

"Tough Questions: Science and Religion"

We're in the midst of a series of classes on 'Answering Tough Questions' and my topic tonight is 'Science and religion.' This is a very important subject in today's culture, both for Christians and non-Christians. For Christians, especially those studying at universities, science is often considered to be in opposition to religion. Science, it is claimed, can answer all the questions which were once answered by religion. Conversely, for non-Christians, science is sometimes advanced as an insurmountable obstacle to the Christian faith. If we believe firmly in the validity and truth of science, then we don't need to bother considering the claims of Jesus. **I want to address both of these concerns tonight.** I'm going to argue not only that science and religion are compatible, but that science can give us good reasons to believe that God exists. I understand that this is quite a challenge; many of you are probably thinking 'One does not simply reconcile science and religion.' But I want to at least answer some of the major questions that people have and equip you to think about this subject in greater detail.

Here is my outline for tonight. I want to start by providing a framework for understanding how Christianity relates to science: how are we to view science as Christians? What is science for? Is it valuable? I then want to address nine major questions that are asked about Christianity and science. I'll be able to address the first seven relatively quickly. Then after a short break, I want to spend more time on the last two, which require more detailed answers. Finally, I'll give some practical advice to Christians talking through these issues with skeptics.

Let's start by asking: what is the role of science within the Christian worldview? In other words, as a Christian, how should I view science? What is it for? The Bible says quite a bit about God's relationship to creation, but I think one of the best places to go is Psalm 19.

I won't read the Psalm in its entirety because it's probably familiar to many of you. **But what do we learn from this psalm about the place of science in the biblical worldview?**

First, we learn that the God of the Bible is a God who desires to make himself known to his creation. In verse 1, "The heavens **declare** the glory of God." In verse 4, "their voice **goes out** into all the earth." In v. 7-12, the words of the Lord "[refresh] the soul... are trustworthy, [**make**] **wise** the simple... [**give**] **joy** to the heart ... [**give**] light to the eyes... are more precious than gold...are sweeter than honey." **God is not aloof. He is not sitting on Mount Olympus, distant, far away, and unapproachable.** The God of the Bible is a revealing God. So how does this revelation come to us? **Theologians have long recognized that there are two kinds of revelation: general revelation and special revelation.**

General revelation is God's revelation through nature, through the things God has created: God's works. Verses 1-6 describe God's general revelation, how the moon and the sun and the stars testify to his glory.

But verses 7-11 describe God's special revelation in Scripture, God's words to us. **Both general revelation and special revelation come from God. And both are true because God is truthful; God cannot lie.**

So how do we interpret these two forms of revelation? We study God's special revelation in Scripture through the discipline of hermeneutics, the discipline of interpreting written texts. We use hermeneutics to understand God's special revelation in Scripture. On the other hand, we study God's general revelation through the discipline of science. We use science to understand God's general revelation in nature.

Now think about this approach to Scripture and Nature for a moment. Do you see the similarities? Why do we try to practice good hermeneutics? To study and understand Scripture in order to perceive the goodness of God in what He has said. Why do we try to do good science? To study and understand Nature in order to perceive the goodness of God in what He has made.

So study of both general revelation and special revelation should lead us to worship. Just as good theology leads us to worship, so should good science. How does that happen? **I mean, we usually don't think of science as a tool for worship.** Guitars, a drum set, a cool smoke machine, lasers – those are tools of worship. But science? Yes, science too. **Science is a tool of worship because it pours detail and meaning into truths about God.** The Bible tells us God is great. Studying the immensity of the universe tells us how great. The Bible tells us that God is wise. Studying quantum mechanics or general relativity or molecular biology tells us how wise. Science can flesh out and give color and depth and detail to the truths which Scripture reveals to us.

So this is the biblical approach to science: it is a tool that we can use to perceive and wonder at God's glory.

But wait. That's not how we view science. Science is the enemy of Christianity, correct? That's what many atheists tell us and even what many Christians believe. Doesn't science raise all kinds of difficult questions about Christianity? Well, yes. Yes, science can and does raise difficult questions. But so can philosophy, or history, or ethics. Yet we don't discard these disciplines or disparage them.

So why is it important to be able to answer these questions? First, it can strengthen for our own faith. For the last 7 or 8 years, I've been involved in apologetics – the discipline of defending the Christian faith through reason and evidence. **One of the greatest benefits of this interest has been the confidence it's given me in the truth of Christianity.** Is that because I can now answer every question

skeptics ask? No, not at all! But over the years, I can look back and think about many, many questions I once had to which I found satisfying answers. So it doesn't bother me as much when I run into a question I can't answer ; I'm confident that there is an answer out there somewhere, even if I don't know it. Second, it's crucial for evangelism.

Even if you are entirely uninterested in the answers to these questions, non-Christians are. So if you are going to share the gospel with them, you need to be prepared to provide answers.

So let's take a look at these nine questions on science and religion. Notice that I've phrased them here not as questions, but mostly as statements. That's because I find that these questions are rarely asked as genuine questions but are usually presented as statements. For example, it's not very common to hear someone ask "What's the relationship between faith and evidence?" Instead, someone will simply assert that "Faith is opposed to reason." **Or if a question is asked, it will be something like: "Don't you know that faith is opposed to reason? Why are you so unintelligent? And also, unattractive and not very nice to smell?"** So rather than framing these as questions, I'm going to present them as assertions and then respond to them.

First, let's consider the objection that "We should only believe things based on evidence, not faith." Here are some statements about the contrast between science and religious faith:

"Another meme of the religious meme complex is called faith. It means blind trust in the absence of evidence, even in the teeth of evidence." – Richard Dawkins, *The Selfish Gene*

Here, the Neoatheists define 'faith' as 'belief without evidence.' Now what's the problem with that?

The problem is that that is not what the word 'faith' means; it's not how the Bible uses the word 'faith' or how Christians have thought about the concept of faith for thousands of years.

The Greek word 'pistis' which is translated as 'faith' in modern Bibles does not mean 'belief without evidence.' It's better understood to refer to 'personal trust in God.' Examples can be furnished by any personal relationship. For instance, if I said 'I have faith in my wife,' I would mean that I trust her. Now, is that trust necessarily contrary to evidence? Not at all! Over 13 years of marriage my wife has given me plenty of evidence to show me that she loves me, keeps her promises, and is eminently trustworthy.

The same is true of God. **Faith is not opposed to evidence because our trust in God can be based on evidence that He is good and is worthy of our confidence.** So this first idea that 'science is based on evidence, while religion is based on faith' is predicated on a faulty understanding of biblical faith and does not represent a real conflict between science and religion.

Second, let's look at the claim that 'nature is all that exists.' If this statement were true, then the Christian God could not possibly exist because He does not exist within nature; instead, he transcends nature.

You can see this sentiment expressed in the following quotes:

"Any account of nature should pass the tests of scientific evidence; ...Nature may indeed be broader and deeper than we now know; any new discoveries, however, will but enlarge our knowledge of the natural."— Humanist Manifesto II

Nobel Laureate James Watson and poet Matthew Arnold make similar statements. In a more popular context, some of you may recognize this scene from *Nacho Libre*. And if you do, you should be ashamed of your taste in movies.

In these arguments, no mention is made of 'faith.' Instead, we are told that science shows that Nature is all that exists. So is this objection true? Does science really show that nothing outside of nature exists? Absolutely not, for at least two reasons.

First, the position that 'nature is all that exists' is known as naturalism. **But naturalism is a metaphysical proposition, not a physical proposition.** In other words, naturalism is not the result of science; instead it is a philosophical assumption that, in this case, is tacked on to the discipline of science. After all, precisely what experiment demonstrates that 'Nature is all that exists'? Is there a list of all existing entities written on the back of a napkin somewhere? So I can just find some competent scientist and hand him microscope and he'll scan down the list and say 'Rocks, planets, stars, pizza, books, etc... etc... Nope No God or angels or demons on here.'? Clearly not.

Second, methodological naturalism does not imply metaphysical naturalism. What do I mean? Based on our definition of science, science can only address regular, repeatable, empirically testable phenomena. How else could you perform the 'experimentation' step of the scientific method? Consequently, scientists generally assume that unknown entities will not interfere with their experiments. This assumption often takes the form of *methodological naturalism*; it's an assumption we make so that we can meaningfully interpret our experimental results. But notice that the assumption of *methodological* naturalism for the purposes of our experiments in no way necessitates *metaphysical* naturalism, the idea that there *are no non-natural entities at all*.

To see how this works, imagine I am feeling sick and I'm referred to a toxicologist to determine why I am sick. After many rounds of tests, he cannot explain my illness. So he comes to me and says 'I can't figure out why you're sick. Your symptoms must be a result of some unknown poison.' I say 'Or I suppose my symptoms might not be the result of poison at all. Maybe I have a cold.' Suddenly, the doctor turns red. 'Nonsense!' he shouts, 'I am a toxicologist. I don't believe in colds!' How would you react? I think you'd do something like this: what?

You'd probably recognize that the toxicologist has confused methodology with metaphysics. For the purposes of his diagnosis, he assumes that some poison must be the root cause of my symptoms; but it doesn't follow that no other causes can possibly exist. But can't scientists be guilty of the same mistake? **When confronted with an incident with no known natural cause, the response is 'There must be some unknown natural cause. I am a scientist. I don't believe in supernatural causes!'** So

while I agree that there is a potential conflict here, it is not a conflict between science and God. Instead, it is a conflict between a naturalism and theism, two metaphysical positions.

Third, let's look at the belief that 'Science is the only way to know truth.' Consider this quote from Stephen Hawking:

"There is a fundamental difference between religion, which is based on authority, and science, which is based on observation and reason. Science will win because it works." – Stephen Hawking
What Hawking is pointing to here is what he sees as a difference between religious and scientific *epistemology*. What is that?

Epistemology is the study of how we know truth. Here, Hawking says that religion and science approach knowledge of the truth in two completely different ways and that the scientific approach is better. The position that often underlies these types of objections is known as 'scientism', the belief that 'science is the only way to know truth.' So is this objection valid? Is science the only way to know truth?

No. In fact, the statement that 'science is the only way to know truth' is demonstrably false because it is self-refuting.

Ask yourself: is the statement "science is the only way to know truth" itself true? If it is, how do you know that is true? Certainly not through science! Which experiment shows you that 'science is the only way to know truth?' There isn't one. But if this truth cannot be known through science, then science is *not* the only way to know truth. The statement is self-refuting and therefore false. But what if we make a more modest claim like "Science is the only reliable way to know truth"?

Again, do we know that truth reliably? If so, how? Not through science! So this statement is also self-refuting. I think that the most optimistic claim we make is to say something like 'science is the best way to know truths *which can be known through science*.' But that is hardly a claim that demonstrates a clear conflict between science and religion.

Next, let's examine the statement "We can't believe in miracles."

Here are some representative quotes, the first by renowned Scottish skeptic David Hume and the other two by professing Christians.

Let me begin by noting that the last two statements here aren't even arguments. They're purely rhetorical. **It would be like saying "I can't believe that in this day and age, with the Internet and cell phones and airplanes that you still believe in llamas."** That's not an argument. You're just trying to make the other person feel dumb.

But is there an actual argument that can be made against miracles? Hume certainly makes one. **First, he defines miracles as 'violations of natural laws' and then he argues that we should never trust reports of miracles because all of our personal experience testifies to the fact that natural laws are never violated.** Hume's argument was and is very popular, but is it a good argument?

No. **Right off the bat, his argument falls apart if we have ever personally experienced a plausible miracle or have personally heard a report from a credible source.** Let me give just one example. My wife is an ER doctor and a few years ago, a young woman came into the ER whose heart had stopped. They ran a code on her for 45 minutes. They decided that they would use the paddles once more and then would give up when my wife felt God say to her: "Touch her and pray for her." My wife said: "No, that's weird." But she really felt God telling her to touch her and pray for her. So she edged towards the bed, surreptitiously reached down and grabbed her toe. They shocked the woman, her heart resumed, and she walked out of the hospital a few days later. Now, my wife is not the kind of person who goes around reporting miracles all the time. She's actually a bit of a skeptic. So this strikes me as a very credible miracle claim. Now, I understand if *you* insist that she's probably lying. But surely you'd grant that *I, as her husband who knows her very well,* have a good reason to see her testimony as reliable. So it's not true that my 'uniform human experience' is that miracles don't happen.

Second, Hume's definition of a miracle is that it is a 'violation of the laws of nature.' But this is a very problematic definition because of quantum mechanics. Quantum mechanics tells us that it's very hard to identify inviolable laws of nature. According to quantum mechanics, almost all natural laws are probabilistic in character; we can no longer say that things are strictly impossible. We can only say that certain things are very, very improbable. **Hume was writing in the 18th century, so he couldn't possibly have known about quantum mechanics, but from a modern perspective, his argument is flawed from the very beginning.**

Third, we can't insist that the existence of physical laws prohibits the existence of miracles because God is not constrained by the laws which he created. God is no more subject to the laws of nature, than an author is subject to the laws of the novel he is writing. For example, I could write a novel in which gravity makes you fall upwards. But the characters in my novel couldn't look at me and say: **"Wait, why are you standing on the floor. You're violating the law of gravity!"** because I'm not constrained by the laws of the novel.

Finally, God can act as a causal agent in nature without violating natural laws. Let me give you an example. Imagine my friend and I go to the roof of his house to investigate the law of gravity. He drops a ball off the roof and it strikes the ground exactly one second after he lets it go. He does it a million times and sees the same result. But I tell him "The next time you do it, it will take 100 seconds to reach the ground." He says "That's impossible. I've done this experiment a million times. That would violate the law of gravity." I say "Just do it", so he drops the ball and I catch it and let it go 99 seconds later. Now, have I violated the law of gravity? Not at all. **I've simply introduced an outside factor; I am acting as a causal agent who intervenes in the system to change the outcome. And that's exactly what God does in miracles.**

Fifth, the argument is often made that Christianity commits you to believing in a god-of-the-gaps.

A god-of-the-gaps is a God who fills the gaps in our understanding of the natural world. There used to be many phenomena which we didn't understand and which we attributed to the supernatural: the sun, eclipses, thunder and lightning. But now that we have scientific explanations for these phenomena, we no longer need to resort to supernatural explanations. And as science explains more and more phenomena through natural means, our conception of God gets smaller and smaller until one day, all the gaps are filled and the very idea of God vanishes.

This is what belief in a miracle-working God sounds like to many skeptics:

Now, I actually think this is a valid concern. **However, it is not a criticism of Christianity, but of an unbiblical view of God.**

Here's an illustration of the various ways we can think about our current scientific knowledge of the natural world and its relationship to God. The first picture represents our current understanding of the natural world. Gray indicates phenomenon that we can explain through science. But there are gaps in our understanding when phenomena are not yet explained. So what will happen to these gaps?

Naturalism generally assumes that all these gaps can potentially be filled by natural explanations. There is nothing outside of the natural world so all of the natural world can be explained by natural processes. Deism is the view that God does exist, but that does not interact with the natural universe. So it agrees that all the gaps can be filled by natural explanations. A god-of-the-gaps view fills the gaps in our current knowledge with God. The green regions represent God's miraculous intervention in the world. The problem with this view is that whenever a gap is filled by a scientific explanation, our conception of God grows smaller. However, the final view is the biblical view. **Christians believe that God is sovereign over all processes, even natural ones.** On the one hand, Christians believe that there are **genuine** gaps in our current knowledge which will never be filled by scientific explanations. On the other hand, we recognize that there are gaps in our current knowledge which we **expect** to be filled by scientific explanation and which in no way detract from our understanding of God. **Here's a quote from well-known theoretical chemist and evangelical Christian Fritz Schaeffer: "*The significance and joy in my science comes in the occasional moments of discovering something new and saying to myself, 'So that's how God did it!' My goal is to understand a little corner of God's plan.*"** So understanding a natural mechanism for some event does not threaten my conception of God; it actually enhances my appreciation for His design of the world.

So we've already addressed why a 'god-of-the-gaps' understanding of God is sub-biblical. A biblical worldview will allow for a real, miracle working God but also a God who works through nature. Are there any other responses we can make to a 'god-of-the-gaps' objection? Yes, I think there are two more.

First, if there is a danger in embracing a 'god-of-the-gaps' there is also a danger in embracing a 'naturalism-of-the-gaps.' **'Naturalism-of-the-gaps' is the belief that if we don't understand how something happens, we can immediately assume that 'Nature-did-it.' If 'God-did-it' is a science-stopper, than 'Nature-did-it' is a theology stopper. You never, ever have to really consider evidence**

for God because you can always insist that 'nature-did-it'. As we'll see in the second half of the talk, that kind of reasoning can be just as problematic as a 'god-of-the-gaps' reasoning.

Second, people often assume that the progress of science will only fill in gaps; it will never create new ones. But that is not true. In the twentieth century alone, science has opened up at least three enormous gaps in our understanding of the world: the origin of the universe in the finite past, the fine-tuning of the fundamental constants of physics universe, and the origin of the first life form. In all three of these examples, modern science has revealed that our previous understanding of these problems was incomplete and even hopelessly naïve. So it's simply false to say that science has consistently and inexorably closed the gaps in our understanding.

Sixth, you'll occasionally hear the claim that 'all good scientists are atheists.'

I think that most actual scientists know better than to say something like this, but it's a claim that you hear repeated quite frequently on the internet. And it's certainly true that many vocal atheists like Richard Dawkins, Lawrence Krauss or Neil Degrasse Tyson are scientists.

This fact is often troubling to many Christians, because we –rightly, I think- tend to esteem scientists. So do we respond to this claim?

First and foremost, we need to be absolutely clear that majority belief does not determine truth. Just because most people or even most intelligent people believe some proposition **absolutely does not mean that that proposition is true.** 120 years ago, most of the world's best scientists believed in the existence of luminiferous aether; does that mean that aether exists? No. In the same way, it's not enough to simply observe that many scientists are atheists. We still need to ask whether they have good reasons for their belief.

Second, expertise in science does not imply expertise in any other area, whether it's economics or philosophy or theology. This is a rule that many scientists are apt to forget. It is helpful to keep in mind the statement of the eminent physicist Richard Feynmann: **"I believe that a scientist looking at nonscientific problems is just as dumb as the next guy."** **Scientists are not oracles or wizards or high-priests.** We don't have all the answers. And when it comes to topics we haven't studied, we won't be any more reliable than a layperson although –unfortunately- we are likely to sound much more convincing.

Third, the idea that the majority of scientists are atheists is actually false. While the percentage of atheists is vastly higher among scientists than in the general public, it is still a minority. Most scientists believe either in God or in a 'higher power' of some kind. And there are a number of very prominent scientists who are evangelicals; the most well-known is probably Francis Collins who is the head of the NIH.

However, **I would strongly resist playing the 'my dad can beat up your dad' game.** It's helpful to know that there are many, many scientists who are Christians. But ultimately, the truth of Christianity or its compatibility with science doesn't depend on how many scientists are on 'our side.'

Seventh, let's look at the claim that 'evolution disproves God.'

This picture isn't really relevant to my talk, but I thought it was funny. You can see the idea that belief in evolution inevitably leads to atheism expressed in the following statements:

"Darwin made it possible to be an intellectually fulfilled atheist." – Richard Dawkins, *The Blind Watchmaker*

Dawkins, who is obviously a prominent evolutionary biologist, claims here that evolution unavoidably leads you to atheism. So is that the case?

Here we need to step back examine the claims of evolution before we return to the question of whether and how evolution is incompatible with the existence of God.

Modern evolutionary theory is based on three foundational premises: first, that species of life on Earth have changed over the course of Earth's history. Second, that all species are descended from a single life form, an idea known as universal common descent. Third, that random mutation and natural selection are the primary drivers of modern biodiversity. So which of these premises conflicts with the existence of God?

Surprisingly, the first premise is almost universally accepted, even among young-earth creationists. **No one denies that the fossil record shows that the species on earth have changed over earth's history.**

The second premise is a bit more controversial, but again, there is more agreement than you might think. For instance, creationists accept a limited form of common descent, just not universal common descent. In other words, they would place limits on the amount of change that can occur within a given population; but they would affirm that many distinct modern species shared the same common ancestor. **And at least some of those in the much-maligned intelligent design community are willing to accept universal common descent wholesale.** So they're in full agreement here with what modern evolutionary theory proposes. Not all in the ID community, but some.

So the real source of conflict is the third premise: that random mutation and natural selection are the primary drivers of all modern biodiversity. So has science demonstrated unequivocally that this third pillar of Neodarwinian synthesis is true? No. Let me give you two reasons why: one philosophical, the other scientific.

Philosophically, the crux of the debate is in what we mean by the word 'random' when we talk about random mutations. **Scientifically, this word has a very specific meaning; it contrasts Darwinian evolution to Lamarckian inheritance. A random mutation is one that occurs independent of its environment as opposed to a non-random mutation which is an adaptive response to a change in the**

environment.

This kind of randomness says nothing at all about God's existence or his interaction with the world. It merely says that mutations appear to occur at a rate and in locations that are independent of their environment. **Unfortunately, people sometimes confuse this limited sense of *randomness* meaning 'independent of the environment' with a very different sense of *randomness* in which *randomness* means 'absolutely uncaused, undirected, and unguided.'** It is this second kind of randomness which is problematic for theism, but only because it excludes God *by definition* - even God cannot cause, direct and guide an 'absolutely uncaused, undirected, unguided process.' However, this second kind of randomness is not a scientific description about an event, but a metaphysical interpretation of the event.

Once again, we do not have a conflict between science and God but between naturalism and God.

But second –even apart from philosophical considerations- this third pillar of evolutionary theory is the most difficult to prove experimentally. **Since creationists are willing to concede at least some degree of biological change within populations, certainly the types of changes we see today in the emergence of antibiotic resistance, proponents of evolution would have to show evidence that large evolutionary changes can be driven purely by random mutation and natural selection.**

Unfortunately, because macroevolution occurs on geologic timescales of millions of years and usually proceeds in small increments, this type of evidence is extremely sparse.

I think both sides of the debate would agree that evidentiary support for this third pillar, the crucial one, the main point of contention between critics and proponents of evolution, is based upon a substantial extrapolation from the current evidence at our disposal. I don't have time to delve into a discussion of related evolutionary objections to theism, things like 'evolution explains morality' or 'evolution explains religion.'

But I believe that these two objections alone are sufficient to defuse the claim that the current scientific evidence for biological evolution is incompatible with belief in God. **For both philosophical and scientific reasons, it is plausible to reject the claim that evolution demonstrates that God does not exist or that he is not the Creator of life on earth, whether through an evolutionary mechanism or not.**

Finally, let's look at these last two questions: Is there any evidence for God? And why isn't there more evidence for God? Unlike the preceding questions, which are largely rhetorical, I think these last two are often asked as genuine questions, so I want to treat them in more detail.

At the end of the last section, we asked two questions: is there any scientific evidence for God? And why isn't there more evidence for God? Let's start with the first question. Although this is a huge topic, I want to briefly sketch a few arguments that I believe point to the existence of God.

Before I even get into those, I need to say something about the difference between proof and evidence. Atheists will often demand 'proof' that God exists, even when we're talking about scientific evidence. **However, science rarely affords 'proof' of anything; "proof" is generally relegated to the realm of mathematics.** Instead, I will be asking which worldview is more *consistent* with these observations; which worldview can offer a better *explanation* for them. **And that's what science does: it doesn't prove things. Instead, it examines the evidence and then seeks to infer the best explanation for the evidence.**

That is the question I want to consider: which worldview better explains these five pieces of evidence.

First, let's consider the mathematical structure of the universe itself.

Nobel Laureate Eugene Wigner wrote a very famous paper entitled 'The unreasonable effectiveness of mathematics in the natural sciences' in which he observes that the remarkable success of mathematics in describing the physical world is actually very surprising. **He repeatedly uses the words 'miracle' and 'miraculous' to describe this phenomenon.** After all, it is not metaphysically necessary that the universe is the way it is. We could conceive of a universe that was wholly chaotic, described by no underlying mathematics at all. We could conceive of a universe that was just partially chaotic, with temporal and spatial regularity sporadically interrupted by chaos. Perhaps the laws of nature in one laboratory are different than in another laboratory. Perhaps the laws of nature on one planet are different than what they are on another planet. **But instead, we observe a universe with a deep and beautiful underlying mathematical structure.** But in addition to the mathematical structure of the universe, there is another surprising observation: that **we are able to perceive and understand this structure.** This fact is also quite surprising. After all, while one might argue that evolution could select for enough intelligence to escape sabertooth tigers or to avoid falling off cliffs, why exactly are human beings –and human beings alone- able to comprehend quantum mechanics or string theory? Surely, that doesn't confer any reproductive benefit. **Why should we expect human beings to understand science any better than chimpanzees and dolphins do? As Einstein said: 'the most incomprehensible thing about the universe is that it is comprehensible.'**

So we have a conjunction of two very surprising phenomena: a deep, beautiful mathematical structure that pervades the entire universe and the remarkable ability of human beings -alone, uniquely- to comprehend this beauty. What explains this conjunction? It is hard to explain why

either of these two phenomena would exist in a purely naturalistic universe. But both phenomena fit quite naturally into a universe created by an infinitely wise God who created human beings in the divine image to perceive and appreciate the world He had created.

Second, the vast majority of modern astronomers now believe that the universe is not eternal; instead, it had a beginning about 14.3 billion years ago in an event known as the Big Bang. **What most people aren't aware of was that this model was resisted for decades because it contradicted the prevalent belief of physicists that the universe was eternal (which went back at least as far as the ancient Greeks).**

Indeed, as recently as 1989, the editor of Nature magazine –one of the most prestigious scientific journals in the world- wrote that the Big Bang is 'philosophically unacceptable' and that 'Creationists and those of similar persuasions seeking support for their opinions have ample justification in the doctrine of the Big Bang.' And you can see why the Big Bang was problematic to naturalists. If the universe was eternal, then there was no need for it to have a cause.

But if the universe began to exist, wouldn't something or someone have to have caused it to come into being? And if the all of time, space, matter and energy came into being at the Big Bang, then wouldn't the cause of the Big Bang have to be immaterial, outside of time, and outside of Nature? While this observation doesn't prove that the cause of the universe had to be God, it certainly seems to be suggestive.

But not only has the origin of the universe furnished suggestive evidence for theism, but the recently discovered fine-tuning of the universe has provided even more suggestive evidence.

The standard model of physics is our best working model describing the interaction of fundamental forces and subatomic particles. However, this model includes a number of independent parameters - like the ratio of the gravitational force to the strong force or the cosmological constant- that must be obtained from experiment. Right now, they cannot be obtained from other more fundamental equations; they are simply inputs to the model.

What physicists have recently discovered is that a number of these constants appear to have been exquisitely finely-tuned to allow for the existence of intelligent life in the universe. If some of these constants had been changed even a fraction of a percent, life would be impossible.

The most dramatic example of fine tuning is found in the cosmological constant, which is finely tuned to one part in 10^{120} , which is 1 part in 1 trillion trillion trillion trillion trillion trillion trillion trillion trillion

This is just one example of fine tuning among the fundamental constants and parameters that determine our universe, which is why it is widely recognized by both Christian and non-Christian physicists to be a real phenomenon.

So what is the most popular non-theistic explanation for fine tuning? Currently, many atheists posit the existence of an infinite number of undetectable parallel universes. In each of these parallel universes, the fundamental constants are all slightly different. As a result of this variation, every possible value is sampled somewhere in the infinite multiverse; we just happen to be the universe that got lucky. Now there are physical objections to this explanation, but right now, I want to focus on just one practical objection. Many atheists say: "I could never believe in God; it takes too much faith." **But surely, it takes at least a little faith to believe that there exist an infinite number of undetectable parallel universes, right?** After all, if an infinite multiverse does exist, then there are actual universes out there in which pink unicorns exist. **There is some universe out there composed entirely of Gorgonzola cheese. If God's existence seems implausible to you, surely these ideas are at least as implausible!**

Fourth, I can't resist saying a brief word about quantum mechanics since it is my professional area of expertise. Although necessarily provide reasons to believe that God exists, it does seem to have some very important implications for naturalism.

Let me list two well-accepted features of quantum mechanics that are surprisingly not well-known to most non-physicists. First, quantum mechanics makes it extremely hard to identify inviolable 'laws of nature.' According to quantum mechanics, while events may be extremely improbable, very few events can be ruled out as absolutely 'impossible.'

For instance, when physicist Alvaro de Rujula was asked whether the LHC, a particle supercollider, has the potential to destroy the world, he replied: 'the random nature of quantum physics means that there is always a minuscule, but nonzero, chance of anything occurring, including that the new collider could spit out man-eating dragons.' (Dennis Overbye, "Gauging a Collider's Odds of Creating a Black Hole", NYTimes, 4/15/08) No he was making a joke, but he was also technically exactly correct. Almost anything is technically possible under quantum mechanics. As a result 'miracles' can no longer be dismissed as 'impossible.' And if God decided to intervene in the universe, he could do so without 'violating' any of the natural laws he created.

Second, quantum mechanics dictates that there are some entities that will never be accessible to observation. In contrast to a Newtonian universe in which every entity can theoretically be measured, quantum mechanics presents us with a universe in which the most basic description of reality, the wavefunction, cannot be measured even in principle. This idea may be a bitter pill to swallow for many proponents of scientism and perhaps even naturalism, because it implies that there are hidden,

unknowable entities that are fundamentally inaccessible to science.

Finally, although I can't go into detail, **many of the founders of quantum mechanics, such as Nobel laureate Eugene Wigner and John von Neumann, held that quantum mechanics demonstrates that consciousness plays a role in the universe distinct and different from matter.** Now their view is only one interpretation and is not held by all modern physicists, but it remains popular. I think that a conservative assessment would affirm that quantum mechanics makes the possibility of mind-body dualism far more plausible than it would have been on a Newtonian view of physics.

So while quantum mechanics doesn't provide direct evidence for God's existence, I think it does challenge naturalistic ideas about reality in at least three areas: the possibility of the miraculous, the fact that not all entities are accessible to science or observation, and the possibility that mind is distinct from matter.

Finally, I want to ask what the search for truth itself can tell us about God's existence.

One prerequisite for the entire scientific enterprise seems to be the assumption that truth is intrinsically good and that we ought to seek it. If truth is not intrinsically good, then why seek the truth at all, either through science or some other means? Any worldview which cannot explain why we ought to seek the truth is going to undercut the very foundations of the scientific enterprise. So let's ask the question: is truth intrinsically good and should we seek to know the truth?

The difficulty arises when we try to explain why truth-seeking is intrinsically good and morally obligatory if naturalism is true, if Nature is all that exists.

Most naturalistic theories of morality tend to equate ultimate value and moral goodness with human flourishing. So if we wanted to try to explain why truth is good on naturalism, we could say something like 'Truth is good because it promotes human flourishing. Scientific truth enables us to cure diseases and feed the hungry. That is what makes it good.' Unfortunately, this approach doesn't work in this case because it makes truth an *instrumental good* not an *intrinsic good*. What do I mean? An *intrinsic good* is something that is an end unto itself. It is good because of what it is. An *instrumental good* is a means to an end. It is good only insofar as it leads to some other, ultimate good. So why does it matter that naturalism makes truth an *instrumental good* rather than an *intrinsic good*? It matters because truth-seeking and human flourishing are often in deep conflict.

For instance, let's say you are an atheist and **your Christian grandmother is dying**; her only comfort is that she believes that she will soon be in the presence of Jesus. She says 'I'm sad that I'm dying, but I'm so happy that I'll soon be face to face with Jesus, that I'll be reunited with my husband and my little son who died when he was young.' Do you urge her to seek the truth? No, because it will diminish her flourishing. **Or perhaps atheists like Bertrand Russell and Jean-Paul Sartre are right in their**

assessment that atheism is a terrible, miserable, agonizing truth. So what if it turned out factually that most people would be happier believing religious delusions rather than believing the truth of atheism? In that case, a commitment to human flourishing as the ultimate good would require us to *promote* religious beliefs, even if they are obviously false, because we're ultimately committed to human flourishing, not to truth.

So it doesn't seem that naturalism can furnish us with any reason to think that truth is intrinsically good or that truth-seeking is morally obligatory. And that inability tends to undercut the entire scientific enterprise.

So can any worldview explain why truth is intrinsically valuable and why truth-seeking is morally obligatory? Yes.

If a truth-loving God exists and commands us to seek the truth, then we can explain why truth-seeking is good and obligatory.

We can even resolve the tension between truth-seeking and human flourishing because –if Christianity is true- then the truth will ultimately lead to our eternal flourishing. Jesus Christ claimed that he himself was 'the way, the truth, and the life' and said: "You will know the truth and it will set you free." So no matter what hardships or difficulties or miseries attend truth-seeking here, there will be no ultimate conflict between the truth and our joy.

So we have a very odd paradox. Atheists, who tend to rightly value truth very highly, have no way to explain why it is valuable. This inability also calls into question the entire scientific enterprise, which is founded on the *assumption* that truth is a good thing. **Moreover, if an atheist approaches a Christian and says 'You ought to abandon Christianity and seek the truth of atheism,' I think that the Christian is well within his rights to ask "Why? If you are right and atheism is true, why should I seek to know the truth? Is truth intrinsically good? Am I obligated to seek it?"** On the other hand, Christians can always urge everyone to seek the truth because the truth is intrinsically good, because God commands us to seek it. So Christianity provides a foundation for truth-seeking and for the entire scientific enterprise not available to atheists.

Thus far, I hope I've demonstrated why there is no inherent conflict between science and religion. I've also suggested several ways in which science can point us towards belief in God rather than away from Him. But let's now address the final question: why isn't there more evidence for God?

Even if we think that there is very good scientific evidence that God exists (as I do), why isn't the scientific evidence for God's existence absolutely undeniable?

First, remember that science is not the only means to truth. So it seems foolish to demand that definitive evidence for God's existence *must* be available through scientific arguments rather than

through ethical or aesthetic or existential arguments. Indeed, it seems to me that there are many reasons to expect that God would *not* use science as the primary means in which He reveals Himself.

For instance, **at what level of scientific progress should God's existence become clear?** Given that modern science did not even exist until the 18th century, are we really suggesting that God should have left himself without a witness to humanity for millennia? That can't be right. And what about differences in scientific ability? Should God be accessible only to the elite few who have mastered molecular biology or quantum mechanics? Does God desire to be comprehensible only to people with PhDs or to all people? And what about all of the cultures today who have limited appreciation for science, who value art or tradition or experience over scientific knowledge? We may despise them as primitive and backwards, but God doesn't. If God desires to reach them, would he really limit his revelation only to science?

"Ok," a skeptic might say. "Perhaps God has reasons to reveal himself through more than just science. But that's still unfair. **He still ought to give us more evidence.** If God is omnipotent, he can do anything he wants. Why not write John 3:16 in mile-high letters on the moon that everyone can see, in every language in the world? Why not rearrange the stars in the Big Dipper to spell out 'God exists'? Why not teleport copies of the KJV Bible into the nightstand of every hotel room? (I guess the Gideon's beat him to it) Why doesn't God just do some unmistakable sign from heaven so that we know he exists?"

Here, we need to take a harder look at the biblical doctrine of sin. Believe it or not, your intellectual objections and mine are not the ultimate reason for our unbelief. They just aren't. How can I convince you of that? Let's try a thought experiment. **Imagine that when you go home tonight, you ask Jesus if he is God.** So Jesus appears to you in your room in all of His glory in some undeniable way. He does miracles. He makes your laptop levitate. He shows you the nail prints in his hands. There is no doubt in your mind that He exists, that He is God, that He died on the cross, and that He rose from the dead. **Now let's not ask whether you believe he exists; we've assumed for the moment that that question has been settled.**

The question I want to ask is: **how do you feel about Him?** What if he says to you: "I want you to go to all of your friends and family tomorrow and tell them that you have seen me and that they have to repent and believe the good news so that they can be saved from hell and reconciled to me"? What if he says "As a Christian, you need to submit every part of your life to me: your career goals, sex, your friendships, how you spend your money, how you spend your time, what you do for entertainment. If I tell you to leave your job and go start an orphanage in India, you must go. I am more important than your family, your friends, even your own life. You have to lay it all down before me"?

Tell me honestly: doesn't that make you feel a little uncomfortable? I'll be honest, it makes me feel uncomfortable. Why? Because we're all sinners. There's a part of all of us that doesn't really *want* God to exist because we want to be in control of our own lives, to call our own shots, to decide what is good and bad for us, to answer to no one but ourselves.

What we're really saying is that there's a part of us that wants to be our own God. But if that's the case, then don't you see that evidence isn't really the issue? If we had all the evidence we needed to fully convince us intellectually, there would still be a heart problem that God needs to overcome.

So why blame God for not providing enough evidence when more evidence is not what we really need?

Finally, let me offer some practical suggestions for having conversations about these tough questions with non-Christians.

First, we need to approach these conversations with humility.

- 1) Admit your ignorance
- 2) Expect to learn
- 3) Don't be afraid to say "I don't know"

Second, credibility

- 1) Never use arguments you know are false
- 2) Never bluff
- 3) Don't bring a knife to a gun fight

Third, gospel centeredness

- 1) Defeat defeaters
- 2) God known through revelation, not education
- 3) God known through Jesus
- 4) God known through grace