Dr Stuart Mathieson – An Evangelical Philosophy of Science? ...

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Well good afternoon everybody. It's one o'clock so it's time to start today's proceedings. My name is Keith Fox, I'm the director of the Faraday Institute in Cambridge, and these seminars we hold. Every, every other Tuesday. during the university term. And I'll introduce our speaker in a moment. Let me just see some of the ways that we're going to run this, as we've done over the past couple of terms is our speaker will talk to us for about 40 minutes or so. During the time that he's talking out, and afterwards you should find this q&a box on your screen. You can type questions into that you can do it during the talk itself or afterwards, I will then share the questions afterwards and pick ones from those lists that you put in there and put to our speaker. I hope you're all familiar with the Faraday Institute if not go and visit our website faraday.com.ac.uk. It'll tell you more about the events that are coming up. It's. If you're not on our newsletter, then please click to sign on for that and we'll give you updates about things that happen regularly. So it's a pleasure today to welcome today's speaker, Dr Stuart Matheson. He has a first degree in history and philosophy and an MA in history from Queens, Belfast, and he is interested in the intersection of science religion and philosophy. He's currently working on a lever human trust funded project on fundamentalism as an Ulster phenomenon, and he's doing that in collaboration with Dr. Andrew Holmes, and Professor David Livingstone is doctoral research, which was funded by the HRC investigated the Victoria Institute and I think you'd be telling us more about that today. And today's is now based in City University in Dublin although I think he's still living in Belfast at least especially during the current

lockdown. So his talk today is on an evangelical philosophy of science from bacon and Paley to Stokes to cure it is a pleasure to welcome you and I hand over to you.

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Thank you. Thank you very much for that introduction and thank you for inviting me It's so a real honor and a privilege to speak to the Faraday Institute. And I should actually be in Cambridge now researching for my current project so it's nice to be there, if not in person. Then, virtually. So I'm just going to share my PowerPoint here. And I will start the presentation. So I suppose I'll just say a little bit about myself by way of introduction, I've just started a new project actually, I'm the government department postdoctoral fellow at Dublin City University are going to look at the religious life of the 19th century physicist, Sir George Gabriel Stokes. And before that, I just finished the research projects that Keith described were looking at historical evangelicalism, and fundamentalism in Australia. But what I'm really interested in and what I tried to build my research around is the object of the Faraday Institute the relationship between science and religion as an historian I'm mostly interested in historical relationship, But I think that understanding the history is actually, particularly important for understanding, any contemporary debates and explain what I mean, I'll just sketch a little bit of the contemporary background for you. I suppose I've always been interested in the relationship between science and religion. But what got me particularly interested, I want to proceed academically and look at the historical relationship was a book I read maybe 12 or 13 years ago now. So, in the mid 2000s there was quite a lot of attention paid to the influence of what we might call conservative religious thought on politics events of September 11 that brought Islamic fundamentalism into public focus, but Christian and specifically conservative evangelical Protestant thought what sometimes called fundamentalism drew a lot of attention as well. And actually many commentators suggested that the American President George W Bush, who was a total Methodist daily Bible reader. A very sincere and divided Methodist by all the kinds. But some political commentators suggested that actually, if not here, as a fundamentalist, he would be sympathetic to the introduction of what might be thought of as fundamentalist politics. And one particular example of how this controversy erupted between fundamentalism, and science and American politics came into 2005. So at the beginning of the second bush term with the Kitzmiller versus Dover Area School District trial, sometimes called the Intelligent Design trial. And this was basically a ruling by the Pennsylvania Supreme Court that intelligent design was a religious rather than scientific position, and that the Dover school board had violated the First Amendment by requiring it to be taught in its biology classes. And a couple of years later, the young earth creationist group Answers in Genesis, led by Ken Ham open to the Creation Museum in Kentucky Northern Kentucky actually just south of the Ohio border. And again, a measure

of information when it was featured in bill Maher's anti religious polemic film religious, and they've since gone on to open the Ark Encounter on an adjacent side which is a full scale replica of Noah's Ark, complete with Dinosaurs on board. Right here in Northern Ireland, there's also something of an intimate relationship between politics and religion that is spilled into how scientists communicated in the public sphere. And in fact, Ken hams frequently toured here and give him solid talks at the waterfront Hall in Belfast to 2000 seat arena and it usually hosts touring comedians established bands, those kind of people. But. Around this time, many members of Northern Ireland's largest party did tee up the democratic Unionist Party, thanks to liquid

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and contemporary politics i don't have to explain who the DDP are anymore when I talk about them to an English audience, which is quite nice. And, but they were members of a group called the killam Foundation and this was essentially a pressure group. And one of the things that they wanted. Really to focus on was creationism in the public sphere. So, the land culture minister, Nelson McCausland wrote two local museums, including the Austin Museum which is sort of our national museum, asking them to display creations material, alongside signage, that suggested the earth was millions of years old, so he wanted. Besides, geological explanations. Also, young earth creationist material. And then in 2010, a similar thing happened when the Giants Causeway center was redeveloped by the National Trust he wrote, and campaigned to have that involved. But what's really interesting, I think, is that there's a link between this and other positions that we might think of as just anti science, such as climate change denial. So another tip minister as Sammy Wilson, who was the environment minister at the time, was a strong skeptic of climate change and branded global warming, unfort, sorry banned global warming outwards from being played on local television. So all of this was going on in the background I was very interested in politics, and I was very interested in what the relationship seemed to be between science religion and politics. And I wasn't the only person. There's a sort of boom in interest about that relationship, and a lot of assemblies center on scientific issues. And one big voice in those debates, was the biologist Richard Dawkins who was associated with the movements that later became known as the new atheists, or new atheism. As an aside, as a historian of the subjects. I don't think there was much new, and what they were saying or doing. But anyway, I had Dawkins, along with the journalists Christopher Hitchens the philosopher Daniel Dennett and Sam Harris who I suppose inhabit a sort of gray zone in between cognitive science, philosophy and polemics became the main thesis of this movement, and they were best selling books and generated a lot of media controversy and so forth. I read some of this work, and I wasn't overly impressed, but a friend, absolutely insisted that I read The God Delusion by Hawkins. And as I was reading quite early on in the introduction, I noticed the Dawkins

have included a quote from the author Robert pirsig, who you might know is the author of Zen and the Art of motorcycle maintenance, and this said, when one person suffers from a delusion, it is called insanity, when many people suffer from a delusion. It is called religion. Essentially Dawkins built this viewpoint into his thesis, and he argued that one reason why Christians rejected evolution was because they held contradictory beliefs that were functionally equivalent to a delusion, or a mental illness. Now needless to say, I don't think I'll be saying anything controversial to this audience. I find this deeply, deeply unsatisfying actually very insulting. No, as I've highlighted there are areas and there still are points of context particularly about evolution. But this caricature didn't really seem to fit very many of the evangelicals that I knew, and especially the very many evangelical scientists that I knew. And in fact, this is still going on. After I wrote the seminar I've just included this slide, because the president of humans youth humanists UK, Professor Alice Roberts was on Twitter, making very similar arguments acquitting religious faith psychosis. This is just from two days ago. So I find these kind of explanations, this kind of analysis if you can call it analysis. Very unsatisfying, and I decided to look into the history a bit more closely. Why did evangelicals react to evolution, Darwin proposed this theory was there always conflict, could I draw a straight line between lamb and No. So a little lamb in the story and I want to understand, if there's a link between the original response to Darwin, and the debates that we see in the present day. And particularly what I want to understand, is if the conflict the thesis that is this idea pushed by Dawkins, and the new atheists that science and religion are separate that they're mutually irreconcilable that they're always at odds locked in warfare, and so on, which has become a commonplace in a lot of contemporary discourse, like we saw with the Alice Roberts quotes on Twitter, if this actually had a historical basis.

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And one of the first things that I found out was that there's actually quite a lot of very very good historical and philosophical research, and almost all of it, rejected the conflict thesis. And in fact, what's really interesting is that the conflict thesis itself was really codified around the time of Darwin by two writers, sort of historians called john William dripper, and Andrew Dixon white, and they had a sort of political and religious message of their own, that they want to promote. But when I got a little bit deeper into my own research. I looked at an evangelical organization set up, ostensibly to oppose Darwin, called the Victoria Institute. And what I found out was that there was not so much dealing with conflict between two things called science and religion. But in fact, what was meant by science, and what it meant to be truly scientific. And I think this is particularly relevant for today's debates, because it gives us another way of understanding them something a bit more useful. A bit more accurate, a bit more helpful and rigorous than saying that people are diluted. So I think my alternative framework that I would propose has three major

interrelated dynamics at play, there is directly theological question on the authority on the reliability of the Bible. There is a social dimension in political struggle for cultural and intellectual authority, according to science. And there's a philosophical dimension. So I'll expand the first two. But the third i think is the most important. What we should concentrate on, because I think it holds the key to understanding everything else. So, in terms of the first point. What's really important for our purposes today. Before I discuss any theological implications, is to understand the importance of the Bible, and Victorian culture. And this was the first text that many children learn to read. If you read the biography of any Victorian evangelical if they mentioned that or received, they will mention, learning to read from the Bible. This was the first text that many children learn to read scriptural allusions metaphors were part of a common literary context in Victorian Britain. Britain's regardless of their faith could use biblical stories that were as well known as the works of Shakespeare or Dickens or the prompt as if you went into a school room or a Sunday school and big maps of the biblical lands on the walls, and the lands are under Jordan, it was said was well known as those along the Rhine. But of course for evangelicals the Bible holds a singular importance because of the doctrine of sola scriptura. That is that the Bible is an infallible and exhaustive source of authority on all matters of faith, including salvation. So, anything was threatened the authority or the infallibility of the Bible, would be sure to generate a measure of controversy in Victorian Britain. That controversy came in the form of biblical criticism. So, biblical or sometimes as it's known higher criticism was a technique in which the Bible was treated as if it were any other historical documentary source. In the first half of the 19th century, it was particularly associated with the cheapening School of philosophy in Germany, where scholars had applied the methodology of historians and literary critics to the Bible itself. Now these ideas were first introduced to a British audience by the poet Samuel Taylor Coleridge, but it was the novelist George Eliot who brought them to wider attention with their translations of David Strauss's does live and Jesu in 1846 and Ludovic barbacks does listen to Chris Adams, in 1854, as his title might suggest us in the life of Jesus Strauss had attempted to provide an account of the life of Jesus, which was rigorously historical rather than mythological, and one in which the possibility of any miraculous acts was not necessarily taken for granted. Now, this caused a bit of consternation, but it was quite often, a sort of dismissed as a continental metaphysical speculative story on British attempt to criticize the Bible. So it wasn't until higher critical techniques were applied by British scholars that they became particularly controversial. Now the emblematic example of this. Kim, and it's in 60, just months after Darwin published his Origin of Species essays reviews, a collection of essays by six Anglican priest and a layman.

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And at the center of it was a contribution by Benjamin George, who was the richest professor of Greek at Oxford and John's essay was called on the interpretation of Scripture. And this is really a perfect example of higher criticism because, in his own words itself to apply the techniques of literary criticism, to the Bible, and to understand the context of its composition and judge words like any other book. So this attempt to find some sort of accommodation between anklicken fierce and the intellectual culture of the 19th century actually caused quite a scandal. The SS were dubbed the seventh against Christ, and two of them loosely could be were charged with heresy, and ecclesiastical court essays and reviews was soon followed by a similarly controversial work by john William kolento, who was the Anglican Bishop of Natal. And what's nice South Africa. And it suggested that Moses was not the author of the pentatonic the first five books of the Bible. So efforts to independently verify the accuracy of the Bible as a historical narrative were contentious because they implied that its historicity and, therefore, probably its divine inspiration. Couldn't be taken for granted. So, to accept the approach of biblical criticism actually required a modified understanding of the relationship between God and humans and especially higher that was mediated by the Bible, rather than the ultimate authority and on matters of doctrine, and a factually accurate historical record. The Bible, should not be understood, according to the critics as a record of the religious experiences of an ancient people. So according to this understanding gold progressively revealed himself to his people, and the relationship between them was neither emotional personal and experiential, which suited the atmosphere of the 19th century. So that's the first dynamic. And the second, I think is the idea of cultural authority. So essentially, By the mid 19th century, science, had acquired a considerable degree of prestige, and we understand that today, politicians, at the moment, talk constantly about following the science doing what the science says, scientists in a way, reified as something imbued with a degree of authority. But in the mid 19th century, many people attributed Britain's, industrial, commercial, even Imperial success to its reverence for science, and the scientific method. But at the same time, it was actually undergoing a process of professionalization previously much scientific research, had been undertaken by gentlemen amateurs and chief among them were actually anklicken clerics. They were University, educated, almost exclusively. And they had financial means good education, and free time to pursue their intellectual interests, and many of these what became known as Parson naturalists made significant contributions to scientific discovery, and I've put up, William Buckland there who was an iClicker curious who described a Megalosaurus which was the first complete dinosaur skeleton.

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But there's also a new rising class of professional scientists, and they were largely drawn from the potential middle classes, and they wanted to see science professionalized and

secularized. I included figures such as the naturalist Thomas Henry Huxley, who became known as Darwin's Bulldog, and the physicist john Tyndall, and both hawks Nintendo were members of the x Club, which was an informal dining group that sort of acted as a pressure group or a steering committee to advance their interests, and Victorian scientific society. Both boxy and tender were actually quite accomplished controversialist they were very good at getting themselves into debates and engaging with religious authority, and they actually sought out fights with quite an interesting degree of regularity Huxley for instance engaged Samuel Wilberforce, and you can see him there on the left, facing off against Huxley on the right, and Wilberforce was the Bishop of Oxford and he was renowned as one of Britain's most accomplished public speakers and Huxley engaged him in a debate after another, to be at the Oxford Union actually by colenso. And the evidence is inconclusive but it's sort of passed into folklore as Huxley embarrassing Wilberforce. But I think maybe the most striking example was actually tendrils Belfast address. So in its in 74 john Tyndall was president of the British Association for the Advancement of Science, and it came here to Belfast. And on the opening night, he gave an address in the Ulster Hall, another sort of concert venue. And he threw down the gauntlet to religious authority and scientific affairs, insisting that religion must submit the science, and any naturalist realm and declaring that this new class of scientists would accorded here, rest from theology, the entire demand of cosmological theory. And in a sense, actually. I don't want to say that they did, but there actually wasn't a decline of clerical scientists in scientific societies. After that, it actually quite dramatically declined. After the time. On the left you can see Anglican clergyman who were members of the Royal Society between 1849 and 1999. And on the right, that was presiding at the British Association for the Advancement of Science. And you can see actually the drop off seems to start in the late 1860s and early 70s between Darwin and tendrils Belfast address. But, and this is very important, as we'll see later that didn't mean that the professional scientists who replaced them were necessarily secular. So there's a definite theological issue at stake. But the Bible is reliability. And there's definite social issue at stake, as well as those who claim to represent science were able to acquire a degree of cultural authority. That's because as I mentioned earlier, in the Victorian era science had quite a large amount of prestige attached to it. And in particular, its reverence for the scientific method as laid down by the Stuart era, philosopher and statesman, Francis Bacon was thought to be responsible for Britain being the leading industrial Imperial commercial, and so on, power. And in fact, this wasn't confined to Britain. In many ways because the patron saint of British science, and that was recognized as early as the early 18th century by the French philosophical Voltaire, who was in exile, sort of self imposed exile in England, and wrote his letters on the English are the philosophical interests or there's only as a sort of pay on to the more liberal enlightened British society that he thought he saw. So he thought, essentially that bacon was the most important figure in English culture.

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So, what is this, this scientific method, well put simply because scientific method was based on inductive reasoning. This began with the collection of empirical evidence that's evidence that's derived from using the senses, and generally observation. And then the application of inductive reasoning, which is where you move from these quite specific pieces of evidence to a general theory that provides explanatory power. The more evidence that you acquire the more persuasive the general theory would be. And so the careful collection of empirical data, principally lots of observations again was extremely important. And this contrasted with the deductive method in which a specific conclusion was derived from general principles, and I've put up some examples there at the bottom, is that the carnian inductive approach at the top is deduction. And mostly based on the principles of Aristotle, at least in the collective mind of 19th century philosophy. But this approach was also associated with one of the other really towering figures in British science, Isaac Newton, who said hypotheses not finger, I, I frame new hypotheses. So he Newton, I've got a quote from here's the second edition of his Principia there at Newton also explained that speculative hypotheses had nucleus, as he sought in experimental science. There's actually another philosophical principle that went along with this inductive methodology, especially for British and North American evangelicals and this was the School of common sense realism, the Scottish School of common sense direct realism, very crudely speaking. This was a response to the radical skepticism of David Hume the Scottish Enlightenment philosopher who was skeptical about being able to have certain knowledge of the external world, and common sense, which came from the work of Francis Hutcheson, and Thomas Reid who was probably its most famous exponent argued that reliable knowledge of the external world actually could be derived using our senses, because they argued that God had created humans, given us the ability to observe, and to apply reason. And this process should therefore be in general terms, at least, allowing for optical illusions, and such a reliable source of knowledge. And since it focused on applying reason to collections of empirical data. This was actually a bit kuhnian, a scientific and inductive approach so this underlined the inductive methodology. Actually if we link back to that first dynamic that I mentioned this applied to the Bible as well. It was possible to inductively study the Bible. Instead of arriving at the Bible with hypotheses, you would look at the Bible, observe it, and then come to conclusions. So it was also believed that it was possible to obtain direct reliable evidence of the natural world. This evidence would in turn provide direct reliable evidence of God's creation. So in a sense, God had written two books, one of special revelation in the Bible, which should be studied theologically. And one of general revelation in the natural world, we should be studied scientifically. And what was contained in God's writings in the natural world and in Scripture, would be in complete agreement and any sort of conflict between the two would be a problem of interpretation by scientific study or theological

study. Careful correct study of either of these would lead, inevitably, to the same conclusions. And on the other hand, speculation about the reliability of the Bible, as in the work of the higher critics departed from this framework, and it was so inherently suspicious, and even unscientific. Now, those of you who have some experience with practical science will know that it's actually quite difficult to do science to make progress in science, without making, or testing, a few hypotheses. And in fact, many Victorian scientists had noticed this, and had much of the same problem. So the result was that people tended to pay lip service to bacon they said oh yes, definitely following bacon scientific method, bacon is fantastic. Absolutely. and then went and tested hypotheses anyway. And this brought them closer to the method that practicing scientists tend to use today.

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So I've just put up on the slide, a framework. And it's kind of derived from the mid 20th century philosopher of science Karl Popper. And you will notice that there are a few extra steps compared to the kuhnian method, there are hypotheses that are tested new observations of Sadat, and so forth. So, there are few extra steps, there are a lot more hypotheses, but it's probably something that you will recognize as a rough approximation of high science tends to happen, at least in theory, today. So in advancing his theory of evolution, Darwin had to contend with this resistance to hypotheses and speculation. And with the privileging of empirical evidence, and most especially direct observation.

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Obviously it's, it's quite difficult to actually directly observe something that takes place over a period of 1000s of years, like evolution. It's pretty much impossible to directly observe it. So Darwin spent the first part of his book, The Origin of Species actually very very carefully laying in extensive detail, the observations on variation in the natural world, that he had made. And then he followed it up by his theory. And then, provided several more chapters of evidence observational evidence that he thought supported. So, this obviously generated a little bit of controversy and people got themselves quite excited by it, but not in the way, maybe that we thought, and this is actually where the Victoria Institute comes in. So, this is an organization that was established in 1865, in London, its first president was, Anthony Ashley Cooper the evangelical Earl sharpspring, a famous evangelical and social reformer. And it's a little unclear on the slide, but you may see here, the multiple it has is odd memoriam Gloria Dei, for the greater glory of God. But what's really interesting about the Victoria Institute is that it's been suggested as the first anti evolutionary organization, it came in the wake of Darwin after all. It seemed to be

involved in questions of science and religion on science on the religion side. And I thought this would make quite an interesting case study. So I looked a little bit closer, and I was actually quite surprised by what I find. So if you look at its name, and its objects, which I've got the first one here, and its approach. You'll notice that Victoria Institute, had a second name. The Philosophical Society of Great Britain. And you also spotted it doesn't take aim at science, directly or scientifically thing. But it wanted to defend a key scripture against the opposition's of science falsely so called. And this is actually a biblical allusion it's from Paul's letter to Timothy, to avoid the thin babblings of science false The so called, but it's an important reminder I think that the perceived conflict was not between science and religion, but over what science actually was true science. Science not falsely so called, I suppose. So really this is a question of the philosophy of the meaning of of science. And that is both the books of nature and the books of Scripture, if scientifically observed could not in fact be in conflict, this is really what they were set up to demonstrate. So in, I suppose my own spirit of scientific inquiry. I thought I would make some observations, and then arrive at some conclusions. So I looked very closely at the Victoria Institute, and all its papers, they presented an average of 11 papers, every year, more or less, one every fortnight during the, the season. From November till about may in various parameters around London. So in the first 20 years, 11 papers a year just under that, and some years there were just over 200 papers. But the really interesting thing is that evolution, or Darwin himself, or the idea of natural selection was only the subject of 16 papers so just under 8% of the papers. And the following 20 years that included a period of time that historians, and philosophers of science, have sometimes called the eclipse of Darwinism, and this is from the biologist, Julian Huxley described it as this but also the historian of science Peter bowler has written an absolutely fantastic book on the subject. And this was a time when the Ripper liberation of other scientific theories that seemed to explain evolution, and there was a resurgence in the idea of the mark ism the idea that animals adapted up during their lives to their environment, and this was some hype passed on to the children or the idea of saltation is that instead of gradual natural selection weeding things or allowing things to survive over time. The word saltation is great leaps forward. So this is a time when if there was a problem with the biological mechanism of Darwinism, you would expect that the current state would spend quite a bit of time discussing this, and in fact, they spent even less time discussing it. Darwin sometimes featured in discussions.

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And, but his theory itself was not really mentioned as problematic, except when it was framed in terms of it being unscientific because it wasn't inductive. And actually, what most people would most time was actually spent discussing, and in certainly in terms of Darwin was the idea of there being Darwinists, a group of people called the Darwinists,

and they've tended to include familiar figures from the x club like Tyndall and Huxley. But if you look a little bit closer at what the Victoria Institute thought the movement of Darwinists where I've put up some of the figures there on the slide if you knew who any of them are, you'll notice that there are very few biologists there. In fact, the only person up there who would count as a biologist I think would be there. The German naturalist Ernst haeckel, who's a popularizer of evolution in German, and the only other biologists, who was really a member of this group was Huxley have already mentioned. So, starting in the top left corner we have john Tyndall, the physicist, next to him john Stuart Mill. The philosopher, and then Hegel after that is David Straus the political critic, and then on the bottom, we have john cleanser, another biblical critic and Herbert Spencer, a social theorist, and this, but to me anyway, and shows that Darwin's theory of victory Institute. It was much less important. In what it said. In its role as a scientific theory than what it was thought to represent, and what it was supposed to represent was a collection of dangerously unscientific theories that misinterpreted God's two books, whether of nature, or of Scripture. But because most of their work was built on a hypothetical or deductive or hypothetical deductive methodology. At the Victorian Institute, they could dismiss it as being unscientific.

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And actually if you think back to the struggle for cultural authority, you remember that the excellent figures such as Huxley Tyndall and Spencer had wanted to secularize, and to professionalize their disciplines and I'd shown how clerical participation in scientific societies did decline during this period, and whether or not this was done to their efforts we can certainly say that it happened. But interestingly, if you look at the Victoria Institute's membership over the time, you'll notice that this was a scientific society in which unclean clerics made up a substantial proportion of the membership. They're generally between 20 and 25%. So quite a significant number. And what was actually quite interesting is, even though this was a sensibly a philosophical or scientific society, what those members tended to argue about were high historical or biblical higher criticism was actually an unscientific process so that that really dominated their attention. I mentioned earlier that the decline of clerical membership didn't necessarily mean that scientists themselves became secular. And in fact, I think the best example is the mom who succeeded shots Bree as the Victoria Institute president to George Gabriel Stokes, and here he is, he is the only person that I've ever seen on a Stein Stump, and I'll be very impressed if anybody else can find another Irish scientist, on one Stokes was from screen and county slagel Ireland's West Coast his father was a Church of Ireland. Pastor, and he left Ireland, quite young age, and went to Cambridge, and apart from holidays, he never came back. Stokes, as well as succeeding Shaftsbury as the president of the victory Institute. He also succeeded THX the US president of the Royal Society. And he was a

really a very deep committed and sincere evangelical. He was the longest serving the kizi and professor at Cambridge This is the chair of mathematical physics held by Isaac Newton Charles Babbage. More recently by Stephen Hawking. But he absolutely clearly believed that science and religion could only ever be in harmony. He was a staunch proponent of what's called natural theology and this is really another interpretation of that idea that scientific study of the natural world would give evidence for God's existence, the most well known formulation came in a book called appropriately enough natural theology, by William pilling and Stokes read this. During his Cambridge undergrad years. And the very well known argument from it, is the watchmaker analogy and this is the idea that if you're out walking, and you come across a watch, even if you've never seen a watch before you will look at it. And notice that it bears all the hallmarks of being designed and design implies a designer. And by analogy, looking at the natural world, you will find that it bears hallmarks of design, and therefore designer, and therefore, of course, God Stokes continued to popularize these arguments and in fact in the 1880s and 1890s. He was actually Britain's leading proponent of natural theology he gave a lecture series and Aberdeen, and in Edinburgh, called natural theology, he published them as a book called natural theology, very inventive and. But he was quite modest he said that he understood natural theology in much the same way as Bailey had done many years ago. But I actually think he introduced a more sophisticated approach that incorporates advances in physics and biology, since the time of Paley, particularly in the human eye. So for Stokes, the most important thing was that the natural world, contained laws of operation and these governs everything from how light refracted around the eye, and how the mind interpreted light and generated images, and even potentially how species adapted, maybe even evolved to their environment. But if designed and played a designer Stokes thought that these laws required a lawmaker.

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And so

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he provided a figurehead at the Victoria Institute, which then became a forum where these kind of arguments could be articulated in a sympathetic space by leading scientists clerics and biblical criticism, could be defeated by science, and the authentic study of the natural world will continue to reinforce rather than conflict with the Bible. So, to come full circle to bring us back to the present day. Excuse me. And I think that philosophy of science, alternative epistemologies. If we want to think of them like that help us to better understand the perceived conflict between science and religion. And if you look up even

contemporary young earth creationist it's easy to dismiss as cranks, but they frequently make arguments about evolution like it's only a theory. It can't be observed. Where's the evidence. But if the conflict is between science and religion if they want to attack science. Why do they go to so much effort to show that evolution isn't according to their understanding, scientific, and that is, I think, because this is a question of epistemology and the epistemological framework, a philosophy of science because they understand that science has cultural authority they don't get science, actually, they like science. So, this isn't a theological position, I think this is a philosophical one. And I hope that that is a little bit of historical context for how we could go about understanding these debates in the present day. If you're very interested by the way, about how these two bits cash out in contemporary American culture, two books came out last year that I'll just take a moment to recommend one on the Intelligent Design evangelical market by Benjamin Hoskinson, and one on creationism in the public school system by Adam Lutz. They're very good, I really strongly recommend them. If you're very interested in Victoria Street, you can also buy my book, but on unplug it here. It is early afternoon it's lunchtime some people might not have had lunch yet, so I will stop there, I think, and we'll have some questions in the line, everybody to break, thank you very much for listening. Sorry case I think you're on mute.

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Thank you. Fascinating lecture that. I hope that's correct and my son now. Thank you for a fascinating lecture of taking us through that the history there, and can ask a very trivial question. At the moment, people are putting questions in the q&a. Why is it called the Victoria Institute.

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And

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they call it the Victoria Institute officially, they said, To commemorate its inauguration in her most gracious Majesty's Reem. So they want to be associated very closely with the monarchy, and the prestige. I think this comes back to the idea of, of, of prestige and trying to make it a British imperial respectable science. So they tried to get Victoria actually to become its first honorary president, but

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she declined. Okay, yes I'm gonna Victorian she's still going now I think their publication is now called faith and

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thought, it is yes and it's it's a much, much different organization, very, I, I read his publications, and they are, I mean they were sophisticated for their time but I think. No, I think the relationship is a little bit, a little bit more sophisticated.

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Yes. Yeah, well I mean they're, they're co sponsors of the general Samson Christian belief of which I'm editor there. Yeah, I've done much more mainstream and not Victorian as some people might think there's a few questions that I'd see if I can bring some of them to you. And the question of, I think you've commented about the different metaphysical and a biological scientists who I can their representation in this and Stokes himself was a physicist,

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he was Yes.

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So is there a tension between acceptance of evolution, and if you like whether you're on a physical the biological sciences, the natural side or the more physical life said,

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that's a great question and actually one of the things that I want to look at in my current research project is high, physicists, actually, I think tended more towards criticism of evolution, and we're more likely to be deeply religious. I think the the nearest analog is Calvin but also James Clark Maxwell, the two really other outstanding trained physicists, of the time, held quite some of their religious views to Stokes, and they were great friends at Stoke was actually able to get Kelvin to come and speak at the Victoria Institute where he gave a paper on how the cooling of the Earth would not have allowed it to survive for

long enough for evolution to take place.

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So

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I think there may be something in that. But it's something for my next project, and I will let you know about it as soon as I get to the bottom.

01:10:07

Thank you. We look forward to hearing that. Do you think, why do you think that there is a misconception today of religion as being anti science, and why it's so strong, and is that actually rooted in the history that you you elaborated or is that a separate phenomenon.

01:10:25

Yeah, I, I think actually what happened was not the sort of political power of. Quite right wing and politics in america sort of attached itself to some of these religious positions and people got quite concerned about that. And they didn't want to do the if they weren't religious themselves they didn't want to do the necessary work in understanding why people held those beliefs. So that's why you get somebody like Richard Dawkins wandering and deciding that people are actually just deluded or insane. And it's much easier it's much more comforting. I think for people to decide that people who disagree with you are just wrong, because they're stupid, but that's not accurate it's not helpful. And actually that's why this, these debates Go on, because it survives on conflict. So the idea of a conflict becomes self perpetuating because people aren't talking to each other, they're talking about each other and they're talking past each other. And that really is what gets to the heart of it so what I hope is, if we understand where these frameworks come from highly operated, maybe we could actually have a sensible discussion about it. Thank you.

01:11:41

It's a rather different question and you mentioned the only a theory in your talk. Yeah, only a theory can't be observed where's the evidence. There are common reactions that

people have. How would you answer that to a layperson in the context of say Christian apologetics.

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I,

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I'm not a biologist, but i i think that science educators and communicators of science could do a good job in explaining the differences between different scientific methods so unpacking those ideas of deduction induction hypothetical. What is theory is what a hypothesis is what a law is. And I suppose that actually is the, the flip side of them not wanting to do the necessary work to understand because you have something, it just makes intuitive sense. So I think this is thing, something that scientists and scientific communicators need to get much better at doing and engaging with people on their own terms instead of saying, You're stupid Of course, it's, it's not just a theory. Dawkins actually has a famous phrase where he says well gravity is just a theory but I don't see you jumping out of a window. And that might be right, but I don't think that's a particularly helpful way of going about communicating the idea that he wants to get across.

01:13:05

Thank you, come back to this idea, this concept of deduction and induction, and bacon introduced the term induction, but not as it wasn't necessary as a replacement deduction but in addition to it. Is this a result of misunderstanding or misrepresenting Bacon's ideas.

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No, I mean,

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there were a lot of politics, built up on it as well because the, the idea of deduction that famous. All men are mortal Socrates is a man therefore, Socrates is mortal and comes from Greek philosophy, and it was very much associated with Catholic philosophers thomists. At the time, and so there's a sort of British nationalist idea attached to that as well that's what made British science superior. But I don't think there was ever a case,

when it was possible to do much science, without hypotheses. But it was the idea you had to pay lip service to bacon, you have to say oh yes we're, we definitely adhere to the kuhnian methodology, but very few scientists in practice, have ever I think donut historians of science in the early modern period will know much more about this than me but I, from what I can tell they will certainly agree.

01:14:24

Thank you, is a rather different question which I think raises an interesting issue. It says that conversations these days seem to be moving away from the science versus religion to viewing both with suspicion, in today's society comes out clearly over the issue of vaccines moment. And this feels like postmodern thinking percolating down into the public mind is there a conflict between science and religion with post modernism.

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Interesting. I, I haven't. I haven't actually thought about that, in, in any great depth but I suppose, the idea that, that's sort of Post truth society that we live and there's a rejection I think of all kinds of authority, there's my privileging of one's own intuitions and experience about things, and maybe that's another framework that we need to get much better at dealing with, and I haven't thought about it and and so that's a really, it's a really fascinating way to come up with a question, I'd love to think a little bit more about it.

01:15:25

Yeah, so that was a fascinating question I too want to think a bit more about that one. And, and to go back to the Victorian Institute somebody asked Can you say a bit more about the VI and German historical criticism what type of papers did members of the VI write against a bit with biblical criticism,

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a lot. One of the really interesting approaches that I think I didn't want to bog the discussion diner. And, but they had this an inductive methodology so they actually went out to try and physically prove the Bible true by induction. So instead of just dismissing the critics they. A lot of them went to the Holy Land to Egypt they tried to retrace the steps of the Exodus, there's a really great paper where somebody tried to account for the parting of the Red Sea, and they looked at historical maps over the time and their own

observations and suggested actually, that the Red Sea, had been further up and shallower, and the wind effects could have been generated by God to to open up. So that was entirely physically scientifically rationally possible. So, there are many many ways of doing it I think those are the most interesting because those are the ones that rely on that methodology.

01:16:51

Thank you. Come back to the follow the science that we've, we've mentioned and that seems to be in public pylons these days with vaccines and the COVID. It's the use of the term follow the science as a first principle input controversial political decision decisions in danger of giving science requires a political or even Quasar religious Mystique.

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And it is very not to sound flippant but Yes, I think so. And one of the most difficult things was that approaches the idea of following leak science is that as I hope I've demonstrated to some extent, there's not really a consensus on what science is, and certainly I don't think if we look historically, you can argue that there is just one science that there's some a morphus thing called science. And if that doesn't exist, then it's very difficult to actually follow it. So I think the idea that science exists outside of politics is really dangerous because all things are embedded also processes are embedded in our sociological understanding of the world around us. And so if we follow the science, what we end up doing is just devolving responsibility to an idea that doesn't actually have any grounding in in the real world and otherwise people to project on to the science, whatever they want. And that's how you get this as the question as sort of quiz a mystical idea. I think that's a really really important, and quite dangerous observation so I'm glad that somebody else thinks that too.

01:18:34

I can't thank you and come back to one of the characters that you mentioned in your talk Tinder. Yeah. We wanted to wrest the ideas of cosmology from religion and claim them for science, yet that wasn't the day when actually we knew comparatively little about the universe. What do you think was driving syndrome in that.

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And he really was, I have to say one of nature's most accomplished controversial he loved controversy. So, he looked for I think the biggest statement of what he wanted to achieve. And, in, in Belfast especially which you know there's a relatively fraught relationship between politics and religion, at the best of times here. And he thought that this would really really caught their attention. And what he wanted to do. I think was just make a very big and bold statement

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of

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high people like he and Huxley who were in leadership positions in the matrix scientific societies. We're going to use that authority as a sort of a bully pulpit to exclude theological discussion from discussions of scientific naturalism.

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Thank you and make them maybe take on one more question and then I think our time will be up biblical criticism itself it sees itself as a form of science. It's a scientific way of looking at scripture. It's something to be afraid of. Or is it something necessarily bad and if so, how do you explain that for those who want to champion science and champions scripture.

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I'm sorry. Is it biblical criticism.

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Yes, biblical criticism if you'd like is to, is it scientific and is it something to be afraid of.

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And to the first part of that question, I think it depends on what you mean by science, and I don't think we're ever going to reach a consensus on that. On the second part, and my

own personal view is that it's not something to be afraid of. And I think most people have come up with rather quite sophisticated ways to incorporate it into their worldview and, and explain it. And that focusing on on those rather than objecting to it might be more fruitful.

01:21:04

Right, thank you very much. I think we will draw our time to a conclusion. Thank you so much for talking to us You gave us a very clear talk and we've worked too hard in the questions quite wide ranging ones across different disciplines. So thank you very much for all you've done for us today. If we were here we will give you a round of applause. And that's not possible, but due to take our thanks, everybody listening, and we hope to see you in two weeks time when we have our next Faraday seminar. Thank you very much. Thank you.

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If I can just say if anybody wants to follow up on anything, feel free to email me and I'd be happy to talk more. And thank you very much for having me. Right,

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thank you very much. Thank you, everybody. wish you well for the rest of the day. Bye bye.