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Science, Ignorance, and the Pursuit of Meaning | Satyan Devadoss & Stuart Firestein

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The Veritas Forum

Satyan Devadoss, Professor of Mathematics at the University of San Diego and Stuart Firestein, Professor of Neurobiology at Columbia University, discuss science, ignorance and the pursuit of meaning on the stage at Columbia. • Please like, share, subscribe to, and review this podcast.

Transcript

Welcome to the Veritas Forum. This is the Veritaas Forum Podcast. A place where ideas and beliefs converge.

What I'm really going to be watching is which one has the resources in their worldview to be tolerant, respectful, and humble toward the people they disagree with. How do we know whether the lives that we're living are meaningful? If energy, light, gravity, and consciousness are in history, don't be surprised if you're going to get an element of this in God. Today we hear from Satyan Devados, Professor of Mathematics at the University of San Diego and Stuart Firestein, Professor of Neurobiology at Columbia University, as they discuss science, ignorance, and the pursuit of meaning on the stage at Columbia University.

I want to give a real nod of thanks to the organizers, the Veritaas Forum, who have worked very hard to make this happen and who were kind enough to invite me to partake of this opportunity. As I said, they worked very hard to organize this. I got an email a little while ago explaining how things would sort of go, and the email started out by saying I would have 10 or 15 minutes to make a short opening statement of some sort, and I might want to consider such things as describe your worldview, why did you become a scientist, where does truth seeking and science and life converge, what role has science taken in shaping your worldview? I only have eight minutes left.

It's going to be tricky, I'm afraid. These are subjects that are not so simple, obviously, and may be better suited to a small dark room with a glass of absence, but I'll try

anyway. I want to note, by the way, the professor said they've given me a bottle of smart water.

Nobody else, and I'm wondering if that's a hint of some sort here, I know, should be drinking it, I think. So the mathematical biologist, J.B.S. Haldane, a famous mathematical biologist in 1930s, '40s, and '50s, once quipped that not only is the universe stranger than we imagine, it is stranger than we can imagine. And I love that quote for a long time.

I don't like it so much anymore, but I love that quote for a long time because I thought it kind of put us in our Copernican place from a cognitive point of view too, so that just as from a Copernican worldview, we realize that we occupy no special place in the location wise in the physical universe. Maybe we also don't really deserve to think of having a cognitive landscape that's particularly special. Maybe there are things we can't know.

Certainly, we don't know a lot of things, and in the famous words of Donald Rumsfeld, we also don't know what we don't know, and that's even scarier. But it seems to me, I don't like this quote so much anymore because it seems to me it's turned out not to be true. Now, it may eventually become true, I don't know, but remarkably it hasn't been true.

The universe hasn't been stranger than we can imagine. We've been remarkably up to the job. We imagine atoms that are invisible.

We imagine a relativistic universe that in which time and space are unintuitively not absolute. We somehow or another get close to comprehending a quantal universe of multi-universes in which cause an effect can be upended. We now have dark matter and dark energy which no one can see, touch, feel, measure or anything else, but we're absolutely convinced must be 90% of everything that's here.

In biology, we have learned that we are all sitting here made up of trillions and trillions of cells and that remarkably 99% of those cells don't even belong to us. They inhabit our gut. So, I'm not even sure what it means when I say "I" up here because there's a whole lot of freeloaders along with me, it seems.

We see that evolution takes us from simple forms to very complex forms in a probabilistic kind of way, in a non-deterministic, but yet seemingly ordered way. We see emergent properties in biological systems, consciousness for example. We have reproduction by the very strange and somewhat snotty molecule DNA, very unlikely candidate to say the least.

We now know that we can make organic substances from inorganic chemicals, something that really goes against the idea of vitalism and so forth, but was not possible until really just 150 or so years ago. So, things have changed that way and I think it's remarkable that we can continue to imagine this remarkable universe this way. I'd also

like to quote, I still do believe in from Douglas Adams, the author of the Hitchhiker's Guide to the Galaxy.

So you'll be sure this will be good, you know, because Adams says there's a theory which states that if ever anybody discovers exactly what the universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is also another theory that says this has already happened. So, let me talk for a moment about the scientific worldview, which for me is one of explanation, not necessarily of truth, especially with a capital T that may surprise some of you.

I don't know, may surprise some of my scientific friends. I don't feel that I'm in pursuit of truth with a capital T or any final answer. Science has not existed everywhere, nor at all times, it doesn't exist everywhere today.

There are many cultures that live very happily without scientific effort among them. They may partake of some of science as goodies, but they don't really have a science as part of their culture, and people live very happily without it. And certainly throughout history, there hasn't always been science.

There have been many starts. False starts, one might say, good starts in ancient Greece, in Rome, in Egyptians, in Arabia, China. But somehow or another, these starts at science didn't get over the hump somehow or another, in the way that science has flowered in the society that we find ourselves living in now.

It's a view that I think is evidence-based, it is without authority, or it doesn't depend on authority, it's fallible, it remains uncertain, it remains vigorously uncertain. Indeed, I have to say that for me, the wonderful thing about science is that as in no other, I believe, human activity or endeavor, revision is a victory. Revision is a triumph, it's not to be explained or worried about or embarrassment or anything else.

We are in the job of revising. Science submits a ignorance of doubt, of uncertainty and of failure, and doesn't come up with despair. Instead, it finds in these things creativity, inspiration, and even a bunch of knowledge, as it turns out.

Francois Jacob, the famous geneticist, French geneticist who died two years ago, called a life in science, this life of questions, of the next experiment, of the next question, he said, I live in the future. That's where I'd like to live. Thank you.

My friends, it's awesome to be here. I love coming to Columbia, I love the math department here personally. Lots of friends.

My old students are now grad students here finishing up their PhDs for my favorite place to come. It's an honor to be invited. Thanks for the very time to take care of all this, and especially for my two great colleagues.

I'm especially excited about Professor Feinstein for the reason that not only is he a brilliant man, but he cares about sharing his work in a clear way. To me, you can't ask for more from a scientist. Really encouraging.

The great thing about college, regardless of what you do, whether you're an artist or a mathematician like myself or a musician, is that now is the time to struggle with the big questions. What is the nature of reality? Is there a God? What does science have to say about all this? And the question I struggle with personally is, does math make me look fat? Today, we're here to talk about these big ideas, right? God, science, meaning. But each one of us has their own perspective of what meaning is.

There's different kinds of meanings. There's mathematical meaning. Let me show you my favorite one.

This is the Gauss-Bona theorem. It says that the integral, which means just add up, if you add up the total curvature over a surface, it's equal to 2 pi times the Euler characteristic. Which means that if I take a sphere and add up all the curviness of the sphere, no matter how I stretch it or pull it, the total curvature is always 2 pi times this Euler characteristic.

Amazing thing. Some of you, like me, are getting turned on by the statement. That's great.

But most of you agree with Stephen Colbert when he says, equations of the devil sentences. So, where are we supposed to find meaning? Is it mathematical meaning? Maybe there's meaning in physics. Stephen Hawking, brilliant physicist, he writes, "The universe does not have just a single existence or history, but rather every possible version of the universe exists simultaneously.

The multiverse." Is this the true meaning of reality, the multiverse? For thousands of years, the notion of truth and reality has been linked to the notion of a God. But today in 21st century America, certainly in the West, we no longer hold this reality to be true. It is no longer measured by church days or holy days or any special events about God himself.

In fact, the belief is that the religion is no longer relevant. Religion is sort of like a scaffolding. You've got to believe in that stuff for a while until science comes and cleans it up.

Then you don't need it anymore. Meets you a cockoo, brilliant physicist, writes, "Any sufficiently advanced technology is indistinguishable from divinity." If you don't understand what's going on, you have to wait. We'll take care of it.

You don't need that notion of a God. Science is now the new measure of meaning. Black is the new.

White. Science is the new God. Today, we try to explain everything to science.

One of my favorite mathematicians, philosophers, Burt and Russell, writes, "Whatever knowledge is attainable must be attained by scientific methods, and what science cannot discover mankind cannot know." You see my friends, we were putting all our chips in the science bucket. But here's the catch. I think science is not equipped to handle the full mess and complexity of life.

See, we have a messy world, and I want to deal with messy things. I love messy things. Let me tell you a couple of messy things I love.

First, ice cream. This is greater ice cream. Started in Cincinnati, Ohio, black raspberry chip.

The chocolate chips are huge, but when you bite into them, it's soft. So much fat. Oh, it's delicious.

Incredible. I love ice cream. Something else, it's messy that I love.

My family. Ah, yeah, yeah, yeah. All sounds cute.

All sounds cute. Let me show you why this is messy. First of all, you notice, next to me is my wife, who is, turns out, not Indian.

Messiness number one. And then you have these two on the right that one on the left. Their identity is totally screwed up.

What are they? They don't know. And then if you think somehow, that's easy enough, then you have that little one on my lap. Here's what she looks like today.

Blonde hair, blue eyed dream girl. Oh my goodness, I cannot imagine what questions she's going to ask me down the line. I can't imagine how tough her life's going to be in this kind of a weird setting, right? We're in America with a kid born in South India who grew up here raising her up.

Wow, it's a messy world. Listen, my friends, I love science. I get paid by it, right? We have wonderful tools to measure the world, to find patterns, to make predictions.

I find no tension with science in my faith. Neither did Newton or Kepler, Galileo, James Maxwell. Great scientists in men of faith.

Look, to me science is just one language of measuring truth. It is one tool in a toolbox. Here's what Wittgenstein says.

At the basis of the whole modern view, this enlightened view of the world lies the illusion that the so-called laws of nature are the explanations of natural phenomena. He says the

laws of nature are great. That's what science does, allows to find out what's going on, but that doesn't explain the big things, the nature of nature.

You see, we must ask deeper questions than that alone, and we all do. And these questions are also being asked by the Columbia campus security on Friday night. They're asking, "Who are you?" "What are you doing here?" "And where are you going?" You see, I want a model.

I want a theory. I want a story that encompasses all these tools. I'm ambitious, all right? I want a theory of everything.

And to deal with beauty and justice and relationships and significance, because you know what? We assume it's value all those things. We value beauty. You know how I know we value beauty? Because I'm watching an ad for Victoria's Secrets.

They don't put data charts on there. They put naked women. That's why we value beauty.

We love those things. We value significance. We listen to Oprah, Deepak Chopra, listen to music, mysticism, because we thirst for something bigger.

We value relationships. We go to football games and concerts, because we want to partake of this with others. We value justice.

You know, your heart burns when you watch 12 years of slave. When you watch the Godfather, when you want justice, retribution for the injustice done to us. You see, we are dealing with issues far larger in complexity than dark matter, genetics, and Gauss-Bohnain.

Science does not have a monopoly on reason. It does not have a monopoly on logic. We cannot be ignorant into thinking that, the belief that science is the only measurement of truth, or atheism, the belief that there is no God, or somehow above religious claims.

To believe that there is no God, but at the same time to say that humans are important, that humans are moral, that humans are rational, that's an incredible statement of faith. I'm cool with that, but we have to admit that that's a statement of faith. And regardless of our ignorance, each one of us, here, each one of us is a person of faith.

And here's what David Foster Wallace writes. He says, "There's no such thing as not worshipping everybody's worship. The only choice we get is what we worship." You see, we must put our chopped chips in some bucket, and not choosing to put your chips in any bucket, that's a choice.

There is no neutral ground. Now to me, let me just close by saying that there's no story as satisfying in explaining all of this than the Christian worldview. Let me be clear, I don't

believe in the Christian faith because it gives my life meaning or emotionally satisfies me.

Look, I'm a math professor. There's no emotions to satisfy. (Laughter) Look, the reason I believe in physics, and the existence of forces and particles I cannot see, because it is the best theory, the best story that explains the world around me, the physical world.

Not because physics makes me happy. And the reason I'm a Christian, the belief in a God of history that I cannot see is because this is the best theory, the best story that explains the deep questions with me, this mess around me, the hunger for justice and beauty. So why do I find this faith really compelling? Let me tell you a couple of reasons.

I'll be done. First of all, to me, the story is not one of morals or theories or philosophies, but is one grounded in the mess of history. It makes incredible historical claims and culminates in the resurrection of this guy named Jesus.

Now we can't use science to talk about history, but we can use historical tools. We can't bear on it the weapons of history to test and see if it makes sense. And I think they do.

And unlike any faith I know, the Christian faith boldly claims that the beautiful mess of this world that I love is built into the very heart of God. This is why God and the Christian faith is called Emmanuel, God with us in our mess, in our pain. And in the death of Jesus, it shows that the injustice that I find in this world is given a solution here.

Most people think that love and wrath don't fit together, but I will have wrath if somebody hurts my baby girl because I love her. You see, the opposite of love is not wrath, but indifference. And at the cross, God is not indifferent.

Jesus takes care of that for us. And stunningly, God shares in that responsibility. And finally, not just the death of Jesus, but the resurrection.

It's not a spirit and a ghost resurrection, but a flesh and blood resurrection. And it shows that this physical world matters to God. Sex matters, flesh matters, ice cream matters, earth matters.

Not about doing good deeds and going to heaven and singing a song to a magical god, dear God, I hope not. But that this beautiful world will one day be set right. I want to close with one of my favorite quotes from one of my favorite books, The Prince's Bride.

It says, "Life is pain. Anyone that says different to selling something." You see, my friends, there are no easy answers. Using science is not a way to get out of jail free.

That's still another choice that we're making. There's no way to remove the world and the faith we have in it of how to solve these big questions. I encourage you, wrestle with it.

Don't be afraid to get messy. Thank you. I'm curious about this.

As you hear each other, I wonder what questions come to mind about the others' outlook. What questions have you always wanted to ask an atheist or a Christian about his outlook that genuinely puzzles you? Should we flip a coin here? I can start first. I've been talking to maybe I'll start something you do.

I guess it had to do with something I mentioned, which is this notion of believing in no God, but yet having an incredible value given to mankind. That we believe, and if we see a child crying for our own children, for people out in the world, that we do hold humanity to be important, that we want to redeem it to take care of it. How do you wrestle with that or answer that question about where does the value of mankind come? Where's the goodness, the morality, the struggle, importance of mankind come when there's no God in that picture? I would actually take it a step further.

I don't think it's just humankind or mankind that has value. I think all of living things have value. That's not, I think, often necessarily I would say, a required religious view, for example, or a part of many religions.

It is a part of some. That value can be there without recourse to the God, a Supreme Being, a Creator, or any of those things. I think there is an inherent value.

I don't know, I guess I don't feel a need for an outside authority to tell me that there is that value. I experience that value, I think as you do personally. I value my family, I value my students, I value people I work with, even like you guys.

So far. Yes. And I think we're, I mean, I guess I feel that if in questions of morality like that, like value or something, I think if religion disappeared tomorrow, we wouldn't all be valueless.

The value wouldn't disappear with it. I don't think there's any reason to believe that atheists are any less moral than believers of necessity. We've had plenty of immoral believers and we've had plenty of immoral atheists.

Nobody has a lock on that, unfortunately. So, I guess I don't see the necessity of it. I feel that value can exist without recourse to a creator or a Supreme Being.

Let me invite a follow up and then I'll give Stu the same right. I was just curious because of reading Nietzsche. He really connects those two ideas up.

So he says basically, if you really do value mankind and really do value humans, then you really aren't an atheist. That's what Nietzsche's stance is in some sense. In other words, if you're going to not have God, then the value, the importance of man or importance of, I guess, any living thing is disconnected.

That's the only reason I was curious about that statement. I think it was Richard Feynman who came up with this sort of classification. You don't have to agree with it.

I'm not sure I agree with it entirely. He felt that religion operated on three important levels. If I get this right, which he called metaphysics, which is a way of describing the world from a religious point of view, ethics, which is a way of living in the world from a perhaps religious point of view.

And then inspiration, which is the motivation to do it. I think his logic or his argument was that from a metaphysics point of view, he preferred science as an explanation of the world at one time or in some period of history, or in some areas perhaps still religion gives a passable explanation, but that science explanations for him seem to be better. Or these sciences as good as religion at explaining.

So metaphysics is a draw. Ethics, which is the question we're sort of talking about now, knowing what's right to do, he also felt was a draw. I think for the same arguments that I just made, which is, I think we all believe also, even if there were no political laws tomorrow, let alone religious laws, we would all become robbers, rapists, murderers, and all the rest of that.

I mean, that's just not how we would live. We've gotten to where we are because of, I would say, evolutionary considerations that have us behaved to some extent the way we do. And so it finally comes down to inspiration.

So the question is where are you going to get your inspiration from? I think religion is a perfectly legitimate place to get inspiration from. There's absolutely no question in my mind. It's not for me personally.

I get inspiration out of science questions, out of the value of a world, out of an amazing puzzle that's out there, out of wanting to know, and out of sharing knowledge and things of that sort and being part of that whole thing. So for me that's the inspiration where it comes from, and I don't need an outside story. But I don't see any reason why religion doesn't have an absolutely proper role to fill, at least an inspiration.

Let's do it now. Let me return the favor and invite you to ask the end of question. Well, I guess I could ask you the same question.

In reverse, I mean, you are a practicing science. Of course, I do find that difficult to figure out. It's not like I wasn't religious one time in my life.

I was never wildly religious, but I was brought up in a religious household. We were, well, we weren't Sunday churchgoers, but we were Saturday synagoguegoers. Occasionally, we were the high holiday types.

But we paid our dues and all that, so it was okay. But I had all the training. I was born

Mitzvahd, and all the rest of that, kicking and screaming, but nonetheless, I'm born Mitzvahd.

So I lived that life, and so forth. But then as I became a scientist, and as science became more and more a part of my life, and in particular, I have to feel as a biologist, I will say this, that I think the hardest of sciences to brook with religion, with sort of religious beliefs, is evolution. I can sort of understand physicists who maintain a religious perspective, or even mathematicians.

It's much harder for me to understand it from a biologist perspective, even though I know biologists who are religious, and that's fine. So I guess my question to you is, how do you bring those things together? How do you make that work? So first of all, I'll just say the thing about evolution, which is, I see no tension between evolution and scripture. So if somebody says to me, evolution is the way it happened, that's the way the world that got allowed to happen.

It wouldn't stun me at all, and I'm totally happy with that being the case. I don't see genesis in some sense as a tension with that thing. So it doesn't, I have no issues with biological data that we have so far, right? But more importantly to me, because I have no tension with faith and religion in terms of biology, when I'm looking at what science does offer, to me it only offers certain things.

Namely, it offers a better understanding, a clear set of tools to understand the laws of nature, but it doesn't address any of these other deeper questions. And to me, that's why it's, so what are the questions though? For example, the big questions that I was asking about, who are we? What are we doing here? And the fact that we as humanity notice and feel a sense of injustice, or a sense of beauty in the world today, a sense of longing for relationships. And I see that science doesn't address these things.

In other words, what it's doing, it's measuring, it's classifying, it's structuring, it's organizing, it's presenting. But historically it's showing how we're related to one another, but it doesn't address these deeper needs of who we are. And so, I mean, my guess is as an atheist, one could solve, one could answer those in a certain way, and as a Christian one can solve those in a certain way, as a Jew one can solve those in a certain way, but those ways are all faith statements to me.

In other words, those aren't built in through the laws of science. You're getting those from extrinsic values. So, I have a sense that it's a little bit of a straw man in this argument, in that I don't think science makes too many of those claims.

I don't think science actually claims to be the only way to understand everything. Absolutely true. I mean, actually I think science is, in its better days, more humble than that.

It's not always so, I admit, but in its better days it's far more humble than that. And that the best scientists, as you know, is sort of my issue, think really about what they don't know, not what they do know. They're not one doesn't get proud because you made a discovery.

You think, well now what's the next thing to do here? So, I think science is very involved in mystery, and all of those kinds of ideas. I do think science can, if you wanted to, provide meaning. It can provide answers like, who am I or what am I doing here.

That may not be as big an answer as the religious answer. I'll admit that, but I think they're a perfectly acceptable answer. There are a good enough answer for me to live by and get on to the next thing.

Indeed, I think in some cases I would say the religious answer can hold you back from getting on to the next thing. It's too big an answer, as it were, for what we, I'd say not so humbly, think of such big questions like, who am I, like who gives you shit. Yeah.

Yeah. Well, I mean, there's some extent right now. That's fair.

Well, I guess, I guess to me, the reason I care about issues of faith is not because I have this need and I'm desperate to have it plugged in. And somehow the Christian for these are saying better songs, so it just fits in. That's not the point.

The point is, I actually think it's the truth. In other words, I think there's enough evidence out there to point to the fact that the story we see in the Jewish scriptures is fulfilled in the life of Christ. And it's actually measurable in some sense.

And hence, I buy it. Not because there's this gaping hole. Right.

Well, that's sort of a scientific buy-in, isn't it? I mean, you're claiming that it's an evidence-based buy-in that you buy into religion based on evidence. I do. That's certainly part of it.

Without evidence, I wouldn't. I mean, for example, you give me ten different texts and they all say different ways of what it means to be morally good. Well, who am I to pick which one's right? And you give me no text, right? You give me the scientific one, which is like, "Hey, there's nothing.

And I have to pick one." Well, what tools do I have to pick one? So if there's anything else that's testable out there for me, the fact about the Christian faith and the Judeo-Christian faith is there are some historical claims being made. And that's attractive to me. The fact you can actually do something to you.

Someone put you on a hot seat. Yeah, please, please. I'm on there.

Does this mean to you that that other religious faith do not have evidence? Well, if I do

believe that there is truth with a capital T, then that means the Gaspone theorem is true and there are other things that are wrong. And what that means is that that doesn't mean that the other faiths are... So to say that all the other faiths are nothing is dangerous and incorrect. Because we are all claiming to reach to God.

We want something bigger because I believe God made us. So all these are ways of looking at and reaching to God. But I do think that the Judeo-Christian way is the true way.

Absolutely true. I would say that there is something right in math and there is something wrong in math. So it is more right than the various other faiths.

Yeah, absolutely. I mean, for example, if the Christian faith says, let me tell you this, the Christian faith says Jesus is the Messiah that the Jews are right. That is the Messiah that the Jewish faith has been asking for.

The Islam faith says that is not true. The Jewish faith says that is not true. So somebody has to be right in some way.

You can't all say that's true. Right? So one of its right and other people are wrong. It could all be wrong.

That's certainly true. That is certainly true. Absolutely.

That's true. But I have some smart water now. Smart ass water.

Well, General, when we're talking about evidence, let me try a little thought experiment with you and see if it might give us a new perspective on this whole question of evidence. Satya, let me start with you. I'd like you to imagine that there's a red button next to you.

And if you push it, you'll immediately receive compelling evidence, not certainty, but compelling evidence, that you're wrong. That there really is no God. My question isn't... That's scary.

Speaking of hot seats. My question isn't do you believe there is such a button. My question is, would you push it? So there's a button next to me.

If I push it, you're going to give me not a guarantee of it. Pretty compelling evidence that God does not exist. That's right.

Oh, I'd love to push it. Oh, absolutely. Same work.

Okay. That's great. So, I mean, certainly my ego is wrapped up in all of this.

All of our egos are. In this particular thing, let's pretend that I wrote a math paper, which

I'm... And that result, I show that, gosh, that you can fold the piece of origami in a certain way. And there are only three ways of doing it.

And I've kind of mathematically showed it to be true. And somebody comes to me and says, you push a button, and it'll turn out that the results in your paper are wrong. Like, you know, pretty conclusive.

I would love to know why I messed up. So because I think one of the most dangerous things, especially your talk about ignorance that you talked about, Stuart, is that one of the most dangerous things we can do as scientists and as people of faith is to try to hide things when we're wrong. Right.

Scientifically, I want to know why that paper is wrong. Is there another reason? Maybe they got it wrong. Maybe they didn't see a subtlety.

Maybe that will lead to more newer, more beautiful results. So I'd love to know where the holes are. And to say that I 100% believe without a shadow of a doubt, that the Christian faith is the only faith, that's silliness.

Who am I to do that thing? And of course, I struggle with those kind of things. But if I'm going to put a chips on something, that's the one I put the most on. That's the one that convinces me the most more than anything.

And I'd love to be proven wrong, and I want to learn more. Absolutely. So Stuart, let me turn it over to you and ask, let's imagine you've got a blue button.

That's better. On your chair. And if you push it, you will receive compelling, not total, but compelling evidence, that you're wrong, that there is a God.

And again, the question isn't, do you believe there is such a button? The question is, would you want to push that button? Absolutely. Why isn't there such a button? That's my question. Why can't we come up with that button already? Sure, for exactly the same reasons, I think we all would like to know.

I'd like to know whether I'm right or wrong, and I don't really, in the end, in our way, I don't care which. If I'm wrong for really good reasons, that's just as good as being right for good reasons, better than being right for wrong reasons or something like that. So sure, we'd all like to have surety.

I think the real key is learning to live with uncertainty, learning to live with doubt, with mystery, with ignorance, if you will, and to be comfortable with that, the poet John Keats once coined a term called negative capability. He felt this was the ability to live in a state of mystery and mystery, ignorance, and something else, unknowing doubt and so forth, with no irritableness, no reaching or irritableness about it. He felt this was the most creative state to be in for a poet.

I think also true for a scientist, for a mystic, for a religious person, whatever you are, I think learning to live in uncertainty because that's the reality. That's where we are. As much as we love a button, it's not going to be there.

I just don't think it's ever going to really be there. I know we just invite you to chat about this for a moment. I was just trying to struggle with thinking about what it means to believe in God in a 100% setting.

This notion of are you always doubting or are you always thinking about it once again? I was just thinking the closest thing I have to try to describe my faith is the fact that the Christian faith isn't just believing in a set of things but actually believing in a person, believing that there's a God out there who wants to hang out with us, who was incarnate, and he's here, right? He's my friend. So to say that, I don't buy that. As time goes on, it's like the best thing I could say is a relationship to my wife.

When I first met her, when I first got married to her, if you put her hand in mine, I wouldn't know if it was really her hand or some other woman's hand. But now I've married to her 17 years and you put her hand in mine and I know it's her hand. So when I first get to know God, do I believe he's true? Well, I've walked with him for 30, 35 years.

So sure, there could be a button out there that could convince me otherwise, but man, it has to be pretty compelling because I have this relationship. I know about his existence. So maybe that's a sort of an area of difference in a way because we live with Newtonian mechanics for several hundred years.

Yes. We got to know it pretty well. Yes.

We still use it pretty much, right? Yes. We also know at some moment it became wrong. Yes.

It became fundamentally wrong, in fact, even though we continue to teach our children about absolute time and space, if we're correct and all that. But it's wrong. And science, in the famous words of, I think it was the economist Milton Keynes who said, when somebody asked him how come he changed his mind, he said, well, when the facts change, I change my mind.

What do you do? And that, I think, is the difference in a way with science. Familiarity does not breed in any way greater acceptance necessarily. In fact, the longer something is around the more it gets tested, it gets beat up as much as one can possibly beat it up.

This is the idea of science is to take what is familiar and try and beat up on it, if you will. And I think that's the power of it for me. But at the same time, just to push back a little bit, since the Christian Judeo-Christian faith is so much based in historical notions, that that beating up certainly does occur.

So in the sense of literature, you look at scripture now and you say, hey, does it, you claim that Shakespeare is great because of these tools of literature, well, you claim this as scripture, God inspired, does it hold water in terms of literature? We've developed new tools, not scientific tools, but tools in linguistics, tools in the work of literature to beat that up to seek and survive. We developed new tools in history to beat that up to see these claims hold. So I think those, that does happen from a personal setting.

I'm not a linguist, I'm not a literary scholar. But this button was a personal button. So to me, I am excited to know if I am wrong.

Just to be clear, you're talking about new testament claims or old testament claims? I'm talking about both. So historically speaking, I mean, do you believe the flood was a historical event? That's a great question. That's a great question.

So I'll be honest with you. Genesis 11 and before is a little fuzzy. [laughter] Yeah, but that's the kind of all built on it.

It's true. I agree. I agree.

So, I mean, in clearly the way scripture is written from Genesis 1 through 11, the continuity of that does not end at Genesis 12. But clearly in terms of what is being said, there's an incredible mark at Genesis 12 when Abraham is introduced. So all of a sudden the story starts from these couple of people, Adam goes to a huge humanity and narrows right down again.

So there's a huge turning point and I would say it's written in a very different way. Now, I do want to give this one caveat. To read old testament and new testament, as a work of a New York Times news reporter, as an enlightened scientific document is dangerous.

Because it was never meant like that, right? It was never meant now I'm here at the flood, it's 17 feet and right, it's not meant like that. So, for us, even a scientist and as people of faith to look at the scripture and say, wow, it's a 17 here, but now it's a 14. You know, these guys are getting the wrong throw the whole thing out.

That's a bit dangerous. It's written in a certain context. That doesn't mean it doesn't have truth.

That doesn't mean it's not historical. But we just can't read it as you would read in your time to talk. So then I guess how do you make those choices? How do you decide in a non-arbitrary way which bits of it are truly historical? Which bits of it you take on as really real? And which bits of it are mildly historical and which bits are purely allegorical? I mean, how do you make that decision? That's a great question.

In general, the default is to read it historically, right? For example, if they say David was a king, then his son was Solomon, right? I'd say yes, those things really did happen. But

in terms of the wisdom to understand, you have to understand, I mean, the way I'm reading the scripture is, it's lots and lots of authors over in Christ. Over an incredible time period with different kinds of books.

So the Psalms were written in a certain way, the Proverbs were written in a certain way, Ecclesiastes is written in a certain way. Then they're prophetic works of Dan. So it is scholarship Talmudic work.

There's an incredible understanding of how certain things were written. So for example, if I write a letter to you, "Dear Stuart," and I'm just sorry, "Hey man, it was great hanging out last night." So somebody can interpret that two thousand years ago, hanging out. They were hanging, right? So on the other hand, you know that.

It could happen. But also, since the word "Dear," like how dear am I to you? So you have to put it in the context of, look, that's a colloquial where people wrote letters at that time. So within that context of that, there's truth in there.

Don't throw the entire letter out, but frame it and the way it was written. That's all I'm trying to say. Don't read it verbatim, but frame it in what the medium was trying to be.

I'm not sure that still at least satisfies my question, which is, how do you make the decisions that some of it you do read verbatim? Some of it you do take verbatim, and other part of it you don't. So I'll give you an example. Here we are in the middle of, I think this is an example, I hope it is.

Here we are in the middle of flu season. So influenza is an Italian word, which means influence, because there was a time when people believed that unseen celestial forces influenced our health and caused illness. We clearly don't believe that anymore.

We all go get flu shots because we know that it has nothing to do with unseen celestial forces. At the same time, we all believe that unseen celestial forces govern the tides of the ocean. We do believe that, and that indeed is true.

How do we make that distinction? So I think science, of course, makes the distinction between those two celestial influences of unseen forces. I think it's much more difficult to make that decision in religion. Absolutely true, my friend.

And this is why I'm talking about the messiness. So here's the way I view, gosh, here's the way I guess I view a liberal arts education. So imagine you have life, right? Is the messiness of what it is.

That's kind of a long, okay, I'll give it a shot. I'm the mathematician, you have to worry about my knowledge, it's awful. I think what we do from the mathematical world is we deal with the clean, the sterile things of the world.

For example, there's a book by Charles Taylor, an amazing theologian and sociologist. The book is called A Secular Age, 900 pages. The hardest book I've ever read in my life.

200 pages are devoted to defining what secular means. Now as a mathematician, the hardest definition will take like, you know, this may be this long, right? And first I was thinking, dude, this guy needs, he needs an editor to kind of tighten it up, right? And then I realized to my own shame that the stuff I deal with in math is actually the easy stuff. Right, we're actually dealing with the cleaned up parts of the animal.

We're talking about just the bones, there's nothing there left, we're talking about sterile instruments and mathematics, and I love it at find it totally sexy. But then you go into sociology and you're dealing with things that are, well, that's a separate thing. Maybe go into sociology and issues of biology, you're getting more and more complex.

And as you involve sociology and anthropology, you're involving humanity and history. Now you go into the arts, you go into music, and there you're dealing with sort of the rawness of what it is. And artists isn't trying to, you know, you can't outline what an artwork is in terms of three or four definitions, right? And moreover, I think in the math side, who we are as a person is disconnected with the stuff we study.

For example, if you come and prove to me, hey, it's something, man, you know those three origami folds, they're four of them, you missed it. Okay, my ego would be hurt, and I'd need to look at the math again, but my identity as a human won't be shattered. Whereas if you go to an artist who's trying to explain to them, trying to give a performance piece, and you say, dude, that sucks, right? Their identity is wrapped up in that thing, so you're right, it is messier when you go into religion and faith, messier when you go into history.

And science doesn't deal with that. And to me, that doesn't mean I'm only going to go to science because it's the easy way out. I have to pay the price and go here.

I'm not sure I agree with you about that entirely. I mean, I actually think that the great thing about science is just how messy it is, actually. It's a real mess, in fact.

Day to day, and even long term, I mean, and I will admit to you that this is not the way we teach science, which is a crime. We teach science in some sort of a frozen textbook, mummified idea that doesn't look messy at all, and looks like it's all settled, but that's a crock, frankly. So that's a distorted view of it that's common, admittedly, but I think it's a distorted view.

What's wonderful about science is its messiness, is the arguments. You'd be surprised. You wouldn't be surprised.

You know the arguments you have with reviewers. Sometimes they're both sessions and sometimes they're grant proposals, but that's what we do is we argue about all of these

things, and because it's largely about the unknown, it's a necessity. It seems to me quite messy.

Yes, the tools can be nice and clean. The tools can be refined. That's true, and mathematics in particular is wonderful at that, and having sort of, I agree, paired away.

But you know, then you try and apply it, and you realize, well, you need a bit of a fudge factor here, and we need a constant over here. I mean, what constant once explained to me, the purpose of a constant in equation, is it's a sum total of everything we don't know yet. And it works out to be some number of fools sticking in there, you know? That's true, that's great.

So even that's quite messy, it seems to me. And that's one of the nice things about it, and I will go this far with you on that. I mean, I'm a believer that science is, maybe this takes us in another area, I believe that science doesn't let itself be messy enough, and maybe it could learn a little bit of that from the science.

And I think that it could learn a little bit of that from religion, although I think religion doesn't let itself be messy enough either. I agree, I agree. So let me say one thing about reading scripture, because you asked me about that.

So when King David dies, right, King David is probably the greatest king in the Jewish faith, right? Representative in so many ways of how God loves his people through that king. When King David dies, his last two words, I mean, his last two sentences are basically, he turns to his son Solomon, and he says, "Make sure you don't let their old heads go to the grave without being covered in blood." So you're talking about these two guys, that he never had a chance to do Amafia hit on, because he promised them. And he's telling his son, "In wisdom, my son, take him out for me." Now, to me, let's look at that.

Can we go back to the ethics part of the government? Yeah, let's do it. Exactly. No, this is all wrapped up in this thing, right? So to me, I look at this and I go, "This is God's king, right?" So there's two ways to answer this one.

Was this the literal last thing David said? Because in Scripture it says, "The next sentence is then King David died." So you can take it literally and he goes, "My son?" And then I said, right? Most likely, this is the work of the authors, making it to emphasize the fact that even in the last thing David is a broken man, that even then he doesn't have his heart perfectly to God again, and yet God calls him his chosen one. So to me, I'm not reading it literally in that sense that is his last breath, but I am reading it in the sense that King David did say those words. So that's what I mean by when I'm reading Scripture.

So we could spend a long time in terms of exactly how to do this thing, but there is a

sense of truth in there, but to say that it's exactly his last words, I don't think that's the point of the author. Yes, I'm sorry about that. So how does that relate to the messy part of it, though? Well, for example, so who decides? So who decides that was in his last word, right? For example, so you need to read this as a work of literature, as a work of understanding of what the context of it was, as what the authors' intentions were.

Those are difficult things to do. And exactly as science is messy because of so many, how does the nose affect the ear, there's incredible complications that we were just talking about over dinner. Those kind of complications also travel in the religious faith, and as you're saying, to take those face value and drink it straight up is a dangerous thing.

And I do encourage, and I do want people to encourage and wrestle with it and say, "Hey, this is a work of literature." At the same time, a work of history, let's chew on it, let's see if it holds water. But so curiously, both establishments, in a way, the establishment of science and the establishment of religion work against that kind of messiness, it seems to me. I mean, you as an individual may be clever enough to see otherwise, personally, for yourself, but that's not really the way they kind of work, is it? They work very hierarchically and very authoritarian.

I think it could just be us. In other words, I'm not sure if it's the institution, but as people who just like to fall into a rock. You know, those kind of just let it go, right? So it does take somebody to stir it up once in a while and say, pull yourself out of this thing.

So I guess I would only say that for me, science is better at stirring it up. Science is better at keeping the pot stirred because that's what it does. That's what it always wants to do.

Opportunity is only in the stirred pot in science. So for that, I like it as a place to go kind of thing. Well, let me see if I can stir things up a little bit more.

And turn to the subject of suffering. And there's someone in this audience tonight who is suffering profoundly. And my question is, what would your outlook lead you to say to him that could give us suffering meaning? You're looking at me.

I'm looking at both of you. Could you just say the free first? There's somebody in this audience tonight is going through profound suffering. What would you say to him? Me too.

Don't worry. I could take a crack at first. Please.

I think if this kind of goes back to my last quote about life, this pain, if anybody gives a cheap answer to this and says, "Oh, there's a, you know, it's because of X, Y, or Z, and here's what you should do." I think that's absolute silliness. I think if one of the things you read in scripture over and over again is not the fact of whether if you look at any

great men or women of faith in scripture, you realize that it's not whether they believe in God or not. That's never the issue.

It's God. I am here. Where are you? If you look at the crack script right in the middle, you get to the book of Job, the definition of a man who never worried about God's existence.

Job never said, "And thus there's no God." He basically says, "There is a God who doesn't care, kill me now." And so that's the big issue is to me, I would say, "Yeah, I believe there's a God." And then the fair question to ask is, "If he is so good and so powerful and so strong, where is he?" This is the question people have asked throughout the ages in scripture. And there's no cheap answer to that. There's no easy answer to that.

My only answer to it is, God understands that. And he did it. In other words, he experienced the greatest suffering imaginable.

He walked like us. He died worse than us. And that is, to me, to say that the God of creation, the God who made all of us is now one of us taking the blame for us and understanding what we're going through.

That gives me incredible comfort to know that that is real. Again, that doesn't make our suffering easy, but it gives us a different perspective. Stu? Well, I guess I'm Jewish, so I'd be more worried about somebody who's really ridiculously happy out there.

I think they're in deeper trouble, Frank. I'm not asking if you're worried. I'm not asking what you'd say to him.

I am. Well, that may sound glibber than I really mean it to sound, I'm sure. I'm not sure that there is a difference, really.

That if somebody who's suffering, they'll be happy at some point. And if somebody's happy, they'll suffer at some point, rightly or wrongly, by some judicial perspective or moral perspective. And I don't know that there's meaning to be had by either of those things, but I don't feel an emptiness if there is no meaning to those things.

I don't really feel that suffering has to have a meaning, nor does happiness have to have a deeper meaning. They are. The world is that sort of place.

It's a bit unpredictable. Things happen to us. Sometimes they're good and sometimes they're bad.

I don't have to worry about why bad things happen to good people and things like that. I mean, that's the way an unpredictable world kind of works. And that may sound, I don't know, at sea somehow or another, but I at least personally don't feel that way.

I kind of think it sort of evens out most of the time in one way or another. And you can have an attitude towards how bad you feel or how good you feel. And the more sensible

your attitude is towards that, the happier you'll be.

And generally, even with suffering, I think, although there are great sufferings for which I can't imagine what you could say. I don't care what it is. I don't think you could say, well, this is for the greater good.

I just, I don't believe that would really help. So, I hear you saying that second, you've got an empathic God, but one simply has to accept that that's pretty much all one can hope for by way of consolation. And Stuart, you're saying, sorry, that's about all there is to say.

You're suffering. I think so. I mean, in some ways, I guess I think we give, we worry too much about suffering and/or happiness, the same, you know, which are lip sides, I suppose, of the same coin.

I don't really understand what the worry about them is, I guess. In a way, I'm saying, I don't know. It's not a worry.

It's how would you care for someone who comes to you and says, I'm in desperate pain right now? Well, I guess, maybe a way of phrasing it could also be, as you were mentioning, is like a notion of justice, right? Like, maybe the suffering comes from an incredible injustice done to them. You know, something done to their child, something done to their parents. And you say, I wish this was set right.

Yes, and so one could hope to set it right. One could try and live the kind of life that is helpful to people when you have that opportunity, when you can help them. To not help someone to turn away someone who's suffering, I think, would be not something that most people do, whether they're religious or not.

I don't think that pushes you one way or the other. I think empathy is something we can all experience and do experience. It's one of the things that kind of other animals experience empathy, too, is pretty clear.

So this is a kind of a biological principle somehow or another. Maybe it's a principle that grows up in a world that is otherwise quite unsympathetic to these, you know, crummy little carbon units that run around on this little ball of dirt here. I want to make sure we have adequate time for questions.

So let me invite audience members to prepare to ask questions. I believe there may be a mechanism for doing that by text. And if there is, if I could get a little advice on how to do that.

This thing is going to start buzzing in that pocket again. Okay, let me see. I'm the last to know.

If you would like to ask your question to the speakers, feel free to text 646-504-2027. Does that include me? Yeah, I got a question. And while that's going on, let me put one other question to you.

I'm curious about something I read about the Pew Research Center in 2009. They came up with two rather odd findings in a survey of scientists in faith. First, they found that scientists are roughly 10 times more likely to be atheists than the general public.

Second, they found that 51% of scientists do believe in God, a universal spirit, or a higher power. What do you make of that? What should we make of that? Does it matter? Those numbers don't sound right. How can they be 10 times more likely to be atheists, but more than half of them believe in the... That means that there's... Does that work? You're the mathematician, can't you? I'm hoping you'd go first.

I mean, those numbers just sound at odds with each other, I guess. I... Oh, God, a chart. Percentable evil, God, percentable evil, believe in either percent.

All right, well, I guess there's a chart. You can't argue it. You can't argue with a chart.

Score one to the West Bank community. It's real system. So, okay.

So... Scientists, I think, come in lots of different flavors, so I don't know what to make, actually, of numbers like this. I think physicists and mathematicians are different from biologists, and certain kinds of evolutionary biologists are different from molecular biologists, who are different from field biologists. So, it's hard to make, I think, generalizations about any population like this.

You could probably say something about chefs in their religion. I don't know. They do believe in God.

They don't. This dish failed because I didn't, you know, whatever. So, I'm not really sure what to make of it.

As I said earlier, I personally, as a scientist, find it much harder to brook science and faith, religious faith. I find them not at odds in an aggressive or impossible Richard Dawkins-e kind of way, whereas a one or the other, and that's it. I don't think that's the case at all, and I can see people having a modicum of faith and a modicum of science.

Certainly, there are plenty of people of faith who seem to believe pretty much in science. I mean, people who populate our churches, synagogues, mosques and so forth, who nonetheless all own an iPhone and use science and would go to the doctor to be cured and all of those sorts of things. So, I don't think there's a divide there either necessarily.

Not one that we can put our finger on easily. I'm good. No comment? No, that sounds great.

Okay, you agree with that. I agree. Okay, cool.

See? You've come to Common Ground. So, I now have questions for you for early questions from the audience. First one is for you, Satyun.

Even if we concede that religion can answer questions, that science cannot, what do you have to say about religious claims that go against scientific law, like miracles and Jesus' resurrection, etc.? Hmm, interesting. What do I have to say about religious claims that go against science? I don't think those claims go against science at all. I think science is here the laws that the world operates in, but if I just look at Genesis, just the beginning of it and God said and God said.

So, basically, God is interacting. God is transforming. God is participating.

God is involved in the whole process of what we live. So, I wouldn't say I'm not one who says that God created the world and let the game go. In fact, the Jewish notion of God is one of a sustainer, which is a pretty ballsy statement.

Here's what it says. It says that if God isn't actually consciously involved in thinking about His creation, it doesn't even exist. That's a pretty amazing claim, right? So, to me, I wouldn't say that somehow God lets it go and once in a while there are these miracles.

I think God is a participatory player in this game. In fact, He adores His creation so much. In fact, if I look at Scripture, I look at it this way.

In the beginning, God created everything. It was awesome. Man came about.

It was great, but then He disobeyed God. And the rest of the book, Genesis 3 all the way to the end, is about God chasing after man. And to say that somehow God is disconnected from this place with miracles, I don't buy that at all.

I think He's completely involved in His creation. He cares about it and pursues it. I'll move right along then, please, to Stuart.

Here's another one. If there is no God, do the cares of human beings have cosmic significance? I'm sorry, could you say the first part of it? Sure, if there is no God, do the cares of human beings have cosmic significance? Do the cares of human beings have cosmic significance? I don't know whether they do or not. I can easily imagine they don't.

I'm not even sure what having cosmic significance would entail. It sounds a little frightening, actually. If things I cared about, like cosmic significance, I'd kind of be God.

It seems to me. So, I don't know. I'd be a little afraid to care about things then.

I don't really know. I don't think that you... I should not worry about having cosmic significance. I'd be quite happy to have some significance among the people that I

interact with on a regular basis.

I'd love to be significant to students. That would be fabulous. Nothing happened, but it would be fabulous.

I can wish. I would love to be significant to mankind, to the animal world and somewhere. All those things are ways that I can judge my significance.

And many times fail, occasionally succeed or succeed in a modicum. I wouldn't even know how to judge my cosmic significance. I don't really know what that would be.

I'm going to go right into additional questions. This one is for both of you. What do you think the role of free will is in determining one's choices in life? From the neuroscience perspective, can we make conscious decisions outside of the biology of the brain? And from the religious perspective, what is the ultimate underlying force of a person's decisions? Was this person listening or just writing that question? My goodness.

That's a big question. I'm going to take in the old data right that question. I'll take a crack at it.

From the religious perspective, how does free will fit into that person's bigger, I guess, cosmic understanding of all these things. Gosh. In the Jewish mind, there's an incredible comfort with tension.

And certainly for us in the West, certainly in the enlightened West, we always like to break tension. You have to pick one or the other one. In the Jewish mind, when I talk about the Jewish mind, I'm talking about issues in Scripture, issues in the Second Temple era and earlier.

It is completely okay to say that God is absolutely in control of everything and we're the ones making choices. And for us, we'd like to say, whoa, whoa, whoa, whoa. Who's doing what? God's really in charge of it.

He's the creator. That he basically rigged the system up. So you have no free will.

Well, there's truth in that. But at the same time they say, well, but we're the ones God has made as stewards of this kingdom. We're made in this image, which means we do whatever we do.

We represent God in doing on earth. We are many gods that God-- we're many representatives of them on earth. And there, we have choices.

And we could represent him incorrectly. So I'd say the answer is both. We are absolutely accountable for what we do wrong.

It is our choice to do it. But at the same time, God is in charge of everything. So it's

really interesting.

Curiously, I could say the same thing without using the word God, I think. Cool. I think I could say that-- I think.

It's cool. I can remember what you said. In the sense that I believe as a biologist, in a purely mechanistic viewpoint of biology, I believe biology is fundamentally physics and chemistry.

That our brain is a chemical factory up here. That there's nothing about it that doesn't obey the laws of physics and chemistry in some deep way. And therefore, it must, in some sense, be deterministic.

It must be that you could know it. Somebody could know it. Somebody could work it out.

Some evil scientist could control it or whatever kind of thing goes on. At the same time, it's perfectly clear to me that we do, in fact, make decisions for which we have responsibility. I'm not one of these people who believes that there's an evolutionary post hoc evolutionary explanation for why we do crappy things and why we shouldn't punish people for this or that.

I don't know what the jurisprudence of it all ought to be or what's proper that way. But I don't think that's an excuse. So I would say that I think-- I would say human beings are unquestionably a product of evolution, but they're not only a product of evolution.

Interesting. And that that's the difference. So it's totally deterministic, and yet there's free will.

And I don't know how you make sense of that. You just have to worry about that. That's true.

Another one for both of you. Do you think there's such a thing as unknowability with a capital U? And if so, what is unknowable and why? I don't know. I'm not going to put on you to say that.

Yeah. Let me tell you the three things we don't know. All right.

You know three. Yeah. I mean, to me, in one sense, I find-- look, just going back as a scientist and what I love, I think there's both of us would certainly agree.

There's a rush, a literal, like a rush in finding new ideas, and seeing how things work. And there's a joy in things clicking. You never saw the ear that way, the nose that way, the mat that way, the origami folding that way.

And all of a sudden, wow, that's gorgeous. These results-- gouse bonne, right? It's like, I did not wow that's gorgeous. On the other hand, once you have that thing, I think it

breeds lots of new questions.

The moment you come up with something that you just find, the next thing is, wow, there are 10 things now I don't even know. And that sense of unknowing and the sense of, at the same time, finding out, my faith would say that that is a shadow of what heaven is going to be like. That God is-- we will never be God, right? We are always His creation.

And He's invited us to hang out with them forever and just have a party. And at that time, I will do amazing math. And I will learn cool things.

And I will realize more amazing things than I did even know. And at the same time, I will know more about God Himself. I don't think when this world ends and the true redemption of this entire Earth and heaven happen, that I will know God fully.

I don't think so at all. I think every day I'll get to know a little bit more of them. And I'll say, dude, that is ridiculous.

That's awesome. And the next day, I'll know a little bit more. I think the things I love about science, the things I love about math are shadows of that thing that I don't know.

And that is the you that I don't understand, that I keep pursuing to know. But does that mean that there's an ultimate unknowability because of quantity, because we'll never run out of unknowable stuff? Or what I took to be a deeper question here-- But you're not supposed to be asking these questions, are you? [LAUGHTER] No, that's fair. That's fair.

Well, why I took to be a deeper part of that question, which is, are there things-- even if we knew everything that this piece of jelly up here could know, there's some things that could never know. There are just some things beyond its cognitive capacities. I think it's-- to me, I would say it's both.

In the sense that we are never going to be God Himself. So thus, we can only be limited by our created-- I don't know what the limitations of man's created notions are. I mean, we're just shadows of what we think we are.

We keep getting better understanding, right? But at the same time, from the pure, nerdy scientific way, we keep knowing-- I mean, we keep asking new questions we never would have asked before. So that's what I find remarkable, is I think I said in the opening is that I don't believe this whole day in statement anymore that the world is the universal stranger that we can imagine. We seem to have an unlimited capacity for imagining the most ludicrous things possible.

And then they come to be true. Yeah, absolutely. But I just want to make good on my challenge to you to go out there and try this at home.

And I'd like to just share with you two quick thoughts about how you might want to do that. Maybe even over coffee after this is over tonight. The first is make sure it's a safe conversation.

Make sure that at the beginning, and certainly in the middle, and certainly at the end, that you start an end as friends, and that you are intentional about that. One good way in the middle of this to have a real conversation that gets deeper, but that really is respectful and kind, is to periodically check back and say, wait a minute, let me make sure I understand what you are saying. Is this what you are saying? And I challenge you to see if periodically you can get the other person to say, exactly.

That's what I'm saying. And if you're successful at that, if you can get it several times, then I would suggest you're actually having a safe and penetrating conversation. If you keep missing each other, that might be a sign that's time to take a break.

So with that, let me invite each of you to give a closing thought. Let's say we started with you Stuart, so why don't we start with you to-- (laughing) - That seems arbitrary. - You're clear, okay, that's fine.

- Well, I'm with Sadi. - You know what, two, when we start? - As if you did. - How can I wrap this up? I've had a wonderful time tonight.

I hope nobody has actually changed their mind because what's really important, and all of this is the plurality of minds, the plurality of views, the many ways that things can be seen. I'm a firm believer in the scientific way of seeing things. Not, I want to point out in the scientific method, which I don't believe in at all, but in the scientific way of seeing things.

I think it's our best hope for the future. It's our best hope for the planet. It can also be the end of the planet.

God knows we're also good at that. But I think if you want to know something deeply, and you want to know about what we don't know, if you want to know about the borders of our knowledge, the great unknown parts of it, the real mysteries, then science is just the biggest playground we've ever come up with, and that we came up with it is remarkable. If I were religious, I would say science is the greatest gift that God has given us.

But I'm not religious. (audience laughing) - So, Jai. - There's a story I like to tell.

I just want to close with one of my favorite stories. It's a story about Karl Barth. I should say if you know who he is, Karl Barth is probably one of the greatest theologians of the 20th century, and spent all his life studying about the Judea-Christian faith, an amazing expert, superstar.

And he was coming out of church one day, and a famous astronomer catches up to him and says, "Professor Barth, isn't it true that all of religion is trying to say the same thing? I mean, the Christian, isn't the whole point of this whole thing called religion? Is it all about just saying, do good into others as you would have them do into you? Is that the punchline? What do you guys have all this stuff fluffed around for? Karl Barth thought about this. He spent his entire life focusing on this one faith and pouring his heart into it. He goes, "Turns to the astronomer." And he says, "Isn't it true that all of astronomy can also be summarized by a phrase?" And that astronomer is thinking about, "You're kidding me, right? Black holes, the curvature of space and time, general and special relativity.

What is this one phrase that can encompass all of this?" And Karl Barth says, "Twinkle, twinkle, little star, how I wonder where you are." (audience laughing) And so the point is, we can come up with these short phrases, right? All religion is one, the point of this is this, but my friends, there's incredible depth to these great thoughts. There's incredible depth. I think science is beautiful, and it has a tool to offer to understand it, but I think so does literature and so does music and so does art and so does faith.

All of these things are important, and I encourage you to pursue them. If you like this and you wanna hear more, like, share, review, and subscribe to this podcast. And from all of us here at the Veritas Forum, thank you.

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(buzzing)

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