith, I want to ask faith in what? What exactly are you talking about? And it does make very big claims.

And I mentioned a couple of them earlier. My Christianity rests on certain things that I

believe to be historical facts, the claim that Jesus existed, the claim that he lived and died and rose again, and then faith in trusting him. Now, again, I would want to say that that kind of faith in those things is only as valid as the evidence that stands behind it.

And one of the things I've noticed over time is that confidence in many of the actual factualities has grown. I remember reading Bertrand Russell when I went to Cambridge, and he doubted whether Jesus ever existed. I don't know if an ancient historian in the world really, a reputable one, whether they're atheists or not, who would doubt that.

In fact, the number of things that ancient historians, whether agnostic, skeptic, atheist or Christian agree on, is rising almost every day. Why? Because they've got evidence of these things. So yes, we've got to make a decision on the basis of evidence.

But it's not simply evidence about the ancient past. Let me finally make the point that it may not answer your questioner's question, but it brings in the personal dimension. You see, Christ made certain claims.

And one of them was that if we trusted him and we faced in ourselves the mess we made of our lives, and sadly, sometimes the lives of others, he was prepared to give us forgiveness and peace. Now those are very real, but they're, in a sense, psychological and existential qualities. He said he would be prepared to give us new life and a new power to live and a new meaning.

Now, I have personally experienced that, but perhaps much more importantly, I've watched that kind of response in people, many, many people over quite a long life transform their lives. So the evidence is personal as a result of the commitment. Now you can ask, how certain is that kind of thing? Because you can give all kinds of psychological explanations.

But when you see it happen again and again and again, the evidence mounts up. Let me try and explain to you where the difficulty lies. I've been married to the same girl for 53 years.

I saw her my first day at university in 1962. I cannot prove to you mathematically that she loves me. But I think there's enough evidence of it for me to risk my life on it.

You can't prove to me mathematically or give me absolute certainty that the Boeing that I'm going to get on to say tomorrow to fly to New York is going to get me there. But I'll have to risk my life on it so that in life's experiences, although we can't have absoluteness and absolute certainty, we are constantly committing ourselves and indeed our lives to situations where there's no absolute certainty. But we take the risk because the evidence is strong enough, like having heart surgery or something like this.

So that's how I begin to approach that question. Yeah, I'll just be brief. I think that even absolute truth is subject to change.

For example, Christianity didn't even exist before the birth of Christ. So that was change. And wonderful change at that.

And there are many other religions since then that compete for their claim to absolute truth. But we all that this humility comes in again is we have to say that even our faith that there are no absolutes is itself a bit of faith. I think it's wonderful this ambiguity we have about absolutes.

So they tend to be the more insistent you are about the absolutism, sometimes the less certain you actually are. All of these things are artifacts of us being human in collections of molecules. The way we're talking to each other is not mind to mind or anything at a purely spiritual level.

We're talking through the molecules of our learnings and we're thinking at least in part through our brain. So these create all kinds of artifacts such as the insistence on absolutism. But they also create intelligibility because I understand what you're saying.

Yes, that's true. And you know, I take your point. We need to be careful about absolutes.

But I have not yet met anyone who would claim that torturing infants is not absolutely wrong. And it was the late Machi, the philosopher in Oxford that you will know very well, who said that if there are any absolutes in morality, they lead almost directly to the existence of God because they wouldn't exist otherwise. And this is a very interesting philosophical thing that fascinates me.

So I think that we must be guarded. Now you say Christianity was a great change. It was, it was something new, but it didn't come without announcement.

I would want to argue that it was part of God's continuous revelation. It was absolutely new and revolutionary, but it was consistent and prepared for by the whole Jewish tradition, the prophets and all this kind of thing. But that's a huge topic for another time I suspect.

I guess then shifting subject a little bit. The second question from our audience is playing into inside a humility here and asking what role does silence have in a humble approach to science and religion? What role does science have? Sorry, silence. Silence.

I'm glad we clarified that. Well, silence has its moments, but very often silence results in misunderstanding or sometimes death. Communication tends to be highly recorded.

But I guess you can have a moment of silent reflection. That's certainly good. And that moment could last for decades.

Wasn't that Wittgenstein at one said of that about which I cannot speak? I should be silent. Sometimes silence is very good if you don't know what to say. Even in science,

there's nothing worse than listening to somebody who's filling vacuum with noise when it's quite obvious they don't know what they're talking about.

So silent reflection and sitting back and listening carefully to what people say. And what I would get out of that question is this year importance of listening to other people. And I was taught as a little boy that I got two years in one mouth and I should perhaps use them in that proportion.

But for an Irish person like myself, that's very difficult. I would just add that I think something that gets overlooked sometimes is that if you're asking a scientific or actually any intellectual question about a claim and you're trying to decide whether you should assent to it or reject it, there's always a third option of withholding assent and rejection. And that's actually part of the rational structure of every intellectual inquiry is that withholding assent is one of the rational responses to a set of evidence.

And I think that's sometimes forgotten because we don't have that option in practical life to omit, to act as always, to act. And it's a profound asymmetry between practical and theoretical reason. And it's one of the things that makes these questions that the science engineering interface so interesting, the ones that George was discussing.

We always have to act. Well, thank you so much for your responses. We got to the next question.

One of the prevailing standards in empirical science is that conclusions can be reproduced by others. The foundation of science and observation and measurements makes that possible. Is it possible that we project the standard into domains of religion and philosophy? Is that fair? I would just start by saying that that's only true for parts of science.

And both John and I have brought up the parts of science where that isn't possible to, you know, not only once in a lifetime, but once in all of human history events occur. And those are worthy of study. And things that are far off in space and time are as well.

So I think that there's some shared viewpoints there. Yeah, I would simply agree with that. And the attempt to measure everything, I mean, it reminds me of was a Jeremy Bentham and this calculus of hedonism to try and work out what pleasure was and to quantify it, which is virtually impossible.

That the trouble was we once had a prime minister and I won't name him who had the view that if you couldn't measure it, it didn't exist. And I certainly don't take that view. It's important to use methods that are appropriate to the thing being studied.

And within the natural sciences, those methods will vary vastly when you're working at the level of atomic physics and the very small. That's very different from working at an engineering project that's very large constructing a satellite telescope or something like



this. Use the methods that are appropriate.

But I would emphasize that the important thing is not whether they're natural science or not, but whether they're rational or not. Thank you. Switching themes a little bit, but the next question is, we see so many religious people in the US denying scientific evidence, whether in the case of vaccines or the age of the earth.

Of course, those who are involved in the sciences might be the Bible through a less restrictive point of view, but to what point could dogma be damaging to open-minded scientific inquiry? I think I've just had my booster vaccination. So let me be very clear about that. The anti-scientific attitudes are very sad.

And they're especially sad when you find them among certain classes of believers that is religious believers. And the difficulty is, and I won't go into this now because it's a big topic. I've written a book on the question you asked because I meet so many people that because of a particular interpretation that's forced on them off the early chapters of Genesis, they feel that there's a deep conflict here and they either go for science or they go for a religion, but you can't go for both.

And I think that's very sad, especially, and the danger I would say is this being dogmatic on things where actually the text itself allows several different interpretations, some of which may accord perfectly with scientific discovery and others go against it. So this is a huge problem, and we got to be aware of that, that kind of dogmatism. And it's tragic when you see people, professionally Christian, fighting about these things that brings everything at the hopeless repute.

Yeah, I'll just say that I'm not certain that all of or even most of the things that we're talking about here, the so-called anti-science is actually, has anything to do with religion or has anything to do with science? It may have everything to do with laziness, that it is quite it, or just personal preference. We don't want to be told to wear a mask. We don't want to be sold to the vaccine, but the fact is from a personal standpoint, we're actually already protected if everybody else is wearing masks.

So all we're doing is we're not returning the favor. The same thing goes for vaccinations. We're already protected if the herd is vaccinated, we're just not returning that favor.

And even in some cases, think of cigarettes and seatbelts, it was very hard to convince people to do what would save their lives. And in that case, they weren't really endangering other people, they were mainly endangering themselves. But the fact was that they just didn't accept the 1% probability of dying from cigarettes or car accidents or coronavirus to be significant.

And we say, "Oh, that's irrational. They should be thinking about life and death," is the major thing. But many of us will say there are worse things than death.

There are reasons to be brave. There are reasons to be that will make care to be, to go bungee jumping or go river rafting a level fiber hire. People take risks for a variety of reasons.

I think we can get beyond the science versus religion because a lot of it, not all of it, but a lot of it, isn't either. That's a good balancing point. Thank you.

I guess maybe for the sake of a complete answer, I think Professor Lennox, you had mentioned that you had written a book on the subject because I am expressing someone else's question. If it was a complete, do you mind just mentioning the title so that if they desire to read it more completely, they can? Oh, I see. It's just come out a couple of weeks ago, revised a day should have seven days that divide the world.

It's published by Zondervan in the United States. Perfect. That's hopefully someone will put that to good use.

Moving on to the next question, on what basis does scientists hold reductive materialism to be the most correct view of reality, especially with regards to the problem of consciousness? I've alluded to this in terms of construction being increasingly compelling, to some extent, it always was. I think as we construct robots that are conscious and self-conscious, some of them are cheats, some of them are genuinely revealing. We have robots that can recognize their own voice and say, "That's my voice, not someone else's, not some other entities." Or, "That's my face.

We'll rub some smudge off of the face of the robot." There's some consciousness there. But as we get better and better at that, we might understand at least what simulation of consciousness is. There are still some very fundamental and interesting philosophical components of it, but we can make contributions by constructionism probably a bit more than reductionism at this point.

It is among the many things which have emergent behavior, meaning that only by making the complicated that we really appreciate it. And to some extent, consciousness doesn't mean a whole lot when you're talking about an individual person. It's only when you see it in the context of society, history, and the future, does it really start to become a rich concept? Reductive materialism.

I've never found a convincing argument for it because the arguments I have found actually destroy it. I mentioned John Polkinghorn earlier who taught me quantum physics, and he said, "If you take the reductionist argument, then you reduce thought to the mere firing of synapses in the brain, and therefore you empty any discourse of meaning." And he just makes the trenchant comment. That cannot be true, and none of us really believe it.

And many years ago, there was a chemist, JBS, whole day, and he said, "If the thoughts

in my mind are simply the motions of atoms in my brain, then I have no reason to believe that my brain is composed of atoms." Now, C.S. Lewis picked up that argument, and then it was later picked up by a famous American philosopher called Alvin Plantinga, who happens to be a Christian. But Thomas Nagel in New York, who wrote a fascinating book, which I found very stimulating. It's got one of the most provocative subtitles of any book I've ever seen.

It's called *Mind and Cosmos*. Why the neo-Darwinian view of the world is almost certainly false. And what he says in that book is, there's something wrong with this materialist reductionism because of its effect on understanding and thinking, and it invalidates thought, and therefore it invalidates itself.

And it must be wrong, as C.S. Lewis once said, "Any theory that invalidates thinking must be false because you get it by thinking." And so I am seriously questioning this kind of reductionism. What interests me is that in biology, and I'm not a biologist, but I try to follow what's going on in the third wave of biology, people like Jim Shapiro, Dennis Noble, and back to McClintock and so on. This idea that the living cell, there's a holistic thing, and there's top-down causation there.

That's absolutely fascinating because recent writings on this by Shapiro particularly are moving way, way away from the reductive notions. And that's exactly what I would expect if at the higher level, there is top-down causation. Not that there's no bottom-up, not that there's no emergent phenomena, but that ultimately there is a top and he's called God.

And it's interesting to think of people like David Chalmers, who are experts in the problem of consciousness, saying that they're moving away from the materialistic concept, almost being forced unwillingly. So what's the space? I find it very interesting indeed, but reductionism, as George says, is less and less viable. It's not enough.

It's brilliant for it works, but it ain't enough. So this is a question, I think the next question is mostly, I guess, starts by being directed at Professor Linnick, something you had mentioned, but I'm actually going to combine two questions. So if you need me to repeat it, because it might be a little bit long, let me know, because these two questions kind of are asking a question on two sides of the coin, basically, they respond to each other.

So the first question is, how can one know that torturing babies is bad? Does this claim invoke a kind of certainty that intellectual humility would for feet? And then the question on the other side is, what are the limits of intellectual humility? At what point is humility overwritten by a certainty based on broadly undeniable morality? Let me know if you need to hear that again. Can you repeat the second one? Yes, of course. So second one is, what are the limits of intellectual humility? At what point is humility overwritten by a certainty based on broadly undeniable? So I can think of circumstances where even our

most shared, most treasured, most highest level of consensus might be false.

And so let's take the babies, which I agree is almost universally acceptable. But we do torture babies when we try to save them from death. We actually, they go through a lot of pain.

Fortunately for babies don't really remember much of that pain past their first or second year. But we also do it to adults who do remember who came quite so. For one reason or another, we either can't anesthetize them or they have pain after they come out of anesthesia.

But I think what is meant by torture there is for personal pleasure or for pop, I don't know, babies don't have information that you're trying to extract from them, which is one of the excuses for torture and modern era. But anyway, I think you can come up with kind of long, reaching, unsatisfying, counter examples. And maybe that answers the flip side of the coin as well.

My response to this and thanks to the person who asked the question, how do we know that it's wrong? Well, it depends on your worldview. It's very easy, I think, to see. Dostoevsky famously said or put it to the mouth of Yvonne and the brothers' kalamas off.

If God does not exist, everything is permissible. In other words, there's a connection between morality and knowing things are wrong and God. And I've spent a lot of my time in Russia talking to people about these things.

And I never forget one academician, very bright person in Siberia, who said to me, "You know, John, we thought we could get rid of God and retain a value for human beings. And we discovered too late, we couldn't. This is a huge subject and it's of great philosophical interest to me and I have written about it.

But how do we know what's wrong? Well, from where I sit within the Christian worldview, I believe that every one of us is a moral being made of the image of God. So we have some kind of cognitive ability, a hardwired sense of morality. And that's supported by the fact, if you look around all the world, in all philosophies and religions, you will find differences, of course, in moral systems.

But you'll find a commonality, a very strong commonality. For example, in every philosophy and religion I've ever investigated, including Roman pagan religion and humanism and so on, you'll find the so-called golden rule, do unto others what you would they do to you. And that is evidence to me.

It's not final proof, of course, that there is a common morality. Otherwise, society would fall apart. This is what we reckon on when we go to court with each other and all the rest of us.

If you want to know whether people believe in absolutes, just accuse them of stealing something from you and watch how they react. They believe in standards that are outside both themselves and you. Now, that's something that's well worth pursuing.

But your second question was, are there limits to humility? Well, the difficulty is humility can mean to some people a kind of swarming attitude that will regard nothing as certain. So if someone comes along and say, by the way, I saw your wife with X last week and I think that's a serious business. And is it humility to say, oh, that's perfectly possible when there's very strong evidence that your wife has been perfectly faithful? I think that there are limits in the sense that there are certain things that we can know and we can know them with pretty much certainty so that we can rely on them.

But we can never be absolutely certain. I think what your question really affects is how we really define humility. Humility is not a weakness that sort of says, well, everything might be true and I'm certain of nothing and I wouldn't have a notion whether the train I get on every morning takes me to my job.

But it happens to do that. That's not real humility. Humility is looking up to other people not looking down at them and it's the opposite of pride.

And I think that's the really important thing about it. I loved the, I mentioned C.S. Lewis before. And I'm going to quote this for you because I think it's a lovely expression of what this means.

He said, do not imagine that if you meet a really humble man, he will be what most people call humble. He will not be a sort of greasy, swarming person who's always telling you that, of course, he's nobody. Probably all you will think about him is that he seems a cheerful, intelligent chap who took a real interest in what you said to him.

If you do dislike him, it will be because you feel a little envious of anyone who seems to enjoy life so easily. He will not be thinking about humility. He will not be thinking about himself at all.

And I think that gets it beautifully. Thank you for listening to this podcast episode from the Veritas Forum event archives. If you enjoyed this discussion, please rate, review, and subscribe.

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