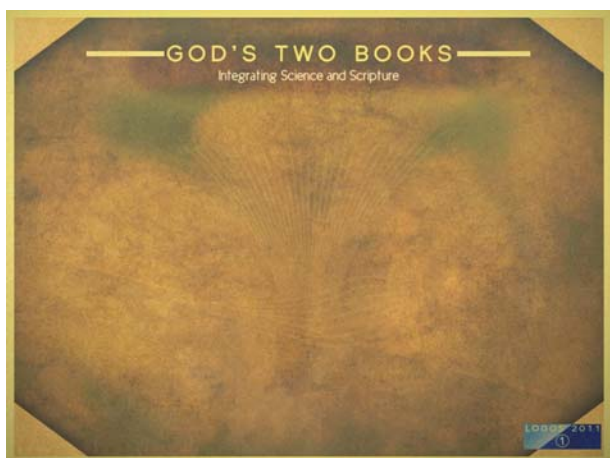


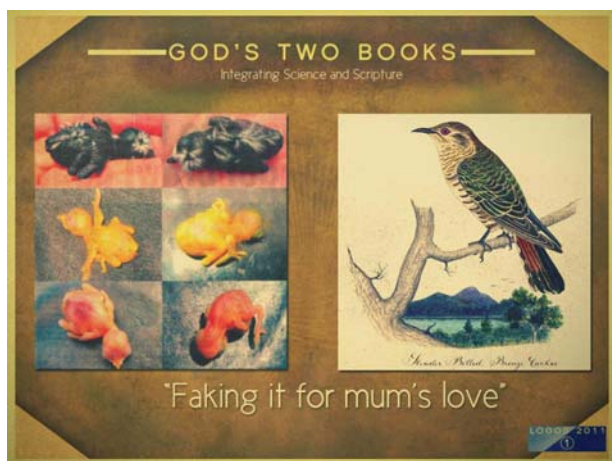
LOGOS: 13TH MARCH 2011

GOD'S TWO BOOKS

Integrating Science and Scripture



DRAMA: CHAPMANS [5 MINS]



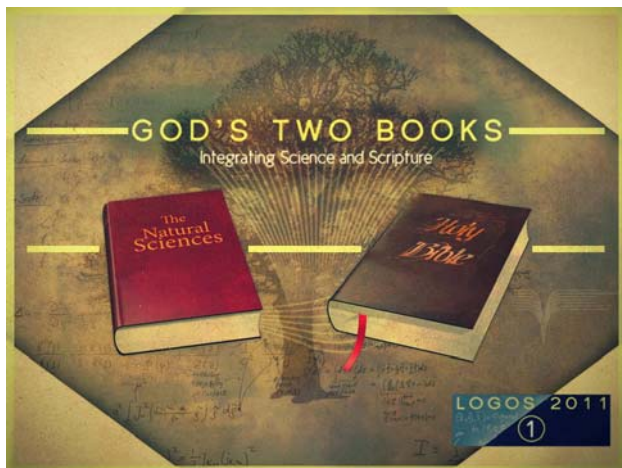
Welcome to KBC. That drama is why I stopped Sunday School teaching!

Recently mum gave me a newspaper article about Cuckoo Birds, called “Faking it for mum’s love.” The gist was simple. Cuckoos are crazy. They lay their eggs in the nest of other birds. But, cuckoos are incredible. You see, the other mums would kill these foreign hatchlings if not for a clever trick. While chilling in the shell, the cuckoo transforms to match the colour of the host young. By the time it’s born, baby bird

blends in with the others—maybe black, yellow, or pink. Eight days of mimicry is all they need to get a safe start.

How do you respond to this?

First I wondered if mum was saying I’m adopted. But second, I wanted to respond, “God made their glowing colours, He made their tiny wings. All things bright and beautiful, the Lord God made them all!”



Nature is like a book to be read. And along with most people across Western history, I suspect this book was authored by God, just like the Bible.

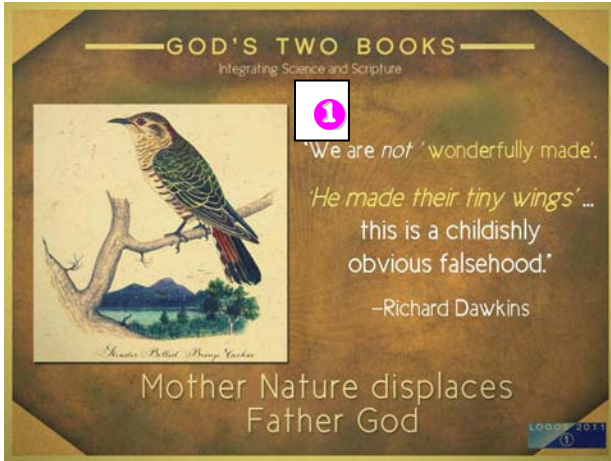
God’s two books, Scripture and Nature, hand in hand.

But times have changed.

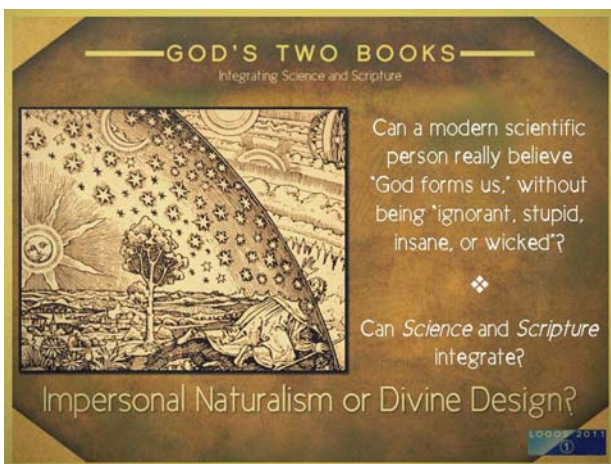
As Galileo said, God’s first book is about how to get to heaven, not how the heavens go.

From the 16th century on, *Science* became the tool of choice to understand God's second book of nature. How do planets orbit? Why do nerves twitch? What makes the sun hot? How do reptiles reproduce? Got questions? Go to science.

Over time, though, this powerful tool to understand nature gradually depicted a giant machine operating like clockwork, whirring to the beat of Newton's laws. Perhaps the Creator wound up the clock, set it going, and then stepped back. Perhaps we don't need the "God hypothesis" at all?



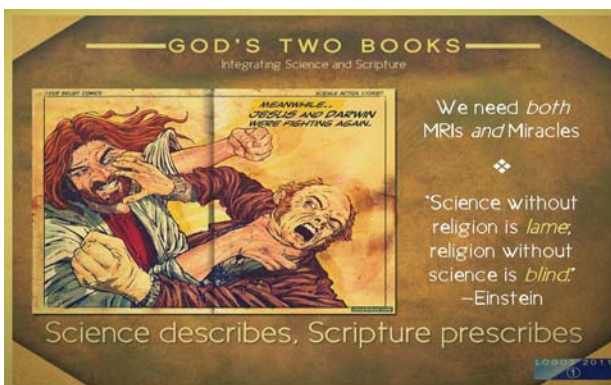
So, back to the Cuckoo. I want to thank God, but I'm torn. I live in a world where this creative force has a different name. As the article asserted, this is a remarkable *evolutionary* trick. An impersonal *Mother Nature* displaced *Father God*. As famous naturalist Richard Dawkins asserts, "We are *not* 'wonderfully made'." "He made their tiny wings"?!—"this is a childishly obvious falsehood."¹ Was God supervising embryonic development and splicing genes? To say that "God forms us" seems an impossible stretch.



This *isn't* about "evolution" versus "creation". For most theologians, the jury is out. Perhaps God supervised some form of "evolution" to bring the world about. The deepest issue is not process, but principal cause. As I study the book of nature, does it point to an impersonal cause, or a personal designer? Can all that *is* be explained by purely natural mechanism? ... a big bang, planets coalescing, continents drifting, life generating, and complexity increasing as we journey from microbe to man. Or does the book of nature point toward the kind of Designer

described in Genesis? Can a modern, scientific person really believe that "God forms us", without being "ignorant, stupid, insane or wicked"?

How do God's two books relate? *Can Science and Scripture integrate?*



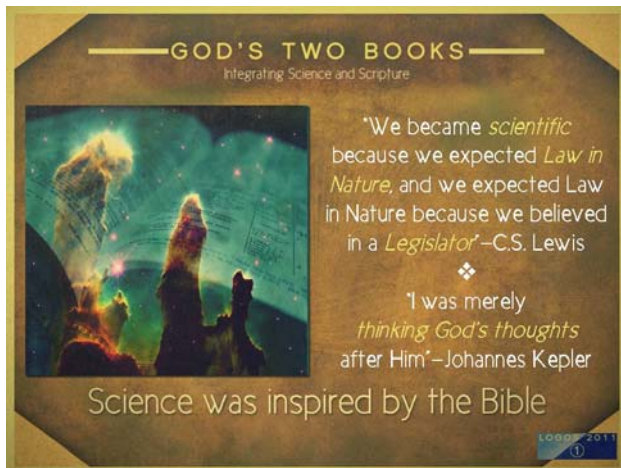
Some say 'no'. Extremists on both ends picture a battle between science and faith: Jesus and Darwin in a punch up. "One party stands immovable on Scripture and the other immobile on the periodic table."² But natural science merely *describes* the world—what *is*. What *ought* I to do, and *how* shall we live? This is the stuff of metaphysics. We need both MRIs and miracles. If we could find a way to integrate God's two books, everyone wins. As Einstein

said, "Science without religion is lame, religion without science is blind."

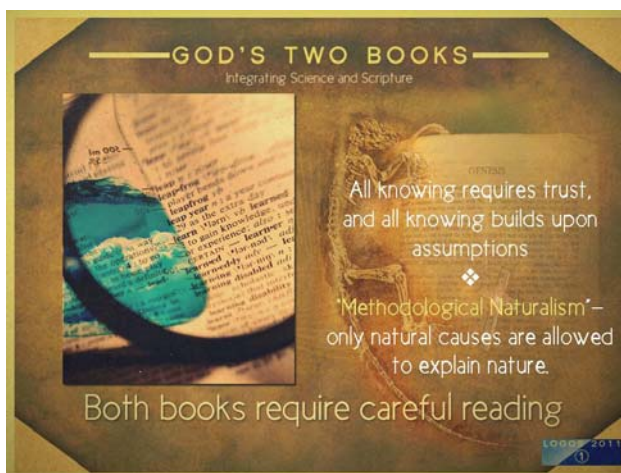
¹ Richard Dawkins, *The Greatest Show on Earth: The Evidence for Evolution* (New York: Free Press, 2009), 212-13.

² David Van Biema, "God vs. Science," *Time* November 13 (2006): 36.

So let me make two brief points before we welcome up the panel.



First, science was inspired by the Bible.³ Hinduism, pantheism, and even atheism never birthed science.⁴ As C. S. Lewis observed, “[We] became scientific because [we] expected Law in Nature, and [we] expected Law in Nature because [we] believed in a Legislator.”⁵ The founder of almost every scientific discipline was dedicated to, and inspired by, God’s book of Scripture. As Keppler said, science was “thinking God’s thoughts after Him.” And when it comes to operational science—repeatable experiments for present events—there is no clash between Scripture and Science. So, let’s do away with the myth that science and Scripture are at war.⁶



And second, both books, Nature and Scripture, require careful reading. No matter how you cut it, all knowing involves trust, and all knowing has a subjective element built on assumptions.⁷ One of these assumptions in science is that only natural causes are allowed to explain nature. This is called “methodological naturalism.”⁸ But if God does exist, and He can act to shape the world, wouldn’t that affect all our calculations in the present to unlock events in the past?

Both the Bible and Nature require careful reading. Both Scripture and Science make sense of the world. Both scientific and religious reasoning are an *inference to the best explanation*.⁹ So let’s do away with the myth that scientists have facts, while religious people have faith. We all “believe in order to understand.”

³ M. B. Foster, “The Christian Doctrine of Creation and the Rise of Modern Natural Science,” *Mind* 43 (1934): 447; Rodney Stark, *For the Glory of God: How Monotheism Led to Reformations, Science, Witch-Hunts, and the End of Slavery* (Princeton, NJ: Princeton University Press, 2003), chapter 2 “God’s Handiwork: The Religious Origins of Science”, pp. 121-200; Alvin Schmidt, *Under the Influence: How Christianity Transformed Civilization* (Grand Rapids, MI: Zondervan, 2001), chapter 9, “Science: Its Christian Connections”, pp. 218-247.

⁴ Alvin Plantinga, *Naturalism Defeated* (1994). Access via <http://philofreligion.homestead.com/files/alspaper.htm>.

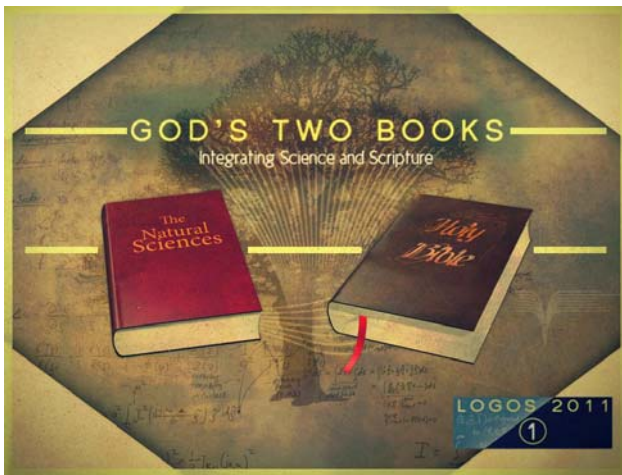
⁵ C. S. Lewis, *Miracles: A Preliminary Study* (New York: Macmillan, 1947), 109.

⁶ David Benson, “Origin of Opposition: The Sufficiency of ‘Warfare Models’ in Explaining Reception of Darwin’s Writings” (Regent College, 2007). Access via <http://www.mediafire.com/?imj52j0lrj1>.

⁷ John Polkinghorne, *One World: The Interaction of Science and Theology* (Princeton, New Jersey: Princeton University Press, 1986), 4; Nicholas Wolterstorff, *Reason Within the Bounds of Religion*, 2d ed. (Grand Rapids, MI: Eerdmans), 41, 54, 82; Tim Morris and Don Petcher, *Science and Grace: God’s Reign in the Natural Sciences* (Wheaton, IL: Crossway Books, 2006), 1-48. In particular, see Michael Polanyi’s book, *Personal Knowing*.

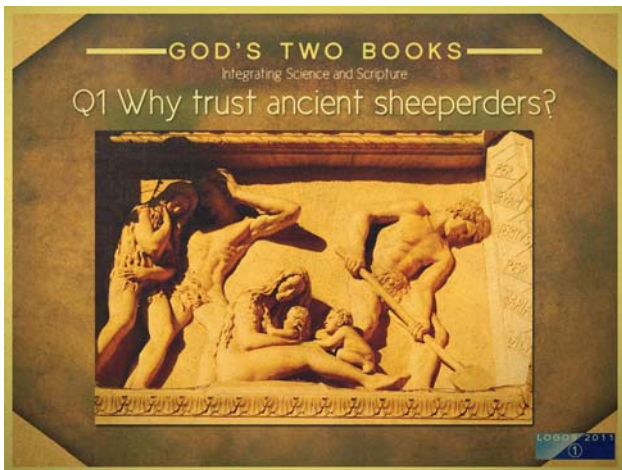
⁸ William Dembski, *The Design Revolution: Answering the Toughest Questions About Intelligent Design* (Downers Grove, IL: InterVarsity Press, 2004), 173-77.

⁹ Alister McGrath, “Religious and Scientific Faith: The Case of Charles Darwin’s ‘Origin of the Species’ (The 24th Eric Symes Abbott Memorial Lecture, King’s College London, Oxford, 2009). Access via http://www.westminster-abbey.org/data/assets/pdf_file/0003/22494/ESA-lecture-2009-i.pdf; Alister McGrath, *Science and Religion: A New*



Science and Scripture *can* integrate.¹⁰ But how? This is a notoriously complex issue, so you'll find a note outline in the KBC News, with links to a small group study which covers these matters in more detail. Our hope today is simply to open up this huge topic. We'll explore a way forward from total scepticism, to see that it's at least possible, if not really likely, that God formed us ... that there is a divine intelligence behind all we see; that science actually points toward the God who inspired the Bible. But the devil's in the details.

To help guide us through, would you welcome our panel?



Q1 ... Okay, Tammy first. The Bible is an old book, right? And in the knowledge stakes, older is *not* better. So why should I trust an account written by shepherders, over today's scientists?

Dave, that's a really good question.

We live in a culture where believing in God and the Bible seems archaic because it lacks modern enlightenment: "It's the 21st century, not ancient times; so surely the Book of Genesis is outdated and irrelevant."

Can we as modern people still trust Genesis even though its authors were thousands of years removed from our times, with no access to modern scientific understanding? I think we can so let's look at some reasons why.

Consider the claim that Genesis is out-of-date because it was written by 'shepherders' who didn't have scientific knowledge. Fair question. But the Bible itself makes the claim it was inspired by God, what the authors could not know for themselves was revealed. So it's not shepherders versus modern scientists but a question of whether Genesis was inspired by God.

Introduction, 2d ed. (Malden, MA: Wiley-Blackwell, 2010), chapter 7 "Science, Religion, and the Explanation of Things", pp. 51-58.

¹⁰ David Benson, "New Wineskins: Toward a Nuanced Engagement of Science by Evangelicals" (Brisbane: Spirit and Truth Publications, 2009). Access via <http://www.mediafire.com/?y5nmylojmmn>.

Well, let's look at that claim. If we evaluate Genesis from the view that God inspired it, we would expect it would show the signature of divine authorship. Since God claims to be timeless, all knowing, and personal, you would expect a divinely inspired text to reveal truths that stand the test of time, and not a tale concocted by shepherders.

So do we see that? Let's look at some examples.

First, the book of Genesis supports the claim that God is relational. You see this in that God used people to write Genesis. In fact it is more believable that a relational and loving God would reveal scriptures through people in their own language and culture. God doesn't impersonally drop a book out of the sky. Instead, this communicative God relates with people across history to gradually reveal who He is and we see a picture emerge of a God who builds and forms relationships.

Next, the book of Genesis demonstrates completeness because its creation account fits what we see in the world, both in the universe and its form, and the nature of humanity. The creation story provides an account of laws as well as capturing human nature. It grounds our deepest psychology: our capacity for evil through to our need for love. Part of what makes Genesis so unique is that it has provided answers to lifelong questions: Where do we come from? What was I created for? What is my purpose in life? Why does death seem wrong? Why do we believe in right and wrong?

And I think one of the questions Genesis answers squarely is *why we love*. We love because we are created in God's image, and God is all about relationships. God *is* love.

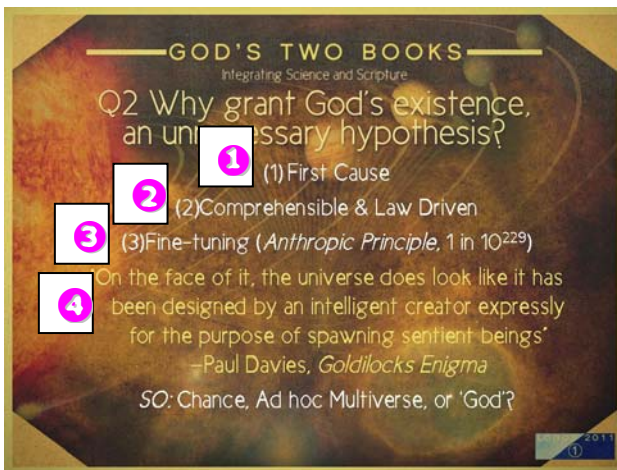
The way the Bible centers on the inbuilt human desire for love and relationship is unique.

Being created in God's image captures why we crave to know our purpose and identity in life. The account of Adam and Eve cogently grounds why as men and women we are drawn together in marriage and love.

The fall captures not only the nature of humanity, but pinpoints why there is within us the belief that the world is not as it ought to be. That pain, suffering, injustice and death were not part of the original plan. A close look at Genesis – a book written by so called Sheep-herders – and you find that it explains so much about life and creation.

Finally Genesis is inspired because it cohesively fits with rest of the Bible. Without Genesis, we can't make sense of Jesus. The whole book highlights our need for a redeemer—someone to set a broken world right again. And Jesus constantly referred back to Genesis, affirming the divine inspiration of this creation account.

Now, we haven't even begun to scratch the surface of all the reasons why we can trust the account of Genesis using medical, historical, and external evidence. There's a fact sheet in the small group guide if you want to go deeper. But we have taken a surface look at Genesis to see if, on the face of it, its claim to be inspired has any merit. In my view, the evidence is strong. It offers a view from above that grounds science, but it answers our deepest questions of purpose with a richness not seen in materialistic stories. I don't expect such a short response to answer your questions, but hopefully this can start some conversations, and help in your own search.



Q2 ... Perhaps God inspired this account, that's what you're saying. Bruce, you have a background in maths, physics and computer science. With the press from New Atheists like Dawkins, why should I even grant God's existence? Isn't this now an unnecessary hypothesis?

Well Dave, I've been writing software for 20 years. Writing good software is hard (I would say that, wouldn't I?). It takes a lot of time to design it, write it, and test it. It doesn't write itself, and it would be silly to suggest that it could.

When I look around the world we live in, I can see that certain things have a lot in common with software. They look designed. And if things look designed, then there might be a designer.

Given this possibility, it is not unreasonable that the Designer exists. It's popular nowadays for people to claim that God is a delusion. I want to show you that intelligent people can believe in God without parking their brain at the door of the church. (If you have, please retrieve it now.)

Let's take a look at some reasons.

1 Firstly, where did the universe come from? Many scientists once thought the universe was eternal. That it never had a starting point. Some religions believe this too. The book of Genesis, however, says "In the beginning God created." That's very clear.

Over the last 100 years, developments in cosmology have confirmed that Genesis was right. Our universe did have a definite beginning. The expansion of the universe and the cosmic background radiation are strong evidence for what is called the Big Bang.

So the universe had a beginning. Ok, if we are willing to accept that everything that begins to exist has a cause, then the universe must have had a cause. Let's call this the *First Cause*. The First Cause must be timeless and unchanging (because the Big Bang created time), and immaterial (because the Big Bang created matter). And the First Cause must be uncaused (otherwise it isn't the First Cause).

The words timeless, unchanging and immaterial describe God. So Genesis accurately states that the universe had a beginning, and the First Cause of the universe matches God.

2 Secondly, our universe displays order, not chaos. It makes sense to us. We use the scientific method to investigate it. The scientific method relies on repeatability. On order. If things can't be repeated, it doesn't work.

The universe can be modelled by mathematical equations. It is astonishing how well this works. How does something we made up in our heads (mathematics) work so well in describing our universe? Why were we capable of creating things such as the standard model of particle physics? Why it is so successful at describing subatomic particles?

It seems miraculous that our universe is so comprehensible to us. Apart from invoking a designer, there seems to be no reason why.

3 Thirdly, the universe looks like it was designed for life. The laws of physics allow for a huge range of values for the constants used in mathematical equations. But life is only possible within a very narrow range of these values.

This is called the *anthropic principle*, and it was used by atheist cosmologist Fred Hoyle, who wrote: "A common sense interpretation of the facts suggests that a super-intellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature."

Agnostic cosmologist Paul Davies writes:

4 "On the face of it, the universe does look like it has been designed by an intelligent creator expressly for the purpose of spawning sentient beings"—Paul Davies, *The Goldilocks Enigma* (p3)

Science has two explanations for this fine-tuning. The first is that we just happened to win the unwinnable cosmic jackpot when the universe was formed (1 chance in 10^{229} according to cosmologist Lee Smolin).

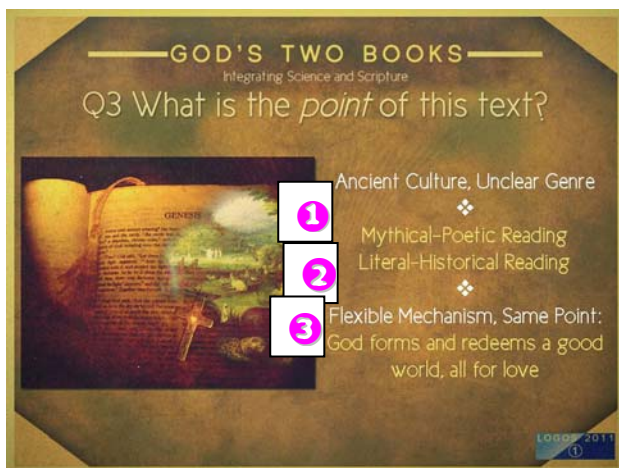
The second proposes an almost infinite number of universes, known as the multiverse. We just happen to be in one suitable for life.

Neither explanation is scientifically sound. Luck won't do—winning at such odds is impossible. And the multiverse is just speculation dressed up as science. There's no evidence for it. But it does show that scientists take the idea of fine-tuning seriously to think it up, as it looks like the multiverse was invented simply to avoid a designer!

Well, let's put it all together. On one hand we have an intelligent designer who fits the description of our universe's First Cause. This designer deliberately made the orderly, intelligible universe we see that was just right for galaxies, stars and life itself.

On the other hand, we have the atheistic view. Presumably uncaused, the universe just popped into existence. By unbelievable chance, it happened to be fine-tuned to an incredible degree, permitting life.

Is God an unnecessary hypothesis? To me the answer is clear.



Q3 ... Brendan. Let's say we grant that Genesis is in some sense inspired by God—a divine take on origins. What's God trying to say? I'm not surprised comedians like Ricky Gervais are confused—*check out this clip*.

VIDEO CLIP 1: RICKY GERVAIS BIBLE (.WMV ON SYSTEM): [38 SECONDS]

So, what *is* the point of this text? Does it require the whole cosmos to be 6,000 years old?

Once you settle that God is involved in creation, a logical question that follows is how to square the story with modern science. This is where it does become difficult. The Genesis text was written in an ancient near eastern culture in a genre we are no longer used to or familiar with, as the original readers were. What is clear, though, is that God wanted the story of creation to reach everybody in every time and every place. And at a basic level it does that. But at the next level, as a question of historical science, what actually happened?

Now there are a range of views and interpretations of the creation story we find in the Genesis.

1 The dominant view today is that the universe and our planet are probably many billions of years old and that life has slowly evolved over millions of years to be all that we see today. Christians who hold this view interpret Genesis as a **mytho-poetic creation story**. They don't see it as a literal or scientific account of how God made the world but a masterful story that conveys in simple terms that God formed the world and all within it for a purpose. And it should be said this is not a retreat caused by modern science. Saint Augustine in his commentary on Genesis in the 5th century argued that the days need not be taken literally, nor that the creation be a few thousand years ago. He said the world could have been made by God with certain potencies that unfolded over time. This interpretation was written down some 1,400 years prior to Darwin's theory of evolution.

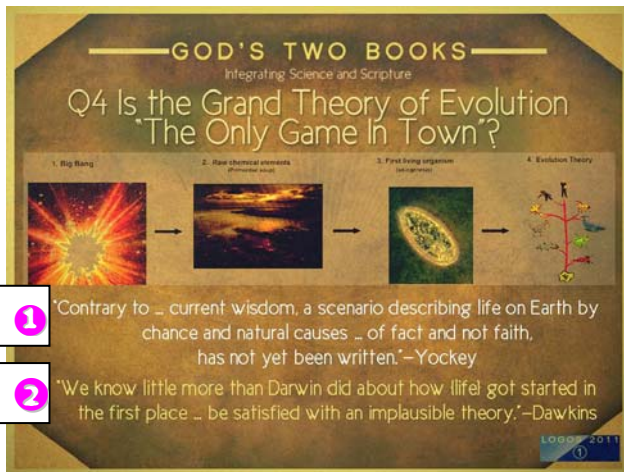
2 The second major view is to interpret Genesis in a **literal and historical way**. That means God actually did create all the universe in six 24 hour days, and that as a result the world is perhaps only 10-20 thousand years old and that life did not evolve at a macro level at all—such as apes gradually changing into humans—rather God created life with all the genetic information and elements needed for further diversity. It wasn't that we came from goo to you via the zoo. This view explains why death is an enemy—it came as a result of the fall. It is also fair to say that this has been the dominant view of the church through its history and Hebrew scholars mostly agree that this is the most natural reading of the text to interpret the days literally. Although this view is often considered 'fringe' in the popular press or media there is growing trend for Christians and even scientists to adopt this view. And it can be for scientific not just theological reasons that people will consider this school of thought, often after exploring weaknesses in a purely naturalistic account.

Then there is a spectrum of different interpretations that fall somewhere between those views. Some for example believe that the Earth does indeed look very old but in actual fact is very young. They argue that when God created Adam, he would have looked 20-30 years old but he would have been, actually, seconds old. Others views hold that God guided the process of evolution of life from a cell to the biodiversity we see today, or perhaps he injected information into the evolutionary process.

3

Regardless of the view you take on the precise mechanism of creation, what is important is to realize that all views agree on the central points: that God exists and He caused the universe to come into being and He did so because he loves us and the created world. At the end of creation God described what He had made as very good. God made this world because He wanted to share it with us and He wants to know us, and to be in our lives. This is the big message of the story.

It's perhaps also worth stating that Christianity is not committed to any particular view on the question of how old the universe is and how life came to be as we see it today. What is most important is that we can coexist on this as this is a secondary issue, aware that we could be wrong. I guess a good note to finish on though is that science may provide further insight into this question, or it may remain beyond our certain knowledge. But I do know this though for certain, science may tell us how the planets move, but only God through His revealed Word tells us why we should move on the planet.



Q4 ... I get the point: "God forms us." But as Richard Dawkins asserts, the Grand Theory of Evolution is "the only game in town."¹¹ Life is natural, no God required. Dave, you completed a Bachelor of Science prior to your med degree ... how solid is this naturalistic explanation?

Well Dave, I have been asked this question a lot, especially during my science degree, and I found it surprising how few people have personally looked into the limitations of evolution. Now, it's impossible for me to discuss all the issues surrounding evolution theory in the next 5 minutes, so tonight I just want to focus on one of the biggest issues, which even purely naturalistic scientists accept, and that is the problem of the origin of life.

Before we go any further let's put the origin of life in context. First there was a big bang; the big bang formed space, time matter and raw chemical elements such as hydrogen and oxygen. From this raw chemical material, the first living cell formed, how exactly is not known, but this is step I want to focus on tonight. It is called abiogenesis, which means life from non-life. Then after abiogenesis, once life has formed, evolution as we know it today acted upon the first living organism to form all the species we have today.

The problem is that evolution theory provides us with an explanation for how life developed from simple to more complex organisms over time, but it does not provide us with a scientifically sound mechanism for how life developed in the first place from non-living chemical elements. Even if, for the sake of argument, we ignored the problems and scientific uncertainty surrounding the big bang, scientists currently do not have an accepted answer to how life formed *after* this point. That is not simply my own personal opinion; this is a problem which is currently the focus of intense scientific research. But rather than me simply telling you what I think, let's look at what two naturalistic scientists had to say about this issue.

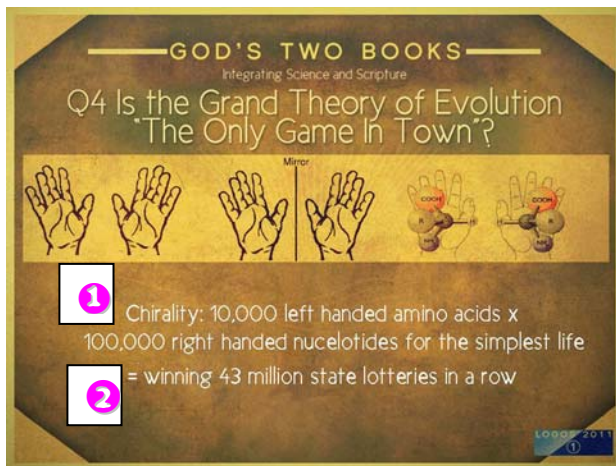
1 Dr Hubert Yockey states in his article published in the *Journal of Theoretical Biology*, "One must conclude that, contrary to the established and current wisdom, a scenario describing the genesis (or beginning) of life on Earth by chance and natural causes, which can be accepted on the basis of fact and not faith, has not yet been written."¹²

¹¹ Ibid, 426.

¹² H. P. Yockey, "A calculation of the probability of spontaneous biogenesis by information theory", *J Theoretical Biol.* 67:377-398.

In fact, Richard Dawkins, author of *The God Delusion*, states in regard to the origin of life, “The truth is that there is no overwhelming consensus. Several promising ideas have been suggested, but there is no decisive evidence pointing unmistakably to any one.”¹³ ... We know a great deal about how evolution has worked *since* it got started ... but we know little more than Darwin did [in the 1800s] about how it got started in the first place.¹⁴ ... So at the very least we are entitled to be satisfied with an implausible theory.”¹⁵

But how implausible exactly is the idea that non-living chemicals would generate the first cell? Many scientists, including entirely naturalistic scientists, have attempted to calculate approximate probabilities of the basic building blocks of life (such as DNA, proteins and amino acids) forming spontaneously by random chance. For the sake of time, let’s look at just one example, which relates to a biological concept called chirality.



The simplest known living organisms, bacteria, contain DNA and amino-acids. These molecules display a biological phenomenon called ‘chirality’, which means that they can come in two different forms, or ‘shapes’, which are mirror images. To make it simpler let’s look at a diagram.

Imagine that a human hand represents a molecule, such as an amino acid. Now in the diagram we can see that there are two forms of the human hand; the right hand ‘shape’ and the left hand ‘shape’. We can also see that they are

mirror images of each other. Now the same can be shown of amino acids. There are two basic shapes, ‘right-handed’ amino acids and ‘left handed’ amino acids, which are mirror images of each other.

Even the simplest organisms such as bacteria contain no less than 10, 000 amino acids and 100, 000 DNA nucleotides. The problem is that in ***even the simplest life***, all DNA nucleotides are ‘right handed’ and all amino acids are ‘left handed’. If the simplest bacteria formed by random chance this means that 10, 000 amino acids formed randomly all with the exact same ‘left handedness’ and 100, 000 DNA molecules formed randomly all ‘right handed’. But this is not at all what we would expect if random chance formed these molecules. If random chance formed DNA and amino-acids we would expect there to be approximately 50% right handed and 50% left handed molecules, the same as if we flipped a coin randomly we wouldn’t expect to get 10,000 heads in a row because there is equal probability of getting heads or tails each flip. Dr Ralph Muncaster in his book, *A Sceptics Search for God* calculates the chance of getting all 10, 000 amino-acids and all 100, 000 DNA molecules with the correct shape or handedness is the same as

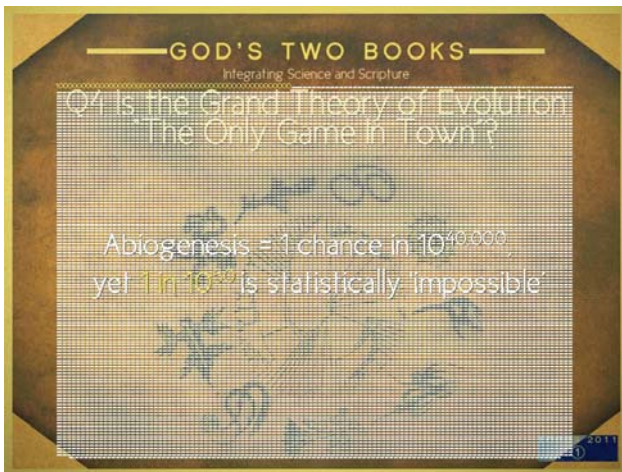
winning 43 million state lotteries in a row.¹⁶

¹³ Richard Dawkins, *The Greatest Show on Earth* p.419.

¹⁴ Ibid., 416.

¹⁵ Ibid., 422.

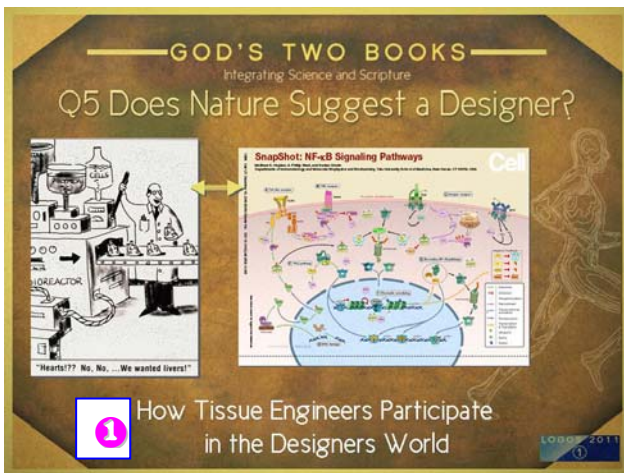
¹⁶ Ralph Muncaster, *A Sceptics Search for God* p. 98.



Similarly, mathematician and astronomer Sir Fred Hoyle similarly calculated the probability of life forming spontaneously at random, based on a minimum number of proteins, at approximately $10^{40,000}$.

...That's a 1 with forty thousand zeros after it,¹⁷ as you can see up on the screen. But you may notice the first 50 zeros are in yellow. That's because an event with a probability of less than 10^{50} is considered a mathematical impossibility regardless of how much time it is given to occur.

¹⁷ Fred Hoyle and N. Chandra Wickramasinghe, *Evolution from Space* (Aldine House, London: J.M. Dent & Sons, 1981), p. 24.

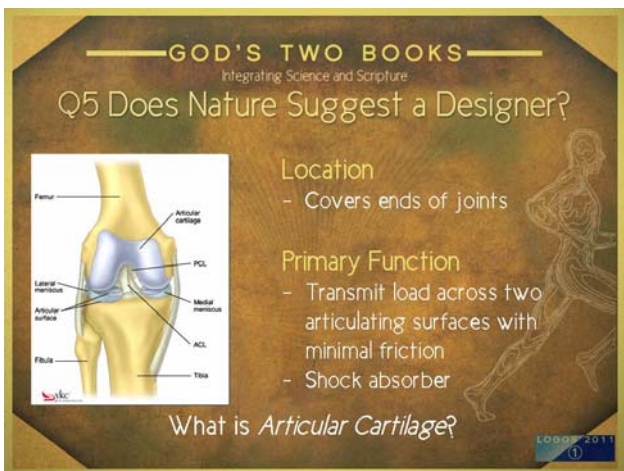


Q5 ... Lucky last, Dietmar. All of this sounds pretty negative ... we don't yet know how it happened, so insert God into the gap. But are there any hints that nature really is the work of an Intelligent Designer?

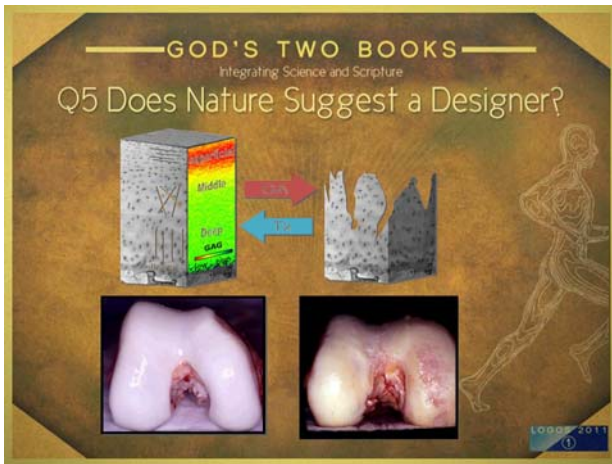
Good Morning Congregation! It is good to be back on the LOGOS Team for today's sermon to talk about a topic, which occupies my thoughts and prayers since I turned 18, namely is it possible that we are created based on "Intelligent Design" or I would rephrase it "Supernatural Design".

1 As you might remember from last year's sermon on technology I hold the Chair for Regenerative Medicine at QUT; yet my sons like to call me once in a while if I give them an academic prep-talk "Professor Nerd".

Due to my research aim to regenerate tissue I am exposed on a daily basis to the question if the key building blocks of our bodies, namely cells could have been built by chance or by a designer. Let me try to explain to you what I mean by using one of the examples of the tissue engineering strategies we use in my lab.

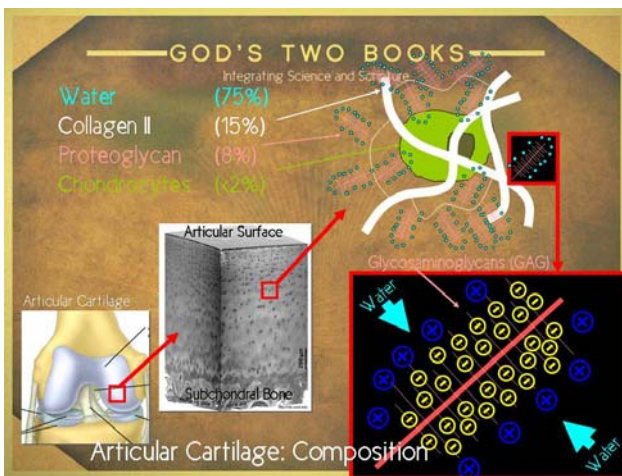


Articular cartilage is a load-bearing tissue that covers the ends of our joints and functions as mechanical damper for the bones. Even in a harsh mechanical environment, it demonstrates excellent properties. Articular cartilage is a hydrogel-like, matrix-rich tissue that contains only 5 – 10 % of highly specialised cells, so called chondrocytes, which maintain the structural and functional integrity of the matrix. Articular cartilage is organised into characteristic depth zones, each with distinct physicochemical and biological properties and functions, that work together to impart low-friction, wear-resistant behaviour to joints.



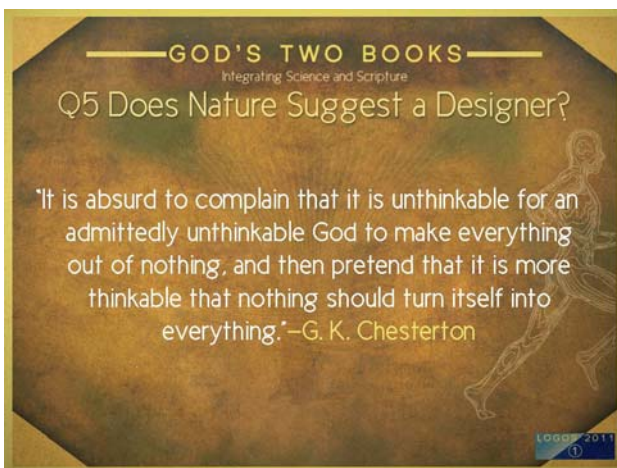
In the superficial zone, the collagen network is aligned parallel to the surface, providing high tensile strength, whereas the glycosaminoglycan (GAG) content is low, resulting in compliant compressive properties. In this zone, the chondrocytes secrete proteoglycan named lubricant, a molecule important for boundary lubrication and low-friction properties. In the middle zone, the collagen network is randomly oriented and the mechanical properties are intermediate to the adjacent zones. In the deep zone, the collagen network is oriented

perpendicularly to the calcified cartilage and bone, providing strong integration between dissimilar tissues, and the GAG content is high, resulting in stiff compressive properties.



This layered design of particular cartilage is essential to provide the tissue with the biomechanical characteristics that are required for proper and life-long sustainable joint function. Over the last ten years I myself as well as a gazillion number of other tissue engineers have put in a large research effort to dissect the function of chondrocytes and to learn to manipulate them so the cells would regenerate articular cartilage. Unfortunately, due to the cells complexity we have not achieved this goal or are even come close to it.

Hence, by now I assume that I have convinced you that particular cartilage is a highly complex tissue and that it is very difficult to imagine that its design like all the different tissues and organs in our body are built via chance.

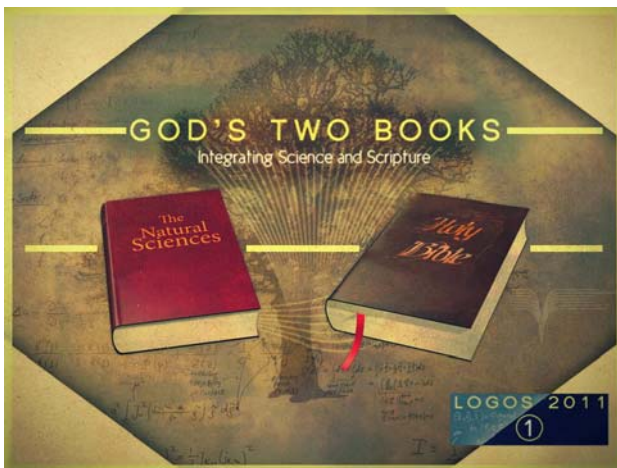


As a scientist and believer I can fully agree with the statement of G.K Chesterton spoken to Darwin and his followers:

"It is absurd for the Evolutionist to complain that it is unthinkable for an admittedly unthinkable God to make everything out of nothing, and then pretend that it is more thinkable that nothing should turn itself into everything."

Humility, Wonder, and Worship—A Closing Word

Hhmm. Glycosaminoglycans are running low. Fascinating.

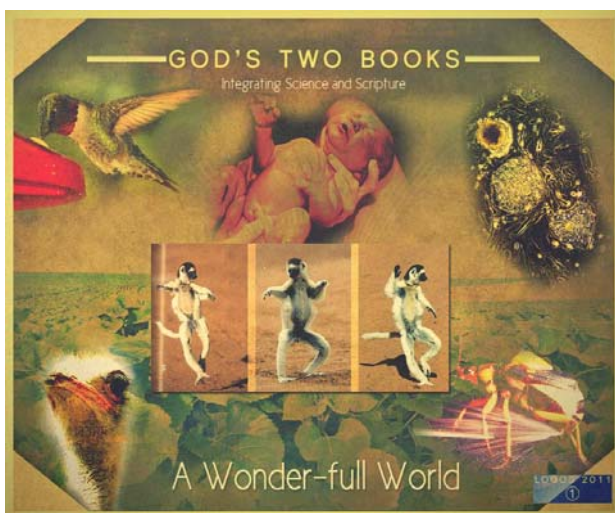


Today is all about understanding God's two books and how they fit together: Nature, and the Bible. So putting the pieces together, are *Science* and *Scripture* eternal enemies? Well, yes and no.¹⁸



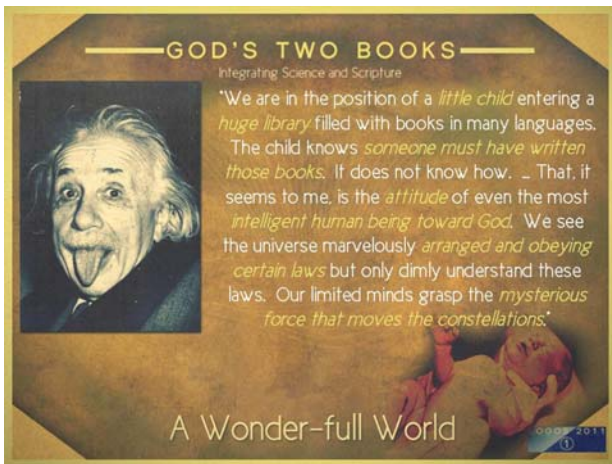
Science and Scripture are eternal enemies if you don't know how to read Nature—if you rule out God's existence before you even look at the evidence.

1 And Science and Scripture are eternal enemies if you don't know how to read the Bible—if you ignore that Genesis was written to an Ancient Culture, who cared about form and function more than scientific questions of process and time. But for all our limitations, I think we have good reason to believe two things.



First, this is a wonderful world. It's tragic to study this universe and treat it as an argument. Instead, our attitude should be *wonder*. We learn this from the book of Job. Consider the bizarre behaviour of the ostrich, or the remarkable bombardier beetle—mixing and firing chemicals out its behind. Look at the beating wings of a hummingbird, the choreographed dance within a cell, and the productivity of photosynthesis. We are thrown into this strange new world and invited to explore the neighbourhood.

¹⁸ See René Breuel, "Do Science and Religion Contradict One Another?" <http://wonderingfair.com/2011/02/21/do-science-and-religion-contradict-one-another/>.



I think Einstein captures it best:

“We are in the position of a little child entering a huge library filled with books in many languages. The child knows someone must have written those books. It does not know how. ... That, it seems to me, is the attitude of even the most intelligent human being toward God.”

That is said by one of the greatest mathematical minds of our times and it leads to the second point.



This is God’s wonderful world. Can I prove that God forms us? No. But can anyone prove that God didn’t form us? Also no. We are limited to a view from below, and ‘proof’ is beyond our reach. But, as I study the book of Nature, and read the book of Scripture, I find the two traveling hand in hand.

1 Perhaps the book of nature gives the *appearance* of having been designed for a purpose, because it *was* designed for a purpose. The beauty, the complexity, the fine-tuning ... it all points to a Creator. Once we bring any

naturalistic assumptions to the surface, there is nothing in science that disproves God’s existence. Science is not equipped to comment. And nor can science answer our deepest questions of origins, meaning, morality, and destiny.

But before we finish it must be said that simply recognizing that there is a designer can be only the first step. Scripture teaches us how God’s role as Creator and Redeemer are inexorably intertwined. God’s role as Creator is foundational to His role as Redeemer. Recognizing a designer is not good enough to be saved; submitting to the Redeemer is also necessary.

2 The Genesis text describes a God who after forming the world described it as very good. Humans alone were given tongues to echo praise in return: “God, this *is* very good.”

As the band comes up, let’s remember that *we* are the voice to declare creation’s praise.

May God’s book of nature inspire wonder, and may God’s book of Scripture direct worship.

Let’s please reflect on this during this clip.

VIDEO CLIP 2: “INDESCRIBABLE” [5 MINS]