

John Dickson: Hey, John Dixon here. In July, I was back home in Australia and the team and I did a few live podcast events just for fun. We've got one of those live events for you this week. We recorded it in Brisbane and it was so fun to see hundreds of our listeners in person. Part of the night included a Q and A session with our guests.

If you're a plus subscriber, you'll be able to hear that in this episode. If you're not. Head to inceptions.com/plus to sign up and you'll get the whole thing Special thanks. As usual, to our series sponsor Zondervan Academic, we wouldn't be able to do these events without their help. Head to zondervanacademic.com/undeceptions to get special offers on their master lecture courses with some of the greatest theological minds in the world today.

There's also sample chapters of heaps of the books that we talk about on the podcast on with the show.

It never gets old. Though I'm showing my age, I guess, for those young ones. That's Wile E. Coyote from the classic Roadrunner cartoons. And, indeed, that particular scene never gets old. Like the beep watching him run off the edge of the cliff hover in space Frozen in motion and then he gets his puzzled look on his face as he realizes there is no ground beneath the feet and suddenly he falls.

According to theoretical physicist and best selling author, Sean Carroll, we are all wily coyote. For most of human history, he says, we have believed Some meaning out there somewhere is waiting to be discovered and acknowledged. And this sense of transcendence, he adds, served as the ground beneath our feet.

But then, science, science revealed to us, there is no metaphysical stuff, there is just physical stuff. To imagine otherwise is to hover in space, in your ignorance, maybe destined to fall. According to his 2016 book, *The Big Picture*, Carroll says we've got to let go of the imaginary transcendence and build ourselves a kind of Jet pack, a scientific way to lift ourselves and become fulfilled human beings.

[00:03:38] After all, if nature is all there is, science is the only way to know all the important thing this. is naturalism. But is it correct? Or is naturalism itself the

product of philosophy more than science? Um, our guests today quibble with Carol's account of things. Indeed, our first guest tonight points out that this dismissal of transcendence, this hard distinction between an imaginary supernatural realm and the truly real natural realm is relatively new, historically conditioned, and probably unnecessary.

Are there better ways to think about our intelligible universe? I'm John Dixon and this is Under Deceptions.

Each episode at interceptions, we explore some aspect of life, faith, history, science, culture, or ethics. That's either much misunderstood or mostly forgotten. And with the help of people who know what they're talking about, we are trying to undeceive ourselves and let the truth out.

Dakota Love, our cellist. And as you'll hear tonight, our voice actor. Well, Peter Harrison is professor emeritus of history and philosophy at the university. And a professorial fellow at the University of Notre Dame, though now I live in the U. S. where we say Notre Dame. He was the Andreas Idris Professor of Science and Religion at Oxford University for five years.

[00:05:54] Peter has written highly influential works on religion and science and is widely regarded as one of the most important researchers on the origins of science. His name has come up many, many times in our podcast. We are often saying Peter Harrison says, Peter Harrison says. So I am delighted to be here.

to welcome him onto this stage tonight. Will you please welcome Peter Harrison.

Peter, uh, thank you so much. I mean, I wasn't exaggerating when I, when I said we have mentioned you. I didn't, I'm going to go out and say 50 times on the Underceptions podcast. Uh, so great to have you. Oh, it's a pleasure, John, to be talking with you again. When I first met you, you were the, uh, professor of science religion at Oxford University.

In this day and age, some people would be puzzled that there is such a thing. I mean, science and religion, really? Come on. So can you just give us a brief account

of what's going on in a chair like that? What is the intellectual environment that allows such a thing?

Peter Harrison: Yeah, well, it's a good question and I think, um, a chair in science and religion can do a number of different things.

Um, I think the initial, um, impetus for the chair was simply the fact that, um, science seems to raise questions for traditional religious belief. And the question then is, um, Are they compatible? Or are science and religion relatively independent of each other? Or are they, as is often said to be the case, in some form of unremitting conflict?

So that was part of the, the, the logic behind the chair. It's interesting that the first two occupants, um, John Brook was the first professor, I was the second. Both historians, and historians have a particular take on this, which is, as I think you know, um, you know, It's not conflict, and it's not, uh, all harmony, but it's a pretty complicated picture.

But my personal interests in that chair have been about the, the, to, to explore the religious origins of our present scientific culture. Am I right that they've put a theologian in there now? A scientist and theologian. Um, well, uh, Alistair McGrath was the third one, who's of course a theologian now, um, uh, Mark Harris, who's a scientist, um, um, physicist, um, but obviously with some theological chops.

John Dickson: Yeah. Um, one of your key insights over the years is that, The science developed in the hands of people who were really quite serious Christians, but more than that, more than that, just that historical coincidence of there being a lot of Christians in the 17th century and science only enough more than that, um, that in some way their Christianity inspired their search of the, of the natural world.

Can you give us the, um, I won't say readers digest version. Can you give us a, the brief account? Um, of, of that idea.

Peter Harrison: Yeah, sure. I mean, at, at, at one level, as you say, it's, it's quite, it's no great surprise that this culture is a Christian culture. And, and I think science doesn't come from Mars, it comes from within the, that cultural context.

Um, but there's a number of ways, I think, in which we can think about how Christian, say, convictions operate. And, and they operate at the level of the motivations of the people. Some individual scientists who are quite explicit about this, you know, Kepler, Robert Boyle, to some extent Isaac Newton would be quite explicit.

They're motivated by their religious convictions. This is partly a sort of Protestant conception of, you know, Vocation, the idea that science is, is a genuinely religious vocation. Robert Boyle talked about priests of nature, for example. So, so motivations is one, but there are also key underlying presuppositions about how the world operates that are important for them.

And the one in the 17th century that comes to the fore is the conception of laws of nature, which they conceptualize as divine, Edicts kind of stamped on the natural order and this was quite a new concept at the time So so there's personal motivations that these presuppositions And there's also the the kind of theological for a lot of these thinkers that the the theological spinoffs which were The idea that by the study of nature, you could discern certain things about how, how God operated in the world, God's wisdom and goodness and so on.

Um, and I would even argue the methods of science are informed by particular aspects of, of, um, of, uh, theological thinking as well. I'm going to ask you about That's a complicated story. Well, get

John Dickson: ready because

Peter Harrison: I'm going to ask you

John Dickson: that complicated story in a moment. Oh, okay. Right. But, um, Dakota has, uh, some readings for us from, uh, some of these scientists you just mentioned who thought exactly this way.

Okay.

Dakotah Love (Voice Actor): I wished to be a theologian. For a long time I was troubled, but now I see how God is also praised through my work in astronomy. Johannes Kepler, 1571 1630 Discovering, to others, the perfections of God displayed in the creatures is a more acceptable act of religion than the burning of sacrifices or perfumes upon his altars.

Robert Boyle, 1627 1691.

John Dickson: I mean, these are two huge names at the foundations of science, um, and it's almost like they saw their science as an act of worship. Is that going too far or did they see

Peter Harrison: it that way? Well, Boyle says it explicitly, right? It's, it's an act of worship. And, um, so I think these guys, interesting, you're both Protestants.

And as I said, there's this conception that with the Protestant Reformation, you get a breakdown of the notion of the priestly class is a kind of separate, sort of higher religious status than Protestant. Um, and, and for, for Protestants, you know, Luther has this notion of essentially we're all priest at some kind of level.

And Boyle picks up on that explicitly and talks about there being priest of nature. Um, Boyle, a key figure in the foundations of Experimental science, um, and Kepler of course, a key figure in, uh, Kepler's the guy who comes up with the three laws of planetary motion, um, I won't, I won't test you about what those three laws are, I'm sure you all know.

Um, But, and, and Newton is the guy who actually unifies these three laws with this, with, with his, his law of universal gravitation, and, and Newton, of course, another guy who talks about natural philosophy or science is really, you can't do it without God, says, says, says Newton. So, um, yeah, so it's, it's not, it's not too big a stretch for these to, to say that these guys think of the pursuit of natural philosophy, as they called it, as something that's intrinsically religious, yeah.

Yeah. Yeah. Uh, we love

John Dickson: Augustine in, uh, inceptions. Um, you could almost say he's the patron saint of under deceptions, or, or maybe he's a bingo word at least. Okay. Right. He, he comes up a lot. Um, and I, I wanna ask you about the way his thinking, or at least the development of his thinking about the limitations of the human mind, um, influenced the rise of science.

You hinted at a moment ago that it's a complex one. But you've been doing this for many years, so can you give us

Peter Harrison: the simple one? So as I said earlier, if we think about the ways in which religious notions or practices influence science, there's motivations and there's the payoffs, there's the presuppositions like laws of nature.

I think the methods are also informed as well. To cut a long story short, Aristotle was the Greek philosopher whose conception of how we should study nature, it persisted for thousands of years. It was taught in the universities as the way to go. And the scientific revolution of the 17th century essentially overturns The Aristotelian approach to the natural world.

And one of the ways it does this is that for Aristotle, Aristotle believed that essentially, our, uh, we're naturally attuned to how the world operates, and more or less, our uncritical observations of nature, we can just draw generalizations from them. And so things that are moving along will eventually come to rest, okay?

Um, what happens when you, People, the Protestant Reformers revive an Augustinian conception of human nature that really stresses its fallenness. And what that says is actually human minds were once naturally attuned to study the natural, but in their fallen condition they're not. Now how then do you bridge the gap between the cognitive, the sort of deficits of a fallen human mind and a natural world that's quite difficult, a fallen world as well, that's difficult to interpret.

Well, instead of having, as Aristotle thought, pretty smart people just thinking about generalizations from simple observations, what you need is, you need repeated

observations. Under experimental conditions, you need multiple generations of people accumulating knowledge. You need to investigate the world aggressively.

You can't simply take it at face value because not only are human minds fallen, but the world had fallen away from its original perfection. So you put all of those things together and you get a religious motivation for a new experimental approach to the natural world that involves You know, lots of people doing lots of work, cumulatively working over time, coming up with probabilistic scenarios, there's no absolute certainty involved.

So you've got this very kind of modest approach, certainly at the time, um, and this was conceived as a much more modest operation than the Aristotelian approach that was very optimistic about what we could know about the world.

John Dickson: Yes, I mean, in a way, um, you're saying. That overconfidence in our That we have a Logos that is a perfect match with the Logos imprinted in creation is a hindrance to science I mean it can it can send you out exploring and speculating Yeah, but until you think I could really be wrong about a lot of stuff Yeah, which is what the Augustinian revolution gives us. Yeah,

Peter Harrison: you're kind of stuck.

Yeah truth I mean again, it's complicated because because For someone like Kepler, and indeed for Galileo, and you know, these are obviously important figures, insofar as human beings had a capacity to grasp mathematical truths, and they believed that God had kind of stamped mathematical laws on the natural world, they argued that we can't be wrong about certain mathematical claims.

So there was a, this, this tension you see in the development of philosophy generally between people who focus on observation, empiricists. People who focus on reason, rationality, mathematics. And so there is this tension, I think, within the scientific tradition about mathematical certainty that we seem to be able to grasp and the messiness which always has this level of probability and uncertainty.

And Undeception's

John Dickson: listeners will know that actually Confessions perfectly exemplify this love of the rationality, but this worry that we're fallen at the same time. Um, anyway, um, you, you have said, I hope I'm quoting you correctly. Um, Christianity gave rise to the impetus of science, but eventually science.

Shed its training wheels and continues on. Are you saying Christianity helped science in the infancy but, you know, now we're grown up we don't need it? Or you're saying something else?

Peter Harrison: Well, so as a matter of fact, you know, if you look at how science faculties operate, they don't have a deep theological set of commitments.

It's not the 17th century anymore, so it seems to work. So that, I think we just take that as a, as a, as a fact. Now, there is a question, what I think is interesting about the, um, The Wiley Coyote scenario is whether, whether, at what kind of level it's operating and whether it does actually need. a set of metaphysical commitments underneath it as it had in its origins.

But, but, you know, a lot happened between now and the 19th century to, to help us, well, for science essentially to establish its own ground rules and independence. And the question is, I think, whether, whether the ground rules that science operates on, how it, we'd say, Technically, how, how it becomes, how it's legitimate in our society, um, whether those questions of how it's legitimate still require some form of metaphysical or even theological underpinning, or whether it's just.

It's off the edge of the cliff. Yeah. Um,

John Dickson: I mean, scientists, many scientists would say, uh, it just works and that's its ground.

Peter Harrison: Yeah. Oh, and that's fair. You know, fair enough. I think, but the, but the question of why it works, I think is, is, is the interesting question. And we go back to Sean Carroll, who you put up there, you know, Sean Carroll will say, well, nature is all there is.

And once we, all we need is laws of nature, um, and we can explain everything that's going on. But of course, the deeper question is. Well, where do these laws of nature come from? Why, why would we have confidence that there are laws of nature that we can, we can, uh, sort of intuit what their content, um, why is nature intelligible at all?

And these are philosophical questions or metaphysical questions or even theological questions. And for the 17th century, um, Where we, where we see the origin of this very conception of laws of nature, you can see it's very clearly theological. From Descartes, who's the guy who really comes up with this idea of laws of nature as God sort of stamping his causal efficacy on the world, all the way through to the 19th century where we see this change in laws of nature.

That theological underpinning drops out and they just become laws of nature. Nature the natural world not laws that God has imposed on nature.

John Dickson: Yeah Science makes practical sense to everyone but it makes practical and Philosophical sense within that Christian framework of the 17th century.

Peter Harrison: Yeah, that's right I mean look the other thing I'd say is that the fact that And this is my personal view.

The fact that, the fact that science works doesn't justify any of the claims it makes about reality, because science has always worked, from the ancient Greeks on, positing very different kinds of mechanisms going on in the background. And that's why I think this hidden, sorry, the unseen versus the seen, all sorts of unseen things can account for what we see, and the fact that science works doesn't necessarily justify any particular claim.

John Dickson: It's time to bring on our next guest. Um, Dr. Sarah Sweet is an astrophysicist from the University of Queensland, where her research, uh, looks into the formation and evolution of galaxies, which makes my area of ancient history feel like home. Pop music or something And then dr. Luke Barnes is an astronomer

and cosmologist from the University of Western Sydney And we won't be asking him about last night's game.

He's the co author of a fortunate universe He's often been my cosmological phone a friend on the underceptions show. So it's a delight to welcome Luke and Sarah on to the Underceptions stage today,

uh, as we get settled. Um, I wanted to mention that all three of our guests, uh, this evening are fellows of Iskast is a fabulous organization that promotes healthy relationships between, uh, classical Christianity and, uh, contemporary science. And no, they are not sponsors of tonight in any way. Uh, Undersubstance just loves you.

Iskast, and I thought given that these three have been involved, we should say if you got questions about the intersection of faith and science, Iskast is a treasure trove. of interesting stuff. And before I actually ask Luke and Sarah about their, uh, their background and so on, um, we have another quotation from Sean Carroll, the American theoretical physicist, you've already heard a couple of times tonight.

Thank you, Dakota.

Dakotah Love (Voice Actor): There is only one world. The natural world, exhibiting patterns of what we call the laws of nature and which is discoverable by the methods of the sciences and empirical investigation. There is no separate realm of the supernatural, spiritual, or divine, nor is there any cosmic teleology or transcendent purpose inherent in the nature of the universe or in human life.

John Dickson: Luke, um, what do you make of that account of things? There's no teleology, no purpose, no transcendence. There's just physical stuff. You

Luke Barnes: like physical stuff. I'm a big fan of physical stuff, actually. I'm made of it. What I like about that quote is that it nicely separates It nicely separates between what he's committed to and the assumption at the bottom.

So the difference between what we believe as people who believe in God and the naturalists is not that they have their explanation of the universe and we have ours,

is that They don't have a deeper explanation of the universe and we have a deeper explanation of the universe. It's not A versus B, it's, if anything, the problem we have as theists is we went one step too far in trying to explain too much.

So it's often this sort of, does God explain the universe or does science explain the universe? That's not the right line and it's very clear there, right? It's, it's not that they have a separate explanation, a deeper explanation, it's that they think we've gone too far. Yeah.

John Dickson: Yeah. So it's that point Peter mentioned a moment ago about, you know, science making practical sense and then, uh, it can also make philosophical sense, but, um, Carol obviously doesn't like the philosophizing around it.

Um, Sarah, uh, what are the laws of nature that we've already heard about? And in particular, um, in, in connection with what you study, what are, what are some, some Excellent laws of nature that you need to know in order to do your astrophysic thing.

Sarah Sweet: Astrophysic thing. I love it. Um, so I, I study galaxies. Um, you might know a galaxy is, um, made up of stars and gas and this other mysterious stuff we like to call dark matter.

If you go out in the night sky, look up at the Milky Way, you see this big band of stars on clear night. Um, that's our own Milky Way galaxy seen edge on. And I study galaxies like our own, Um, outside our galaxy. And I look at, um, how they rotate, what they're made of, and, and how this relates to how they look and how they change over time.

And so these things are all bound up in different laws of nature, getting back to your question. Um, things like the law of gravity. Um, which is something that we actually don't understand very much about. So on small scales, we know, um, we, we talk about Newton's laws, um, how things move. And we understand this, um, very well in like in our own backyard on solar system scales.

But then, um, where, um, it starts breaking down as near a black hole or near a galaxy cluster and you need other laws, like you need general relativity. And then on the other end of the scale where gravity gets really weak. Um, you need something else to explain, like at the edges of galaxies, why they rotate really fast compared to just the matter that we see, um, in them.

And so this is what we, we might say, well, this is dark matter, or we might say that maybe Newton's laws, um, just need tweaking a little bit. So depending on which explanation you like. Um, so that's probably one of my favourite laws, also the laws of thermodynamics. Things, hot things get cold, messy things, clean things get messy, um, we might talk about that later too.

You've been to my house, yeah.

John Dickson: Um, can I ask both of you just briefly, do you find yourself in your work stopping and doing some of that philosophizing that, that, that Carol isn't, isn't a fan of? That, that, that sneaky teleology and, and so on, uh, or, or do you sort of live a bifurcated life? Yeah. Yeah. Yeah.

You're a scientist and then you go home and you, you think profound thoughts.

Sarah Sweet: Hopefully, um, some of the science is profound too. the key defining moments in, um, What I get to do, I was at Siding Spring Observatory last week, um, trying to use a telescope to look at the night sky. Look at many, um, hundreds of galaxies. They're trying to because the weather wasn't great, but we did have one night.

And I went out onto the catwalk of the Anglo Australian telescope and, um, looked up at the night sky and just felt such a sense of awe and wonder at, um, God's marvelous creation. And that he's put there, um, So that we would have somewhere to, to live and to experience him and to, um, show us his glory and show us how much he cares about us.

John Dickson: Luke, you do less walking on telescopes and more sort of looking at numbers. No one lets me anywhere near the telescopes.

Luke Barnes: That's wise. It's the same question. We have our weekly astronomy meeting, the astronomers at Western Sydney University, and where we go through some of the things that have been in the news, and there's different types of stories that turn up in the news, you know, Einstein's wrong again, and Voyager has left the solar system again, and, but there's always a category of pretty pictures and it never gets old, like here's the best picture we've taken this week, or just today of the universe, and you put it on screen and people who have been looking at the universe for their whole careers still stop, uh, just to look at it.

John Dickson: Peter, um, to go back to Sean Carroll, who's made such a fine statement of his vision of things. Um, there's distinction between the natural world and the supernatural world. Seems to be core to where he's going there. Um, can you tell us something of the history of this very idea? That, that, I think most people assume, you know, even those who don't believe in a supernatural world think that there are people who think in natural world and the supernatural world. Where did the idea come from? Uh, and are there more fruitful

Peter Harrison: ideas than this? Yeah, uh, good, good question. Now, I've just written a book on this, so, so, uh, so if you give me an hour, if you give me an hour, if you give me an hour or two, I'll, I'll run you through it. Yeah, so, look, like so many of the concepts we operate with, we, we often think the, the, you know, like religion and belief and natural and supernatural.

We, we tend to think these, everyone has always believed along these lines and they understand the world in those terms. Yeah. In the case of the supernatural, what, what, what we know is that what the anthropologists tell us is that you don't actually find this distinction in, in other, in non Western cultures.

You don't see it there at all. Now you might think it's always been there in the West and the standard view was it's, you know, it's when the ancient Greek philosophers started to come up with proper explanations for things rather than religious things. And that, that, that story's completely wrong. Um, so here's, here's a marker.

If you, if you look through, The texts from, you know, from the, in the, in Europe, from the ancient Greeks to now, there's no terminology of supernatural. Until about the 13th century. So people are operating without a natural, supernatural distinction, um, for thousands of years of our, you know, the intellectual tradition with which we're familiar.

So this means that Christianity, for example, went from millennium without a conception that we would Typically, in our regard, it's kind of fundamental to what it is as a religion, the distinction between the natural and supernatural. So, so people aren't working, aren't thinking along these lines, and when the terminology first comes into existence, they're still not thinking in terms of a disjunction between some things are natural and some things are supernatural.

Some beings are, there's a supernatural realm of beings out there that's different from ours. Um, The, the, the, the final version of our distinction that makes naturalism possible. That is to say a naturalism that's opposed to supernaturalism is really a 19th century invention. Um, and that's when people first start to talk about scientific naturalism as something that excludes what is now a supernatural, which is a completely different realm.

But if we take the people that I'm familiar, most familiar with, which is our 17th century. Natural philosophers, you know, Descartes, Galileo, Boyle, Newton, Kepler. Um, from Descartes on, the idea is that everything that's going on in the world is absolutely supernatural, as it, as it were. So that when, when any, whenever anything moves, or any motion in the world is directly caused by God, Descartes tells us.

And this view is taken up by the scientific community And that's where this notion of laws of nature comes in. That all emotion we see in the world is God directly making it happen, uh, according to particular rational mathematical lines that he has conceptualized. Um, and so the whole, the whole, the whole operations of the natural world are in fact supernatural.

And that they will say this explicitly, you know, the course of nature is nothing but God. Constantly acting on stuff, right? That's how it works. Now. This was a change

from the medieval period But it's it's it's kind of a fateful move because it's susceptible to a hostile takeover and what happened in the 19th century is That hostile takeover happened, and the naturalists planted their flag on that and said, we'll have it, and we're gonna call this naturalism, right?

So there's a single level of causal activity, but it's now re described as naturalistic. And there's a long story about how it happened, but it was a terrific. A terrific, well I wouldn't say propaganda job, but it was a, it's a, it's a very interesting process by, whereby a series of naturalists were able to wrest this conception of a supernaturally operating world away from, you know, the standard scientific community, uh, and re describe all of this as naturalism.

And that's when you get the Sean Carroll saying, well this is all there is, there's just this realm of laws of nature. Now the guys in the 17th century would have agreed with him completely. But they placed that under a completely different description, which is which is it's a supernaturalism in a way. It's it's theism It's God doing all the stuff.

Peter Harrison: And so as I say naturalism then is really this re-described Supernaturalism and I say it's like Captain Cook sticking his flag in Australia saying This is, this is, this belongs to us now, right? It doesn't belong to you guys anymore. Uh, but the same reality underlies this, under a different description.

John Dickson: you talk, it sounds to me more like kids in a classroom. You know, one says, it's all supernatural! And the other goes, no it's not, it's all natural. So, so they're actually claiming the same territory, just Under their banner. Yeah, do you guys find this in your? Professional life in your work life. Do you find there are people who?

Poo poo the supernatural and you know, thank God or the lucky stars that that we're the scientists who just do the natural stuff

Luke Barnes: Yeah, I find that well, the first thing is a practicing scientist You have a lot of colleagues who don't share those Underlying assumptions and you do

science with them just fine And so there is a level at which you have to sort of Explain that fact, right?

So at some level, we are both doing science just fine, even though we have a very different idea about what, what it is that we're doing. But you do get, yes, the, there's, there's still that stereotype of the scientists can't have anything to do with. With religion or any of that stuff. I have a friend who did a degree in chemistry who was told, Wait a minute, you don't exist, when she informed them that she believed in God.

So, um, it's a heck of a claim to make about somebody. But yeah.

John Dickson: Sarah, the same? I saw you vigorously nodding.

Sarah Sweet: Yes, I find quite a range of approaches. I mean, I think most people that I work with are fairly accepting that we can hold Whatever beliefs outside of science, science doesn't describe everything, um, that's that there is worth knowing, um, but there are some who, um, do subscribe to that, um, that view that, that of naturalism that, um, you know, we're grown ups now, we don't, don't need any of that God stuff.

John Dickson: Well, if you'll excuse me, let's press pause. I've got a five minute Jesus for you.

The miracles of Jesus pose a real problem for the historian. Uh, if they were marginal to the story of Jesus, perhaps only found in one source that was a late source, like, say, just John's Gospel, historians would have no problem just sidelining them as late accretions to the story of Jesus. The problem is There is a surprising range of sources that refer to Jesus miracles across the sources recognized by mainstream scholars as, in a sense, independent of each other.

One or two of them from the pens of those who believe. Everywhere you turn in the story of Jesus, there are these things moderns call miracles. And the problem just becomes more intense when we compare Jesus with our closest ancient parallel miracle worker, Apollonius of Tyana. He is a neo Pythagorean philosopher who's

Biography says that he went around doing things that actually look a little bit like what Jesus did in the Gospels.

But, there is just one source for the miracle working of Apollonius. Just one. And it was written 120 years after Apollonius died. Jesus has, in the mainstream view, eight separate sources. Three of which come within 20 years of Jesus. Another five within 60. In the case of Jesus alone, there is this weird surplus of evidence.

So what does the historian do? Historians of the enlightenment had a very simple answer to this problem. They explained the stories of the miracles away, naturalistically. For example, Carl Friedrich Barth. Said that the walking on water story in the Gospels was really just Jesus standing on logs that often float across the Galilee.

That works. Heinrich Paulus said that the famous feeding of the 5, 000 miracle was really just that when the one boy shared his lunch, everyone went, Oh, let's share our lunch too. And suddenly everyone was fed. Modern historians don't take that quaint approach. Most modern, secular scholars of the historical Jesus plead ignorance.

They say, yes, there's a lot of evidence he did things people thought were miracles, but we can't comment further. For example, Paula Fredrickson, very important scholar from Boston University. Did Jesus of Nazareth then perform miracles? Here, I, as a historian, have to weigh the testimony of tradition against what I think is possible, in principle.

I do not believe that God occasionally suspends the operation of what Hume called natural law. What I think Jesus might possibly have done, in other words, must conform to what I think is possible. So, to answer my own question, yes, I think that Jesus probably did perform deeds that contemporaries viewed as miracles.

Those I have least trouble imagining his working conform to those also named by Paul, healings and exorcisms. Enlightenment scholars said, because the supernatural realm doesn't exist, there must be a natural explanation. Contemporary experts tend

to say, because history can't adjudicate on anything like a supernatural realm, we just have to plead ignorance.

We don't know why people thought Jesus did miracles. We just leave it there. But here's the thing. Jesus probably didn't believe in miracles. Jesus probably didn't believe in the supernatural. If what we mean by supernatural and miracle is the invasion of an outside alien force into nature, that definition of course comes from the enlightenment.

It assumes a dualism, a spiritual ethereal world and the physical one. And every now and then the spiritual injects itself into the material. The gospel writers didn't share this outlook from their viewpoint, which was really the Jewish viewpoint. There aren't two worlds. There's just one world. There is just the creation that comes from the creator.

Everything that happens in the universe from the regular rising of the sun to the very surprising sight given to the blind person. It's all the powerful Work of the one creator working in and through nature. What we call miracles are not invasions from a parallel world. They are just powers, God's powers in and through creation.

And this is why the gospels describe Jesus baffling deeds, not as supernatural events, not even as miracles. They see them as special examples of power. And as signs of the future. The Greek terms in the Gospels are *Dunamis*, which means strength or power, and *Semea*, which means sign. Powers, that's easy enough to comprehend.

But what about signs? What are they signs of? It'd be tempting to think that what Jesus means when he describes his powers, his healings, his signs, that what he means is these are signs of the spiritual world. If only you could pull the veil, you would see a spiritual world invading the natural. But actually that's not what Jesus says.

He says they are signs from the future. They are little displays in the present of God's intentions with all of creation. After one of Jesus healings, he offered this

famous interpretation. If by the Spirit of God I drive out demons, Then the kingdom of God has come upon you. This is repeated in Luke.

It's from the early source known as Q. In other words, the healings of Jesus are evidences of the kingdom. This was a Jewish concept. It doesn't mean a spiritual realm, a heaven, as opposed to earth. The kingdom of God is God's promise to mend all things one day, to overthrow evil, to mend what's broken.

Read in context, Jesus healings. according to his own words, were signs you could glimpse God's future activity in these special examples of power. This is widely accepted in historical Jesus scholarship. Here are the great scholars, Gerd Tyson and Annette Meyers, saying just this. Jesus combines two conceptual worlds which had never been combined in this way before.

The apocalyptic expectation of universal salvation in the future, And the episodic realization of salvation in the present through a miracle. Nowhere else do we find a charismatic miracle worker whose miraculous deeds are meant to be the end of an old world and the beginning of a new one. This puts a tremendous emphasis on the miracles, and it is unhistorical to relativize their significance for the historical Jesus.

The present thus becomes a time of salvation in microcosm. Or more simply, if God's kingdom is the feature film in the future, Jesus healings At least as the Gospels portray them, are the preview, the trailer, for the main film. Now, we may not believe any of this. That's not my point. My point is that even the healings of Jesus in the Gospels.

Don't portray a supernatural world as distinct from a natural one. There is just one world, God's world, where the creator acts powerfully in every moment, and where in the moments of Jesus healings, the creator gave a preview that one day he will mend all things. While

Dakotah Love (Voice Actor): the bears were out walking, a little girl came into their house. This little girl had golden curls that tumbled down her back to her waist, and everyone called her Goldilocks. Goldilocks went inside. She was rather hungry and

saw some steaming porridge on the kitchen table. First, she tasted the porridge of the great huge bear, and that was far too hot for her.

And then she tasted the porridge of the middle bear, and that was too cold for her. And then she went to the porridge of the little small wee bear, and that was neither too hot nor too cold, but just right. And she liked it so well that she ate it all up. Then, Goldilocks went upstairs into the bedchamber.

And first she lay down upon the bed of the great huge bear. And then she lay down upon the bed of the middle bear. Finally, she lay down upon the bed of the little small wee bear. And that was the Just right. So she covered herself up comfortably and lay there until she fell fast asleep.

John Dickson: Excellent. Luke, people often speak about us living in a Goldilocks universe. Just right for life. Not too hot, not too cold, just right. Right. Can you explain what is meant by the Goldilocks universe, and do you like it? I mean not the universe, but the idea of a Goldilocks.

Luke Barnes: As I said, I am a big fan of the universe.

So here's the idea. Now science was doing just great, and then someone asked an interesting question around about sort of the last 50 years. Is what if things had been a bit different around here and not just not it You know, what if the earth was, you know, three feet to the right? But what if at the fundamental level the deepest properties of nature that we know about what if they'd been a bit different?

So there are these numbers that describe basic properties the universe like you remember the electron that goes around the atom what if they were all a bit heavier or what if the forces were a bit stronger or something like that and and What was perhaps expected was that our universe would just be any old universe.

If you just change these numbers, you'll get a slightly different universe. You know, but given that we're just, or, or, you know, accidental collocations of atoms, said Bertrand Russell, you know, we'll just be some, some, any old universe. And what

happened was that actually when you take those dials and turn them a little bit, you ruin the universe.

You, um, actually you make it really great for physics, because all the laws get way, way, way simpler. So, for example, the number of stable, um, nuclei, So, the number of elements in the periodic table with a very small change in these numbers turns out to be either 0 or 1. Which makes chemistry just Mint.

Right? None of that, you know, periodic table nonsense. So this is the Goldilocks universe. Very small changes in the deepest properties of the universe that we know about, um, would render the universe far too simple. Um, to support any sort of life that we can imagine. Again, great for physics, bad for physicists.

John Dickson: You, uh, I mean, you wrote a book on this, but you wrote it with someone who doesn't hold any of your magical thinking views. Um, uh, you know, I mean, obviously I don't think that, but, um, What is the atheist account of this Goldilocks, and then what is your feeling as someone who thinks Christianly about it?

Luke Barnes: Yes, I wrote the book a fortunate universe with Geraint Lewis who was my honors and masters supervisor now a colleague of mine at Sydney University an astrophysicist and he's an atheist and a Welshman One of those is shocking to people I don't know the We agreed, except you go find the one footnote where we disagree with each other.

But on the first seven chapters, we agree about all the science. Which is, you know, I do my job as a theoretical physicist. What would have happened if this number had been a bit different? And, The question then is here, what do you do with this? Because my favorite, uh, this is called the fine tuning the universe for life.

My favorite summary of it, I think this was once said to Alistair MacGraw, although I've, I've need to follow up where I got this from, but it was, um, quote, I'm not religious, but something weird is going on here. For an, for an atheist, for a naturalist. You know, it better be the case that, you know, there's nothing too special

going on in the fundamental laws of physics, because ultimately, that would, that would suggest there's a deeper answer, and that's exactly not what we want.

And then suddenly, from inside of physics, at the bottom, comes this sort of Uh, fact which makes Fred Hoyle, famous astrophysicist and atheist from the last century, say, um, In print, in writing, a common sense interpretation of the facts suggests that a super intellect has monkeyed with physics. Um, and that's how he, basically how he ends that article.

He doesn't then try to resolve that. It's like, you know, we've, there's something weird going on here. The way that it gets approached What what geraint does with it? For example in the last chapter of the book We sort of discuss as a conversation our two views his response is maybe we got lucky So you'll notice in the story.

It's not just the perfect bowl of porridge There's also the two hot one and the two cold one And if they're all there if you've got enough bowls of porridge Maybe the right temperature will be there for you depending on how fussy you are. Maybe there's lots of universes out there This is the multiverse idea And that's the sort of idea that gets taken very seriously as an explanation for how is it the case that a universe exists which, despite seemingly the odds, has just the right numbers for life.

John Dickson: Yeah, so that's the atheist perspective. What do you Feel as you think about these things deeply

Luke Barnes: what I feel is not as uncomfortable as the atheists feel because well for starters The multiverse is an option for God I'm not going to tell God how to make a universe or you know how many he needs to make or something like that So maybe right so the earth is at a pretty nice place relative to the Sun Don't get too close, get too far away.

But we now know there are lots of planets out there. So maybe the way that God chose to get it right was just to make a big ol universe with lots of planets in it and then The right one turns up where, where God wants it to turn up. But

fundamentally, I, I think that when science is done, we'll still have questions we want answered about why it's this way rather than some other way.

Questions that science in principle can't touch. And as a, as a test case for that, we go looking at the deepest laws we have. And all of those questions come rushing at us because there's something weird going on around here. These numbers aren't just the typical numbers. Uh, they don't have to be what they are as far as we know, but if they'd been slightly different, you would get a very boring universe.

John Dickson: The launch of the James Webb telescope. Christmas 2001. Was that a big Christmas gift for you as an astrophysicist, Sarah?

Sarah Sweet: Sure was. Yeah? Yeah, very exciting day. Um I

John Dickson: missed the news completely, but

Sarah Sweet: The, um, is certainly one of the, um, most significant, um, Telescopes that we've created in recent years. So the idea

Yes, that's right. And so many of you will have heard of the Hubble Space Telescope, which is about 30 years earlier. And this, um, was also a rocket sent up into space, um, with a telescope on it. The telescope, the Hubble, and James Webb, Both are quite revolutionary in their technology. Um, so the, um, the detail and the sensitivity that they're able to look at, not dealing with all the atmosphere that we have to look through on the ground and, but with all the technological challenges that come with building something and putting it in space, which is, and very, very expensive as

John Dickson: well. What are we expecting or hoping from it?

Sarah Sweet: Yep, so already, and this is just like a small part of what is to come, there are new discoveries in um, exoplanet, everything from exoplanet science to galaxy formation to star formation, all different, many different facets. Can you tell me one thing

John Dickson: you know now that that thing's up there that you didn't know before?

Sarah Sweet: One thing we know is that our understanding of when galaxies became more regular, settled disks rotating like our Milky Way galaxy is different to what we thought beforehand. Um, and so that's, that's not really something that we know now, but something that we know, that we don't know anymore.

Peter Harrison: Cool. Great. Progress.

Sarah Sweet: Yeah, yeah. Sometimes, you know, two steps forward, one step back. Yeah,

John Dickson: OK. Uh, tell us about this pretty picture.

Sarah Sweet: I love this image. It's

John Dickson: Just popping in here to tell you that the image Sarah's talking about can be seen in the show notes for this episode. I almost think you should stop and go to undeceptions.

com and look at the image and then Press unpause. That almost sounds like a five minute Jesus. Sarah is describing one of the early images from the James Webb Space Telescope in 2022. I think many of you will recognize it. At the time, it was everywhere in the news. It's stunning. I like it, but I have no idea what I'm looking at really.

Sarah Sweet: So this is, um, the Carina Nebula. Um, not to be confused with the suburb Carina, but this is, this is a star forming region. Um, you can see there's lots of stars, but there's, there's, so there's, um, new stars which are ionising this, um, This, this bubble, um, of hot gas and, so this ultraviolet radiation, really, really hot, dense, um, it wouldn't even give you a sunburn, um, obliterate you before, before that even happened.

It's so, um, energetic, and this is, um, Peeling away dust and, um, and this gas that you can see at the bottom there. And because it's in infrared light, which is different

to Hubble Space Telescope, which is optical light. So it's one of the key differences. I mean, you might have heard people say, Oh, now that James Webb's up, we don't need Hubble anymore.

Hubble is just all old technology, but they're complementary. So this is looking at a different part of the optical spectrum. Um, and the infrared light lets you see through dust a lot more than the optical light does. So we get a new view, a new, um, view into this so we can see, um, this birthplace of stars as it were.

John Dickson: Thank you. I mean, one of the things about an image like this and just looking up is the vastness Of the universe, Luke. Um, and some people have said that the sheer vastness of the universe makes the whole idea of a God and, you know, certainly God being interested in this little planet. It's just ridiculous, because there's so much of nothing.

What, what a waste of space.

Luke Barnes: Is that how you see it? Uh, no. Uh, that might be a surprise. So, what I love about this image is the, once you understand the physics behind it, you see it differently. Look at the top layer. See the line between the, where it sort of goes blue to red. That's where the light above is sort of eating away what's below it.

It's not a, the cloud is sort of disappearing that way. So on the sort of left side of the screen here, that, that pillar sticking up is a denser bit that's been, it's harder to sort of wipe away with the radiation coming down. From the top. Um, so th this is where stars are born. There's, there's a wonderful bit in I Lewis', CS Lewis's, uh, outta the silent planet where he, he in a spacecraft reaches space.

Uh, ransom the hero of the, the story and, uh, an old nightmare in, uh, uh, engendered by the, um, that follows in the wake of science, which is a wonderful description of it. It was falling off him. The idea that the. Space out there is just dead and cold and boring. He says, how could it be? That way, this is where the worlds were born, right?

This is where, you know, he felt life coming into him at every moment. There's, there's a reason in this picture, the way our universe is put together for all of its parts, even the mostly empty bits. You're all enjoying the air in this room that we've provided for you. Um, if the solar system were full of air, then great, you could just go and explore through empty space and be able to breathe.

Sadly, the Earth, thanks to drag forces, would spiral into the sun in about a month. So, there's a reason the solar system is empty. Mostly empty, so that we keep going around. The empty bits have a part to play in the story. If, you know, in air, you can see about a hundred kilometers before the light starts cutting out.

So the empty bits are why we can see that in the first place. So, it all has a sort of part to play. If you put on the goggles of You know, this is here for a reason and maybe I won't understand all of it, but there really is something going on there. These parts are just, you know, every bit plays its part.

So this, the, the reason why it lights up in, in infrared is because it contains dust grains, sort of larger clumps of, of matter in interstellar space. Those are. The previous sort of outpourings from supernova stars blowing up and putting heavy elements out in the universe those will coalesce Around the next generation of stars to form the next generation of planets.

It's all it's all part of the story

John Dickson: Hmm, I like it Speaking of CS Lewis Dakota, you have a reading for us. The

Dakotah Love (Voice Actor): real question is Why the spatial insignificance of the Earth, after being known for centuries, should suddenly, in the last century, have become an argument against Christianity? I do not know why this has happened, but I am sure it does not mark an increased clarity of thought.

For the argument from size is, in my opinion, very feeble. What sort of universe do we demand? If it were small enough to be cozy It would not be big enough to be sublime, C. S. Lewis.

John Dickson: One final question that I want to throw to all of you, um, and again, we come back to Sean Carroll, um, who's got this confidence that science will explain everything.

Everything. He writes, How far will this process of unification and simplification go? It's impossible, to say for sure. But, we have a reasonable guess. Based on our progress so far, it will go all the way. We will ultimately understand the world as a single unified reality. Not caused or sustained or influenced by anything outside itself.

That's a big deal. So my question to each of you maybe starting with you Luke is Will science go all the way and doesn't matter for theology if it does

Luke Barnes: As a theoretical physicist that it feels like will you do your job? But just Just want to put that little, that's my job to try and push that forward, right?

That's my team, and, and you want to sort of cheer your team on, come on Layton. Um, the worry, the thing that, that Sean I think is leaving out of that picture there, Sean's a better sort of philosopher than most physicists when they try and do philosophy. But he, he does say elsewhere, you know, the idea behind naturalism is there's a chain of causes which reaches The ultimate laws of nature and stops, right?

And if you want more explanation than that, it's not there. If that's your picture of reality, then Then there's not a reason why there isn't anything more there, right? And so it's it's hard to see how he can say that and then still think that there's Some way we're gonna know that we've reached the end or something like that, right?

I think whatever that ultimate Laws of nature, whatever they turn out to be, if I discover them tomorrow, uh, there will always be that question of why is it this way rather than some other way? Why is it this way rather than all the ways that would have been mathematically fine but dead? Why is it that there are simple laws of nature at all?

[01:04:21] There's just a whole host of questions that, that Sean has to say, not science will answer these, but if you really wanted an answer to these, bad luck.

And that's the choice you've got to make. Alright, do you want more explanation or less? Are you happy stopping at where science stops, or do you think you need to go further?

John Dickson: Peter, do you think this has theological implications? Uh, I guess the assumption here is kind of a God of the gaps thing. We're gonna know all, all the th We're gonna know all the stuff, and therefore, no God. Thank you very much.

Peter Harrison: Well, look, I, I mean, two, two things, firstly, to, to, to agree with Luke, that the success of science is something that science itself can't explain, on that assumption that, that if, if science functions, that requires some underlying explanation.

But to, to Sean Carroll, I would say, as a historian, not a scientist, what, what we see in the history of science is successive failures. phases of science where the scientists themselves think they've got it all sorted out and then we have a Scientific revolution and things change and in these scientific revolutions.

We're not actually homing in on successively more Fine grained pictures of the same reality, rather, different theoretical entities are posited at each time. So, an Einsteinian universe, which talks about, you know, space time, is very different from a Newtonian universe that talks about mass and force between masses.

And there will be another revolution, I believe, and, you know, with all due respect to current physics, if we don't know what most of the universe is made of, uh, we've got a problem with our current science, you know. It seems to me, at any rate, as a naive historian. So, that just seems to me, wildly, in view of the history of science, wildly optimistic and quite naive.

John Dickson: Sarah, can I give the last word to an astrophysicist? If science pushes through and explains all the things, is this going to trouble your faith?

Sarah Sweet: It won't trouble my faith.

John Dickson: Why?

Sarah Sweet: Because I believe that knowing how, um, doesn't say that he didn't do it. Knowing all of, all of the intricate workings of this wonderful universe that doesn't say anything about why, or it doesn't in any way diminish his incredible power.

In fact, to me, the opposite, to me, that speaks of his amazing power and intelligence. That he's conceived of all of this beforehand. I can't, um, come at that any other way than to marvel at, um, at God.

John Dickson: I love that at the end of this We end up with no words but wonder. Yeah, will you please thank Sarah Sweet, Peter Harrison and Luke Barnes

Undeceptions is hosted by me John Dixon produced by Kaylee Payne and directed by someone Called Mark Hadley. Sophia Hawkshaw is on socials and membership. Siobhan Guinness is on socials This is our online librarian, Lindy Leveston is my wonderful assistant. Santino DiMarco looks after finances, Alistair Belling is researcher and writer, editing by Richard Humway, who's also up there tonight.

Our voice actor and cellist is Dakota Love. Thank you so much. And once again, please thank Peter Harrison, Luke Barnes, and Sarah Sweet. See ya!